

THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE:

CONDUCTED BY

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VOL. V.

“We must take species separately, and study the nature of each.”

ARISTOTLE, on Animals, Book I, chap. vii.

248871 ✓

LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

1868-9.

LONDON :

PRINTED BY A. NAPIER, SEYMOUR STREET, EUSTON SQUARE.

595.70542

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J. P. WILEY,
WASHINGTON, D. C.

PREFACE.

AT the conclusion of the *fifth* volume, we beg to express our thanks to our supporters, to whom is due the steadily increasing usefulness of the Magazine; hoping also that the termination of a *second lustrum* will find us enjoying then, as now, the same amicable relations with them, and the same unity of purpose amongst ourselves; with the satisfaction of knowing that, in having constantly held in view the advancement of Entomology, we have maintained an independence of party feeling, the entertainment of which, even in the slightest degree, is fatal to scientific progress, and a thing to be eschewed by all true naturalists.

We regret exceedingly that for many numbers of this volume we were unable, through extreme pressure, to give prompt attention to many important communications, and this notwithstanding the issue of several enlarged numbers: our correspondents will please bear in mind that our constant aim is to clear off accumulations of materials as soon as possible.

In answer to enquiries as to the financial condition of the undertaking, we simply say that experience seems to prove that each volume recoups its expenses (and nearly exhausts our present limited impression) in about four years, a result we had scarcely hoped for at our commencement, and which gives an additional guarantee for a long existence.

We have felt, with our supporters, some slight inconvenience from the fact of our year commencing in June instead of January, and would gladly obviate this, but the large number of subscribers in advance renders it now almost impossible to make a new arrangement, and we must therefore ask our friends to bear with us in this respect.

1, Paternoster Row: 30th April, 1869.

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 VOLUME V.

NEW SPECIES, &c., OF HETEROCEROUS LEPIDOPTERA FROM CANTERBURY, NEW ZEALAND, COLLECTED BY MR. R. W. FEREDAY.

BY ACHILLE GUENÉE.

FAMILY HEPIALIDÆ.*

Genus PIELUS.

PIELUS UMBRACULATUS, Guenée, n. s.

Alæ testaceæ: anticæ litura longitudinali albida, irregulari, nigro infra adumbrata: posticæ omnesque subtus testaceæ, basi pilis lætioribus. Femina major et dilutior. 50 millimètres.

The examples that I have seen of this species present two well-marked types. In the first the anterior wings of the male are dense, testaceous, sprinkled with an infinitude of paler scales, and the only marking is an unequal whitish band placed in the cellule, commencing as a point and finishing as a dash, the whole broadly shaded with black beneath. The posterior wings are nearly of the same tint, but less dense, with a brush of hairs, more yellow in colour, at the base. The body and the legs are concolorous. The female is larger, and extends to 60 mill. All the wings are much paler than in the male, and the anterior much less dense.

The second type is uniformly pinkish-grey, with fringes concolorous, and preceded (on the superior wings) by isolated black points. Besides, one sees, at the apex of the band, a transverse series of intermediate black points or streaks. I do not know the female of this form.

PIELUS VARIOLARIS, Guenée, n. s.

Alæ modo castaneæ, modo griseæ vel nigricantes, fimbriis intersectis: anticæ guttis disco albescente numerosis irregularibus sparsis, albidis nigro cinctis, lineaque subterminali nigra margines non attingente: posticæ subtus costa flavo-brunnea. 40 mill.

I only know the male, which varies greatly. The anterior wings are ordinarily chestnut-brown, with the disc whitish; but the brown often passes into blackish-grey; the wings are sprinkled with little irregular whitish spots, outlined with black, and other yet smaller spots entirely black; the largest are in the cellule, and

* The British Museum Catalogues indicate many species proper to New Zealand, a country which appears to be very rich in *Nocturni*. I am able to recognize some of them, but the greater part of those sent to me seem new; it may be that the locality where Mr. Fereday collects is different to those which Messrs. Bolton, Colenso, and Sinclair visited, or that I have not been able to recognize many of them, from the too often little precise descriptions by Mr. Walker.—A. G.

their number and sizes vary very greatly; besides these there is generally a black subterminal line well marked, and sometimes interrupted, which does not reach the apex or the inner margin; another similar line, but less constant, precedes it, commencing on the inner margin, but scarcely extending to a third of the breadth of the wing; the fringe is intersected with black, and preceded by black dots, which alternate with these marginal marks, and which, in well-marked specimens, are outlined with whitish: the inferior wings have the same intersections and the same dots; they are blackish, but beneath the costa and nervures are covered with castaneous hairs. The body is castaneous, as well as the antennæ, which, as in *Pielus* in general, are formed of thick triangular joints, and are pubescent at the tips.

FAMILY LEPTOSOMIDÆ.

LEPTOSOMA ANNULATUM, Bdv.

Bdv., voy. de l'Astrolab., pl. 5, fig. 9.

Nyctemera Doubledayi, Walk. Cat. Brit. Mus., p. 392.

This New Zealand species is the true *L. annulatum* of M. Boisduval, and Mr. Walker has erred in transferring that name to the species from New Holland, which differs in the patagia being bordered with white as well as the inner margin of the anterior wings; in the yellow fringe, the spots much less extended, the broader yellow abdominal bands, the yellow face, &c.

Thus it is the Australian insect which is unnamed, and I have long designated it in my collection as *L. plagiatum*.

I do not know the larva of *annulatum*, but the chrysalis which Mr. Fereday sent with the moth has (with the cocoon) great analogy with those of our species of *Setina*.

NOCTUÉLITES.

Trifidæ.

FAMILY I. LEUCANIDÆ.

Genus NONAGRIA.

NONAGRIA PROPRIA.

Leucania propria, Walk., p. 111, 80.

Mr. Walker says that the collar has a line of small black dots. I find here a continuous black line, edged superiorily by a white dash. He says nothing of the under-side, which is, however, very characteristic, the anterior wings being blackish-grey, and the inferior pale ochreous-white, with a black cellular dot; all with a well-marked series of black terminal dots.

NONAGRIA JUNCICOLOR, Guenée, n. s.

Statura conspectusque LEUCANIÆ. Alæ anticæ pallide testaceæ,

juncicolores, nervulis paulo nigricantibus, serie transversa punctulorum nigricantium, fimbria concolori, absque punctis: posticæ supra subconcolores, subtus pallidiores; omnes subtus immaculatæ, corpore concolori, piloso.

Size of *paludicola*. All the insect is of the colour of rush or dry reed. Body hairy, uniform, and without spots. Anterior wings oblong, rounded at the hinder margin; the only markings are a series of little blackish-grey dots on the nervures in the place of the elbowed-line, a dot at the apex of the cellule, and sometimes another on the sub-median vein near the base; sometimes the nervures are more or less powdered with grey; fringe concolorous, without dots: inferior wings almost concolorous above, but paler beneath, without markings. Antennæ with robust, but small, laminae. I have only seen the male.

N.B.—It is scarcely possible that this can be *Leucania unica*, Walker, p. 112, in which the anterior wings are without spots, and the abdomen much paler than the thorax.

FAMILY III. APAMIDÆ.

Genus *ALYSIA*, Guenée, nov. gen.

Antennæ of the ♂ long, crenulated, each crenulation carrying a tuft of hairs at the tip, and a longer one in the middle; those of the ♀ cylindrical, pubescent, each joint carrying two longer hairs. Palpi thick, ascending, robust, hairy; the third joint very distinct, scaly. Haustellum small, robust. Thorax broad, somewhat depressed, quadrate, strongly hairy, but not bristly; breast very hairy. Abdomen of the ♂ long, smooth, silky, not crested, laterally hairy, not conical; that of the ♀ conical, thick, and hairy. Legs robust; the tarsi with spines. Wings oblong, thick; the superior slightly prolonged at the apex; the inferior sinuated at the hinder margin.

A genus of a very ambiguous aspect, and oscillating between the *Leucanidæ*, *Apamidæ*, and *Noctuidæ*. At first sight it resembles *Xylophasia*, but the non-crested abdomen, unicolorous palpi, &c., will not permit its being united to that genus. Not knowing the earlier states, and being able to examine only one imperfect female, I place it provisionally after *Luperina*; but it will not be astonishing if, hereafter, it shall be transferred to another position in the *Apamidæ*, or even in the *Leucanidæ*. I direct attention to the structure of the male antennæ.

ALYSIA SPECIFICA, Guenée, n. s.

Alæ anticæ griscæ, fimbria extima alba spatio medio levissime rubricante, macula reniformi vix conspicua pallidior, punctis transversis minutis nigricantibus: posticæ pallidiores, subtus fere albidæ, lunula media obscuriore: corpus griseum, immaculatum.

Very large; the female especially, equalling the species of *Aplecta* in size. All the insect is dusky-grey, powdered with paler scales or hairs, and without any dark spot: the superior wings are oblong, almost toothed at the hinder margin; the fringe concolorous, not preceded by dots, but the extremity is white in fresh individuals; all the markings are very faint, the median and basal spaces only being slightly tinted with pale red, thus showing the elbowed line, which is followed by a series of blackish dots, edged with white, and placed on the nervures; the reniform stigma indicated by some pale scales: the inferior wings paler grey, with slight darker clouds; the under-side is entirely whitish, with a large grey cellular lunule, and traces of a median line. The thorax, head, and palpi uniformly grey, without markings. The ♀ is similar to the male, but much larger.

FAMILY V. NOCTUIDÆ.

Genus NITOCRIS, Guenée, nov. gen.

Antennæ slender, pointed, simply pubescent in the male. Palpi robust, slightly ascending; the second joint broad, scaly, glossy, spotted with black exteriorly; the third short, but very distinct. Haustellum rather short. Thorax quadrate, scaly, and glossy, with a raised collar; the patagia very short, distant, and ordinarily spotted with black at the extremity. Abdomen not crested, slender in the ♂, broad, flattened, and with protruding oviduct in the ♀. Legs with spiny tarsi, the spurs long but slender. Wings smooth: superior oblong, almost as broad at the base as at the hind margin, which is rounded; the orbicular stigma very small and punctiform; the reniform becoming eroded inferiorly, and clearly defined on the exterior border, which appears to emit a point beneath; the terminal space broadly pale: the inferior wings marked on the under-side with a broad black spot at the internal angle.

An exclusively Australasian genus. At first sight one would place it in the *Apamidae* by the side of *Celæna* and *Mamestra*, and I think that Mr. Walker has placed in the latter genus all the species known to him. To my eye they seem true *Noctuidæ*, related intimately with the genus *Noctua* by our *plecta*, which should perhaps be added to them. Perhaps one should thus adopt the generic term *Ochropleura* of Hübner, that Mr. Walker has used for *plecta* and its allies.

In order to give a more complete idea of this new genus, I describe here all the species I possess, although they do not all pertain to New Zealand; besides I think it probable that nearly all may be found there.

NITOCRIS BICOMMA, Guenée.

Mamestra comma, Walker, p. 239, 40 ?.

Alæ anticæ nigro-cinereæ, pulverulentæ, strigis duabus geminis nigris,

angulosis, sub-terminalique nigro intus limbata, macula orbicularis testacea, punctiformis; reniformi alba: posticæ cinereæ, fimbria pallida, subtus macula interna diffusa.

Size of *Agrotis exclamationis*. Superior wings blackish-grey, with the two lines (extra-basal and elbowed) composed each of two distant black threads, forming very evident elbows and angles, especially between the cellule and the sub-median; the subterminal line is scarcely sinuated, shaded on the inner side with black, which colour extends more or less according to the individual, from which emanate small nervural dashes of a still deeper black; the orbicular stigma is very small, either concolorous or of a nut-brown; the reniform stigma is soiled with black below, nut-brown above, edged exteriorly by a white line: inferior wings blackish, with the fringe shining and almost white, save at the internal angle; their under-side dusted with black and with a cellular dash; the large spot at the internal angle much diffused. Thorax obscure, grey, with the first half of the collar darker, and the patagia uniform.

The ♀ is darker, almost black, so that all the lines and shades are nearly absorbed.

I think this species is the *comma* of Mr. Walker; but, as that name cannot be retained, it being already employed for a European *Leucania*, I have modified it in the least possible manner. Mr. Walker knew the female only.

NITOCRIS LIMBOSA, Guenée, n. s.

Statura N. bicommae, sed paulo minor. Alæ anticæ cinereæ, nigro-nubulosæ, spatio terminali excepto, lineis undulatis et angulatis nigris interruptis, maculis ordinariis unicoloribus, orbiculari minima, reniformi lineola alba sæpius limbata: posticæ griseæ subtus macula interna quadrata nigra. Thorax cinereus; collari apicibusque humerorum nigris.

This is closely related to *bicomma*, but smaller; of a paler grey, especially on the terminal space, which is very distinct, because the ground colour is not clouded there, whereas it has a black appearance everywhere else; but the costa, the space between the ordinary lines, and the principal nervures, remain grey; the white thread of the reniform stigma is often prolonged on to the nervure which follows it, which does not occur in *bicomma*: the inferior wings are paler, almost white, and beneath the spot at the internal angle is very distinct. The colours of the thorax are more marked, and the patagia are especially shorter, more notched exteriorly, and marked with a black spot at the extremity.

The female is altogether similar to the male, or if anything paler rather than darker.

Australia.

NITOCRIS EXUNDANS, Guenée, n. s.

Statura N. limbosæ. Alæ anticæ porphyreo-brunneæ, nigro-marmoratæ, lineis undatis geminatis nigris, macula orbiculari albo; thorax caputque brunnei.

I know the ♀ only. Size and shape of *limbosa*. Superior wings wood-green, slightly violaceous, mixed with scorched black-brown; the ordinary lines are much less angular, and the space between the elbowed line and the sub-terminal forms a complete violet-black band; the orbicular stigma is white and very apparent; the reniform yellow-brown, with a pinkish tinge, fuller and not bordered with white, at least in my example; a blackish track follows the sub-median; the fringe is con-colourous, and is preceded by black dashes; the inferior wings are as in *limbosa*. The thorax and the head uniform in colour, wood-brown dusted with black. Palpi flesh-coloured, with the black spot less apparent than in allied species.

Australia.

NITOCRIS NUNA, Guenée, n. s.

Alæ anticæ griseo-violaceæ, costâ limboque pallidioribus, strigis angulosis nigris, macula reniformi albida arctata, lineam bifuscatam longitudinalem jungente, collari in medio albo-maculato.

Slightly smaller than the species which precede. Superior wings blackish-grey, violaceous, with the costa and the terminal space paler; ordinary lines black, sinuated and angulated; sub-terminal simply waved, and preceded by small black nerval dashes; all the cellule is filled in with black, in which are seen the two ordinary stigmata, in colour dirty white; the orbicular extremely small; the reniform much narrowed above, connected beneath with a nervure of the same colour forked at its extremity; all this divided in the middle by a greyish-violet dash; a black trace in the ordinary place of the basal line: inferior wings grey, paler at the base; their under-side almost white, with the cellular lunule, and the spot at the internal angle, black. Thorax blackish-grey, violaceous, uniform, with a white space on the middle of the collar on the upper-side of the head.

Australia; one ♂.

NITOCRIS EPIPECTA, Guenée, n. s.

Ochropleura roristigma, Walker, p. 409, 8 ??.

Statura affinitasque, N. plectæ. Alæ anticæ violaceo-nigricantes, lituris duabus basalibus albidis nigro adumbratis, costâ albida, cellula longe nigra, punctum orbicularem album, renigeramque dimidio albidam includente. Thorax griseus; scapulis violaceo-nigris.

It resembles our *Noctua plecta*. Superior wings dull violet-black, the terminal space paler, and the base whitish violet-coloured, divided into three markings by deep black, firstly in the cellule, afterwards by a dash below the median vein, and lastly by a smaller one beneath the sub-median; the two ordinary spots yellowish-white; the orbicular punctiform strongly conspicuous in the black cellule; the reniform divided by a brown dash, and filled in with brown inferiorly, and rests on the median vein; some black dashes indicate the upper portion of the subterminal line; the inner margin is yellowish-white, as in our *A. empyrea*: inferior wings white, soiled with grey, especially on the hinder margin; beneath with the lunule and the spot strongly marked. Thorax whitish-violet, with the patagia and the anterior part of the collar deep shining black.

Swan River; one ♂.

(To be continued.)

NOTES ON SOME BRITISH SYRPHI.

BY G. H. VERRALL.

Amongst the *Diptera* I collected last year, I have found five species of *Syrphus* to which I wish to call attention. I cannot call them new to England, as most of them occur in any collection, but none are recorded as species in Walker's "Diptera Britannica." They are, certainly, all allied to other acknowledged British species.

Under *S. auricollis*, Meig., occur the true species of that name, and *maculicornis*, Zett.; the latter may be at once distinguished by the abdominal bands being entirely interrupted, whilst in *auricollis* they are only deeply notched on the hinder edge. Both the species occur in gardens near London, *maculicornis* being much the commoner.

Under *umbellatarum*, Fab., may also commonly be found *lasiophthalmus*, Zett., which has slightly hairy eyes in the male, and also has the abdominal spots and epistoma yellow. The epistomal middle line is also more distinct, and the whole insect rather more hairy.

Under *cinctus*, Fall., I think it most probable we have none of the true species, but only *cinctellus*, Zett. Walker certainly, amongst his varieties of *cinctus*, gives both species, but I have never yet seen the true form. *Cinctellus* has the antennæ brown above, a black spot on the front just above the antennæ, and the scutellum clothed with brownish hairs. Should any entomologist find specimens with wholly yellow antennæ, no black spot above them, and the scutellum clothed with yellow hairs, he has the true *cinctus*, for which I should be much obliged. *Cinctellus* is common.

Under *vitripennis*, Meig., or *ribesii*, Linn, is occasionally to be found *nitidicollis*, Meig., which may be known by its having a brightly shining thorax, and the epistoma (? generally) partly black. This insect has also a handsomer appearance than its allies, probably from its pubescence being darker. I believe it is rather rare; it has been recorded as British by Stephens and Curtis.

Under *albostrigatus*, Fall., is also *confusus*, Egger, if the latter can be considered a separate species. Schiner confesses that a character taken from the colour of the legs of a *Syrphus* is a very uncertain one, but says that among a large number of specimens of these two species he can find no tendency to vary. They differ only as follows: *Albostrigatus* has the femora of the four front legs black at the base, and the hind legs with a broad blackish ring, and also a small dark spot on the hind tibiæ. *Confusus* has the same parts wholly yellow, and the

exception of the hind femora, which have only a narrow, distinctly marked ring. I have very poor material to work upon, having only one of each. They, however, agree exactly with the above distinctions.

The above remarks show a little of what remains to be done among even the larger species of *Diptera*; and it seems to me that the Entomological Society can scarcely hope to be able to publish a satisfactory catalogue of them within some years, unless more workers appear on the field.

The Mulberries, Denmark Hill, S., 8th May, 1868.

ON TWO NEW SPECIES OF LAMELLICORN BEETLES (*RUTELIDÆ*)
FROM N. AUSTRALIA.

BY CHARLES O. WATERHOUSE.

ANOPLOGNATHUS.

A. *ÆNEUS*, sp. nov.

Ovatus, convexus, nitidus, supra æneus; clypeo sat densè, capite parcè, punctatis; thorace disco parcè, latera versus gradatim fortius densiusque punctato; scutello lævi, elytris ad scutellum parcè, latera versus gradatim fortius punctatis. Subtus cupreus, sat densè albo-pubescentis.

Long. $15\frac{1}{2}$ lin., lat. 9 lin.

Above glossy, æneous. Head sparingly but distinctly punctured; clypeus somewhat thickly punctured, the angles much rounded, the margin scarcely reflexed. Thorax convex, broadest behind, gradually contracted in front, the sides gently rounded, the extreme margins thickened, the posterior margin reflexed, except near the scutellum; the whole surface of the thorax punctured, the punctures small on the disc, become larger and deeper towards the sides. Scutellum with only a few small punctures near the base.

Elytra convex, gradually increasing in width towards the posterior two-thirds, rounded posteriorly; suture smooth; extreme lateral margins coppery, incrassated, especially immediately below the shoulders.

The punctures on the elytra are small near the scutellum, but gradually increase in size and depth towards the margins; the shoulders and apical callosities very delicately punctured.

Pygidium coarsely punctured, very sparingly covered with white hair. Under-side coppery, clothed with white pubescence, the central part of the abdomen less densely covered.

This insect, which, from the outer claw of the anterior tarsus being

bifid, I believe to be a female, must be placed next to *Calloödes*, although in some respects it slightly resembles *A. viridi-æneus*, ♀.

Brit. Mus.

Hab. N.E. Australia (Rockingham Bay); collected by E. D. Atkinson, Esq.

CALLOÖDES, White,

Ann. and Mag. of Nat. Hist., XV, p. 38.

C. ATKINSONII, sp. nov.

Viridis, nitidus, ovatus, sub-depressus; clypeo antice, thoracis lateribus, elytrorumque marginibus testaceo micantibus; pedibus cæruleo-viridibus, nitidis. Long. 9—10 lin., lat. 5 lin.

Above glossy, green. Head distinctly but not very thickly punctured; clypeus truncate in front with the angles rounded, the anterior margin reflexed, shining with testaceous. Antennæ glossy, brown.

Thorax contracted in front, green, very sparingly and delicately punctulate, the sides reflecting testaceous, the extreme margin thickened; the hind margin of the thorax reflexed, except the central portion. Elytra broadest immediately below the shoulders, narrowing towards the apex, moderately thickly punctulate, except at the extreme margins and the suture, which are smooth. The margins of the elytra thickened except at the basal portion. The elytra are slightly dehiscent at the extreme apex, which in each elytron is slightly produced. Pygidium acuminate, rugosely punctured, and clothed with short white hair. Under-side shining with æneous and fuscous, more or less covered with white pubescence, except on the sternum and central part of the abdomen. Legs dark green, glossy; the four posterior tibiæ with a few large punctures on the outside.

Brit. Mus.

Hab. N.E. Australia (Rockingham Bay); collected by E. D. Atkinson, Esq., after whom I have named the species.

British Museum, *May 13th*, 1868.

SPECIES OF TRICHOPTERYGIA NEW TO THE BRITISH LIST.

BY THE REV. A. MATTHEWS, M.A.

Th. The season of 1867 proved that our indigenous *Trichopterygia* are yet thoroughly worked out; and also proved, if proof had been required, the singular eccentricity of their distribution. In Sherwood Forest I met with two species hitherto only known as inhabitants of

Madeira, and the Canary Islands, viz., *T. obscæna*, Wollaston, and *T. anthracina*, Matthews, of the latter of which I was lucky enough to find many specimens, though of the former I obtained but one. *T. anthracina* is a distinct and well-marked species; it belongs to the first division of the genus, which comprises *T. atomaria*, and others, whose thorax is much dilated at the base, with its posterior angles produced beyond the shoulders of the elytra; but from all these it may be easily known by its small size, deep black colour, and short black antennæ.

T. obscæna belongs to a group of which *T. Guerinii* may be considered the type, and all of which have pale or rufescent elytra, and the thorax scarcely dilated at the base. In noticing this species I must apologize to Mr. Wollaston for having formerly led him into error. When, some years ago, he kindly sent me his specimen of *T. obscæna* for examination, I returned it to him with the observation, that I did not consider it distinct from *T. Guerinii*; and, in consequence of this advice, Mr. Wollaston has since quoted his *obscæna* as a synonym of *Guerinii*.

At the period alluded to I was just entering upon the arduous, and then almost hopeless, task of separating the confused mass of insects which had already poured in upon me from all quarters of the world, and I naturally felt anxious to avoid all unnecessary separation of species; but I soon discovered that it would be impossible to adhere to such a system, and that the only method of arriving at any thing like a true classification would be to follow the example of Col. Motschulsky, and to divide wherever persistent characters could be observed sufficient to justify a division. I found also that one of the most distinctive specific characters exist in the superficial sculpture; for, where this proves to be identical, every other mark, such as shape and colour, will always agree as a natural sequence.

When I mounted the specimen I had taken at Sherwood, I was much struck by the appearance of its sculpture; this led to further examination, and I found that, though differing from *Guerinii*, it coincided exactly in this respect with *obscæna*, and that both also differed from *Guerinii* in the comparative length of the elytra, and a few other points of minor importance. I therefore feel no doubt that *obscæna* is distinct from *Guerinii*, and that Mr. Wollaston's name must be restored to the species.

A third species new to our list (also from Sherwood Forest) is an extremely pretty *Ptilium*, allied to *Pt. angulicolle*, but easily distinguished by two deep converging lateral lines on the thorax, which is nearly destitute of any central channel. It was found by Mrs. Matthews

under the bark of a dead oak tree, and seems to be very rare, for, though we carefully examined the greater part of the same tree, we were unable to find a second specimen.

In my present notice I shall only give a summary of the characters of these species, as the time must soon arrive when they will be described at greater length. To them I will also add the diagnostic characters of a genus, which I have separated from *Ptilium*, to contain the following species, viz., *Pt. transversale*, Erichson, *Pt. concolor*, Sharp, and *Pt. coarctatum*, Haliday; these all differ widely from *Ptilium* in every anatomical detail; the most obvious distinction exists in the base of the thorax, which is not, as in the true *Ptilia*, fitted to the shoulders of the elytra, but overlaps and lies upon them, so as partly to conceal the scutellum. It is not unlikely that the name of the last of these three, *Act. coarctatum*, will have to be altered; in 1855 Mr. Haliday described this species, in the Dublin Natural History Review, p. 124, under the name of *Ptilium coarctatum*, and in the same year, M. Thomson described it, in the Öfvers. af Vet. Acad. Förh., p. 339, under the name of *Ptilium elongatum*; the priority must therefore be determined by the month of publication, and this I have not yet been able to ascertain: that the names are merely synonyms of a single species there can be no doubt, for M. Thomson has very kindly sent me his unique example of *elongatum* for comparison, and it is specifically identical with Mr. Haliday's type of *coarctatum*.

This species is another remarkable instance of eccentric distribution; it was discovered almost simultaneously by Mr. Haliday in Ireland, and M. Thomson in Sweden, and has subsequently been taken by M. Aubé on the shore of the south of France, and by Col. Motschulsky in Egypt. As I have made this species the type of the new genus, I have termed the latter *Actidium*, in reference to its habits; its allies, though not strictly littoral, are found among sand and gravel on the margins of rivers and lakes.

TRICHOPTERYX ANTHRACINA, Matthews, Ent. Mo. Mag., ii, 35, 1865.

L. c. $\frac{6-7}{16}$ lin. Ovata, maribus postice valde attenuata, valde convexa, nigra, nitida, pilis brevibus argenteis parce vestita, capite modico, antice elongato, oculis sat magnis, prominulis; pronoto modico, valde convexo, postice dilatato, tuberculis sat magnis, ordinibus irregulariter sinuatis confertim dispositis, interstitiis nitidis, subtiliter reticulatis,

ornato, lateribus rotundatis, late marginatis, angulis posterioribus valde productis, acutissimis; elytris longioribus, maribus valde attenuatis, ordinibus sat remotis, sinuatis, modice asperatis, lateribus fere rectis, leviter marginatis, apicibus vix dilutioribus, vix rotundatis; pedibus læte flavis; antennis brevioribus, piceo-nigris.

TRICHOPTERYX OBSCÆNA, Wollaston.

Acrotrichis obscæna, Woll., Cat. Mad. Col., p. 35, 1857.

L. c. $\frac{6-7}{16}$ lin. Oblonga, elongata, valde convexa, capite atque pronoto nigris, elytris nigro-castaneis, pilis brevibus flavescentibus parce vestita, capite magno, sat elongato, prominulo, oculis vix prominentibus; pronoto modico, postice vix dilatato, tuberculis sat magnis, ordinibus interruptis dispositis, interstitiis nitidis, confertim reticulatis ornato, lateribus levissime marginatis, leviter rotundatis, angulis posterioribus acutis, vix productis; elytris brevioribus, quadratis, haud attenuatis, ordinibus transversis, interruptis, sat profunde asperatis, suturâ elevatâ, apicibus valde rotundatis; antennis brevioribus, nigropiceis; pedibus flavis.

PTILIUM HALIDAI, sp. nov.

L. c. $\frac{5-6}{16}$ lin. Elongato-ovale, gracile, valde convexum, læte castaneum, nitidum, pilis brevissimis pallidis sparse vestitum, capite modico, sat elongato, punctis foveolatis profunde impresso, oculis haud prominentibus; pronoto parvo, brevi, capite vix longiori, aut latiori, profunde foveolato-punctato, *antice* lineâ mediali, valde indistinctâ, ad medium haud extensâ, *postice* lineis duabus lateralibus, profunde impressis, ultra medium extensis, atque antice convergentibus, notato, lateribus ad basim fortiter constrictis, angulis posterioribus sat acutis, prominentibus; elytris sat longis, angustis, ordinibus densis, transversis, sat profunde asperatis, ante medium latissimis; pedibus atque antennis læte flavis.

ACTIDIUM, gen. nov.

Characteres diagnostici.

Antennæ 11-articulatæ, articulo 3^o ad basim valde incrassato, 9^o vix incrassato.

Palpi maxillares 4-articulati, sat parvi, articulo ultimo aciculari, brevi, fortiter bisinuato, penultimo oviformi, apice extremo truncato.

Palpi labiales 4-articulati, sat breves, articulo basali valde incrassato,

penultimo profunde bifido, apicibus acutissimis, ultimo exiguo, conico, acutissimo.

Lingua magna, palpis longior, ac multo latior, truncato-conica, apice minute bidentato.

Paraglossæ modicæ, apicibus obtusis.

Mandibulæ sat magnæ, robustæ, vix uncinatæ, acie sinuatâ, leviter excavatâ, angulo præbasali fere obsoleto, dorso fortiter denticulato.

Maxillæ modicæ, trilobatæ, lobo *exteriori* sat gracili, incurvato; *intermedio* modico, 4-articulato, articulo ultimo sat lato, longe ciliato, aut potius pectinato; *interiori* sat magno, cultriformi, dentibus quatuor validis, acutissimis, fortiter curvatis, ad apicem armato.

Mentum magnum, sub-quadratum, lateribus profunde bisinuatis, angulis productis, setâ unicâ apicali utrinque instructum.

Caput sat magnum, sat porrectum.

Pronotum parvum, ad basim valde contractum, basi humeris elytrorum incumbenti.

Elytra longa, integra, epipleuris latis.

Prosternum modicum, receptaculis coxarum marginalibus, semi-excisis, atque confluentibus.

Mesosternum parvum, late carinatum, carinâ triangulari, postice acuminatâ, basi ad collum extensâ, epimeris subtus sat longe inflexis.

Metasternum longum, quadratum, inter coxas breviter productum, apice excavato, angulis productis, acutissimis.

Coxæ anteriores contingentes.

intermediæ haud contingentes, obliquæ.

posteriores breviter remotæ, sat parvæ, vix productæ, margine exteriori sinuatâ, ad apicem levissime laminatâ.

Pedes robusti, femoribus ad apices angustissime laminatis; tibiis valde dilatatis; tarsis perbrevis, triarticulatis, articulis basalibus incrassatis.

Sp. typica, ACT. COARCTATUM, Haliday.

(syn.) *Pt. elongatum*, Thoms.

filiforme, Aubé.

NOTES ON COLLECTING, MANAGEMENT, &c., (*LEPIDOPTERA*).

BY H. G. KNAGGS, M.D., F.L.S.

THE CATERPILLAR STATE.

(Continued from Vol. iii., page 41.)

MANAGEMENT.

With the exception of those mysterious maladies, muscardine and cholérine, concerning which untold volumes have been written, with the minimum of practical result, the ailments of larvæ have been so little studied that, were it not that the subject of "Management" seems to demand that attention at least should be called to them, I would prefer to omit them altogether from these notes.

Direct injuries, such as mutilations, wounds, bruises, &c., resulting from accidents, bites of other larvæ, attacks of enemies, unlucky knocks by the beating stick, or otherwise received, are not necessarily fatal, and to the lovers of malformations, may even be productive of cherishable abnormalities in the future imago. We can do little more than leave them to take their chance, placing them out of the way of further harm, and stopping the flow of exuding lymph by the application of powdered chalk to the wound, but of course the scab formed afterwards will interfere with the next moult, so that whenever that event comes about, the larva (if worth saving) may be assisted by means of warm moisture and the mechanical measures mentioned further on under "moulting sickness."

Stings of Ichneumons, &c., come next, and when the eggs of the parasites are not too deeply deposited, and of course before they have hatched, it is often no difficult job to destroy them either by crushing them with finely pointed scissors or pliers, or removing them by the aid of a darning needle, it being sometimes necessary to steady the larva by holding it gently between the finger and thumb of the free hand; but I see no reason why the subject (especially if it be of an irritable temperament) should not be placed under the influence of pure (not methylated) chloroform, since larvæ are readily affected by, and readily recover from the effects of, this agent.

Frost bite. It has been stated that larvæ, which have been so stiffly frozen that they might have been easily broken, have been known to recover. The chief thing to be remembered in the treatment of such cases is that the thawing should be effected very gradually—rapid thawing being dangerous; the best thing I can suggest is to cover them up in snow; we should remember that prevention is better than cure, and that the larvæ of species which naturally inhabit warm situations cannot bear and ought to be protected from any great degree of frost.

Suffocation. This of course happens whenever the passage of air through the spiracles becomes obstructed, the most common cause being submersion, for larvæ have an unaccountable propensity to commit suicide in the water vessels of breeding cages whenever they can get a chance; still after being immersed for even ten or twelve hours, their case is not utterly hopeless, for though they may appear bloated and stiffened with water, yet if they be dried gently on a piece of blotting paper, keeping them in motion the while, and exposing them to the sun, the chances are that, if they be not too far gone, they will recover; and, for aught

I know to the contrary, the school-boy's old remedy of resuscitating drowned flies by covering them up with salt and exposing them to the rays of the sun might prove effective, only I have my doubts as to the effect of damp salt on larval surfaces.

Starvation. This may depend on defective supply of food, or the use of an improper diet, or the presence of excess or deficiency of light, as the case may be, may cause the subject of it to sulk and pine away. The treatment is, generally speaking, obvious enough, but sometimes we find larvæ feeding well enough for a time on some particular kind of food, and then unaccountably falling off their appetite; under such circumstances change of diet should be tried, ventilation, &c., should be attended to, light (and even in some cases, rays of the sun) should be admitted; rinsing the food in fresh water, or exposing it to a shower of rain: and as many larvæ have a predilection for sweets, the food may be washed with syrup and allowed to dry, or sugar or treacle may be added to the contents of the water vessel with a view to imparting a flavour to the food; in the latter case, however, we must be careful that the mixture become not mouldy or acetons.

Surfeit. Many larvæ, especially such as are large and smooth, when permitted to gorge themselves with too juicy food, have a tendency, particularly when about three-quarters grown, to become dropsical and die. The remedy would appear to be to feed them on dry mature leaves gathered from bleak exposed situations, and moisture should be excluded from the cage.

Cramp. A night passed on a cold surface is often sufficient to paralyse the pro-legs of larvæ, especially of such as are young and tender; under these circumstances they are unable to retain their hold when placed upon their food: perhaps the best plan is to put them on some such surface as a piece of blotting paper, in a temperate situation, fresh leaves of the food-plant being strewn about within reach of the sufferer.

Low Fever. Undoubtedly larvæ suffer from a contagious disease very analogous to this. Some species are more liable to it than others, and it appears to be very fatal among the members of any affected batch, though apparently not communicable from one to another, and distinct, species. It is doubtless engendered by bad feeding, ill ventilation, proximity of decaying vegetable or animal matter, &c.; the indications therefore are that these should be removed as early as possible, and the healthy larvæ should be kept separate from those which show the slightest signs of the disease. The use of a small quantity of Condy's disinfecting fluid in the water vessel, too, could do no possible harm, and might prove beneficial. Somebody has suggested that immersion in cold water has a beneficial effect in this disorder.

Irritability. Some larvæ are naturally of a waspish, irritable disposition, biting and striking violently at anything or any other larvæ which may cross their path or come in contact with them; others become ill-tempered during, and for a short time after, their moults, when the skin appears to be very sensitive; or this irritable state may be due to the recent sting of ichneumon, the presence of acari, &c., requiring our attention. Larvæ thus affected should be kept as little crowded as possible, and, indeed, if necessary, confined in separate cages.

Moulting Sickness. Larvæ of some species, even in confinement, appear to experience but little difficulty in casting off their effete skins; others, on the contrary, and of these chiefly those of the Butterflies, Sphinges, *Bombyces*, and *Pseudo-bombyces*, apparently naturally undergo a comparatively tedious and painful process of ecdysis; the appetite of the caterpillar thus affected leaves it, it frequently seeks some retired spot, and having spun a fewer or greater number of silken threads, attaches the hooks of the pro-legs thereto, and then, after the lapse of a longer or shorter interval, bursts the now useless covering which invests it, and makes its exit. During all this the larva should, as a rule, be left to its own resources, but sometimes it may be observed that it is incapable of freeing itself, in which case assistance must be rendered before prostration takes place, by slitting the old skin with a couple of needles carefully manipulated, cutting, by very fine pointed scissors, the skin round any scab which may have been formed over a wound, and pegging down the skin in cases where the pro-legs may have become detached from the transverse silken threads, assisting meanwhile the operation by moisture and warmth. It is very important to discriminate between the above sickness and cases of starvation, since the treatment required in the latter case is necessarily converse of the above, and a conclusion respecting this may safely be arrived at by attention to the following:—In the starved larva the capital segment is comparatively of hydrocephalic proportions—it is, in the moulting larva, very small, the skin is plump and tense in the latter, while that of the former hangs loosely; the silken transverse threads too are absent in the victim of starvation, which also exhibits a restless desperation in searching for food to appease its hunger, sometimes snapping at pieces of frass and other substances, and as hastily casting them aside, the moulting larva, on the other hand, remains stationary.

Diarrhœa. This is generally caused by improper feeding with too juicy or too relaxing food; in such cases, dry stunted foliage gathered from bleak exposed situations, mature leaves, astringents, such as dark-coloured oak leaves, madder, &c., should be tried with such larvæ as will partake of them, or the food may be sprinkled with powdered madder, chalk, &c. The converse of this complaint requires to be treated with the young, juicy, immature leaves of the food-plant, and, in certain cases, mostly among the *Noctuæ*, the administration of lettuce and other natural purgatives will have a salutary effect.

Fungus. This is particularly apt to attack hairy larvæ, especially such as hibernate, the subject—having doubtless first become unhealthy from confinement in a damp, ill-ventilated atmosphere—is attacked by a species of *vidium*, after which it is generally “all up.” I do not know how far the use of hyposulphurous acid or the hyposulphites might be applicable, but their effect might be tried. The natural preventive is, doubtless, exposure to the sun’s rays, and most collectors must have noticed that the hibernating larvæ of *Arctia*, *Spilosoma*, and others, take every opportunity of sunning themselves, as if for the purpose of drying their coats; when there is no sun visible, currents of dry air will, probably, be the best remedy.

Soils, &c., for the use of Larvæ about to change to Pupæ.

Considerable diversity of opinion, respecting the substances, mixtures, &c., best adapted for this purpose, exists among Entomologists—probably at one time

one is preferable, at another another; that which is most suitable for one species may be objectionable in the case of others. In selecting our soil we should be guided by the natural habits of the species for whose benefit we are cogitating, the nature of the soil which it naturally inhabits, the position, wet, dry, hot, cold, east, west, south, &c., which it naturally selects for its transformation. For the rest I must leave the choice to the reader, merely contenting myself with an enumeration of the most approved kinds: leaf-mould—sand, silver-sand, or “ballast,” the latter is however apt to “cake”—loam—the rubbish from the roots of oaks and forest trees, rotten wood, bran, cocoa-nut fibre—birch catkins (rubbed between the hands into light flakes) or combinations of two or more of them. All soils should be first well baked to destroy animal life (such as acari, slugs, eggs of larvæ of *Tineæ*, spiders, wire worms, &c.), they should then be placed in closely fastened canvass bags, damped, and kept in a moist situation until required for use. Where it is required to keep up a certain degree of moisture, the soil should be covered with damped moss or a layer of cocoa-nut fibre, the latter being a capital means of preventing the soil beneath from becoming too dry.

For such larvæ as spin up, the most approved appliances have been already noted under the heading “cages.”

(To be continued.)

Note on Agabus affinis, Payk.—In this month’s “Entomologist” Mr. G. R. Crotch has published a most interesting list of certain of Thomson’s additions to the Swedish Fauna, accompanied by a few remarks which, while indicating a great deal of research, are far too concise for those who like Entomology made easy. Among them is one to the effect that all Mr. Crotch’s examples of *Agabus affinis* belong to the newly-described *Eriglenus unguicularis* of Thomson. I had within the last few weeks examined my *Hydradephaga* with the assistance of Schaum’s recently published posthumous work, and had, satisfactorily enough, considered all my British examples of *Agabus affinis* as the *affinis* of that author.

I have, however, just captured four specimens of an *Agabus* so closely resembling my series of *affinis* that only an educated eye would notice any difference of facies; and, on consulting Thomson’s work, I have satisfied myself that these four specimens are to be referred to his *Gaurodytes affinis*, while all my other specimens must, like Mr. Crotch’s, be considered *Eriglenus unguicularis*.

I hope the following characters may help entomologists to distinguish the two insects. Being of about the same size, *A. affinis* is rather narrower in proportion to its size than *A. unguicularis*; it is of a more parallel form (the sides of the thorax behind, and the sides of the elytra, being straiter and less rounded), the large punctures on the elytra are more evident towards the base in *affinis*, and there is some (though not a very considerable) difference in the shape of the laciniae of the metasternum. Besides these characters pointed out by Thomson, which are certainly not very easy to appreciate, my specimens show another by which the species can readily be distinguished, viz., that the broad turned-under margin of the base of the elytra is of a rather obscure red in *unguicularis*, while it is quite black in *affinis*. I should add, that *affinis* is altogether of a darker and blacker colour than the brassy-black *unguicularis*. Closely allied as these two insects are,

it will be noticed from my remarks that Thomson places them in different genera,—*Eriglenus* and *Gaurodytes*. These genera (as Schaum remarks) most certainly cannot be retained, being founded only on the differences in the shape of the laciniaë of the metasternum. Now, if *A. guttatus* and *femoralis* be examined, it will be found their difference in this respect is very evident, but the shape of the laciniaë varies in the other species, and in *Agabus affinis* is pretty nearly intermediate. The structure of the claws in the males of *affinis* and *unguicularis* is similar; and is correctly enough described by Schaum in his description of *A. affinis*; and incorrectly by Thomson in the descriptions of the two species. I should add that Schaum's description of *A. affinis* (Ins. Deutsch., i, ii, p. 110) refers without doubt to the species I am inclined to consider Thomson's *unguicularis*. *Affinis* is one of Paykull's species, and Thomson is therefore likely to be right in his identification of it. In this case the synonymy will be as follows:—

1. *Agabus (Eriglenus) unguicularis*, Th., Sk. Col., ix, p. 101.
- ,, *affinis*, Schaum (and of British collections).
2. ,, *affinis*, Payk., Th. (*Gaurodytes*).

—D. SHARP, Thornhill, Dumfries, May 6th, 1868,

Notes on the British species of Malthodes.—Till Herr von Kiesenwetter undertook the revision of the European species of *Malthodes*, that genus was one of the most neglected; this arose principally from the fact that the different species composing it greatly resemble one another, and consequently are difficult to distinguish. Kiesenwetter, by examining the structure of the abdominal segments in the male, has discovered and pointed out characteristics which serve readily to separate the different species, as far at least as the males go; the females are still most difficult to determine with certainty, and the one fact that they differ sometimes very considerably from their males, added to the other that three or four species often occur together, does not diminish the difficulty. Indeed I scarcely can understand how Kiesenwetter or any other entomologist could have accomplished the task satisfactorily, had the males been without well-marked characters, as is the case with the very closely allied genus *Malthinus*. It must be added that the structure of the terminal segments in the males is subject to little or no variation, and is of so marked a character as to leave no room for doubting the distinctness of the species. The following list of our species will probably prove to be incomplete, but is, I think, the best that can be now given:—

1. *minimus*, Linn., Fall., Kies.
 sanguinolentus, Wat. Cat.
Common in woods and plantations all over the country.
2. *biguttatus*, Linn., Thomson.
 **marginatus*, Latr., Kies., Wat. Cat.

Generally distributed and common.

* Kiesenwetter cites *Cantharis biguttata* of Linnæus under the head of *Malthinus biguttula*, Panz. Of course, if the Linnæan description really does apply to the species known as *biguttula*, Panz., Kiesenwetter should have adopted the Linnæan name for that species in place of Panzer's more recent one.

3. *pellucidus*, Kies. Occurs in the birch woods of the Highlands, Rannoch, &c. ; abundant in Strathcannich, Invernesshire.
4. *mysticus*, Kies. Discovered by Mr. Bold in Northumberland ; Galloway and Strathcannich, rare.
5. *guttifer*, Kies. Rare, Galloway, Strathcannich, Garelochhead.
6. *dispar*, Germ. Sparingly both in England and Scotland ; Weybridge, Cambridge, Galloway.
7. *flavoguttatus*, Kies. Galloway and Beaully in Invernesshire ; occurs likewise, I believe, in Cornwall.
8. *misellus*, Kies. The only locality for this species at present is, I believe, Dumfries, where I found half-a-dozen specimens in May, last year ; all were males.
9. *fibulatus*, Kies. Introduced into Mr. Crotch's Catalogue on the authority of specimens found by Mr. Wollaston at Withington. I have captured it myself at Eastbank, near Edinburgh.
10. *atomus*, Thoms.
brevicollis, Kies., Wat Cat.

Tolerably common both in England and Scotland. A very considerable fact with respect to this species is the disparity in the number of the sexes. Kiesenwetter says that though he has examined hundreds of females he has seen but three males, one of which was taken *in copulâ* with a female. I have myself seen several scores of the female found in this country, but only a single male ; this was taken by Dr. Power (near London, I believe).

The above 10 species comprise all the *Malthodes* I am able to speak of with certainty as found in this country. In Mr. Crotch's Catalogue there is included one, *M. nigellus*, Kies. (= *brevicollis*, Pk.), of which I have made no mention, the unique specimen on which it was introduced having been unfortunately destroyed, so that all I can do is to call attention to the fact that this species is not improbably to be found in Britain. In Dr. Power's collection are specimens of a species closely allied to *atomus*, Th. ; they are all females, and I am therefore unable to say whether they are a distinct species or merely a variety of *atomus*. In the collections of Messrs Rye and Crotch are specimens of the female of a species of this genus, with which I am unacquainted, unless they should prove to be the female of *M. misellus*, a species only taken once in this country, and of which all the specimens then found were, as I have stated above, males.—ID.

Capture of Lithocharis maritima near South Shields.—I have in my collection two specimens of *Lithocharis maritima*, Aubé (*castanea*, Wat. Cat.), which I took on the sands, near South Shields, in May.—THOS. JNO. BOLD, Long Bentou, Newcastle-on Tyne, May 12th, 1868.

Note on Aphodius nemoralis and A. constans.—I have a specimen of *Aphodius nemoralis*, Er., which was taken near Elgin, Morayshire ; and a fine male of *Aphodius constans*, Duft., found by myself, on the sea-coast, a little to the north of Whitley, Northumberland, in April.—ID.

Curious locality for Ischnomera melanura.—This insect is now taken occasionally out of the floor of a calenderer's shop here; which floor is constructed of octagonal blocks of wood, once forming the pavement of St. Ann's Square in this city of smoke, and which were taken up about twenty years ago and sold by the Corporation. I should never have thought of such a locality for it.—T. MORLEY, 29, John Street, Pendleton, Manchester, April, 1868.

Note on Bruchus pisi.—Mr. C. G. Barrett, of Haslemere, has sent me several specimens of this insect, which, though acknowledged to be an introduced species, cannot be very generally distributed in England, as I have never seen a live specimen before. It is readily separable from the common *B. rufimanus* by the red colour on its middle legs, its silvery pygidium with two black spots, &c. Mr. Barrett notices that some of the peas in which he found the beetles (and which were bought at Guildford, and at first believed to have been grown in Essex,—though further enquiry throws the suspicion of a possibility of Canadian origin upon them) had a covering of skin still remaining over the round hole wherein the *Bruchus* was ensconced; showing that each beetle must have fed up in a single pea, and not have commenced from the outside. Considering the bulk of the insect, Mr. Barrett remarks, with reason, that this amount of food seems very small.—E. C. RYE, 7, Park Field, Putney, S.W.

Note on the habits of Hylesinus.—*H. fraxini* is now busy depositing eggs in an old ash-tree here. The beetles bore into the deeper bark and then drive a transverse gallery, branching from the entrance about equally in opposite directions. In each gallery there are invariably two of the beetle, which, from their difference in size (for I can see no other character), I suspect are male and female. Eggs are laid in both branches of the gallery; and there is sometimes a beetle in each branch, though sometimes both are in one. Out of some scores (I may say hundreds), I have never found either one beetle or three beetles in a gallery. In the same tree I found one gallery of *H. crenatus*, also containing two beetles, apparently male and female. The pretty little *H. vittatus* abounds here in bark of a wych-elm.—T. ALGERNON CHAPMAN, Abergavenny, 7th May, 1868.

Capture of Deleaster dichrous.—I have had the pleasure within the last fortnight of taking about 40 examples of this, I believe, hitherto esteemed rare *Staph.* It is to be found flying between the hours of five and seven o'clock in the evening, and is, no doubt, where it occurs, exceedingly common; as at Croydon, where I took my specimens on two occasions, with an interval of a week between each, their numbers seemed not to have diminished. The mode I adopted was to stand in one place facing the sun, and watch them come sailing gently along. A net was not required, as I could catch them in my hat (once to the terror of a horse). As soon as the eye gets used to their flight, they are readily to be separated from the numerous other creatures on the wing at the same time, such as the small *Labia*, &c. Of course the weather must be bright, and not a breath of wind stirring.—JOHN SCOTT, 23, Manor Park, Lee, Lewisham, S.E., 12th May, 1868.

Capture of Deleaster dichröus.—I have recently taken several specimens of this beetle flying about my window here in the evening.—T. G. BISHOP, 22, Thurston Road, Lewisham, S.E., 13th May, 1868.

Note on Cræsus septentrionalis.—In September of last year our alder bushes were defoliated by the larvæ of a saw-fly, the leaves being completely eaten, with the exception of the mid-ribs. The larvæ, on being approached, assumed a menacing aspect by raising their tails. They were similar in colour to the well-known pest of our gooseberry- and currant-trees, though larger in size. I picked off about a score, and placed them with their food-plants under a bell-glass on a flower-pot. They soon burrowed into the soil, and in the course of a month or so had spun their pupa-cases. These are brown, felt-like, exteriorly glazed, of lighter brown interiorly. The black spotting of the larva is retained in the pupa, so that it looks like a shrunk larva throughout its pupahood. The imago began to emerge about the close of April, just as the alders were beginning to leaf. I naturally expected *Hemichroa alni*, but it proves to be *Cræsus septentrionalis*.—PETER INCHBALD, The Lodge, Hovingham, near York,

Note on the currant-gall on Salix herbacea.—Last summer, in July, I found on the very summit of Grassmoor, looking down on Crannock Lake and Buttermere, a pretty little willow, *Salix herbacea*, that clings closely to the bare top of the mountain, rooting itself firmly among the stones, and throwing up here and there its little floss-covered catkins. The leaves of this willow are round, or nearly so, and shining. The gall is formed on the mid-rib of the small leaves, and is about the size of a red-currant. I picked several of these galls and put them in my botany-box. By degrees the leaves withered and the galls turned brown. They were placed in a glass-topped box and occasionally moistened, and left thus till spring. I had little hope of rearing the tenant, having previously failed. April came, however, and one of the gall-insects emerged in the form of a small saw-fly, black, with pale legs. On opening another of the galls I found the pupa of a second insect ready to emerge. Thus another of Nature's secrets is revealed.—ID.

* * * Mr. Inchbald has kindly placed the saw-fly in my hands. It is a small species of *Nematus*, but I am uncertain if it have been described. The late Mr. Armistead had also found the gall, but, I believe, had not reared the insect.—R. McLACHLAN.

A list of Eupitheciæ taken in Derby and the neighbourhood; with notes.—It may be interesting to some of your readers to know the number of "Pugs" that I have taken in this locality. The following were, with one or two exceptions, taken in the larva state:—*E. venosata*, in seeds of *Silene inflata*, July; *E. linariata*, in seeds of *Linaria vulgaris*, July and August; *E. pulchellata*, in flowers of Foxglove, July and August; *E. centaureata*—I took a female of this species September 8th, at light, and obtained eggs from which I bred a good series; *E. subfulvata*, on leaves and flowers of Yarrow, September and October; *E. plumbeolata*, on flowers of

Melampyrum pratense, July and August; *E. isogrammata*—this species has been taken here, but not by myself; I met with it, however, in Trentham Park Gardens, Staffordshire, very commonly in buds of the *Clematis vitalba*, August; *E. castigata*, on Heath, *Angelica sylvestris*, and many other plants, September and October; *E. trisignata*, on seed-heads of *Angelica sylvestris*, September and October; *E. albipunctata*, also on seed-heads of *Angelica*; *E. valerianata*, on flowers of *Valeriana officinalis*, July; *E. pimpinellata*, on seed of *Pimpinella saxifraga*, August and September; *E. fraxinata*—This species I take in the pupa state all through the winter under moss and loose bark of ash; *E. nanata*, on Heath, September and October; *E. subnotata*, on flowers and seeds of *Chenopodium*, August and September; *E. vulgata*, on Hawthorn and many other plants, August and September; *E. absinthiata*, on flowers and seeds of *Senecio Jacobæa*, September and October; *E. minutata*, on Heath, September and October; *E. assimilata*, on Wild Hop, August; *E. exigua*, on Hawthorn, September; *E. sobrinata*, on Juniper, both Irish and Chinese, May; *E. rectangulata*, on Apple-flowers, April and May; I also take the pupa of this species under moss and loose bark of Apple, May and June. Through the kind assistance of some friends, I have also bred *E. lariciata*, *virgaureata*, *campanulata*, and *tenuiata*.—GEO. BAKER, 47, Kedleston-street, Derby, March 16th, 1868.

Lithocolletis Bremiella on *Orobus tuberosus*.—On October 19th last, I found in a lane several leaves of *Orobus tuberosus* mined by a *Lithocolletis*. From that time until the snow and hard frost came on in December I continued to find them very sparingly, and at that time, even, some of the larvæ were not full-fed. The mines were large, occupying sometimes the whole of the leaflet, and therefore found six times as large as those in the leaflets of *Vicia sepium* growing close by, yet they produced the same species (*Lithocolletis Bremiella*) this spring; and the specimens had not profited at all by their abundant supply of food, being precisely like, in size as well as colour, those bred from the *Vicia*.

I have never taken the perfect insect at large, but think that it must be out very late in the autumn, as there are young larvæ almost in the middle of winter, and many must, I think, be killed by the hard frost. This was the case with some that I attempted to feed up in confinement.—C. G. BARRETT, Haslemere, Surrey, April 28th, 1868.

Lepidoptera swarming on rushes.—"The last fortnight in July we spent at "Lowestoft, when I went out nothing every night with a lantern, &c., to the low "marshy ground just at the back of our lodgings. I set eighteen dozen insects, for "they swarmed from nine to ten o'clock, so as to make the rushes (*Juncus effusus*) "look full of various coloured flowers. I could have taken hundreds every evening, "for they sat perfectly still, extracting something from the heads of these rushes—"then past flowering, and all I had to do was to make a selection, and box all I "wished for."

I hope you will be able to find a corner for the above extract from a letter received from my late friend Mr. Skepper, of Bury, wishing, ere July comes, that others may profit by it, if this is not an exceptional case.—E. N. BLOOMFIELD, Guestling Rectory, Hastings, May, 1868.

Lepidoptera taken at Guestling, near Hastings, in 1867.—April 3rd, *Tæniocampa miniosa*, 3 at willow. May 4th, *Macaria notata*, the only specimen I saw this year; 8th, *Eupithecia dodoneata*, 1 specimen. June 1st, *Cidaria picata*; 9th, *Pterophorus acanthodactylus*; 12th, *Cymatophora or*, 1 at sugar; 13th, *Aplecta tinctoria*, 1 at sugar. July 1st, *Acronycta leporina*, 1 at rest; 2nd, *Pempelia palumbella*; 5th, *Botys lancealis*, 2 specimens; 6th, *Pyralis glaucinalis*, several; 20th, *Macaria alternata*, 1 rather worn, in a wood at Fairlight; 31st, *Demas coryli*, ♀; *Melanthia albicellata*, 1 specimen. August 9th, *Acidalia inornata*. Also *Eupithecia virgaureata*, *Pterophorus microdactylus*, and *P. tephrodactylus*, without note of date.—ID., April 8th, 1868.

Cosmia pyralina in Suffolk.—I bred this from a pupa found at Great Glenham, in Suffolk. I mention this insect to correct an error in my former record. I should have said that some years ago I used to take it at Great Glenham, not uncommonly, at light.—ID.

Note on Phlæodes crenana.—While collecting last autumn in the neighbourhood of Richmond Park, I beat from a birch-bush a *Tortrix* pupa, which had been in the cavity of a curled-up leaf. After a few days a fine specimen of *Phlæodes crenana* emerged from it. I believe this insect is generally regarded as a willow-feeder, and it is just possible that the individual in question may have been so, for there were willows growing up mingled with the boughs of the bush from which I beat it. The leaf in which it had spun was, however, birch. It is worthy of note, also, that early spring is the recorded time of appearance of this insect in the perfect state.—T. BLACKBURN, Grassmeade, Wandsworth.

Note on Stauropus fagi.—I believe it is generally supposed that the larva of this insect feeds only on beech, oak, and birch, and that it spins up between the growing leaves, and with them falls to the ground in autumn. Last autumn I was digging at the roots of an elm, when I turned up a cocoon, unfortunately cut with the digger. On opening it, I was much surprised to find an unturned larva of *S. fagi*. The cocoon almost exactly resembled that of *P. palpina*.—E. HALLETT TODD, Aldsworth on the Cotswolds.

Early Lepidopterous captures at Colchester.—I send the following jottings from my note-book for 1868, on the chance of your thinking them worth inserting in the "Entomologist's Monthly Magazine":—

January 28th, took *P. pilosaria*; 30th, took *P. pilosaria*; *H. leucophearia* on oak trunks. February 12th, saw *V. urticæ*; 22nd, *A. æscularia* out; 25th, *T. hyemana*, common; *E. scutulana* larvæ not rare in thistle stems. March 10th, bred *T. munda*; 12th, took *A. prodromaria*, *P. hispidaria*, *H. leucophearia*, and *D. fagella*. March 14th, took 9 *A. prodromaria* on oak trunks, just emerged, between two and six p.m.; have searched in vain for others since; took also 4 *S. illunaria*, &c., in the evening; 15th, bred a very curious pale buff-coloured variety of *N. camelina*; 16th, took 2 *X. lithoriza*, and 2 ♀ *A. æscularia*, &c.—W. H. HARWOOD, St. Peter's, Colchester.

Abundance of the larvæ of Melitæa Cinæia.—The cliffs near Ventnor are now literally swarming with the larvæ of *Melitæa Cinæia*, feeding on the narrow-leaved plantain, in the orthodox manner. They are in all stages of growth, from quite small to nearly full-grown. It is impossible to walk from Ventnor to St. Lawrence by the cliff-walk without finding thousands. I have not seen any of the chrysalides. Excepting these, there do not seem to be many insects here; unless, perhaps, oil-beetles.—L. M. S. PASLEY, St. Lawrence, Ventnor, Isle of Wight, *April 20th*, 1868.

Xylomyges conspicillaris, &c.—I bred a very fine example of *X. conspicillaris* on the 4th of this month. I did not expect this reward for my last autumn pupa-digging, for in no other season in my life did I ever meet with so few pupæ. After a day's march and toil, the result was generally only about eight or ten *Tæniocampæ*: some days I turned up a *Smerinthus* or an *Amphidasis*. Upon the 22nd February I bred a crippled ♀ *A. prodromaria*, very early, I thought, as the pupa was kept in a cold northward room. I placed her upon the bole of an elm tree in my garden, and in the morning a ♂ was in attendance close by her side. This, too, was very early for its appearance, after the middle of March being the usual time, about which period I bred several this season; also *T. populeti*, *T. munda*, *S. illunaria*, and other common spring species. Some of the *V. urticae* that hibernated in my house took flight more than a fortnight ago, others yet remain waiting for warmer weather, as we have had severe frosts nearly every night during the last three weeks. Two or three fine *G. libatrix* are still lodging upon my cellar walls. I have been sugaring several times, but not one moth appeared.—ABRAHAM EDMUNDS, Cemetery House, Astwood Road, Worcester, *April 15th*, 1868.

Dianthæcia capsophila bred.—During the month of April I bred a few fine dark varieties of this species. The first insect appeared on the 1st, and the last on the 29th, of that month—CHAS. CAMPBELL, 14, Blackburn Street, Upper Moss Lane, Hulme, Manchester, *May 11th*, 1868.

Early appearances.—*Saturnia carpini*.—A female came to light on April 24th, near Bromley, Kent; she deposited a few eggs next day. *Smerinthus tilia*.—A male was taken near this place May 4th.—H. JENNER-FUST, jun., Hill Court, Berkeley, *May 9th*, 1868.

Superabundance of Abrazas grossulariata.—We have this year a perfect plague of the larva of this common insect, which has appeared in immense numbers in all the gardens hereabouts. I have seldom noticed it to attack anything but the red and white-currant bushes, but this year scarcely anything has escaped its ravages; red, white, and black currants, gooseberries, apple-trees, hollyhocks, cabbages; indeed, there is scarcely a vegetable or flower which has not more or less of the pest upon it. In our own garden the larvæ came out very early, feeding upon the unopened buds of the gooseberry, which they devoured so effectually that many of the smaller bushes never showed a leaf, and latterly many of the larger ones have been completely cleared of foliage, fruit, and young shoots.—T. J. BOLD.

General Information.

Prices of rare British Lepidoptera.—At the sale by Mr. Stevens of Mr. Chant's Collection, on the 24th April, *Sesia asiliformis* and *S. allantiformis*, against the British origin of which there was not a breath of suspicion, were knocked down, after great competition, at the enormous figure of £5 10s. each (single examples); Mr. Henry Evans, of Darley Abbey, Derby, being the purchaser. In the Lists of the Continental dealers *asiliformis* is marked at prices equivalent to less than sixpence!—*allantiformis* seems to be less abundant, and is not priced.

Movements of British Entomologists.—Prof. Westwood and Mr. Hewitson have returned from a visit to Vesuvius. The mountain was sulky, and would not exhibit its performance before the English savans, although it was too lively after they left. Mr. Pascoe is wandering somewhere about the south of Europe. Mr. Stainton has just left on a six weeks tour, with the intention of visiting Venice and Vienna.

Departure of a collector to Ecuador and Bolivia.—Mr. Buckley, who has had considerable experience in collecting insects in India, &c., has started for Guyaquil, with the intention of working the interior of Ecuador and Bolivia; and we doubt not that he will find many interesting things, especially in *Rhopalocera*. He goes out under the auspices of Mr. Hewitson; Mr. Higgins is his London agent.

Death of Charles Turner.—This well-known collector died in King's College Hospital during the last month, from the effects of a paralytic seizure, over the age of 60. His history was a strange one, and some years since he earned a precarious livelihood by gathering moss for the bird-stuffers. When engaged in this pursuit he fell in with the late James Foxcroft, who induced him to collect insects; and latterly his attention was principally directed to wood-boring beetles, in the collecting of which he attained great proficiency, and found many species new to the British Lists. One of his captures was described as *Zeugophora Turneri* by Dr. Power, but it has been considered as probably only a form of *Z. scutellaris*, Suff. Turner died, as he had always lived, in great poverty.

Death of Thomas Desvignes, Esq.—We regret to announce the death of Thomas Desvignes, Esq., at his residence at Woodford, in Essex, on the 11th May, aged 56. Some quarter of a century ago Mr. Desvignes was best known for his magnificent series of varieties of *Peronea cristana*. In those days every fresh variety of that inconstant insect was duly named and described as a new species. Mr. Desvignes inclined, however, to the opinion that certain groups of these varieties might be referred to separate species, and in the *Zoologist* for 1845, p. 840, he proposed a scheme of grouping, restricting the number of species of the "crested Button" to 11; and he even hinted at the possibility of "the whole being but one variable species."

Of late years his attention had been almost exclusively devoted to the *Ichneumonidæ*, and twelve years ago he prepared a Catalogue of the British *Ichneumonidæ* in the British Museum, which was printed by order of the Trustees in 1856, and extends to 120 pages 8vo.

Mr. Desvignes also communicated several papers on *Ichneumonidæ* to the Transactions of the Entomological Society of London; and the last volume of this Magazine contains descriptions of two new species from his pen, viz., *Ichneumon cambrensis*, at p. 130, and *Pimpla opacellata*, at p. 174.

His collection of British Insects will shortly be sold at Stevens'. Altogether, it is a fine one, and in the *Ichneumonidæ*, as may be supposed, the finest ever formed of the British species. In the Aculeate *Hymenoptera* it is also good, including, as it does, the types of Shuckard's *Fossores*; and in the *Coleoptera* it is rich in *Elateridæ* and *Xylophaga*, containing many rare species in other groups, and including Shuckard's collection. There is also a good collection of *Diptera*, to which order Mr. Desvignes at one time paid considerable attention.

Deaths of Foreign Entomologists.—Three North European Entomologists of some note have recently passed away—Von Tiedemann, of Dantzic; Sommer, of Altona; and Westermann, of Copenhagen. All three must have been well advanced in years; the latter had attained the great age of 87.

ENTOMOLOGICAL SOCIETY OF LONDON, 4th May, 1868. H. T. STANTON, Esq., F.R.S., Vice-President, in the Chair.

Mr. Trimen exhibited a cocoon of *Saturnia pavonia-minor*, with the abdomen of the imago protruding from one end. This cocoon was spun in a small box, and the imago, failing to effect its escape head-foremost, had turned and endeavoured to emerge tail first, and had died in the attempt.

Mr. W. C. Boyd exhibited a collection of the larvæ of *Lepidoptera*, preserved in a most life-like manner by Mr. Davis, of Waltham Cross.

Mr. Stainton called the attention of the Meeting to a species of *Antispila* mining the leaves of the vine in the island of Malta; the details of the life-history of which were published in 1750 in the *Memoires de l'Academie des Sciences de Paris*, in a letter to Reaumur from M. Godeheu de Riville. This larva had not since been observed. Mr. Stainton proposed to call the species *A. Rivillei*.

Mr. McLachlan said he had recently received a pamphlet from Chevalier Ghiliani, of Turin, respecting the appearance in Italy, last year, of immense swarms of the dragon fly, *Anax Mediterraneus*. This insect had been originally described from an example supposed to have been taken in Sardinia; but the species had been erased from the European List.

Mr. Smith exhibited the larva of a *Xantholinus*, to the under-side of which were attached the pupæ of a species of *Proctotrupidæ*; also the larva of *Cerosterna gladiator*, and a species of *Acheta*, destructive to forest-trees in Madras.

Dr. Cleghorn, Conservator of Forests in the Madras Territory, detailed an account of the ravages of these insects, and said, in answer to doubts expressed of the likelihood of an *Acheta* causing damage to trees, that this insect bit off the leading shoots. Mr. Trimen had noticed a somewhat similar habit in an allied species in South Africa.

Mr. Smith exhibited a collection of eight kinds of larvæ destructive to coffee-trees in India. One of these was a *Zenzera*, and there were two other *Lepidopterous* larvæ. The remaining five pertained to the *Coleoptera*, and included the notorious "white borer," *Xylotrechus quadripes*. Respecting this latter insect, Dr. Cleghorn

and Captain Taylor gave an interesting account of its habits, and of the immense damage it was occasioning in India. The opinion of the meeting seemed to be that the "borer" probably attacked only those trees that were in a sickly condition, and that remedial measures should be applied towards improving the general health of the trees. That the trees were in a morbid condition was rendered extremely probable, inasmuch as the three years immediately preceding the greatest amount of borer-mischief were notorious for drought.

Dr. Wallace, of Colchester, stated that he would be happy to forward eggs of *Bombyx Yama-mai* to any member wanting them, on receipt of three postage stamps.

Mr. Smith read "Descriptions of Aculeate *Hymenoptera* from Australia."

Mr. J. G. Desborough communicated Notes "On the duration of life in the Honey-bee."

Mr. Hewitson sent a note on *Tachyris Jacquinioti*.

Erratum in Vol. iv.—In Messrs. Douglas & Scott's paper on New British *Hemiptera* at p. 271, *delete* the word "Head" at the beginning of the description of *Corixa Scotti*.

LIST OF CAPTURES OF *HEMIPTERA* IN PALESTINE AND SYRIA;
TOGETHER WITH DESCRIPTIONS OF SEVERAL NEW SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

Our mutual friend, the Rev. O. P. Cambridge, having visited Palestine and Syria during the months of March, April, and May in the year 1865, collected, besides insects of other orders, the following species of *Hemiptera*, which he kindly placed in our hands for determination, and, where new, for description. With but very few exceptions, only a single example of each species has been captured, and it is extremely interesting to find that out of the whole number at least one-fourth of them appear to be new. We annex an entire list, and afterwards proceed to describe the novelties.

HEMIPTERA-HETEROPTERA.

Section SCUTATINA.

1. *Odontotarsus grammicus*, L. Plains of Jordan; in April.
2. *Eurygaster maurus*, L. Plains of Jordan, in April.
3. *Graphosoma lineata*, L. Sea of Galilee, in April.
4. *Leprosoma Stali*, n. s. On the road from Jerusalem to Nablous, in April.
5. *Sehirus dubius*, Scop. Jerusalem, &c., under stones, March and April.

6. *Sciocoris marginatus*, Fab. Plains of Jordan, in April.
7. *Sciocoris Cambridgei*, n. s. Plains of Jordan, in April.
8. *Eurydema ornata*, L. Hebron, in April.
9. *Eurydema rugulosa*, A. Dohrn. Road from Rasheiya to Damascus.
10. *Oncoma Germari*, Kol., Fieb. Jerusalem, in March.
11. *Mormidea nigricornis*, Fab. Nazareth, Carmel, &c., in April.
12. *Mormidea varia*, Fab. Road from Jaffa to Jerusalem, in March.
13. *Veterna* (Stal) *ornatula*, H. Sch. Plains of Jordan, in April.

Section COREINA.

14. *Palethrocoris disciger*, Kol. Plains of Jordan, in April.
15. *Cercinthus* (Stal) *Lehmanni*, Kol. Plains of Jordan, in April.
16. *Centrocarenus spiniger*, Fab. Nazareth, in April.
17. *Phyllomorpha laciniata*, Oetl. Nazareth, in April.

Section CÆCIGENINA.

18. *Pyrrhocoris apterus*, L. Jerusalem, &c., in April.
19. *Pyrrhocoris Ægyptius*, L. Plains of Jordan, on low plants, by sweeping, in April.

Section LYGÆINA.

20. *Lygæus militaris*, Fab. Jerusalem and several other localities, in March and April.
21. *Lygæus equestris*, L. Hebron, in April.
22. *Cænocoris* (Fieb.) *Nerii*, Germ. Plains of Jordan, on low plants, by sweeping, in April.
23. *Lygæosoma Tristrami*, n. s. Road from Nablous to Nazareth, in April.
24. *Calyptonotus sanguineus*, n. s. Plains of Jordan, in April.
25. *Calyptonotus Æthiops*, n. s. Plains of Jordan, on low plants, by sweeping, in April.
26. *Calyptonotus quadratus*, Fab. Plains of Jordan, in April.
27. *Mimicus nitidus*, n. s. Road from Nablous to Nazareth, in April.
28. *Dieuches* (A. Dohrn) *melanotus*, Fieb. Road from Jerusalem, in April.
29. *Dieuches* (A. Dohrn) *pulcher*, H. Sch. Mount Carmel, in April.
30. *Lasiocoris Flori*, n. s. Plains of Jordan, on low plants, by sweeping, in April.

SECTION CAPSINA.

31. *Pithanus Flori*, n. s. Nazareth, at the roots of a dwarf thorny plant; abundant in April.
32. *Deræocoris sexpunctatus*, Fab. Mount Gerizim, Hebron, plains of Jordan, and other places, in April.
33. *Deræocoris amænus*, n. s. Plains of Jordan, on low plants, by sweeping, in April.
34. *Grypocoris Fieberi*, n. s. Plains of Jordan, on low plants, by sweeping, in April.
35. *Dioncus neglectus*, Fab. Plains of Jordan, in April.
36. *Capsus rutilus*, H. Sch. Beyrout, in May.
37. *Camptobrochis serenus*, n. s. Near Baalbec, in May.
38. *Stiphrosoma amabilis*, n. s. Hebron, in April.

SECTION REDUVINA.

39. *Emesa Dohrni*, n. s. Amongst water weeds on the edge of the stream running from "Elisha's Fountain," in April.
40. *Sastrapada (Harpagocharis) Bärensprungi*, Stål. Do.
41. *Amphibolus venator*, Klug. Plains of Jordan, in April.
42. *Holotrichus tenebrosus*, Burm. Sea of Galilee, in April.
43. *Lochus squalidus*, n. s. Plains of Jordan, in April.
44. *Reduvius (Harpactor) variegatus*, Fieb. Kefr Menda (near Canael-jelil), in April.
45. *Metastemma æneocolle*, Stein. Plains of Jordan, on low plants, by sweeping, in April.
46. *Oncocephalus thoracicus*, Fieb. Beyrout, in May.

HEMIPTERA-HOMOPTERA.

1. *Cixius nervosus*, L. Plains of Jordan, in April.
2. *Triecphora sanguinolenta*, L. Beyrout, in May.

4.—LEPROSOMA STALI, n. s.

♀ *Breve, latum, sub-depressum, verrucoso-punctatum, opacum; capite testaceo, lobo medio breviori, apice emarginato; ocellis minutis, remotis, vix infra marginem anteriorem pronoti profunde insertis; pronoto antice ochraceo, postice saturatiore; scutello in angulis basalibus tuberculo ovato, subobliquo, testaceo, carina media apicem haud attingente; elytris umbrinis, profunde nigro-punctatis; sterno rugoso-punctato; pedibus*

ochraceis, punctis magnis irregularibus nigris; femoribus nigro subcinctis; tibiis leviter denticulatis; connexivo leviter reflexo. (Antennæ desunt) Long. $3\frac{3}{4}$ lin.

♀. Short, broad, sub-depressed, verrucose punctate, not shining. Brown.

Head yellowish-brown, somewhat elongate, the central lobe shorter than the side lobes which meet in front, leaving a small notch, and enclose it. *Eyes* small, brown, viewed from above somewhat hemispheric. *Ocelli* minute, remote, placed in a deep cavity beyond the eyes, and almost under the anterior margin of the pronotum. (*Antennæ* wanting.)

Thorax—*Pronotum* ochreous, almost perpendicular in front, with a dark brown curved line behind the anterior margin; posteriorly the disc is dark brown; anterior margin concave; sides divergent, concave; hinder angles dilated and rounded; posterior margin straight across the scutellum; longitudinally the posterior portion of the disc straight. *Scutellum*, the raised basal portion triangular, with slightly rounded sides, to which is joined a central keel tapering towards and dying out before reaching the apex; at the basal angles an ovate, somewhat oblique, brownish-yellow nodule; disc dark brown at the base, fading into brownish-yellow as it approaches the apex. *Elytra* brownish-yellow deeply punctured with black; membrane suture narrowly dark brown. *Membrane* pale. *Sternum* ochreous, rugose-punctate. *Legs* ochreous, with large, irregular, black punctures, especially on the thighs, which are almost banded. *Tibiæ* finely denticulated. *Tarsi* yellow. *Claws* black.

Abdomen—connexivum above pale brownish-yellow, slightly reflexed, much rounded and widened posteriorly, the anterior margin of each segment broadly dark brown; under-side convex, yellow, the anterior margin of the connexivum very narrowly dark brown.

On the road from Jerusalem to Nablous, in April.

The above description has been drawn up from a single example, and named by us after the talented author of the "Hemiptera Africana." The genus is one invented by Bärensprung, and fully characterized in the Berlin Entomologische Zeitschrift for 1859, p. 336. It stands near, as he says, to the genera *Eurygaster* and *Graphosoma*, Lap. He enumerates two species, one of which, from Sarepta, he describes as *L. inconspicuum*, but the diagnosis is very brief and unsatisfactory; the other he simply refers to as from Egypt, and in the Royal Collection.

7.—SCIOCORIS CAMBRIDGEII, n. s.

Ovatus, testaceus, opacus, supra et infra dense leviter et regulariter rufopunctatus; capite spherico-triangulato; antennis fuscis, tuberculo necnon articulo primo testaceis; ocellis minutis; pronoto subconvexo, antice sulco transverso subsinuato interrupto, impunctato; scutello corii longitudine,

macula parva alba ad angulos basales; membrana pallida, pellucida, nervis dilute testaceo-marginatis; femoribus subtus (præsertim anticis mediisque) spinis brevissimis ferrugineis instructis; abdomine subtus subconvexo, stigmatibus concoloribus; segmentorum 3, 4, 5, et 6 angulo basali exteriori macula parva nigra ornato. Long. 3 lin.

Oval, dull testaceous, thickly, finely and regularly punctured with red on both the upper- and under-side.

Head spherical triangular, with a short, flat, unpunctured channel on the outside and in front of the ocelli. *Antennæ* pale fuscous-brown, except the 1st. joint and tubercle, which are testaceous; 3rd joint rather more than $\frac{3}{4}$ the length of the 2nd. *Eyes* pitchy-black, small, their outer margin in a line with the outer angle of the pronotum. *Ocelli* minute, somewhat indistinct. *Rostrum* testaceous, apex piceous.

Thorax—*Pronotum* flat, convex, with a transverse, slightly wavy channel in front on each side of the centre. *Scutellum* as long as the corium, the centre with a short faint channel; within the basal angle a small white spot. *Elytra*—*Membrane* pale, very transparent; nerves very delicately margined with pale testaceous. *Sternum* redder than the pronotum. *Legs* testaceous-yellow. *Thighs* underneath, especially the 1st and 2nd pairs, with very short brown-red spines. *Tibiæ*, spines red-brown. *Tarsi* testaceous-yellow.

Abdomen beneath somewhat convex, not so thickly punctured towards the centre as on the sides; stigmata unicolorous. *Connexivum* reddish-testaceous, slightly reflexed; outer basal angle of the 3rd, 4th, 5th, and 6th segments above and below with a small black spot.

A single specimen taken on the plains of Jordan in April. We have much pleasure in naming this insect after its discoverer. It bears a great resemblance to the *S. ochraceus*, Fieb., Europ. Hem. p. 357, 7, but it has not "the marginal line of the head, pronotum and abdomen and stigmata, white," nor is the "membrane dirty white," as in that species,—characters at once sufficient to separate them easily.

23.—LYGÆOSOMA TRISTRAMI, n. s.

Nigro rubroque varium, leviter punctatum, aureo-pubescens; capite antennisque nigris; pronoto antice macula magna lunata, marginibus lateralibus late, margine posteriori anguste, carinisque mediis, rubris; scutello nigro, apice rubro; elytris rubris; clavo maculaque subquadrata in medio corii, nigris; membrana nigra, margine exteriori, linea brevi in angulo interiori, maculaque rotunda ante medium, albis; sterno nigro, marginibus lateralibus rubris; pedibus nigris; abdomine nigro, connexivo rufo. Long. $2\frac{1}{2}$ lin.

Red and black, delicately punctured throughout, and clothed with a short, fine, depressed, golden pubescence.

Head black. *Antennæ* black. *Ocelli* pitchy-red, shining. *Rostrum* pitchy-black.

Thorax—*Pronotum* in front with a black, lunate patch, extending to the transverse concave channel, behind which, on each side of the central keel, a large black patch; lateral margins broadly, posterior margin narrowly, and central keel red, the colour continued into a spot on the anterior side of the transverse channel. *Scutellum* black, with an arrow-shaped red patch at the apex. *Elytra*—*clavus* black; *corium* red; nearly in the centre an almost square black spot. *Membrane* black; extreme outer margin and a short narrow streak along the margin of the inner posterior angle white; disc with a round white spot a little above the centre, and from the membrane suture a little inside the posterior angle of the *corium*, a short, white, diagonal streak running towards the upper margin of the central spot. *Sternum* black, lateral margins red. *Legs* black. *Tibiæ* clothed with short, depressed, yellowish hairs. *Tarsi* piceous.

Abdomen underneath black, finely punctured, clothed with short, depressed, yellow hairs. *Connexivum*, upper- and under-side red.

A single specimen on the road from Nablous to Nazareth, in April.

With much pleasure we name this insect after the Rev. H. B. Tristram, into whose possession this collection has passed, and in whose work on Palestine all these new species will be figured.

24.—CALYPTONOTUS SANGUINEUS, n. s.

Ruber, nitens; capite nigro, leviter punctato; antennis nigris; pronoto antice nigro, postice rubro, plus minusve nigro-infusato, marginibus lateralibus reflexis; scutello nigro, subconvexo, medio depresso, carina brevi posteriori; elytris rubris, clavo linea lata suturali nigra; corio leviter nigro-punctato, macula magna sub-rhomboidali in angulo interiori posteriori nigra; membrana picea: sterno, pedibus abdomineque nigris.

Long. $3\frac{3}{4}$ lin.

Red, shining; *corium* posteriorly with a large black, somewhat rhomboidal spot.

Head and *Antennæ* black, the former finely punctured.

Thorax—*Pronotum* sides margined and reflexed; anterior half black; posterior half red, more or less clouded with black, which appears to shine through from the mesonotum, the extreme marginal edge narrowly black; hinder angles rounded; posterior margin concave; disc flattish, convex, finely punctured, the punctures in the posterior portion black. *Scutellum* black, finely punctured, depressed in the centre, with a slight central keel springing from the base and extending to about the middle. *Elytra*—*clavus* red, next the inner margin, which is narrowly red, a broadish black streak, minutely punctured, extending almost to the scutellar angle; next the suture a row of minute black punctures. *Corium* red minutely punctured with black; disc posteriorly at the inner angle with a large, somewhat rhomboidal black spot

joined to the black posterior margin. *Membrane* piceous. *Legs* black. *Thighs*, 1st pair, spindle-shaped, with a tooth on the under-side near the apex, and a row of short dark hairs. *Tibiæ*, 1st pair on the under-side only, 2nd and 3rd with long, black, spinose hairs.

Abdomen underneath black, in certain lights with a golden reflection.

A single specimen taken on the plains of Jordan, in April.

(To be continued.)

NOTES ON LEPIDOPTERA FROM "GOOLMURG," IN CASHMERE.

BY CAPT. A. M. LANG.

Goolmurg is a large, open, flowery glade at an altitude of 9000-ft. above sea level, on the north-eastern slopes of the spurs of the "Pir Punjal" range of mountains which shut in and overlook the "Vale of Cashmere" from the south.

It is surrounded by thick forests of *Pinus excelsa*, *Picea Webbiana*, *Pavia indica*, *Acer*, *Taxus*, &c.

During the months of July and August, 1867, Dr. T. C. Jerdon was encamped at Goolmurg, and took, as characteristic specimens of the Diurnal *Lepidoptera* frequenting the place, the following species:

PAPILIO MACHAON. Common throughout the north-western Himalaya.

GONEPTERYX NIPALENSIS. This species has a range along the whole extent of the Himalaya, from Bhootan to Cashmere.

PIERIS NABELLICA. This insect occurs but sparingly in Kunàwur, where it has been taken by me at altitudes of about 9000 or 10,000 feet in the Wungur, Kazhang, and Buspa valleys. It has a slow, heavy flight, and is fond of pitching on the late umbelliferous plants, which rise above the dense masses of flowers carpeting the glades in these wooded valleys during the rainy months of July and August. The specimens from Cashmere appear to be lighter in colour than those from Kunàwur.

PIERIS DAPLIDICE. Of this wide-spread species, specimens occur in Dr. Jerdon's collection, though taken in the valley of Cashmere, and not at Goolmurg. These are (contrary to their congener, *Nabellica*) darker than the individuals of this species taken in the village fields of Spiti and Tibet to the eastward.

PIERIS GLICIRIA. This is abundant throughout the Himalayas, and does not appear to vary.

GRAPTA C-ALBUM (?). This *Grapta*, though apparently common at Goolmurg, occurs but rarely in Kunàwur, where, however, I have taken it at several localities far apart, and of diverse altitudes and climates. Thus one very fine fresh specimen was taken on the bleak Hungrung Pass, at about 15,000 feet altitude; while others were taken 200 miles away on the lower, well-wooded ranges of the Simla district. The species varies considerably in the colouring of the under surface.

VANESSA V-ALBUM. This species appears to be new to the Indian Fauna: I have never taken it myself, or seen it in any collection made in this country. Two fine specimens were taken by Dr. Jerdon at Goolmurg.

VANESSA XANTHOMELAS. One specimen of this species appears in this series. It is also taken in the Simla district, where, however, it is not common.

VANESSA CASHMIRENSIS. This insect abounds along the whole range of the Himalaya, and is as common in these mountains as the scarcely distinguishable *V. urticæ* is in Europe.

ARGYNNIS JAINADEVA. } The Cashmere specimens do not in any way
 ,, **KAMALA**. } differ from those taken in the Simla, Kunà-
 wur, and districts.

ARGYNNIS JERDONI, sp. nov. This species is represented by only one individual (not in good condition) in Dr. Jerdon's series. I have never myself taken it, or seen it in any other collection. It is a small Fritillary, allied to *Semele*, and belonging to the second section of the genus *Argynnis*, as defined in Westwood's "Genera;" the second subcostal nervule is thrown off beyond the end of the cell.

UPPER-SIDE—fulvous, markings black. *Fore-wing*—base, and interior margin, below submedian nervure, dark fuscous; two spots (first circular, second lunular) within, and a streak closing, the cell; a large spot below the origin of the first median nervule; a transverse, curved, discal series of seven spots; a suffused spot on costa at two-thirds from the base; a nearly straight, exterior, transverse series of seven spots; a submarginal series of lunules; and a very slender marginal line, which expands into an angle at the end of each nervule. *Hind-wing*—the basal half dark fuscous, with a sinuous exterior margin; an exterior, transverse series of six spots; a submarginal series of five lunules; and a very slender marginal line expanding into an angle at end of each nervule.

UNDER-SIDE—*Fore-wing* pale fulvous; markings as above, with the exception of the

fuscous of the base and interior margin, which is wanting, but is replaced by an additional narrow, lunular, basal mark within the cell. *Hind-wing* fulvous; base deep ferruginous, including a basal series of three small silvery spots; a broad, curved, transverse, discal fascia (with acutely angulated black margins), silvery-white, except where interrupted by two yellowish-white patches; an exterior transverse curved series of six small ocelli; the sixth (near anal angle) geminated; ocelli black, with minute white pupils; marginal series of large silvery spots, each bordered interiorly with a narrow black lunule.

Thorax, abdomen, palpi, antennæ, dark fuscous; the latter with ochreous tips to the large, flat, pyriform clubs. Expans. corp. $\frac{1}{2}$ " ; alar. $1\frac{1}{2}$ ".

Hab. "Goolmurg" (Cashmere).

LIMENITES LIGYES. This species is represented by only one much mutilated specimen in Dr. Jerdon's series, which resembles the dark "Kunàwur" rather than the light "Simla" variety; but it differs from all that I have yet seen, in having an exterior transverse series, nearly obsolete in fore-wings, but very distinct in hind-wings, of ochreous-red spots, one being placed at the apex of each of the black borders of the submarginal lunules. The under surface is also suffused with ochreous-red.

This species is subject to a considerable amount of gradual variation. At the commencement of its range near Simla, all the individuals accord well with the description of *L. Trivena*, Moore (Ent. Mo. Mag. Nov., 1864,) having *broad* white fasciæ occupying nearly one-third of the wing; while at the extreme northern limit of the range, Tibetwards (as also apparently to the west in Cashmere), the fascia is narrow and only macular, and the insects have a dark sombre look. The food-plant of the larvæ is *Lonicera tatarica*, which has a wide range in the N. W. Himalaya.

AULOCERA SWAHA. This is one of the commonest insects of the N. W. Himalaya, and does not appear to vary; the Cashmere specimens exactly resembling those from Simla, Kunàwur, Gurhwâl, &c.

AULOCERA WERANGA. This appears to be a rare species. One specimen in Dr. Jerdon's Goolmurg series, and three individuals taken by me in Upper Kunàwar, are the only specimens known to me.

EPINEPHILE NEOZA, sp. nov. This small species of *Epinephile* appears to be common at Goolmurg, although in Kunàwur it seems to be rare, and confined to only a few localities. On the upper surface it has considerable resemblance to *E. Davendra* ♀, which

is much smaller, and want the strongly dentated margins and bright white ciliæ of the hind-wings of that species. *Davendra* ♀ has moreover often (though not always) a second black spot near posterior angle of fore-wings, which never appears in this species. On the under surface of the hind-wings they are very distinct.

♂ UPPER-SIDE—greyish-brown. In the *fore-wing* the discal portion is broadly suffused with a satiny brownish ferruginous; a single apical spot black.

UNDER-SIDE—*fore-wing* with markings as above; but the disc is brightly ferruginous and separated from the grey-brown exterior margin by a narrow, sinuous darker line; and the apical spot has a minute white pupil and diffused yellowish iris. A transverse fine, scarcely distinct ferruginous line, strongly angulated outwards below the ocellus, crosses the wing beyond the middle. *Hind-wings* greyish-brown, minutely striated and freckled, with three transverse, sinuous and dentated lines darker; the first basal, the second discal, the third simulating a sub-marginal series of connected lunules.

♀. Markings generally as in the male; but the disc of fore-wings above brightly ferruginous, the apical spot larger, and with an indistinct paler ferruginous iris. On the hind-wings the submarginal lunular line of the under surface appears very indistinctly (or not at all) on the upper surface.

Expans. corp. $4\frac{1}{2}$ ''; alar. 1'' 6'''. Form of *E. Davendra*, but with less acutely dentated margins.

Hab. Kunàwur and Cashmere.

EPINEPHILE GOOLMURGA, sp. nov.

♀ UPPER-SIDE—dark brown. *Fore-wing* with two rather large black spots, broadly encircled with pale ferruginous; one subapical, the other near posterior angle.

UNDER-SIDE—greyish-brown. *Fore-wing* with discal portion ferruginous; ocelli as above, but with irides smaller, and with minute white pupils; an indistinct streak closing the cell, and beyond it a transverse discal line, angulated externally between the ocelli. *Hind-wing* irregularly and indistinctly tinted with fuscous, ferruginous, greenish and glaucous; but a large, medial, ferruginous patch near base; a curved discal series of seven irregular cuneiform spots, pale yellowish ferruginous, and an incomplete submarginal series of small ocelli, black with yellowish irides; two below apical and two above anal, angle.

Head, thorax, abdomen, palpi, and antennæ, brown; eyes ferruginous.

Expans. corp. $4\frac{1}{2}$ ''; alar. 1'' 6'''.

Hab. "Goolmurg" (Cashmere).

EPINEPHILE MAIZA, sp. nov. (*an præcedentis var.?*).

♀ UPPER-SIDE—as in *Goolmurga*, but with the irides of the ocelli much smaller and darker.

UNDER-SIDE—generally as in *Goolmurga*; but in the *fore-wing* the greyish-brown borders and the transverse discal line are much broader and darker. In the

hind-wing the colour is clear, unclouded brown; the basal ferruginous patch is larger, the discal series of cuneiform spots is incomplete and indistinct, formed of smaller, darker spots, and the four submarginal ocelli are entirely wanting. *Expans.* and *Hab.* as in *Goolmurga*. The *fore-wing* is slightly broader, and has a more rounded apex and more convex exterior margin than in *Goolmurga*.

Were these insects ♂ and ♀ they would be indubitably set down as sexes of one species; but both appear to be ♀: they may, however, pertain to one species, which is variable, and of which a larger series must be obtained before its character can be correctly defined.

POLYOMMATUS ARIANA. } These (or this?) species are widely spread
 ,, NAZIRA. } through the N. W. Himalaya, and shows
 everywhere a considerable tendency to variation in the colouring
 of the under surface. The Goolmurg specimens accord with those
 from Simla and Kunàwur.

POLYOMMATUS NYCULA. This very lovely species is common at Goolmurg. In the Simla and Kunàwur districts it is not widely spread, but appears in some abundance in certain localities. The rich blue ♂ appear to far outnumber the dull brown ♀, which are easily taken.

POLYOMMATUS SP. ?. Only two specimens (not in good condition) occurred in Dr. Jerdon's series. I have seen it nowhere else.

CHRYSOPHANUS KASYAPA. This beautiful little "copper," though rare in Simla and Kunàwur, seems to be very common at Goolmurg.

This series of twenty-three species of Diurnal *Lepidoptera*, although it cannot be supposed to comprise all the species which fly at Goolmurg in the months of July and August, may be assumed to represent all but the rare ones, and fully to characterize the Lepidopterous Fauna of the region. It will be seen that there is no tendency to tropical, or to truly Indian, forms; but that, on the contrary, the collection is entirely suggestive of the European Fauna: in some cases the species being identical with well-known European forms, while the rest are nearly allied Himalayan representatives, closely resembling their European congeners.

Such collections as this, formed at various points along the Himalaya, Hindoo Koosh, and ranges westwards to the Caucasus, would be very interesting, as determining exactly where and under what conditions the closely-allied eastern and western congeners first appear, either in contact or in close proximity.

NEW SPECIES, &c., OF HETEROCEROUS LEPIDOPTERA FROM CANTERBURY, NEW ZEALAND, COLLECTED BY MR. R. W. FEREDAY.

BY ACHILLE GUENÉE.

(Continued from page 6).

Genus AGROTIS.

AGROTIS (SPÆLOTIS) CÆRULEA, Guenée, n. s.

Alæ anticae cœruleo-griseae, lineis mediis maculisque ordinariis vix expressis pallidioribus, saturate cinctis; subterminali nulla, vel punctulis solum indicata: posticæ maris luteæ, margine late griseo, subtus omnes in mare albo-ochraceæ, in fœmina albo-griseæ. Abdomen maris utrinque luteum. Palpi crassi.

Size and aspect of our *birivia*, which is the European species to which it is most nearly allied. The ♂ has the superior wings distinctly bluish-cinereous, the fringe concolorous; the half line and the two median ones are faintly marked by whitish atoms, and bordered on each side by darker grey; the orbicular stigma is large, whitish, and well marked, and almost contiguous to the extra basal line; the reniform stigma is much less visible, and is separated from the preceding by a square group of dark atoms; the subterminal line is obliterated or scarcely indicated by little unequal whitish dots; other dots, smaller but more visible and more regular, follow the elbowed line: inferior with the ground colour ochraceous, but much obscured by a broad grey band and vague median line: the under-side of all the wings is yellowish-white without markings. Thorax bluish-grey, and the abdomen full yellowish-ochreous on each side. Antennæ almost entirely filiform.

The ♀ differs much from the male. Its anterior wings are somewhat slaty-grey, with the fringe whitish, and the under-side of all the wings white, scarcely yellowish, powdered almost everywhere with grey atoms, as is also the abdomen.

But that which best distinguishes this pretty species is the form of the palpi, which varies enormously in the sexes. In the ♀ they are extremely thick but glossy, and project strongly beyond the front; the second joint spongy, strongly rounded at the apex, and the third joint is scarcely visible, but in the place of it one sees only a sort of lateral opening. In the ♂, on the contrary, they are of the ordinary form, and the third joint is very apparent, ovoid, and directed forward.

AGROTIS ADMIRATIONIS, Guenée, n. s.

Sub-affinis A. corticeæ. Alæ anticae griseæ, lineis mediis distantibus, macula orbiculari elongata, renigeram fere attingente, claviformi longa: posticæ griseæ, fimbria albida; subtus albida, lunula cellulari, lineaque media, fuscis.

I have seen only one specimen in rather poor condition. It is rather smaller than *corticea*. Superior wings smoky-grey, with the ordinary lines much sinuated, blackish and edged with greyish-white atoms; the two median lines very distant, almost parallel; the elbowed line not angulated inferiorly; the three stigmata pale grey encircled with black; the reniform almost touches the elbowed line, and is surrounded by blackish shades; the orbicular very oblong, pyriform, and its apex almost reaching the reniform; the claviform is very oblong and distinct; the sub-

terminal line vague; the hinder margin marked with black dots: inferior wings uniformly grey with whitish fringes preceded by vague black dots; beneath they are whiter with a well-marked cellular spot and median shade. Thorax very robust, grey mixed with black, with a blackish line on the anterior part of the collar. The head is darker, and so are the palpi, the last joint of which is long and truncated. Antennæ strong, pectinated.

AGROTIS CEROPACHOIDES, Guenée, n. s.

Alæ anticæ pulvereæ, griseo-subvirescentes, punctis terminalibus nigris, subtus albidæ, litura media nigricanti: posticæ griseæ, fimbria albidæ, atomis nigris; thorax griseus; antennæ pectinatæ.

I have only one example of this *Agrotis*, which at first sight has the appearance of a *Cymatophora* allied to *flavicornis*. Superior wings somewhat dark grey, but entirely covered with long sulphur-coloured or greenish scales which obliterate all markings save the large black dots on the hinder margin; however, with attention, one is able to see traces of the reniform stigma, and it is possible that, in better marked individuals, the other markings would be visible; the fringe is long, grey, with the extremity white: the inferior wings are uniformly grey, with the fringes likewise long, whitish, divided by a dark line: beneath, all the wings are greenish-grey, powdered with black atoms on the costa; the superior have in addition, under the costa near the middle, a vague median cellular blotch, and a black dot at the base of the bristle. The thorax is broad, quadrate, darker grey than the wings, like the head, without any line. Palpi very hairy; the third joint thin, lost amid the hairs of the second. Antennæ long, acute, and furnished with long ciliated laminae.

Genus EUMICHTIS, Walker.

EUMICHTIS SISTENS, Guenée, n. s.

Alæ integræ: anticæ subvirescenti-griseæ, lineis mediis serratis nigris, subterminali pallida, maculis bene notatis, orbiculari rotunda, reniformi magna, claviformi exigua: posticæ griseæ, lunulis marginalibus nigris.

The facies of this species is somewhat ambiguous, and its definite position depends upon the discovery of the larva. Perhaps it should be placed in the *Hadenidæ* near *H. sodæ*. At present it appears best to locate it in its present position. It has some affinity with *Mamestra albicolon*.

Not larger than *H. sodæ*. The thorax and superior wings testaceous-grey, with a greenish appearance; all the markings are well defined, especially the elbow line, which is formed of little black lunules slightly separated; the two ordinary spots are large, grey encircled with black; the orbicular is round, marked with a sub-costal black dot; the reniform broad, filled in with black below; beneath it is the median shade which forms a series of zig-zags to the inner margin; the sub-terminal line is slender, pale, sometimes preceded by small isolated black dots; other dots, somewhat lunulate, precede the concolorous fringe: inferior blackish-grey, with terminal black dashes. Collar with a slight black line. Antennæ thick, and, with the lens, thickened ciliated denticulations are perceptible. Abdomen without crests.

The ♀ is slightly paler; its abdomen very thick, beneath with two lateral series of black markings. The antennæ have only slight, scarcely perceptible ciliations.

FAMILY VIII. HADENIDÆ.

Genus HADENA.

HADENA NERVATA, Guenée, n. s.

Statura H. mutantis; alæ anticæ brunneæ, costa, nervis omnibus, maculis, lineisque ordinariis albis, nigro limbatis: posticæ testaceæ. Thorax albo, brunneo nigroque varius. Antennæ pectinatæ.

This pretty *Hadena* resembles our *Neuria saponariæ* in its markings. Superior wings wood-brown, the costa and all the nervures white, strongly defined, as are also the ordinary lines, which are bordered with small black dashes; the two first lines somewhat confused, the elbow line is better distinguished by the small black lunules which margin it; lastly, the subterminal line is the best marked in a zig-zag, and forming a \approx between the second and fourth nervules; the reniform and orbicular stigmas are very conspicuous, white, brown in the centre and bordered with black; the claviform is confused with the basal markings: inferior wings pale brown with white fringe; beneath nearly white, with a dark cellular spot and median line. Thorax brown, with black lines, edged with white on the collar and on the patagia. Antennæ spatulated and pubescent, furnished with slender but long laminae.

The ♀ differs from the ♂ only in its simple antennæ.

FAMILY XYLINIDÆ.

Genus XYLOCAMPA.

XYLOCAMPA INCEPTURA, Walker.

I have before me both sexes of a species which I think identical with that described by Mr. Walker (Cat. Lep. Brit. Mus., p. 1736), although the examples present some differences; notably the absence of the black basal line and terminal dots. The ♀, which Mr. Walker has not described, is of a duller grey than the ♂, and the median lines, which are scarcely visible in that sex, are here plainly marked in geminated zig-zags. The third joint of the palpi, which, in the ♂, is very thick and spatulate, is here more slender and linear.

This species, and the following, are not true *Xylinæ*, and to me appear to have more affinity with my genus *Xylocampa*; *i. e.* until the discovery of their earlier states, and of other analogous species, shall justify the creation of a separate genus proper to Oceania.

XYLOCAMPA CUCULLINA, Guenée, n. s.

Statura X. incepturæ. Alæ anticæ cinereæ, costa, lineolis, margineque nigro-punctatis, maculis distinctis: posticæ fuliginosæ, fimbria alba: subtus albida, lunula cellulari limboque nigricantibus. Articulus tertius palporum sub-inflatus, secundo minor.

It is scarcely the size of *inceptura*, and the wings are rather more obtuse. Superior cinereous, with intensely black terminal dots; the costa also marked with black dots, which indicate the origin of the ordinary lines, which are little visible; the half-line is the most apparent, formed of two arcs, one placed above the other; no basal line; subterminal indicated by a series of wedge-shaped blackish spots; and the central shade by a black dot on the inner margin; the two ordinary spots are visible, and of the normal form: inferior smoky-grey, without markings, and with a white fringe; their under-side whitish, with a large black cellular lunule, and a strongly defined border, which resembles that of the species of *Anarta*. Antennæ stout, scarcely ciliated. The terminal joint of the palpi strongly projecting, but much shorter than the second, naked, and somewhat club-shaped. Thorax with a black line on each patagium.

PHALÉNITES.

FAMILY II. ENNOMIDÆ.

Genus POLYGONIA, Guenée, n. g.

Larva ---?. Imago—palpi long, straight, connivent, forming a beak; second joint thick, hairy; third filiform, acute. Antennæ of the ♂ rather short, slender, and completely filiform. Body very slender. Thorax scarcely broader than the abdomen, short, scaly. Abdomen very long, not conical. Legs very long and very slender, not pilose, almost equal; the spurs robust. Wings strongly angulated and incised, glossy, shining; the markings mostly well marked.

A genus which appears to be proper to Oceania, and which has but little analogy to others. It seems to agree a little with *Ennomos*, *Selenia*, *Hyperetis*, and *Entomopteryx*, after which it appears to place itself in the order adopted in my "*Species*."

POLYGONIA FORTINATA, Guenée, n. s.

Alæ valde dentatæ et angulatæ, violaceo-cervinæ: anticæ lineis nigris maxime expressis, 1^a bidentata, 2^a sinuato-bidentata, puncto nigro antecedente lituraque costali fuscis: posticæ pallidiores, linea media incompleta: subtus omnes flavæ, ferrugineo-variæ, lineis distinctis.

This charming Phalénite is a most curious species. The wings are cut in an altogether peculiar manner. Superior having each at the apex two triangular excisions, the first of which is very deep (the inferior have also two excisions near the middle); they are testaceous-yellow, more or less tinged with violet, and with two deep black, well marked median lines; the first line forms, above and beneath the median nervure, two very acute angles; the second forms also two corresponding angles, but more open and blunter, and is bordered on the inside with paler; between the two lines is a brown mark on the costa, and a black dot beneath it: opposite to the second angle of the elbowed line are two more black dots, and

finally some black markings near the terminal excision : inferior with only one line, which becomes obliterated near the middle of the wing. In well-marked specimens there is also a pale subterminal line common to all the wings.

The under-side is of a more lively yellow, strongly varied with ferruginous, with the same lines and dots as the upper-side, but less marked and reddish : on the inferior is a median band, toothed inferiorly and surmounted, in the cellule, by an oval ferruginous dot, traversed by a fine white line, which divides the cellule in two parts, and is prolonged to the apical margin. The whole body is coloured as in the wings. I have not seen females of this insect.

FAMILY V. BOARMIDÆ.

Genus GNOPHOS.

GNOPHOS PANNULARIA, Guenée, n. s.

Statura G. obscuratæ. Alæ omnes latæ, dentatæ, griseo-testaceæ, striatæ; margine lato, brunneo-rubicante: anticæ macula quadrata terminali alba. Antennæ pectinatæ.

It is as large as the largest *obscurata*. All the wings are strongly toothed, testaceous-grey, powdered with fine blackish atoms. The base of the superior and the last half of all the wings are tinted with reddish-brown, forming a kind of vague border, which, on the superior, has the appearance of being denticulated inwardly, and is narrower opposite to the cellule : beneath, this border does not extend to the margin, and thus forms a subterminal band ; there is here, on all the wings, a cellular black dot, which is larger on the inferior. Body coloured as in the wings, without markings. Palpi little prominent, as in all species of the genus. Antennæ furnished with long, but fine, pubescent pectinations.

FAMILY XI. ACIDALIDÆ.

Genus ASTHENA.

ASTHENA MULLATA, Guenée, n. s.

Statura A. risatæ. Alæ omnes rubro-paleaceæ, lineolis multis undulatis griseis parallelis; duabus mediis griseo sæpe infuscatis; punctulo cellulari nigro: anticæ litura media vix conspicua ferruginea. Frons brunnea. Antennæ basi albæ.

This little species approaches more to the true *Acidalia* than do its congeners *ordinata* and *risata*, yet its wings have the same form : they are pale straw colour rather than reddish, and are traversed by a multitude of grey parallel lines, which are nearly straight, but composed of little lunules ; the two median ones are more blackish-grey, and, behind these, between the second and third nervules, is a more or less distinct geminated ferruginous mark ; a small round, very distinct, cellular dot, and other similar terminal ones : beneath the lines are distinct only from the cellular dots to the terminal border, and the base of the superior wings is suffused with black. Front cinnamon-brown, and contrasting with the vertex, which is paler than the rest of the head, and whitish, as is also the base of the antennæ. I say nothing about the latter, believing that I have only females.

FAMILY XV. FIDONIDÆ.

GENUS PANAGRA.

PANAGRA SCISSARIA, Guenée, n. s.

Alæ sub-angustatae, albidæ, sericeæ: anticæ linea umbrata longitudinali punctisque cellulari terminalibusque nigris.

It approaches group 11 (*Lozogramma*). Superior wings rather narrow, acute at the apex, slender and silky; bone-white, with the fringe concolorous, preceded by little rounded interneural black dots; a similar dot in the cellule; a black longitudinal line parts from the base, and is directed towards the apex, which it does not reach, conspicuous above, but obliterated beneath: inferior wings equally narrow, somewhat prolonged at the anal angle, paler than the superior, and without markings. Antennæ furnished with fine, but long, ciliations. Front glossy and rounded.

GENUS FIDONIA.

FIDONIA (?) SERVULARIA, Guenée, n. s.

Alæ omnes paleaceæ, nitentes, margine fasciaque terminali interrupta nigro-griseis; linea media punctoque cellulari: subtus concolores, fascia media pallida. Antennæ pectinatae. Palpi acuti. Corpus gracile.

I have only one sex of this small species, and dare not affirm that it really belongs to the *Fidonidæ*. It has a deceptive appearance of an *Acidalia*.

All the wings are entire, shining, straw-yellow with blackish markings, forming at first a common border, which is rather unequal, and afterwards another similar unequal band on the superior, greatly interrupted, and leaving sometimes only a line on the inferior: the superior have, in addition to the elbow line, a cellular dot and two markings on the inner margin: the under-side of the four wings have the markings of the upper, and a distinct median band of the ground colour is there seen, but the colour is paler on the inferiors. Body slender, concolorous. Antennæ furnished with long pubescent pectinations. Palpi forming a moderately prominent, but very acute, beak.

(To be continued.)

Occurrence in England of the larva of a terrestrial Trichopteros insect; probably *Enoicyla pusillo*, Burmeister.—I have several times called attention to the existence, on the Continent, of a Caddis-fly (*Enoicyla pusilla*) which, in the larva state, lives out of the water amongst moss at the roots of trees;—the exception in these insects which proves the rule. I believe I can now assert that this is a British insect. Mr. Fletcher, of Worcester, has obligingly sent me several living larvæ and their cases found in the moss and lichens near the root of willow-trees, and these cases exactly resemble those of *Enoicyla pusilla*, from Bavaria, in my collection: they are of a very ordinary form—slightly curved cylinders made of fine sand. It only remains to breed the insects (which should appear late in the autumn) to enable us to add this most interesting species to the British Fauna. As might naturally be expected, the larva is destitute of the external respiratory filaments common to almost all caddis-worms, but the spiracles are not very evident. *E. pusilla* is also remarkable inasmuch as the female is wingless and little resembling the male. Several authors, before its transformations were shown, remarked on the occurrence

of the perfect male insect, a small creature with little power of flight, in localities where water was absent. According to a letter received from M. Snellen Van Vollenhoven, the larva occurs "in millions" in the wood of La Haye, in Holland. May I ask observers to keep a look-out for this most peculiar insect?—R. McLACHLAN, 20, Limes Grove North, Lewisham, *June*, 1868.

Tenthredo olivacea of Klug, a new British saw-fly.—Of this I took a single specimen at Rannoch, in June, 1865, and have received five examples from Dalry, Ayrshire, taken by Dr. Sharp. It much resembles the common and variable *T. scalaris*, but may be at once distinguished by its olive-green, instead of bright green, ground-colour, and by the thoracic black markings, which here form only slender lines marking the sutures of the lobes; whereas in *scalaris* they are more conspicuous, and form distinct blotches, even in the least-marked individuals.—ID.

Occurrence of a genus of Coleoptera new to Britain.—I have just received for determination from Miss Catherine C. Hopley, of Lewes, a ♂ specimen of *Phosphænus hemipterus*, Geoff., captured in her garden at that town. Another example has been taken. This luminous beetle occurs commonly in France and Germany, and is distinguishable from the "Glow-worm" by its much smaller size and long and stout antennæ, and the very short gaping elytra of its male. A full account will appear in our next No. from Miss Hopley's pen.—E. C. RYE, 7, Park Field, Putney, *June*, 1868.

Capture of a species of Omias new to Britain.—During the last and the early part of the present month, I have taken in Hackney Marshes a few examples of both sexes, including a pale form, of an *Omias* evidently different from our recorded species, and which Mr. Rye thinks is to be referred to the *O. pellucidus* of Schönherr.

Of those already known as British, it most resembles *O. brunniipes*, from which it may readily be distinguished by the thin scattered grey hairs on its elytra. It is a little larger than that abundant insect (pallid forms of which have, I believe, before now been mistaken for it), dark pitchy-brown in colour, with reddish-yellow antennæ and legs, a strongly-punctured rostrum, which is furrowed towards the apex; a wide, flattish, laterally much rounded, strongly and somewhat irregularly punctured thorax, and strongly punctate-striate elytra. The anterior femora are untoothed, but the tibiæ are curved inwardly towards the apex, where they terminate in a sharp point. The male is much narrower than the female. I observe that Stephens, in the "Manual," describes *O. pellucidus*, Schön., and does not prefix his desideratum mark; but, from the absence of the insect in our more reliable recent Catalogues, I presume that in this case, as in many others, he copied the description from the original author, under the erroneous idea that he really possessed the species.—W. G. PELERIN, 55, Sandringham Road, Dalston, *June*, 1868.

Capture of Aphodius villosus.—I captured a very few examples of this rare species on the 8th inst., crawling over the dry sand-hills at Llandudno. It is just ten years since Mr. Cooke found his single specimen under similar circumstances at Southport.—JOS. SIDEBOTHAM, 19, George Street, Manchester, 16th *June*, 1868.

Re-occurrence of Coccinella labilis.—I took ten specimens of this insect on the 1st inst., at the same place where I took it before, viz., a wood lying between Whitstable and Canterbury. I found them, as before, on heath, but only when the sun was out, in the middle of the day. In cloudy weather I could not find any, by beating the heath or otherwise. They were confined within the space of a few yards, on a few plants growing at the side of a narrow path; and searching the woods for miles in other directions failed to produce any more. The insect seems to vary somewhat in size.—G. C. CHAMPION, 274, Walworth Road, June, 1868.

Capture of Ceuthorhynchus urticae.—At the end of last April, by sweeping mixed herbage in Headley Lane, Mickleham, I took two specimens of a *Ceuthorhynchus*, which, as they correspond with the late Mr. Walton's type of *C. urticae* in the National Collection, must, I think, be referred to that species. They at first sight resemble *Cæliodes didymus*, but are considerably narrower than that common insect.—ID.

Further notes on Coleoptera, &c., near Putney.—In some former notes upon Coombe Wood I mentioned a small stream, forming the extreme western boundary of Wimbledon Common, and in which I have found many running-water *Hydradephaga*. This stream crosses the Kingston Road at Beverley (or Bavely) Bridge, skirts Richmond Park on the east, thence arrives at Barnes Common, where it is divided on the northern side of that waste into two or three channels, and eventually disembogues itself into the Thames under the first of those narrow iron bridges so difficult to pass on University Boat-race days. In a small portion of one of the Barnes Common channels above alluded to, which receives the drainage of a part of the Common and abounds with the Sweet-Rush, I have found several beetles which are not universally abundant, and whereof a few particulars may not be uninteresting. I have been astonished at the number of species of *Stenus* to be found in the above-mentioned limited collecting-ground. Of that genus I have already taken twenty-two species in it,—some not of the most trivial. Of them, *S. melanarius* is the best; of which I have taken my row, by single specimens mostly. *Buphthalmus*, with which it is very likely to be confounded, must be bottled indiscriminately by those who wish to take this insect, which may be recognised at home from its plebeian congener by the darker basal joint of its palpi, its rather less robust build, thinner legs, rather longer elytra (which are not so closely punctured, and exhibit scarcely a trace of the confluent rough punctures behind) and not quite so closely punctured abdomen. These characters are liable to the stigma of "*crambe repetita*;" but it may possibly be of help if I again draw attention to them. Next to *melanarius*, the suddenly bloated, quaint little *fornicatus*, whose white knees give the idea of a solution of "continuity" between body and legs, has here rejoiced my eyes; and *plantaris*, which I never before heard of as occurring near London, *picipennis* (most "stumpy" of *Steni*) and *latifrons* (whose body, à la *Kiesenwetteri*, it is impossible to elongate too much), both in profusion, and *incrasatus*, are the next in degree; *nitidiusculus*, *canaliculatus*, *melanopus* (a most active creature), *pusillus*, the continentally much-vexed *ossium*, *bifoveolatus* (the real one, alas!) and *binotatus* heading the *profanum vulgus*,—*Juno*, *speculator*, *Rogeri*,

tarsalis, *oculatus*, *brunnipes*, *fulvicornis*, *bupthalmus* (now almost extinct) and *cicindeloides*,—the last-named in myriads. *Evæsthetus læviusculus* and *ruficapillus*, *Stilicus geniculatus* and *orbiculatus*, *Tachyporus solutus* and *scitulus*, *Myllæna brevicornis* and *minuta* (hard to get and harder to set), the common marsh *Quedii* and *Trogophlœi*, *Lesteva punctata*, and *Philonthus varius*, var. *bipustulatus*, *cinerascens* and *signaticornis*, complete the note-worthy *Brachelytra*. *P. signaticornis* seems very rare: it occurs in matted grass-roots, and may be known from *villosulus* by the usually darker base of its antennæ, its darker legs, and its duller, because more closely punctured, elytra and abdomen. Of the *Geodephaga*, *Stenolophus Teutonius* and *Anchomenus atratus* are the best; and of the *Rhynchophora*, *Erirehinus schirrhosus* (not uncommon), *Pachyrinus comari* and the black-necked *Cionus verbasci*: *Hydro-nomus*, *Phytonomus polygoni* and *pollux* (as at Hammersmith marshes, accompanied by its plainly striped form), and other vulgarities abounding. *Donacia sericea*, *Telmatophilus caricis*, *Chætarthria* and *Cyclonotum* in swarms, *Simplocaria*, *Prasocuris beccabungæ* (also not seen by me so near London before), *Cassida obsoleta*, *Phyllotreta brassicæ*, *Corticaria denticulata* and *Bryaxis juncorum*, though all common, will help to swell the list.

I have also found here what I suppose to be *Limnebius papposus*, conspicuous for the inflation of the middle joint of its palpi. Of the authorities at my command, I can only find mention in Redtenbacher of this peculiarity; indeed, the equal size of the joints of the palpi appears to be one of the generic characters of Leach's *Limnebius*.

In the *Hemiptera* I was surprised to find, commonly, the little enigmatic *Hebrus*. This does not seem to have been observed near London before. Of some species of *Salda* to be taken here, *elegantula*, readily to be known by the suddenly incrassated apical joints of the antennæ, is not uncommon, with *Monanthia humuli*. *S. Flori* occurs in grass at the edge of the Thames Bank; the specimens with partially yellow apical joints to their antennæ being apparently *varieties* of the ♀.

On Wimbledon Common I was much pleased to light upon a little colony of the strident *Trox sabulosus*, in and under a very small and desiccated dead lamb. This curious beetle, after foolishly giving notice of its whereabouts by its peculiar squeak, shams death pertinaciously. The grass beneath a very small tuft of wool harboured three specimens. In digging up the roots I found *Corymbites holosericeus*, just out of pupa, with its larva. The dry carcass above mentioned also contained several of the pretty *Nitidula quadripustulata*, with other commoner carrion-feeders. On the shallows I found *Erirehinus salicis*, plentifully; replaced in a week by *Elleschus bipunctatus*. *Apion minimum* and *Epurcea melina* also accompanied these species; and *Oxystoma genistæ* was not uncommon on small spiny broom. In a marshy place, not before examined, I took some *Philonthus nigrita*, and *P. sanguinolentus* with its elytral spots confluent; and, at the old pond near the Mill, *Tachyusa atra*, *Stenus longitarsis*, and a nest of *Aleochara brevipennis*. When the small scattered ponds here dry up, many *Agabi*, *Hydropori*, *Hydrochi*, &c., are easily and plentifully to be taken. In this way I have found *Agabus nigro-æneus*, Marsh., considered specifically distinct from *chalconotus* by continental authors, but not recorded otherwise than as a var. of that insect in our modern lists. *Hydroporus lepidus* is particularly abundant here.

The rare little *Quedius fuscipes*, in hay-stack refuse, and *Silusa*, at its usual *Cossus*-haunts, have occurred to me near my house; in the garden of which I have captured *Cercyon laterale* and *C. terminatum* on the wing. *Attagenus* occasionally exhibits itself indoors, with the elegant *Ptinus sex-punctatus*, which, alas! exhibits a fatal attachment to the bottoms of window-frames, thereby coming to grief.

I have also found both sexes of *Brachytarsus scabrosus* in an old red thorn tree in my garden, round which males of *Smerinthus tilie* (there are contiguous limes) are not rarely observed. I have also noticed this hawk-moth on Wimbledon Common.—E. C. RYE, 7, Park Field, Putney, S.W., May, 1868.

Capture of Dianthæcia cæsia.—In the beginning of June I visited the Isle of Man, in company with Mr. Birchall, for the purpose of getting this species. The insect was rather scarce and very wild, as may be imagined from the fact that one night we did not capture a specimen. We succeeded, however, in procuring sufficient for our own wants, with some over.—D. BAXENDALE, Akroydon, Halifax, June 15th, 1868.

Capture of Dianthæcia Barrettii.—Mr. Birchall has been staying at Howth for a few days this week, and has succeeded in capturing *D. Barrettii*. On Tuesday evening, when collecting in his company, I took a specimen of *D. conspersa*, which has hitherto been placed in the Irish list only, on the authority of a single specimen recorded by Mr. Bristow, supposed to have been taken near Belfast.—W. F. KIRBY, Dublin, June 18th, 1868.

Lepidoptera bred and captured in the spring of 1868.—The present season opened auspiciously with the capture of six males and one female of *N. hispidaria* in Richmond Park. Unfortunately, however, all my efforts to establish a brood proved unavailing.

At the end of March I recovered my larvæ of *O. fascelina*, *D. obfuscata*, and *C. Caja* from their tiny outhouse, the remnant of the first-named numbering about a score, of *obfuscata* ten, of *Caja* two. More miserable invalids than the *fascelina* I never beheld. Wood-lice had worked fearful ravages, too, among the *obfuscata*, but what survived appeared to be strong and well. The young budding shoots of broom were partaken of with avidity by the latter—very languidly indeed by the former. Time, however, worked wonders, and the end of May saw a dozen fat *fascelina* ready to spin, while seven fine *obfuscata* dived among the long moss in their flower-pot and disappeared. *Caja*, too, fed up rapaciously after the manner of its kind.

At West Wickham, in March, I captured a beautiful pair of *E. avellanella* and a series of *T. crepuscularia*; while at Shirley my friend Mr. Stanley Leigh took *B. parthenias* and *P. hippocastanaria*.

In April one of my breeding-cages yielded *P. lacertula*, *T. opima*, and *B. hirtaria*. From Rannoch larvæ I obtained fine specimens of *N. ziczac*; and from larvæ taken nearer home, *dromedarius*. At the same time there emerged, beautiful among bred insects, *A. myrtilli* and *A. porphyrea*, and richly-coloured examples of *A. rubidata*, together with many *S. ligustri*. Now, too, a goodly supply of *E. albipunctata*, adorned my setting-boards, shortly afterwards succeeded by *centaureata*, *nanata*, *eziguata*, *minutata*, *assimilata*, and *absynthista*.

In May, two lovely specimens of *H. contigua* made their appearance, and *C. reclusa* came out freely. About the same time I bred *D. capsincola*, *cucubali*, *conspersa*, and *carpophaga*, the first-named in considerable numbers. About the middle of the month a large brood of *E. fuscantaria* crept from the shell, and three little cannibal colonies are now established on a privet hedge in the garden.

While staying at Oxford I took *H. uncana* and *P. agestis*, both freshly out; and my friend Mr. Leigh met with *H. barbalis*, in as good condition as possible, at Bagley Wood.

N. Lucina, whose time had just commenced, we unfortunately missed, a moment's view of one richly-coloured specimen being only sufficient to assure us that the pretty little fritillary was out. On a lamp by the New Museum I found the darkest male of *O. pudibunda* I have ever seen.

At Coombe Wood, the other day, my brother fell in with *P. ramana*, and at the end of the month the first *H. chenopodii* emerged from the pupa.—J. B. BLACKBURN, Grassmeade, June, 1868.

Notes on collecting in Burnt and Bishop's Woods, in Staffordshire.—I give some results of a week's collecting in June in the above-mentioned woods.

In *Trichoptera*, I again found one *Neuronia clathrata* (beaten out of birch), and had the pleasure (if pleasure it can be called) of seeing another, but failed to capture it. *Stenophylax alpestris* was beaten rather freely in a marshy place, with neither streams nor ponds in the vicinity. *Limnephilus auricula* and *L. vittatus* were beaten from Scotch fir in exceedingly dry situations.* *L. luridus* was found in the greenhouse at Willoughbridge. Most of the usual species of *Coleoptera* were found; but I did not see *Calosoma inquisitor*, which was abundant last season, running on the branches in search of Lepidopterous larvæ, and falling to the ground with the larvæ still in their jaws on the application of a blow from the beating-stick. In *Lepidoptera*, I had the pleasure of taking *Sesia sphegiformis* in both woods. The insect rests upon low plants in the neighbourhood of alder, and one specimen was found among birch, far from alder, hovering over a tuft of *Calluna* about 4 p.m.; it is also upon the wing in the evening, flying rapidly and undulating like *M. stellatarum*. *Angerona prunaria* was in profusion. *Macaria notata* rather sparingly; together with *Eupithecia plumbeolata*, *pulchellata*, and *lariciata*. The larva of *Trachæa piniperda* was abundant; the pupa is decidedly subterranean. *Hymenoptera* were plentiful. *Diptera* very abundant. I captured one *Asilus forcipatus* carrying *Tenthredo livida* in its mouth; also *Chrysotoxum marginatum* rather sparingly, hovering and flying in and out of the heather like some wasps. *Tipula crocata* was abundant on dusty roads; all females but one, which was beaten from fir.—JOSEPH CHAPPELL, 8, Richmond Road, Greenheys, Manchester, 12th June, 1868.

Early and late appearances of Lepidoptera.—*Saturnia carpini* occurred on Chat Moss from the 5th to the 12th April; *A. leporina* I found stretching on the 25th May; and the same evening I saw *T. gothica* at rest on the trunk of an Alder; one specimen each of *T. populeti* and *rubricosa* emerged from the pupa on the 18th and 20th of May. The latter pupæ were dug during the winter, and had been kept in a warm room.—CHAS. CAMPBELL, 14, Blackburn Street, Upper Moss Lane, Hulme, Manchester, June 8th, 1868.

* The species of *Limnephilus* seem to fly any distance to rest in Scotch-fir. No other tree offers such advantages to the collector of these insects.—R. MCL.

Note on the habits of Saturnia carpini in Orkney.—Of eleven pupæ of *S. carpini* that I reared from larvæ found by me in July, 1866, four produced females last year (23/5/67 to 16/6/67), four contained ichneumons, and the remaining three produced males in April this year. Is it generally the case that the males remain a year longer in the pupa state than the females?

I do not know if this note be worth insertion in your magazine, but have sent it, as it is new to me, and may perhaps be so to others.—J. TRAIL, Manse of Harray, Orkney, 12th May, 1868.

Captures of Lepidoptera at Witherslack.—On May 9th, 17th, and 18th, I took five specimens of *Catoptria aspidiscana*; they needed close searching. The weather was glorious, and I met with my usual assortment of *Micros*, &c. *E. Kilmunella*, *O. Loganella* and *scoticella*, *P. uncana*, *C. rusticana*, *C. vacciniana*, *L. miscella*, *L. decorella* (?), 3 larvæ of *P. tephradactylus* on golden rod, a dozen or two cases *P. Verhuelella* and one of *D. marginepunctella*, a dozen beautiful *N. viridata* and *E. octomaculalis*, *A. derivata*, *C. miata*, *E. virgaureata*, *eviguata*, and larvæ of *sobrinata* and of *T. coniferata*. A good number of common species had put in appearance (considering the season was early), and so had the vipers, of which many came to grief with my stick, to the wonder of the natives, who dread them.—J. B. HODGKINSON, 15, Spring Bank, Preston, 20th May, 1868.

Captures of Lepidoptera in various localities in March, April, and May.—At Richmond, *P. hispidaria* and *A. prodromaria*. At Loughton, and other parts of Epping Forest, *D. unguicula*, *E. trilinearia*, *C. temerata*, *A. pictaria*, *A. derivata*, *S. perlepidana*, *S. aureola*, &c. At Wimbledon Common, *E. porata*, *A. cuprella*, *S. radiella*, and *A. siculana*. At Wickham, *P. lacertula*, *P. hippocastanaria*, *E. pusillata*, At Leith Hill, *T. rubricosa*, *T. leucographa*, *T. populeti*, *T. gracilis*, *T. munda*, *T. miniosa*.—THOMAS EEDLE, 9, Maidstone Place, Goldsmith Row, Hackney, May, 1868.

London Lepidoptera.—My brother knocked down in our orchard here, some days ago, a fine female specimen of the Orange-tip butterfly. Is not this a peculiar locality? A week ago I saw a Burnet-moth under circumstances still more peculiar. It was flying in the hot sunshine within two or three yards of the Portland Road Station of the Metropolitan Railway.—H. MONTAGUE, Stockwell, 4th June, 1868.

Review.

Faune Entomologique Française, Lépidoptères, par M. E. BERCE; dessins et gravures par M. T. DEYROLLE. Vol. i. *Rhopalocères* (Paris: Deyrolle fils, 1867). 12mo. 18 plates.

The first volume of this series (*Coleoptères*, par Fairmaire et Laboulbène) has long been considered very useful to Coleopterists; and we are glad to find that the long-suspended issue is recommenced by the publication of the first of four projected volumes of *Lépidoptera*. We hope that the editors will not stop here, but complete the series of *Coleoptera* and *Hemiptera* which are stated to be in progress, and that the other orders of insects will in turn receive their due attention, so as to afford a complete Entomological Fauna of France.

A good Manual of French *Lepidoptera* has long been wanted. De Villiers and Guenée's book is not sufficiently portable for convenient use, and, moreover, was discontinued at the end of the *Rhopalocera*. The entomological traveller in France may now possess himself of a convenient little manual, which, even when completed, will add but little to his baggage.

The first hundred pages are chiefly occupied with directions for collecting, taken from the "Nouveau Guide de l'Amateur d'Insectes," and other introductory matter, the value of which is much increased by the woodcuts illustrative of apparatus, neuration, &c.

The plates represent about 80 species, sometimes giving the different species or varieties, and frequently both surfaces of the wings; and in most cases are very well executed. A serious defect, however, which greatly impairs the value of the book, especially to the purchasers of uncoloured copies, is, that the insects figured are rarely described in the text; a reference to the figure being apparently considered sufficient. We hope this omission will be remedied in the succeeding volumes and in future editions. It is true that almost any figure would be sufficient to identify *Libythea Celtis* or *Vanessa Io*; but no one could be expected to recognize *Erebia Ligea* from a plate which does not show the peculiarly characteristic white markings of the under-side of the hind-wings.

The arrangement followed throughout is nearly that of Staudinger. We are glad to observe that M. Berce does not adopt the practice (which we find in some French books of Natural History) of popularizing everything, even to the Latin names.

There are numerous notices of the food-plants and times of appearance of the larvæ; but, except under the genera, we can find no descriptions of larvæ. It is to be regretted that M. Berce has passed over without notice various known larvæ (*Thecla W-album* and *Cænonympha Davus* for instance); and in some cases (as in those of *Polyommatus Eurydice* and *Parnassius Mnemosyne*), he has added "chenille?," or even "chenille inconnue," to species of which the larvæ have been well described and figured, as both *P. Eurydice* and *P. Mnemosyne* have been by Freyer.

Notwithstanding these slight blemishes, we believe the book will be found useful to those interested in European *Lepidoptera*, and especially to the entomological tourist.

General Information.

French exhibition of Economic Entomology.—We have received a circular announcing that the Société d'Insectologie Agricole" (could not our neighbours have invented a better term than "Insectologie" ?), of which Dr. Boisduval is president, intends to hold an exhibition of useful and noxious insects, and their products and depredations, with the agents that benefit or injure us by destroying these insects, and the artificial means employed in destroying the direct or indirect destroyers. It will be held in the Palace of Industry at Paris, and is to be open during the whole of the month of August next. This exhibition will no doubt be worthy of a visit from any entomologist who may be in Paris during August; Dr. Boisduval's reputation is a sufficient guarantee that no means will be spared to render it instructive alike to the agriculturist and entomologist.

Brazilian insects.—Mr. Heinrich Burmeister, son of the well-known author of the "Handbuch," who has resided twelve years in Brazil, intends to emulate the example of Messrs. Bates and Wallace, by collecting in Brazil, chiefly in the province of Espirito Santo, with visits to other parts of the South American Continent. Mr. Burmeister has already devoted all his spare time to the breeding of *Lepidoptera*, and has thus accumulated a mass of facts of the greatest importance with regard to the natural position of many genera.

The Birch-wood Dinner.—The annual dinner of the Entomological Club will be held, as usual, at "The Bull," at Birch-wood Corner, on Friday, the 3rd of July. Osbert Salvin, Esq., will preside.

The late Mr. Desvignes' Collection of Ichneumonidæ.—We have great satisfaction in stating that this important Collection has been purchased by the Trustees of the British Museum.

ENTOMOLOGICAL SOCIETY OF LONDON, 1st June, 1868. H. W. BATES, Esq., F.Z.S., President, in the Chair.

G. P. Shearwood, Esq., of Stockwell, and Il Cavaliere Francfort, of Pallanza, Lago Maggiore, were elected Members.

Mr. Jenner Weir called attention to a Report of a Meeting of the Scientific Committee of the Royal Horticultural Society, in which were some rather remarkable misapprehensions of the habits of the larva of *Coleophora hemerobiella*. It was explained that none of the Entomologists who are Members of that Committee were present at the Meeting in question.

Mr. F. L. Keys exhibited specimens of *Psyche crassiorella* from Hornsey, and stated that the oaks were there much disfigured by the curled leaves in which *Attelabus curculionides* deposits its egg.

The Hon. T. De Grey exhibited pupæ of *Hypercallia Christiernana*; the larvæ he had found near the end of May feeding on *Polygala vulgaris* near Shoreham, in Kent. Mr. McLachlan mentioned that he had recently found the larvæ in the same locality.

Mr. A. G. Butler exhibited varieties of *Nemeobius Lucina* and of *Anthocariss cardamines* from Herne Bay; the latter were remarkable for the great size of the central black spot of the anterior wings; the posterior pair also showing an indication of this spot.

Mr. H. Burmeister (son of Professor Burmeister), who was present as a visitor, exhibited many drawings of the transformations of South American butterflies, together with the pupa-skins and perfect insects of some of them. He mentioned that he had bred a species of *Castnia*, which he exhibited, from a larva feeding in the interior of the pseudo-bulbs of *Orchidaceæ*.

Mr. Butler mentioned that *Otiorynchus picipes* had been causing great damage to roses near Manchester, by eating off the young shoots.

Professor Westwood made some remarks on the habits of *Ateuchus sacer*, as observed by him at Cannes.

Mr. McLachlan exhibited larvæ of a caddis-fly which he attributed to *Enoicyla pusilla* of Burmeister, the only authenticated instance of one of these insects living out of the water in the larval condition. These had been sent to him by Mr. J. E. Fletcher, of Worcester, who found them at the roots of willow-trees.

Mr. Frederick Bates communicated "Descriptions of New Genera and Species of *Heteromera*," from Australia.

ON THE BRITISH GYRINIDÆ.

BY D. SHARP, M.B.

The *Gyrinidæ* must be considered as one of the most peculiar and interesting of all the groups of beetles which are found in this country. The family, though it contains very few genera and species, is among the most sharply defined; indeed, though it possesses points of resemblance on the one hand with the *Dytiscidæ*, and on the other with the *Parnidæ*, it is so distinct as to forbid the idea of its being descended (in a Darwinian sense) from either of them, unless we suppose that an extremely free disappearance of connecting links, of which we can now find no trace, has taken place. It is also interesting to notice that a genus of *Carabidæ*, *Adelotopus* of Hope, more resembles the *Gyrinidæ* in general appearance than do any insects of either of the two families to which it is allied: not only is the facies of *Adelotopus* that of *Gyrinus*, but both possess two separate eyes on each side the head, a peculiarity of structure almost, I believe, without parallel in the rest of the *Coleoptera*; the antennæ, too, of *Adelotopus* are very short and compressed, so as to show a great resemblance to those of *Gyrinus*; indeed the similarities between *Adelotopus* and the *Gyrinidæ* appear to be exactly of the character that has been called mimicry; and it is also worthy of note that the *Gyrinidæ*, or the insects mimicked, exhale a peculiar nasty-smelling fluid when handled. As the *Gyrinidæ* inhabit exclusively the surface of the water, and *Adelotopus* lives under the bark of trees, no theory of protection founded on natural selection can account, I should imagine, for this remarkable reproduction of peculiar characters in very distinct groups.

Thomson (*Skandinaviens Coleoptera*, Vol. II.) places the *Gyrinidæ* along with *Parnus*, *Heterocerus*, and others in a group which he calls *Amphibii*; but they are now generally considered a distinct family, and, along with the *Dytiscidæ*, form the group called *Hydradephaga*. The characters by which the *Gyrinidæ* are distinguished from the other *Hydradephaga* are so very peculiar, that, though my object at present is only to call attention to the characters of our British species, it is impossible to pass over these interesting points without some short notice of them.

- 1st. The structure of the trophi is different from what holds in any of the *Dytiscidæ*, though not very peculiarly or decidedly.
- 2nd. The *Gyrinidæ* possess a pair of eyes on each side of the head, and these are placed so that the upper ones enable the insect to see

above it, in front of it, and laterally; while the under ones make it possible for it to see at the same time directly downwards as it swims on the surface of the water.

- 3rd. The structure of the antennæ is remarkable, and differs greatly from that of the *Dytiscidæ*, though it is very like what we find in *Parnus*. Each is inserted in a cavity at the side of the head; the first joint is very small, the second is large and dilated, and the third, also large, is inserted at the side of the second, while the remaining joints are so compressed and soldered together that it is not decided whether the antennæ consist altogether of ten or eleven joints.
- 4th. While in the *Dytiscidæ* the mesosternum is small and feeble, and the metasternum is largely developed, in the *Gyrinidæ* the mesosternum is large, while the metasternum is correspondingly reduced and small.
- 5th. The structure of the legs is most remarkable in the *Gyrinidæ*, and affords in several respects one of the most interesting examples of the modification of organs to serve special functions that could well be instanced; while the four posterior legs are formed into powerful swimming organs, the anterior are quite different—they are elongate, and are so placed that they can be packed under the body so as to offer not the least impediment to the most rapid motion, while by one or the other being thrust out the course of the insect is instantly changed, or when both are thrust out retarded, and thus the *Gyrini* are enabled to perform those rapid and eccentric motions which have attracted the attention of all who have eyes and can use them. This rudder-like function of the front legs is also perfected by the peculiar position in which they are placed, a position so strange that what should be the under surfaces of the anterior tarsi look towards one another, instead of downwards: dependent on this is also a peculiar modification of the tarsi, which are compressed laterally, so that, notwithstanding the peculiar position of the legs, the broad aspects of the tarsi are presented upwards and downwards as in other beetles; still stranger is the fact that what is in reality the side of the tarsus is thickly furnished in the male with peculiar hairs such as are placed in other beetles on the real under surface of the tarsi. Had these hairs been placed in a position anatomically the same as they are in other beetles, they could have been of no use for the purpose for which they are intended; thus they are in a position

which, though abnormal, enables them to be of service to the creature. In the entire absence of connecting links, it requires a considerable amount of faith to believe that these changes can have been brought about by natural selection, especially as it requires a liberal use of the imagination to conceive the steps by which they could have been effected.

The four posterior legs differ entirely from the anterior; they are short, compressed laterally, so as to resemble considerably the fins of a fish; and while in the *Dytiscidæ* swimming is facilitated by the attachment of peculiar hairs to legs but slightly modified from the ordinary type, in the *Gyrinidæ* swimming hairs are also present, but the entire leg is remarkably modified, and developed into an organ exclusively suited for the purposes for which it is destined. Moreover, in the *Dytiscidæ* only the hind pair of legs are specially modified, while in the *Gyrinidæ* this is the case with both the middle and hind pairs.

Though the peculiar distinctness of the *Gyrinidæ* as a group, and the absence of anything like connecting links between them and other beetles, would seem to be opposed to the idea of their being connected by descent with other *Coleoptera*, yet the fact that within the bounds of the group the species are very closely allied, yet variable, and that it is not easy to fix with certainty the limits of some of the species, appears to be favourable to the theory that all the *Gyrinidæ* may have descended originally from some one species. The difficulty above adverted to of distinguishing the species of *Gyrinus* from one another is not diminished by the fact that they are generally found in little colonies, and that these colonies often consist of two or three species; sometimes the most allied species being found together, and at other times the most dissimilar.

We have in Britain two genera of this family; they are very easily distinguished by the following characters:—

1. Body entirely destitute of pubescence, extremity of abdomen broad, and rounded at its apex—*GYRINUS*.
2. Body covered with a thick, short pubescence, extremity of abdomen conical—*ORECTOCHILUS*.

1.—*GYRINUS*, Geoffroy.

Our species of *Gyrinus* may be arranged in three groups—

* Under surface entirely testaceous—*G. minutus* and *urinator*.

** Under surface entirely or in greater part black ; inflexed margin of elytra light rufo-testaceous—*G. natator*, *bicolor*, *distinctus*, *caspius*, and *colymbus*.

*** Under surface entirely or in greater part black ; inflexed margin of elytra æneous—*G. marinus* and *opacus*.

*—Under surface entirely testaceous.

1. *G. minutus*, Fab. Oblong ovate, tolerably convex, above of a bluish-black colour, scarcely shining, the sides of the body and front of the head metallic, the elytra strongly and equally punctate striate, under-side and legs entirely rufo-testaceous.

Long. $1\frac{2}{3}$ — $2\frac{1}{3}$ '' ; lat. 1 — $1\frac{1}{4}$ ''.

The smallest of our species, and one that is readily distinguished from all the others of the genus. The upper surface is densely and finely coriaceous, so that the insect is less shining than any other of the species, the head is bluish-black, more or less brassy in front, the sides of the thorax are brassy and rugose, and there are some evident rugosities at its base in front of the scutellum ; the scutellum has at its base a broad, well-marked carina. The elytra are brassy at the sides, strongly punctate striate, the external striæ a little more marked than the inner ones, the striæ are also rather more marked at the apex than at the base. The under-side, including the inflexed margin of the elytra, together with legs, is entirely testaceous ; sometimes the basal segments of the abdomen are a little infuscated. My specimens show but little variation.

I have found this species abundantly in Invernesshire, and it occurs in various other parts of Scotland, though it is very local. I have never found it in England.

2. *G. urinator*, Ill. Ovate, convex, very shining, above of a somewhat purple-black, the front of the head, the sides of the elytra, and some lines along the striæ of the latter, coppery ; the elytra are finely punctate-striate, the striæ being entirely obliterated, except at the sides and apex ; under-side and legs entirely rufo-testaceous.

Long. 3 — $3\frac{1}{2}$ '' ; lat. $1\frac{2}{3}$ — $1\frac{5}{6}$ ''.

This is also a very distinct species, and is easily distinguished from all our other species (except *G. minutus*) by the colour of the under-side ; its very shining appearance and the fine punctuation of the elytra prevent its being confounded with *minutus*.

The front part of the head is brassy and dull, the vertex black and shining ; the thorax black and shining, coppery towards the side, with

a long central transverse impressed line, and behind this a shorter one at each side. The elytra are coppery at the sides, suture, and along the course of the striæ; the latter are finely punctate, the punctures being only visible at the sides and apex. The under surface, including the inflexed margin of the elytra and the legs, reddish testaceous.

This species, which is more properly a native of the south of Europe, is taken by Mr. Bold in the Duabon near Newcastle-on-Tyne. I have never found it myself, and indeed know no other locality for it. It appears to vary but little.

**—The greater part of the under surface black, the inflexed margin of elytra and claws of the tarsi bright reddish-testaceous.

3. *G. natator*, Scop. Ovate, convex, above bluish-black, with the sides brassy; elytra punctate striate, the internal striæ much fainter than the outer; under-side black, with the margins of the elytra, and the legs, and sometimes the breast and apex of abdomen, reddish-testaceous. Long. $2\frac{1}{2}$ — $3\frac{1}{3}$ ''; lat. $1\frac{1}{3}$ — $1\frac{3}{4}$ ''.

Of this species there are two well-marked races, considered by Erichson and Suffrian as distinct species, viz. :—

(a) *G. mergus*, Ahr. Broad, not so much narrowed before and behind, the inner striæ evidently finer than the outer, especially towards the suture, but always distinct and perceptible for their whole length.

(b) *G. natator*. Narrower, the sides more rounded, and the internal striæ very obsolete or entirely wanting towards the base of the elytra.

G. mergus is the common form in the south of England, but does not occur at all in Scotland.

G. natator is abundant in Scotland, but rare further south. I have it from Cambridge, but not from the south of London. I have, however, a small series of specimens taken at Deal which agree closely with one another, and possess the form of *G. natator* with the punctuation of *G. mergus*.

This species also varies in the colour of the under-side, the extremity of the abdomen being nearly always, and the breast very often, ferruginous; while on the continent the colour of the under surface is generally black. A variety in which the upper-side is of a dark unicolorous-black also occurs.

Very common everywhere throughout the year; the two races having apparently a different distribution.

4. *G. bicolor*, Payk. Oblong, the sides nearly parallel, convex, above bluish-black, shining, the sides brassy, the elytra punctate-striate, all the striæ evident, but the internal rather finer than the external, under-side black, inflexed margin of elytra and thorax, and legs rufo-testaceous. Long. $3\frac{1}{3}$ —4''; lat. $1\frac{1}{4}$ — $1\frac{2}{3}$ ''.

Var. Extremity of abdomen and breast reddish.

This species is distinguished by its elongate and parallel form, by its very long elytra, the apices of which are more rounded than in the allied species. Sometimes the extremity of the elytra is obscurely red.

It appears to be rare, most of the specimens standing under this name in our collections being the next-mentioned insect. Mr. Bold has a few specimens taken in Durham, and there are also some in Mr. Crotch's collection.

5. *G. distinctus*, Aubé. Oblong, ovate, the sides sub-parallel, convex, above bluish-black, shining, the sides brassy, the elytra punctate-striate, all the striæ evident, the internal finer than the outer, especially towards the base, under-side black, legs and inflexed margin of elytra reddish. Long. $2\frac{3}{4}$ — $3\frac{1}{2}$ ''; lat. $1\frac{1}{4}$ — $1\frac{2}{3}$ ''.

Vars. Colour above entirely black, the breast and extremity of abdomen being sometimes red; also differs considerably in size and form.

This is, I think, only a variety of the preceding (*G. bicolor*). The characters by which it is said to be distinguished from it are, that *G. distinctus* is smaller, with the sides more rounded, the elytra shorter, and their apices not so rounded, so that the external angle is more evident. Some of my specimens show all these characters plainly enough, so that I do not think I am in error in calling them *G. distinctus*; but, as variations in all these points occur, I think it will have to be united with *G. bicolor*.

Common in various parts of the country. Brighton, Deal, Edinburgh, Newcastle; sometimes in brackish, sometimes in fresh, water.

6. *G. caspius*, Aubé. Oblong ovate, tolerably convex, above bluish-black, not very shining, the sides brassy, the elytra punctate-striate, the internal striæ very evidently finer than the outer, the interstices obsoletely but thickly punctured, under-side black, margins of thorax and elytra, extremity of abdomen and legs, red.

Long. $3\frac{1}{3}$; lat. $1\frac{2}{3}$ ''.

This species very closely resembles the preceding, but it is not so shining, and when examined under a good magnifying-glass, the interstices are found to be obsoletely though thickly punctured; whereas in

both the preceding species they are quite impunctate and shining. The internal striæ are also finer, and the punctures placed rather more closely together.

Two ♀ specimens in Mr. Crotch's collection are all I have seen ; but I have two ♂ examples from the Continent under the name of *distinctus* ; as, however, Kiesenwetter remarks that the interstices in *G. distinctus* are entirely impunctate, I am inclined to consider them as rather *G. caspius*. Kiesenwetter remarks, also, that *G. caspius* and *distinctus* may probably have to be united ; but if I am correct in my determination of the present species, the punctuation of the elytra opposes this view.

7. *G. colymbus*, Er. Ovate, not very convex, above bluish-black, slightly shining, the elytra punctate-striate, the internal striæ rather finer than the outer, the interstices thickly and evidently punctured, almost transversely strigose, so that the upper-side is not so shining as in the other species ; under-side black, margin of thorax and elytra, and legs (including the claws), breast, and extremity of abdomen, rufo-testaceous.

Long 3—3½'' ; lat. 1⅔—2''.

This is a very distinct species, presenting at first sight the greatest resemblance to *G. marinus*, which it much approaches in size and form ; the colour of the under margin of the elytra, and of the claws, however, readily distinguish it from that species ; the striæ of the elytra, also, are finer, and the interstices are more evidently punctured than in *marinus* ; the peculiar sculpture of the elytra distinguishes it from all the other species.

Six specimens in Mr. Crotch's collection, taken apparently at different times, are all I have seen of this insect. These specimens are certainly broader than they should be according to the description in measurements given by Kiesenwetter and Suffrian of *G. colymbus* ; in other respects, however, they agree.

***—Under margin of elytra brassy, claws (anterior at base, the others entirely) black.

8. *G. marinus*, Gyl. Ovate, not very convex, above bluish-black, shining, the sides brassy, the elytra strongly punctate-striate, the internal striæ being scarcely finer than the outer ; the striæ are deep, especially posteriorly, so that there the interstices are even convex ; under-side brassy-black, legs red, with the exception of the claws.

Long. 2½—3½'' ; lat. 1½—1⅔''.

♂. Shining, the interstices being very obsoletely punctured.

♀. Sub-opaque, the interstices being thickly punctured.

Varies greatly in size, the males being generally smaller than the females. Local, but common, when found, in England—Horning and Deal. I have not found it in Scotland.

9. *G. opacus*, Sahl. Ovate, not very convex, above bluish-black, shining, the sides brassy, the elytra rather finely punctate-striate, the internal striæ being evidently finer, especially towards the base, than the outer; under-side brassy-black, legs red, with the exception of the claws. Long. $2\frac{1}{3}$ — $3''$; lat. $1\frac{1}{4}$ — $1\frac{3}{8}''$.

♂. Shining, the interstices being very obsoletely punctured

♀. Not so shining, the interstices being thickly punctured.

Var. The upper surface being altogether dull and opaque.

This species is very closely allied to the preceding, and, like it, varies considerably in size; it is, however, on the average considerably smaller, and the striæ of the elytra are finer, especially the inner ones; some of the varieties, however, come very close to one another. Local, but common, in Scotland—Edinburgh, Glasgow, Inverness, Galloway. Also at Horning, in company with *G. marinus*; I have not noticed it, however, from farther south. I think I am right in my determination of this species. Moreover Suffrian recorded it as British twenty-five years ago, though it has not yet made its appearance in our Catalogues.

The dull variety is very curious, resembling *G. minutus*, in whose company it was found at Invercannich, Invernesshire.

2.—ORECTOCHILUS, Lacordaire.

The generic characters readily suffice to distinguish the single species, *O. villosus*, Fab. It is oblong, ovate, convex, the upper surface pubescent, and tolerably thickly and finely punctured, fuscous in colour, the elytra without any striæ, the under surface and legs reddish-testaceous. Long. $3''$.

This species is local and of nocturnal habits. I have seen it gyrating by moonlight in Loch Ken, in Galloway. It surpasses any of the *Gyrini* in agility, so that when disturbed, the eye fails to be able to follow its motions. In the day-time it remains concealed under stones and logs by the side of the water, but the instant it is disturbed it darts away, so that it is very difficult to secure. By lifting, however, very gently the logs and stones where it occurs and dropping them instantly into a net, a good number may be procured. I captured in Galloway, last summer, between 30 and 40 specimens on the under-side of a single

log in this way. It occurs also in Devonshire and Derbyshire, as well as in other parts of Scotland, in quickly running streams.

With this I conclude my remarks on our British *Gyrini*, regretting very much they are of so unsatisfactory a character; this cannot, however, I think, be helped, as the species are very closely allied and yet variable. A good collection, containing series of the different species from various parts of the country, would be very interesting; but these insects appear to be much neglected by collectors.

Thornhill, Dumfries, *May*, 1868.

DESCRIPTION OF A NEW SPECIES OF WEST AFRICAN *PAPILIO*, HITHERTO CONSIDERED TO BE THE *P. ZENOBIA* OF FABRICIUS.

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

In his "Systema Entomologiæ," p. 503, n. 255 (1775) Fabricius has characterized a *Papilio* under the name of *Zenobia*, as follows:—

"Alæ nigræ, fascia lata alba, anteriorum interrupta, nec marginem attingit. Margo sinubus albis. Subtus concolores, at posticæ basi flavæ, nervis striisque atris."

"Habitat in Sierra Leone. Mus. Banks."

From a comparison of the type-specimen, which perfectly answers to the above description, with the specimens named as *Zenobia* in the National Collection, I find that it entirely differs from them, being identical with *P. Messalina* of Stoll (Suppl. Cramer, pl. xxvi., figs. 2, 2 b); the latter will therefore become a synonym of *Zenobia*, whilst our insect hitherto supposed to represent the Fabrician species will have to be re-named. I accordingly characterize it as

PAPILIO CYPREOFILA, sp. nov.

♂, Alæ supra nigræ; fascia discali continua lutea, anticarum venis intersecta, intus sub-integra vel in venas fusco indentata, extus semper inter venas dentata; posticarum extus denticulata, intus integra: margine externo inter venas luteo maculato, maculis posticarum multo majoribus: corpus nigro-fuscum, prothorace albo-punctato.

Alæ subtus pallidiores, fuscæ, inter venas nigro striatæ; venis nigris; fascia discali continua luteo-albida, anticarum intus integra, aliter velut supra, macula autem discoidali quadrata fasciam attingente; posticarum extus irregulariter marginata; macula interrupta sub-ovali apud fasciam discali; area basali fulvo-brunnea, venis striisque nigris: corpus albo maculatum, thorace nigro, abdomine fusco.

Exp. alar. unc. $4\frac{2}{16}$.

Sierra Leone and Ashantee.

NEW SPECIES, &c., OF HETEROCEROUS LEPIDOPTERA FROM CANTERBURY, NEW ZEALAND, COLLECTED BY MR. R. W. FEREDAY.

BY ACHILLE GUENÉE.

(Continued from page 43).

FAMILY XIX. HYBERNIDÆ.

Genus HYBERNIA.

HYBERNIA BOREOPHILARIA, Guenée, n. s.

H. leucophæariæ paulo minor. Alæ griseæ, nigro-atomosæ; lineis inæqualibus nigris: anticæ duabus mediis infra confluentibus: posticæ tribus sub-parallelis. Antennæ ciliis longis, distantibus. Fœminæ alæ valde reductæ, securiformes, pilosæ.

It has some analogy with our *leucophæaria*, but the wings are festooned, the inferior almost toothed. All the wings are powdery-grey, and more or less sprinkled with black atoms. Superior with four black lines, the two median of which are irregular, and converge inferiorly somewhat as in our *Boarmia rhomboidaria*. Inferior with only three lines, the median finer but more interrupted than the others: under-side somewhat paler, with the markings effaced. Body concolorous. Antennæ furnished with long, but slender and distinct, pectinations.

In some varieties the lines are partly suppressed, and lost in the atoms of the ground colour.

The ♀ has the wings greatly abbreviated, elongated and narrow, dilated suddenly at the apex, and furnished with bristly hairs on the margins. The black lines can be distinguished very plainly; three in number on the superior, and two on the inferior. Abdomen terminating in a long and strong oviduct; with a double row of black spots.

FAMILY XX. LARENTIDÆ.

Genus LARENTIA.

LARENTIA CORCULARIA, Guenée, n. s.

Statura vix L. salicatæ, cui affinis. Alæ integræ, cinereæ, sub-nitentes; lineolis dentatis sub-interruptis griseis, mediis duabus saturatoribus, punctulis venalibus albis: posticæ supra lineis indistinctis, subtus albidæ, lineis interruptis. Palpi porrecti, longitudine capiti æquales. Antennæ pectinatæ.

It has some relationship with our *salicata*, of which it has scarcely the size, but almost the colour. One sees in it almost the same lines, which are equally denticulated and badly marked; the two median are better marked, or rather it should be said that the space they limit tends to become darker in their vicinity; small, very fine white dots follow the elbow line, and others indicate the subterminal; the fringe is lightly sinuated with blackish: inferior wings slightly paler, with the lines little distinct; beneath they are whitish-grey, with the same punctiform lines. Palpi forming a sort of beak almost as long as the head. Antennæ furnished with long and very fine pectinations.

The ♀ resembles the ♂, but the antennæ are filiform.

LARENTIA INFANTARIA, Guenée, n. s.

Minima. *Alæ sericeæ, cinereo-griseæ, nervis nigro albidoque punctulatis, lineis mediis saturatoribus undulato-dentatis, puncto minimo cellulari: posticæ unicolores. Palpi prominuli, obtusi. Antennæ simplices.*

It is the smallest of the *Larentiæ*, and does not exceed an *Eupithecia* in size. All the wings are silky, grey, very slightly greenish, the fringes concolorous: superior traversed by many fine sinuated and toothed lines, the two most evident of which border the median space, which includes two others and a dot; behind this space the nervures are dotted with black and pale: inferior a little paler, unicolorous above, with traces of lines beneath. Body grey, without markings. Palpi sensibly produced beyond the head, and forming a blunt triangular beak. Antennæ filiform; but I think the specimen before me is a female.

LARENTIA CATOCALARIA, Guenée, n. s.

Media. *Alæ anticæ griseæ, lineis punctisque saturatoribus: posticæ aurantiacæ, margine lineolisque 2 vel 3 nigris: subtus omnes aurantiacæ, margine lineisque distinctissimis nigris. Antennæ pectinatæ.*

This charming *Larentia* resembles in its colours our species of *Catocala* with yellow inferior wings. Superior blackish cinereous, with the ordinary lines of the *Larentiæ*; the two median darker: inferior beautiful bright fawn-colour, with a narrow toothed blacked border, and black fringe; two median lines sinuated, black; afterwards is the commencement of a third. Beneath all the wings are golden yellow, with a cellular dot, two fine wavy lines, the border, and the fringe, black; all the markings very distinct. Body grey above, whitish beneath, without markings. The antennæ of the ♂ are strongly pectinated; those of the ♀ filiform. The latter sex differs only by its scarcely paler colour.

Genus EUPITHECIA.

EUPITHECIA CIDARIARIA, Guenée, n. s.

Alæ sub-angustatæ: anticæ apice prolongatæ, pallide virescentes: tænia sub-discalis completa brunnea, tunc spatio medio albo-virescente, lineolis denticulatis nigris notato, spatio sub-terminali lituris 3 brunneis distantibus: posticæ griseæ, puncto cellulari lineolisque analibus nigricantibus.

It has almost the size and cut of our *abbreviata*, and its markings, which are very distinct, resemble those of certain *Cidariæ*. Superior wings pale green and testaceous mixed, but this last colour is probably only faded green; the base and spaces between the lines green and black; afterwards comes a broad arcuated and strongly interrupted brown band, touching the two margins, and denticulated exteriorly; the space which follows is greenish-white, traversed by several green denticulated lines, the last but one of which is mixed with black in several places, especially in the cellule, where that colour forms a very distinct arc; the rest of the wing is divided by the subterminal line, which is pale, fine, denticulated, and

preceded in three places by a broad brown mark, the intermedian following it to the fringe, which is interrupted with black; these three marks are connected by a very fine, black, denticulated, scarcely visible line: inferior resembling those of many *Eupithecia*, that is to say, they are pale grey, with denticulated lines everywhere on the abdominal border, becoming soon obsolete, and with a small cellular dot: under-side of the four wings pale grey, with a cellular dot, and traces of several lines, of which the median is black and interrupted. Body green, mixed with black. The abdomen has a dark spot occupying the second and third segments, and small black dots on the following ones. Antennæ furnished with very long ciliations placed in pairs.

It was already in my collection. I have also before me two other species, but I dare not describe them from single, badly-preserved individuals.

Genus COREMIA.

COREMIA ARDULARIA, Guenée, n. s.

Media. *Alæ anticæ pallidæ, apice acuto haud falcato, lineis indistinctis: posticæ supra pallidissimæ absque lineis, subtus carneæ, lineis viz distinctis, nigro punctulatis, punctoque cellulari. Palpi prominuli. Antennæ ciliatæ.*

Smaller than *munitata*. Wings silky, very pale pinky-grey, with very indistinct traces of lines, save the two median ones, which are blackish upwardly and enclose a black dot, very near the extra basal; subterminal absent, preceded by a series of very small black nervural dots; below the apex is an indistinct greyish dash: inferior yet paler, without markings on the upper-side; pale flesh-coloured beneath mixed with black atoms, and with an indistinct median line formed of black atoms, and a cellular dot placed very near the costa. Body concolorous, without markings. Palpi prominent, as long as the head. Antennæ with very fine but long pectinations, filiform at the apex.

I have seen only the male.

One variety has the markings yet more indistinct, with the under-side of the inferior wings rosy, and without markings.

COREMIA INAMENARIA, Guenée, n. s.

Parva. *Alæ anticæ viridi-griseæ, pallidæ, lineis viz expressis punctoque cellulari, fimbria sub-vinosa: posticæ pallidiores, griseæ, lineis indistinctis; subtus vinoso-tinctæ, puncto cellulari nigro.*

Superior wings entire, acute at the apex, greenish-grey (perhaps quite green in fresh examples); all the ordinary lines present, but very indistinct, the two median ones rather more sensible, and the elbowed line darker above; fringes, in good examples, violaceous, divided by a line in the middle: inferior wings whitish-grey, powdered with violet atoms; some examples have a faint trace of lines, with the fringe, as in the superior, preceded by indistinct geminated dots. The under-

side of all the wings is in part tinted with violet, with a cellular point and traces of two lines. Body concolorous, without markings. Palpi scaly, projected in the form of a beak. Antennæ of the female completely filiform.

I have seen only females of this small and insignificant species, and am not quite sure, without seeing the male, that it really belongs to *Coremia*.

COREMIA YPSILONARIA, Guenée, n. s.

Statura C. munitatæ. Alæ anticæ maris pallide carneæ, vel griseo-vio-laceæ, fascia media brunnea Y-formi, litura nigra, punctoque minimo cellulari: posticæ paleaceæ unicolores: subtus lineis indistinctis punctoque nigris. Abdomen seriatim bipunctatum. Palpi incumbentes. Antennæ pectinatæ.

Size and aspect of *munitata*. Superior wings dull whitish flesh-coloured or somewhat straw-colour, but very pale; the markings wood-brown, consisting of a space near the base terminated by a black oblique line, a median band constricted in its lower, open in form of a Y in its upper, portion, enclosing a little cellular dot placed between two black marks, of which the external forms a Δ , with filled-in triangle; there is also a series of little nervural dots, and an oblique sub-apical streak surmounting a faint brownish border: inferior wings slightly smoky, without markings: under-side of all the wings more obscure, especially the first half, which is limited by a vague line; inferior with a cellular point and two faint sub-terminal parallel lines, scarcely visible on the upper-side. Abdomen marked with geminated black dots. Palpi produced, but incumbent. Antennæ furnished with long pectinations in their basal three-fourths, afterwards filiform.

I have seen one male, considered by Mr. Fereday as a variety. Its superior wings are greyish-violet, the brown band rather different in form, the margin much darker: the inferior more yellow and more smoky: the under-side reddish, with the lines more distinct.

COREMIA DELTOIDATA, Walker.

This species varies excessively, and the individual described by Mr. Walker is a very pronounced form. I possess a second, which has only one spot, commencing on the costa and constricted in the cellule, where it has a little black streak encircled with white. That which I consider as the typical form has, on the contrary, the band entire, with sinuated margins, paler in the middle, and traversed by two intermediate lines tending to form rings.

COREMIA PASTINARIA, Guenée, n. s.

Alæ anticæ lignicolores, lineolis numerosis undulatis notatæ; vittis duabus albidis, linea brunnea divisis, spatium medium includentibus, hoc macula cellulari cinereo-punctato notato, linea sub-terminali alba irregulari: posticæ pallido-ochraceæ: subtus albidæ, lineolis incompletis.

Size of *deltoidata*. Superior wings entire, the terminal margin straight, not falcate; wood-brown, traversed by a multitude of slender undulated brown lines; the median space circumscribed by two narrow bands of a dirty white, each divided in the middle by a brown line; this space, which includes several dark lines (of which the exterior two tend to form rings), encloses, in the cellule, an ashy-grey spot, prolonged and constricted on the costa, and marked in its centre by a black dot; the sub-terminal line is whitish, but very irregular, thickened in its lower portion, and divided above by an oblique black mark; the fringe is preceded by black festooned marks, regular, but isolated by the nervures: inferior wings ochreous-yellow, somewhat shining, also bordered by black festoons, but with only faint traces of lines; beneath they are whitish-yellow, with the same faint traces of lines formed by brown dots, and with a black cellular mark. Palpi rather broad, the second joint flattened and securiform, the third forming a very short tubercle. Abdomen marked with a row of geminated black dots. I have seen only the ♀.

(To be concluded in our next.)

LIST OF CAPTURES OF HEMIPTERA IN PALESTINE AND SYRIA;
TOGETHER WITH DESCRIPTIONS OF SEVERAL NEW SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

(Continued from page 33.)

25.—CALYPTONOTUS ÆTHIOPS, Doug. & Scott.

♀. *Niger, opacus, dense lævissimeque punctatus; elytrorum membrana picea, basi extus striga brevi pallida notata.* Long. $3\frac{1}{2}$ lin.

♀. Entirely black, not shining, very finely and thickly punctured throughout.

Head—*Antennæ*, insertion of each of the joints piceous, extreme apex of 1st, 2nd, and 3rd joints with a few short, erect, piceous hairs.

Thorax—*Pronotum* with a narrow, transverse channel behind the anterior margin; side margins reflexed; disc convex. *Scutellum* convex, slightly depressed, and transversely wrinkled towards the apex. *Elytra* less finely punctured than the pronotum. *Clavus* with three rows of punctures between the inner margin and nerve, the central one somewhat irregular, and between the nerve and the suture a single row; nerves somewhat prominent and unpunctured. *Membrane* piceous, with a short pale streak next the posterior margin of the corium at the outer angle. *Sternum* and *Legs* black. *Thighs* with a bent tooth on the under-side near the apex. *Tibiæ*, 2nd and 3rd pairs with black spinose hairs.

Abdomen, underneath black, in certain lights having a piceous appearance.

The description has been drawn up from a single ♀ specimen, taken by sweeping low plants on the plains of Jordan in April.

Genus MIMICUS, n. g., Doug. & Scott.

Corpus oblongum, depressum. Caput mediocre, porrectum, ad oculos

immersum. Antennæ graciles, tuberculis prominulis, articulo primo longo, capitis apicem longe superante, secundo longiori. Oculi mediocres, paulo prominuli. Rostrum ad coxas mediasusque extensum, articulo primo capite paulo breviori. Pronotum transversum, sub-quadratum, margine antico capite latiori. Elytra medio longitudinaliter valde depressa. Pedes mediocres, femoribus anticis incrassatis, subtus spinis tribus gracilibus instructis, tarsorum posticorum articulo primo duobus alteris duplo longiori.

Oblong, depressed, sides sub-parallel.

Head porrected, (including the eyes) not so wide as the pronotum, middle lobe short, yet longer than the side lobes, the ends of the rostral channel projecting beyond its apex. *Antennæ* slender; tubercle large, distinct; 1st joint stoutest, long, three-fourths the length of the head, more than one-half its length reaching beyond the apex of the face; 2nd one-third longer than the 1st; 3rd rather longer than the 1st; 4th wanting. *Eyes* moderate, projecting a little, inserted close to but not touching the pronotum. *Ocelli* small, distant, on the posterior margin of the head near the eyes. *Rostrum* reaching to the 2nd pair of coxæ, 1st joint not quite so long as the head, 2nd and 3rd sub-equal, each a little longer than the 1st, 4th sub-equal with the 1st.

Thorax—*Pronotum* transverse, the breadth rather more than the length, slightly convex, more so in front; sides straight, margins hardly perceptible, anterior angles rounded; anterior and posterior margins straight. *Scutellum* long-triangular, flat. *Elytra* scarcely so long as the abdomen, depressed along the region of the claval suture: *Corium* outwardly deflected: *Membrane* short. *Sternum*—*mesosternum* xyphus short, triangular, depressed in the centre; *metasternum* xyphus longer, with a middle keel. *Legs*—1st pair, *thighs* moderately incrassated, beneath with a channel on the anterior half, of which the inner edge has three contiguous spines, the 1st short, the other two long and thin throughout: *tibiæ* with distant fine spines, the 1st pair (which are straight) on the underside only: *tarsi* long, slender; 1st joint on the 1st and 2nd pairs longer than the 2nd and 3rd joints together, on the 3rd pair twice as long; 2nd and 3rd joints in length sub-equal.

This genus has a great *prima facie* resemblance to *Calathus* (*Coleoptera*); its affinities seem nearest to our new genus *Lamproplax*.

27.—MIMICUS NITIDUS, Doug. & Scott.

Niger, nudus, nitidus, supra cum pectore distincte punctatus; elytris

piceis, antennis, rostro pedibusque pallide piceis; membrana lucida, albida, basi nigra.

Long. $2\frac{1}{2}$ lin.

Head delicately punctured. *Antennæ* pale piceous, pubescent, and also with some fine projecting hairs. *Eyes* rufous. *Rostrum* pale piceous.

Thorax—*Pronotum* finely punctured, disc anteriorly smooth. *Scutellum* with irregular punctures. *Elytra* dark piceous: *clavus* with three irregular rows of punctures, posterior margin bright piceous; claval suture broad, distinct: *corium*, anterior and posterior margins paler piceous, the outer nerve strong on the basal half, the other nerves fine; the punctures next the claval suture in two or three rows, and rather deeper than those which cover the disc, which are irregular but close: *membrane* lustrous, whitish, diaphanous, broadly blackish at the base. *Sternum* deeply punctured throughout. *Legs* piceous *tibiæ* and *tarsi* paler.

Abdomen shining, longitudinally crenulate, delicately punctured.

Described from a single specimen, ♀, taken on the road from Nablous to Nazareth in April.

30.—LASICORIS FLORI, Doug. & Scott.

♀. *Elongatus, sub-ovatus, pallide testaceus, dense diluteque fusco-punctatus; capite nigro, capillis longis erectis instructo; antennis crassis, capillis sub-depressis, alteris longis erectis admixtis, articulo ultimo excepto, dense vestitis; articulo 1^{mo} nigro, 2^{do} testaceo, apice fusco, 3^{tio} nigro, basi testaceo, 4^{to} brunneo; pronoto campanulato, capillis longis erectis vestito, margine ciliato, disci dimidio antico nigro, posteriori stramineo, marginibus lateralibus anguste flavis; angulis posterioribus nigris, nitidis, impunctatis; scutello nigro, sub-convexo, medio depresso, carina postice instructo; corio flavo, capillis sub-erectis vestito, macula magna, rotunda, juxta angulum posteriorem interiorem, necnon membranæ sutura, nigris; membrana nigra, margine exteriori late albo; sterno, pedibus, abdomineque nigris.*

Long. 4 lin.

♀. Elongate, somewhat oval. Yellow, thickly and finely punctured with black.

Head black, finely punctured and clothed with long, fine, erect hairs. *Antennæ* stout, the first three joints clothed with shortish sub-depressed hairs, interspersed with long erect ones; 1st joint black; 2nd brownish-yellow, apex fuscous; 3rd black, base brownish-yellow; 4th brown. *Eyes*, viewed from above, somewhat oval, from the side hemispheric. *Rostrum* pitchy-black, base of each joint very narrowly brown.

Thorax campanulate. *Pronotum* clothed with long, fine, erect hairs; ciliate; apical half black, thickly punctured; basal half yellow, thickly and finely punctured with black; extreme edge of the lateral margin yellow; posterior angles

black, not punctured, shining. *Scutellum* large, triangular, flattish convex, black, thickly punctured, depressed in the middle; behind the depression a round callus, to which is attached a distinct keel extending to the apex. *Elytra*—*clavus* yellow; between the inner margin and nerve (except a small spot at the base) black as far as the sutural angle; the nerves with a row of punctures on each side. *Corium* yellow, finely punctured with black, and clothed with almost erect hairs shorter than those on the pronotum; extreme base, a large round spot next the posterior inner angle, and the membrane suture black, the colour in the latter widest at the apex. *Membrane* black; outer margin broadly white. *Sternum* black, thickly and deeply punctured and clothed with a yellowish pile. *Legs*—*coxæ* black, apex brown, at the base, outwardly, a brown spot. *Fulcræ* black. *Thighs* black, clothed with long, fine, almost erect hairs; 1st pair beneath with three or four small teeth, of which the penultimate, from the apex, is the longest. *Tibiæ*—1st pair brown-yellow, clothed with long, fine hairs, apex black; 2nd brown, with long, stout, spinose, black hairs, interspersed with longer fine ones; apex black; 3rd black, the hairs as in the 2nd pair. *Tarsi* clothed with pale hairs; 1st and 2nd pairs brownish-yellow, apex of the 1st and 2nd joints piceous; 3rd joint of all the pairs and *claws* black.

Abdomen—beneath black, very thickly and finely punctured, and clothed with a yellowish pubescence.

Plains of Jordan, on low plants while sweeping for spiders and *Coleoptera* in April.

We have named this insect after Dr. Flor, from whom we have received several acts of kindness, and whose work, the "Rhynchoten Livlands," has placed him in the first rank of the authors on *Hemiptera*.

This species is very closely allied to the *Beosus æneiceps* described by Bärensprung in the Berlin. Ent. Zeitschrift for 1859, page 333, pl. 6, fig. 5, but it may easily be distinguished from that insect by the differences in the antennæ and legs.

(To be continued.)

Cathormiocerus socius a true British species.—My friend Mr. Montague, in the early part of the summer of last year, captured a single male specimen of a Strophosomo-Trachyphlæoid *Curculio* (now, thanks to his liberality, in my possession) at Freshwater, I. of Wight, which, on its being brought before my notice, I at once felt inclined to refer to the much-vexed species above-named, but refrained from bringing forward, as I was unable to reconcile it with the description in Schönherr's Syn. Ins., vii. (Supp.), 121, 2, on account of its possessing certain most evident characters in the structure of its antennæ and the bristly clothing of its elytra not referred to by that author.

The recently published work on certain of the *Otiiorhynchidæ* by Georg Seidlitz (Berlin. Ent. Zeitschr., Jahrg. xii., 1868, Beiheft), however, enables me now to bring it forward without further hesitation.

C. socius, originally described (as above referred to) by Schönherr, with the sole locality "*Anglia. Mus. Dom. Walton*," has always been regarded with doubt as British, not only on account of its genus being apparently exclusively South-European, but because there was no reference to it in Mr. Walton's "Notes," and no representative of it (apparently) in his collection (the types of which are now in Brit. Mus.); and, possibly, because, in the Stettin. Ent. Zeit., 48, p. 346, he states that the origin of the specimen ceded to Schönherr was unknown to him. Seidlitz, l. c., 134, notices this remark of Walton, and (note) explains that by mistake *socius* is quoted in the Stett. Ent. Z. as *horridus*; and from these data he reasonably considers the reference of *socius* to England as founded on error. Seidlitz's only locality for the species is the Sierra Nevada.

Mistake seems to have followed *C. socius* hitherto in all its references; but I imagine that the I. of Wight specimen above-mentioned will enable me to substantiate the authenticity of the species as British. On inquiring at the Brit. Mus. I am informed that Walton's single specimen was retained by Schönherr, who founded the species on it. This agrees with the statement by Seidlitz, that Schönherr's type-example is labelled "*Anglia. Walton*." This type appears, according to Seidlitz, to be an *abraded* male, structurally entirely identical with males from the Sierra Nevada, with the exception of an evidently individual abnormal formation of the rostrum; and, according to the same author, it entirely agrees with Schönherr's description, with the exception of reference to this peculiarity, and to the structure of the scape of the antennæ.

There can be no doubt, however, that Mr. Walton possessed *two* specimens, *both abraded*, of this insect; since, on the sale of his general collection, Mr. G. R. Waterhouse purchased, amongst other insects, one labelled (erroneously) "*Cænopsis Waltoni*," in Mr. Walton's own handwriting, which is distinctly (being a male, luckily) identical with my recent I. of Wight example. Some accidental confusion of labelling, possibly at a time when Mr. Walton was not so well acquainted with these insects, must have taken place, in order to account for this palpable mistake (the insect in no way agreeing with the well-known *C. Waltoni*); and it is evident from Mr. Walton's statement in the Stett. Ent. Zeit. that he knew nothing of his possessing this second specimen,—which, indeed, is so exceedingly bereft of scales and bristles as to be likely to escape attention.

C. socius seems distinguishable from all its congeners but the Pyrenæan and instantly separable *cordicollis* by the shape of the antennal grooves, which are not linear, but pit-like, irregular, and conspicuous from above. In the male the scape of the antennæ is suddenly and angularly dilated close to the base, and curved. In a fresh example, like mine, the thorax has the sides and a middle line yellowish, and the elytra densely covered with scales, presenting a dull and somewhat tessellated appearance, the interstices being set with light bristles. The only British species with which it could by accident be confounded is *Trachyphlæus squamulatus*, from which its rather larger size, longer and less obtusely rounded elytra, &c., will serve to distinguish it,—apart from its evident structural differences.

Seidlitz remarks that the granuliform, connate, somewhat shining clothing of the under-side of all the species of *Cathormiocerus* will always serve to distinguish them from their allies.—E. C. RYE, 7, Park Field, Putney, S.W., July, 1868.

Note on Phosphæus hemipterus.—The following is an account of the capture of the insects recorded by Mr. Rye in the last No. of the Ent. M. Mag.

Whilst watering plants in my garden late on a hot evening in May last, I observed a spot of phosphorescent light at the foot of a wall, but failed to detect its origin. On 12th June, when again watering the garden, after dark, I again noticed a similar but moving light; smaller, though not less bright, than that of a glow-worm. This light I found to proceed from an insect then unknown to me, possessing two equal luminous spots at its tail. I kept it alive for six days, but it did not seem to eat anything, or to notice food, though engaged in restless unceasing explorations of its prison, as if in search of something. Each night the light grew fainter, which I attributed to physical exhaustion. On the 18th June a second example was found by one of the servants, crawling over a white cloth left on the bricks. This, though finer than the first, gave a smaller light, but was equally active. Occasionally it moved its short wing-cases, but its long and substantial antennæ appeared to be the more important and sensitive organs, acting as guides and aids. When they became laden with moisture or dirt, the insect began at the base, and combed and cleansed each to the very last joint; when up they went with a flourish, and recommenced their incessant vibrations. In crawling along the edges of leaves the insect used its mandibles as assistants. At first I thought it was going to eat, but found that it was only as a means of clinging more closely in a dangerous position that these extra limbs were used. Also its long flexible body became by turns lever, balance, drag, propeller, or claw. On the upper-side the colour was so exactly that of the earth that, unless in motion, the insect was most difficult to see,—it was somewhat paler towards the tail; and beneath, between the joints or rings, showed a decided pink.

Against the light the semi-transparent tail showed two black spots where the light was fixed, and these were equally bright above and beneath when shining. I believe I am safe in asserting that only when disturbed the insect showed its light, and then not for a continuance, or with an even glow. This second specimen I unfortunately lost; but, on the evening of the 25th June, I found a third example in the water-butt; and the following evening a fourth near where the first was found.

I can discover no means by which these insects, or any larvæ, can have been introduced into our garden—a small square between four high walls; except that in June, 1865, I brought home some ferns from the Jersey hedges: but, to diminish their weight, all loose earth was shaken from the roots, which, besides, after being several days in a tub of water, were packed in wet rags for the journey; and again stood in water for some days previous to planting. I can scarcely imagine, therefore, that these insects can have then been introduced, in any stage, especially as they are known to have the carnivorous habits of the glow-worm, and do not frequent plants.—CATHERINE C. HOPLEY, 6, Albion Street, Lewes, July, 1868.

Notes of spring Rhynchophora on the south-east coast.—At the beginning of the present month I had a day's collecting on the Deal sand-hills, but without any great success. *Phytonomus fasciculatus* appeared under its accustomed "crane's-bill," and near it *Cœliodes exiguus*. *C. geranii* I have never found in East Kent.

went to Deal on the chance of finding *Ceuthorhynchus tarsalis* in the locality where it had occurred a few years ago, and beat diligently every food-plant I could see, but without success. About a fortnight afterwards the insect turned up upon the S. E. R., between the Hythe and Shorncliffe stations, not a plant of *Sisymbrium* being, so far as I could ascertain, within sight. I only procured a single specimen. Upon the same bank, at various spots and various times since the 1st of May, have occurred the following:—*Ceuthorhynchus punctiger* and *Chevolatii* (=respectively, I suspect, to *marginatus* and *trogodytes*); *C. terminatus*, the first time I have seen the insect alive; *Tropiphorus carinatus*, a very hermit among beetles, and apparently quite indifferent as to his quarters, so that there be no partner to share them. I have taken it repeatedly during the last ten years,—from bare chalk and long grass, damp wood and dry banks,—and at almost all seasons: moss in the winter months affording the best chance; but I never found more than one at a time, in spite of strict searching.

Phytonomus suspiciosus is scarce hereabouts; *Apion cracæ*, also scarce; but *Grypidius equiseti* and *Sitones cambricus* are not very rare in this neighbourhood. I may also mention that both *Poophagi* have appeared in a new locality, a private watercress bed belonging to a friend and neighbour of mine; which is the more satisfactory, as the old habitat is quite hopeless—the cress having been entirely ousted by stinging-nettles.

I have just beaten a red-wing-cased *Harpalus servus*, Sturm, from hazel; on a chalk bank near Covert Wood, East Kent; and make a note of this, under the impression that the insect has hitherto been recorded *only* as a littoral species, and, therefore, not amongst the tree-climbing *Geodephaga*. I am ready to exhibit the specimen should any doubt be felt as to its correct identification. I have no such doubt myself, having examples from Romney Sands wherewith to compare it.—W. TYLDEN, Stanford, Hythe, 19th June, 1868.

Capture of Mesites Tardii on our north-eastern coast.—During the first week of this month, Mr. Lawson and I went in search of wood-feeding beetles in Hayburn Wyke, six miles north of Scarborough. The first likely-looking tree we came to was an alder, which had been blown down, and partially lay across the “beck.” We set to work, taking off the loose bark, and were astonished to find *Mesites Tardii* by hundreds. The beetle was also making large galleries in the solid wood, in which all stages of the insect occurred together.

The next tree we tried was a dead ash; and in it was the beetle, in equal abundance, accompanied by *Clerus formicarius*. We next found it under loose bark of maple; also under loose bark of oak; also in the solid wood of the roots of the latter tree, which had been cut down about two years;—so I presume no tree comes amiss to the beetle. In my experience of wood-feeders, I have never before met with any species so numerous.—T. WILKINSON, 6, Cliff Bridge Terrace, Scarborough, June 26th, 1868.

[This is pleasant for the “Atlantic Fauna” theory.—E. C. R.]

On the fecundity of the Queen-Bee.—At the meeting of the Entomological Society on the 4th of May, a paper on the economy of the Hive-Bee, by Mr. Desborough,

was read; among other interesting matter, the author's experience as to the fecundity of the queen, during life, was given as 108,000 eggs. This, to any one uninitiated in the wonders of the hive, would appear to be a very large number. Mr. Desborough in his prize essay, I believe, calculated the duration of the life of a queen as averaging about five years, giving an annual deposition of eggs at about 21,600. Since this estimate was published, in the report of the Proceedings of the Society, the Devonshire Bee-Keeper has published his experience, and it is truly marvellous to contemplate the two results. We are not told by Mr. Desborough what was the particular description of time that furnished these results. We may confidently rely upon the information of both parties; but we cannot but feel certain that either the calculations were made under very different circumstances, or that the fecundity of queens varies immensely.

According to the experience of the learned German Apiarian, Dzierzon, the average duration of life in the queen is four years, and that a prolific queen lays not less than 1,000,000 eggs; and this opinion is endorsed by the Devonshire Bee-Keeper. He further informs us that it is nothing unusual to see from 15,000 to 20,000 cells occupied by brood during three months of the year. Then we are to add to this period the spring and autumn months, when breeding takes place; during the first in an increasing ratio, and during the latter in a decreasing ratio; until, in October or November, it entirely ceases. Then we are to consider that, during this period, the tenants of the brood-cells are removed every three weeks. From this calculation we are enabled to form some idea of the fecundity of a prolific queen.—FREDK. SMITH, British Museum, June, 1868.

Description of the larva of Eupithecia consignata, Bork.—Towards the end of May, Mrs. Hutchinson, of Grantsfield, kindly sent me seven eggs of *Eup. consignata*, laid by a ♀ taken in Herefordshire by her daughter. They all hatched in the course of a few days; and I have reared six larvæ, all of which have now spun up.

I have much pleasure in sending you a description of this hitherto almost unknown larva.

“Long, slender, tapering slightly towards the head. Ground colour grass-green, slightly tinged with yellow. Segmental divisions yellowish. Central dorsal line very slender, dark purplish-red, enlarged at the base of each segment into a spear-head shaped blotch. Dorsal blotches bordered with yellow, and becoming confluent on the capital and caudal segments. Head somewhat broad, green, very slightly marked with purplish-red.

Spiracular line puffed, rather paler green than the rest of the body; blotched into purplish-red on a few of the central segments, and more or less bordered with straw colour. Central ventral line whitish. Body somewhat wrinkled, studded with a very few short, slender whitish hairs. Fed on *apple*. Full-fed June 14th—19th.”

Some few years since I beat two of these larvæ from *oak* in Suffolk, and another from *hazel* in Hampshire. I suspected at the time that they were the larvæ of *Eup. consignata*; but, as they died in the pupa state, I was unable to verify my suspicions. This larva closely resembles that of *Eup. exigua*.—H. HARPUR CREWE, The Rectory, Drayton-Beauchamp, Tring, June 22nd, 1868.

Note on the pupa of Eupithecia consignata.—In the last number of the "Entomologist," Mr. Crewe gives a description of the larva of this species. Through the generous kindness of Mr. Hutchinson, I have also reared a few larvæ. My object in writing these few lines is to draw attention, not to the larva, but to the pupa. It is quite unlike that of any *Eupithecia* with which I am acquainted. It is more like that of a *Tortrix* than of a *Geometra*, very long and slender, and twisting the abdominal portion in a very active manner. I think there is little doubt but that the pupa might be found in orchards, under moss, or behind loose bark. The admirers of the genus *Eupithecia* are greatly indebted to the discoverer of the larva of this very pretty species.—J. GREENE, Cubley Rectory, Sudbury, Derby, July, 1868.

[Mr. Crewe's contribution reached us too late for insertion in the July number of the Magazine; and it is contrary to our rule to print any communication of this nature that may have already appeared in another publication. Mr. Greene's note renders it advisable that we should relax the rule in this instance. We ask our contributors to bear in mind, that unless their papers be received by the 18th of each month, they stand little chance of appearing in the following number.—Eds.]

Observations on the habits of the larva of Zygæna nubigena.—Through Mr. Birchall's kindness in sending me the eggs, I am enabled to give some account of the early stages of this species, but the discrepancies that exist between my account and those of other observers show how desirable it is to make further investigation.

A small batch of eggs (*small* because I could not undertake many) received July 4th, 1867; the larvæ hatched on the 10th of the same month. Finding, from the "Chapter on Minos," in Stainton's Annual for 1862, that it was likely either *Thymus serpyllum* or *Pimpinella saxifraga* would prove to be the proper food, I procured both, but there was no doubt as to which these larvæ preferred; the *Thyme* was eaten at once, whilst I could not see that the *Pimpinella* was even tasted.

These larvæ, about ten in number, grew very slowly, and (with one exception, who had grown to twice the size of his fellows, but came to grief,) were no bigger than a leaf of the wild thyme, and indeed of pretty much the same figure in outline, when they settled down for hybernation about the beginning of September. They assembled in two little groups of four or five each, and spinning some silk on the under-side of the stoutest stems of their food-plant, rested quietly till near the end of February. Mr. Birchall had warned me that in their native locality they probably had little experience of frost, so I placed the flower-pot with large glass cylinder, which enclosed the plant of thyme, in a garden-frame under a high wall with south aspect; there was no hotbed in the frame, but as it received all the rays of the sun from about 9 a.m. to 4 p.m., a considerable amount of warmth was kept up in it, compared to the temperature outside. In fact the thyme continued to grow and thicken all through the winter, until my little larvæ were quite hidden; and it would at any time have taken a sharp eye to distinguish them, whilst hybernating, from a withered thyme-leaf, so much were they of the same colour, and furnished with little hairs of the same length.

About February 20th, 1868, I noticed four or five of them moving in the sunshine, and some of the tender shoots of the thyme showed marks of their jaws being at work; and at this date I noted down the following description:—Length, $\frac{1}{8}$ inch; colour, all over a pinkish-brown; some faint traces of sub-dorsal rows of black and yellow spots; hairs arranged in little tufts. March 7th: larvæ sickened for moulting; about 14th all appeared in a new dress; colour immediately after moult a dull blackish rifle-green, the upper spots showing like black velvet, and the lower row being now distinct and of a primrose-yellow; some of the hairs black, some whitish. As they fed and grew, their colour became lighter, and about this time four of the nine disappeared—I suppose having sickened and died; but the thyme was now so dense I could not find them. April 1st: the five survivors moulted again—as before, coming out almost black, and gradually paling to dark olive-green. April 15th: they moulted again (as I have before noticed in the case of *Z. trifolii*, the moult takes place by the skin splitting all along the back), and again came out darker than before.

About the end of April they had attained their largest growth,—somewhat less, I imagine, than would have been attained in a state of nature, the heat of their position hastening their changes; they were of the usual fat, soft *Zygæna* figure, measuring in length, when in motion, $\frac{6}{8}$ inch, when at rest $\frac{5}{8}$. Colour all over a rich dark olive-green; dorsal line dirty whitish, showing broadest and palest at commencement of each segment; on each side of it a row of eleven black velvet round dots placed on front of each segment from 3rd to 13th; below this a row of eight yellow spots on segments 4th to 11th, placed on the hinder part of the segments in such a way that the yellow spot of each comes just below the black dot of the segment behind it; the spiracles black; the belly rather paler than the back; the usual dots not visible; each segment bearing in a transverse row eight fascicles of stiff white hairs, five or six in a fascicle.

I noticed throughout their growth these larvæ moved and fed with most energy in the sunshine.

May 2nd. The four I retained begin to spin, fixing themselves on their glass cylinder, and not on their food-plant; two placed themselves horizontally, and the other two in a perpendicular position; the cocoon is dirty-white in colour, glistening, and shorter—more truncate in form than that of *trifolii* or *filipendulæ*; and the pupa is brown in colour, the wing-cases being rather darker than the body, and different individuals varying in depth of tint. When the moths, which are rather under-size specimens, emerged (May 29th—June 1st), the empty pupa-cases were not left sticking in the cocoons, but had fallen down near them. I was not lucky enough to see a moth in the act of emerging.

With Mr. Buckler's kind assistance I have drawn up a short account of the various descriptions and figures we could obtain of the larva of *Minos* and its supposed varieties, from which it will be seen that the Irish larva is not quite like any hitherto recorded.

In the Annual for 1862 there is Zeller's account of whitish larvæ on *Pimpinella*, and yellow larvæ found later on *Thymus*; also Freyer's account of yellow, white, and whitish-blue larvæ, all of which ate *Pimpinella* by preference; also Hering's fuller description of the larva on *Thymus*, which comes nearer to our larva than the others, though the ground-colour is yellow instead of olive-green, and there is

no mention of yellow spots. This description, however, agrees to some extent with Hübner's figure of one variety, represented by him as citron-yellow, with a sub-dorsal row of brown spots, and a broad stripe of yellow paler than the ground running just below them. Hübner has also figured a whitish variety with blackish spots, but placed on the *hinder* part of each segment. And Boisduval gives in his figures the ground-colour as pale yellowish or citron-green, with two black dots instead of one on each segment, and yellow spots above, not below them, a black dorsal line and some black curves above the legs.—JOHN HELLINS, Exeter, June 10th, 1868.

Notes on the earlier stages of Acontia luctuosa.—I am greatly indebted to Mr. Howard Vaughan for kindly giving me the opportunity of figuring and describing larvæ of this species, as well as for furnishing some interesting details concerning their earlier stages.

The eggs were laid on the 7th and 8th of June, 1868, and hatched on the 16th and 17th of the month.

The young larvæ at first appeared to be veritable loopers, twelve legs only being visible; but, as they grew larger, the other legs became apparent, though still in walking they did not use the first pair of ventral legs.

They appeared to be nocturnal feeders, eating the flowers and seeds, as well as the leaves, of *Convolvulus arvensis*; they reposed, lying along and closely embracing the stems of the food-plant, close to the ground, and in this position would easily escape observation.

The full-grown larva is about one inch and a quarter in length, slender, and stoutest in the middle, and tapering a little towards the head (which is smaller than the second segment), and more to the posterior extremity; the folds and divisions moderately indented on the first four or five segments, but hardly noticeable on the remainder.

The two hinder pairs of ventral legs more developed than the two preceding pairs.

The ground colour on the middle of the back is a *pale* greyish-ochreous, brownish-grey, or reddish-grey, the sides being darker and browner; the dorsal stripe tapers at each extremity of the larva, but is narrowest on the anterior segments, the stripe itself being of the pale ground colour above-mentioned, but faintly outlined interruptedly by short dots or lines of black; sometimes towards each segmental division it is delicately freckled with a slightly deeper tint of the same, and, in some examples, two short black streaks, rather thicker than those that outline the stripe, appear at the beginning of each segment, almost forming a V, pointing forwards.

The pale region of the back assumes a kind of chain pattern from being bounded on each side by a rather broad sinuous border of *dark* grey-brown, on which are placed the anterior pairs of tubercular dots, being large and very pale greyish, delicately margined with blackish; the posterior pairs small and black.

The sub-dorsal stripe is but little paler than the dark ground colour of the sides, and chiefly towards the head, and just a little at the beginning of each segment, the stripe is edged with a line of dark brown; beneath this, again come three other dark brown lines, the lowest of which is the spiracular, and is thicker

than the others; the upper two are slightly sinuous, and the second bears a pale tubercular spot at the anterior part of each segment, and also touches the spiracular line in the middle of the segment.

The spiracles are black and circular. Below them is a broad stripe of very pale brownish-grey, edged above with a paler thread, and below with a little darker stripe of reddish or greyish-brown, followed by another close above the legs of paler greyish-brown. The belly slightly deeper greyish-brown, with a central brown stripe bearing on the middle of each segment beyond the fourth a blackish round spot. Legs pale brownish-grey; prolegs similar, and with a dark brown dot above their fringes.

The head slightly hairy, and very pale greyish, having on each side four lines of black dots in continuation of dark stripes on the body. The second segment has a semi-lunar dull dark brown plate, through which run conspicuously the dorsal and sub-dorsal pale stripes.

The pupa is subterranean.—WM. BUCKLER, Emsworth.

Moths at Nettles.—The Rev. J. Greene, in his interesting little "Insect Hunters' Companion" mentions, among other plants, nettles as a good bait for moths, which, he says, appear to imbibe something not from the flowers but from the leaves: why they evince a partiality for the latter he could not understand. Whether the reason has since been discovered and published I know not, but I have satisfied myself that it is not the leaves "pur et simple" which attract the moths, but that their efficacy is owing to a little white plant-louse which sometimes covers them, and the exudations commonly termed "honey-dew" is what the moths are so fond of; that this is the cause I have further proved by the fact that, whilst moths were plentiful on some *Aphis*-covered nettles, not one was to be seen on adjoining but clean plants.

Most of the moths which come to "sugar" also come to nettles, though some species, apparently, are not so fond of them as of sugar, for they come more sparingly.

On one or two nights last month, when I paid a visit to some nettles in a field close to the Wallasey sandhills, I found moths literally swarming at them, as fast as I boxed those I wanted, some other moths came to take their place. Certainly, the majority of them were such commoners as *A. exclamationis*, *X. polyodon*, &c., but I took pretty freely *corticea* and *albicolon*, as well as several each of *L. littoralis*, *L. comma*, *L. impura*, *L. lithargyria*, *A. putris*, *H. dentina*, *G. trilinea*, *A. basilinea*, *M. strigilis*, *N. plecta*, *N. triangulum*, *N. C-nigrum*, *X. rurea*, *N. augur*, *A. valligera*, *L. pallens*, *H. adusta*, *C. morpheus*, *N. festiva*, *E. lucipara*, one *C. umbratica*, *A. gemina*, and some other common species.

This list does not include many "good things," but such as they were, they were all the species to be got at sugar in that neighbourhood, at that time, so that nettles, in more favoured localities, may prove better worth working. It is certainly a very economical method of obtaining moths, but I find that "sugar" is a more powerful bait, for when laid in the neighbourhood of the nettles, the moths abandon them for the stronger smelling compound.

Several of my friends complain that they get nothing at sugar; why, I cannot conceive, unless it is that they choose unfavourable nights for their expeditions; I

have found moths very common at sugar this summer, indeed, I have never seen *Urbicolon*, *corticea*, and *littoralis* so common as they were last month; it is also a very early season for many things; *valligera*, in particular, I have never seen before the end of July, and it is common in August with *tritici* at ragwort flowers, whilst many of the specimens which I captured last month were more or less worn.

The *corticea* vary wonderfully in colour and markings—one which I took is nearly black, whilst others of the same sex (males predominate) are very pale.

I would recommend incipient collectors to examine at night all kinds of plants infested with *Aphides*, and not confine their attention solely to nettles, for the "honey-dew" found on other plants is also very attractive, but in various degrees.

I am prompted to send you these remarks in the hope that they may prove useful to some of your readers, remembering, as I do, when I began collecting, how the sight of a fine bed of nettles made my heart jump, but I was continually doomed to disappointment, never having succeeded until lately in finding any moths in the nettles, as mentioned in Mr. Greene's little work.—E. L. RAGONOT, 130, Conway Street, Birkenhead, July 8th, 1868.

Lepidoptera bred, &c., in the spring.—I began the year by breeding *Eupithecia bipunctata* on January 27th (forced), from larvæ collected in Coombe Wood. I have been very successful with this species, as—though Mr. Harpur Crewe says only one in every ten escapes ichneumons—I succeeded in breeding more than half mine; the last emerged on April 28th, or three months after the first!

In the early spring I collected, near Rugby, a number of spruce-fir cones, from which I have bred a fine series of *Coccyx strobilella*.

On Wimbledon Common *Adela cuprella* has been out in far larger numbers than last year; while, at the shallows, *Teniocompa gracilis* and *rubricosa* were at home as usual,—and a specimen of the latter occurred at the lamps.

During April, *Clostera reclusa*, *Eupithecia minutata*, and others, appeared in my breeding-cages, from larvæ taken on Wimbledon Common and Combe Wood last autumn.—G. B. LONGSTAFF, Southfields, Wandsworth, S.W.

Collia sparsata, &c., near York.—In five nights' collecting during last week I obtained a good series of *C. sparsata* in very fine condition; also series or pairs of most of the following:—*H. unca*, by sweeping long grass; on the wing, *P. syrinxaria*; at sugar, amongst others, *A. leporina*, *A. rumicis* var. *salicis*, *L. pudorina* (frequent), *X. hepatica*, *M. abjecta*, *M. anceps*, *Agrotis suffusa* (one, apparently just out), *D. cucubali*, and *A. adusta*.—T. J. CARRINGTON, 1, Melbourne Terrace, York, June 13th, 1868.

Capture of the larva of Polia nigrocincta.—I had the good fortune, this afternoon, again to find the larva of *P. nigrocincta*.—N. GREENING, Isle of Man, 19th June, 1868.

Note on Colias Edusa.—I found a caterpillar of *C. Edusa* feeding on Melilot last October at Charmouth; it changed to a pupa on our journey home, and died in the act of emerging at the end of March.—C. W. DALE, Glanvilles Wootton, 3th June, 1868.

[This interesting fact tends to prove that *Edusa* in this country is double-brooded, or partially so; or that all the examples taken in spring and early summer have not necessarily hibernated.—EDS.]

New locality for Lycæna Arion.—It will be interesting to British Lepidopterists to hear that Mr. Wells, a pupil of this college, took a specimen of *L. Arion* last year near this place; but was not aware of his good fortune until I discovered the insect amongst his butterflies. Yesterday we took a walk to the same locality, and found eight fresh specimens.—E. DEMBSKI (French Master), The College, Cheltenham, 2nd July, 1868.

Elachista paludum bred.—I have had the pleasure of breeding *Elachista paludum*, from larvæ I found here in *Carex* (? *riparia*). I first found the larvæ last autumn, and sent one up to Mr. Stainton; but it having died before reaching him, he could not decide it, but inclined to the belief, suggested by myself, that it was the young larva of *Gelechia arundinetella*. However, on searching this spring I found the larva more fully matured, and saw at once they were *Elachistæ*: in due time *paludum* appeared,—much to my delight. I do not recollect seeing any other locality for them than Ranworth and Beccles, where they were found by Mr. Winter. It is possible that, if specially looked for, they may turn up elsewhere. They are scarce, and difficult to find, as they seem to grow up all at once, and are fearfully subject to ichneumons, &c.—JOHN SANG, Darlington, June 15th, 1868.

Captures of Lepidoptera at Howth.—During Whitsuntide, Mr. Gregson and I spent a few days at this locality for Irish novelties; and, by dint of hard and weary work, we succeeded tolerably well. We both took *Dianthæcia Barrettii*. This cannot be, as has been suggested, a form of *conspersa*; it flies in quite a different manner, and, when the wings are closed, the blotch—like that in *H. atriplicis*—is very striking. We each got three examples. Below I give a summary of our captures, and remark that the single specimen of the rare *Taleporia pubicornis* was taken by Mr. Gregson; this is quite new to the Irish list, and has been found in only one English locality.

C. porcellus, *S. philanthiformis*, *L. caniola* and *complana* (larvæ), *O. bidentata* (light var.), *A. subsericeata* (common) and *promutata*, *E. venosata* and *constrictata*, *M. galiata*, *A. plagiata*, *M. furva*, *D. capsophila*, *Barrettii*, and *cucubali*, *H. nimbella*, *P. subornatella*, *S. littorana* and sp. (?), *S. Penziana* (pupa), *E. albicapitana* and *atricapitana*, *A. Baumanniana*, *T. pubicornis*, *P. roboricolella*, *D. marginepunctella*, *D. subpropinquella* and *capreolella* (bred), *G. mundella*, *instabilella*, and *artemi-siella*, *B. grandipennis* and *fusco-cuprea*, *G. tringipennella*, *C. discoidella* and *gryphipennella*, *E. Gregsoni* (?), *collitella*, and *consortella*, *P. pterodactylus*. I have a larva now feeding which may be that of *D. Barrettii*.—J. B. HODGKINSON, Preston, July 7th, 1868.

Sesia myopæformis in Hawthorn.—Have any of the readers of "The Magazine" reared this clearwing from hawthorn? In the piece of ground at the back of our house I, a few days since, met with some empty pupa cases protruding from the trunk of a double red-may tree; these are evidently those of *myopæformis*, which is common enough in some neighbouring apple and pear trees.—H. G. KNAGGS, Kentish Town, July 10th, 1868.

Agrotis cinerea at Folkestone.—About two months ago I captured a female example of this local species in the Warren at Folkestone. I mention this, partly

because I am under the impression that the insect has never been recorded as having occurred at Folkestone, and partly on account of the sex of the individual; female *neraea* not being, I believe, caught every day.—ID.

Note on Haden atriplicis, &c.—I have lately reared a fine series of *Hadena atriplicis*, from eggs deposited by a female caught at Cambridge last year. I should not have troubled you with this communication had not a well-known Cambridge entomologist informed me that his bred specimens of this insect were always both small and badly coloured; while mine, on the contrary, are of the average size, and well marked.

Last week I took a male *H. dominula* at Lustleigh, in good condition. From the fact that this insect has been captured at Exeter, Teignmouth (*i.e.*, Great and Little Waldon), and that it is common at Ashburton, I am inclined to think it is common throughout the moorland parts of the county.—CHARLES GRINSTEAD, Torquay, 22nd June, 1868.

Results of a day and a night's collecting in Sherwood Forest.—The old forest is now in its glory, and well worth a visit from even the most apathetic of Nature's admirers. For miles you may wander among grand oaks, some "stag-horned," not majestic in their ruin; others in the full vigour of life, interspersed with the graceful birch, whose tall, silvery stems gleam white far away in the distance; with here and there an alder, mountain-ash, or white-thorn. Few flowering plants are seen, the ground being chiefly covered with fern, five or six feet high, or in the open places with tall, waving grass. Among the latter we sprung a few *Euthemonia tessula*, all apparently fresh from the pupæ: they were easily caught, flying very nimbly. *A. Adippe* was just out, but in the glowing sunlight a chase was not very agreeable: we got, however, about a dozen specimens. From the oaks we beat a few specimens of *Conopalpus testaceus*, and a single example of *Phlæotyra rufipes*. The mountain ash gave us *Rhynchites cupreus*. Wading through the fern was no joke, and we hailed with joy the spire of Edwinstowe Church peeping through the trees. After lunch, we re-opened our campaign, but, with the exception of a single specimen of *Conopalpus Vigorsii*, and a pair of *Drepana leucataria* and of *Hepialus velleda*, nothing of much importance fell to our lot. There was a perfect plague of flies; the only remedy was a vigorous fumigation, and I should advise all entomologists who come this way to remember their pipes. As evening drew on, we obtained a good many fair specimens of *Cybosia mesomella* flying in the open places; and at sugar, among hosts of common things, we got *Myatira batis* and *derasa*, *Neuria saponarix*, and two *Hadena contigua*. One tree generally swarmed with the male *Lampyrus noctiluca*; as fast as we could bottle them they came flying: we saw but one female, and she was accompanied by four or five males. We intend to try the bark in a few weeks, and will report progress.—RICHARD AND WILLIAM TYRER, Grove House, Mansfield, June 25th, 1868.

Review.

The Butterflies of North America; with coloured drawings and descriptions. By W. M. H. EDWARDS. Philadelphia: the American Entomological Society. London: Lubner & Co., Paternoster Row.

Under this title Mr. Edwards, well known for his devotion to the study of the North American Diurnal *Lepidoptera*, of which he has the largest collection in existence, proposes to issue a series of coloured illustrations of all the species at present known, accompanied by descriptions and notes on geographical distribution; a work much wanted, since the number of described North American species has been doubled during the last few years; the descriptions are scattered through various publications. The first part, which was issued in April of the present year, gives promise of great excellence, both as to the execution of the figures and the information contained in the text.

In size and general appearance, the work resembles Hewitson's "Exotic Butterflies;" but each part is to consist of five plates instead of three. The parts are to be issued quarterly, and the genera to follow in irregular order, not following any system of classification; but a classified synopsis of all the species is promised as portion of the text, to be commenced with Part 3.

With regard to the figures, it is not too much to say that they will bear comparison with the best that have ever been given in iconographical works. They are correct in outline and drawing, and coloured with great truthfulness and sobriety; the general effect, too, is most pleasing and artistic; in short, if illustrated works of so much beauty and accuracy as this can be produced on the other side of the Atlantic, it behoves Natural History Iconographers in our old Europe to look to their laurels.

The letter-press accompaniment to the plates is also remarkably well done. The synonymy is carefully and, so far as the work has proceeded, accurately worked out; the closely-allied species luminously discriminated; the descriptions good; and the details of occurrence and distribution of the species full of interest. The text, in fact, forms pleasant reading. Under the head of one species, *Argynnis Diana*, the affinities of a fossil allied butterfly, found in the miocene beds of Croatia in Europe, the so-called *Vanessa Pluto* of Heer, are discussed; the author giving his reasons for believing this to be an *Argynnis* allied to the somewhat anomalous North American *A. Diana*; and hence deduces another fact in support of the hypothesis, that, in tertiary times, the organic productions of Europe and North America much more closely resembled each other than they do at present.

The first part is devoted to the genus *Argynnis*; and most of the species have never before been figured. The second part is to consist, also, of *Argynnis*, with the addition of a new *Apatura*, and a number of new *Colias*. The third part will contain a continuation of *Argynnis*, and a number of previously unfigured *Theclæ*, &c.

No student of this beautiful and favourite tribe of insects will fail to obtain this interesting work; and we hail its appearance as a true advance in the science of Entomology.

ENTOMOLOGICAL SOCIETY OF LONDON, 8th July, 1868. H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Bond exhibited an extraordinary variety of *Setina irrorella*, from near Croydon; it was very pale, with but few dots, but with a strong dark sub-terminal fascia: also a variety of *Arctia villica*, bred from a larva found at Wormwood

crubs, the ground colour being pale fulvous or cream-coloured, with scarcely a trace of dark markings: also two males and one female of *Drilus flavescens* from freshwater, the three having been found simultaneously in *copulâ*; he mentioned other analogous instances, notably that in which Dr. Knaggs had found a male each of *Tortrix heparana* and *T. viridana* coupled with one female of the latter species.

Mr. McLachlan exhibited 12 bred specimens of *Hypercallia Christiernana* from larvæ found at Shoreham, in Kent; he had bred 19 in all.

Mr. Davis (present as a visitor) exhibited a fine collection of preserved larvæ of *Lepidoptera*.

Mr. Wood (visitor) exhibited bred specimens of various species of *Saturniidae*, including *Cynthia*, *Promethea*, *Cecropia*, and *Polyphemus*. The species, he remarked, all possessed a more or less strongly developed moveable spine attached near the base of the inner side of the fore-tibiæ, and lying in a groove in the tibia itself. The insects used this appendage as a comb, drawing their antennæ between the spine and tibia, and thus cleansing them from dust, &c.

Mr. Jenner Weir exhibited a large exotic beetle of the genus *Monochamus* which flew into the London Custom House very recently; it had no doubt bred in imported timber.

Mr. Blackmore exhibited a collection of insects, of all orders, formed by him at Tangiers, in Morocco.

Mr. Eaton exhibited microscopic preparations of the anatomy of several genera of *Ephemeridæ*.

Professor Westwood exhibited two extraordinary forms of *Chalcididæ*, from Australia and the Amazons respectively; they were remarkable for very large size, and for aberrant development of the abdomen.

Mr. Smith sent for exhibition specimens of *Ophion macrurus* bred from American cocoons of *S. Cynthia*; the species was more properly parasitic upon the American *S. Cecropia*, but had adapted *Cynthia* to its purpose on the introduction of that insect into America. One of these *Ophions* had stung Mr. Smith with such severity, as to lead to the belief that poison was introduced into the wound.

The Secretary exhibited a wooden letter-clip, sent to him by an anonymous correspondent, in the notch of which an *Odynerus* had formed her nest.

Reports on the ravages of the "coffee-borer," by Dr. Bidie, Government Commissioner, were read by the Secretary.

Sir John Lubbock communicated a paper on the larva of *Micropeplus staphylinoides*, with drawings; the form of the larva of this anomalous genus of beetles tended to prove that it was wrongly placed in *Staphylinidæ*, and belonged more properly to the *Nitidulidæ*.

Mr. Eaton read a paper on the anatomy of the imperfect condition of *Cœnis macrura*.

Mr. F. Bates sent a continuation of his paper on Australian *Heteromera*.

Mr. Kirby sent a tabular comparison of some representative species of Diurnal *Lepidoptera* in Europe, Asia, and North America.

This was the last meeting before the recess; the next will be on the 2nd November.

AN OUTLINE OF A RE-ARRANGEMENT OF THE GENERA OF
EPHEMERIDÆ.

BY A. E. EATON, B.A.

The principal object of the present communication is the settlement of the generical nomenclature of the *Ephemeridæ*. Their geographical range is only subordinate to the design; for so circumscribed are the sources whence information on this subject is obtainable, that it would not be worth one's while to treat of this alone. Doubtless the unsightly appearance of the dried insects has something to do with the carelessness with which they are regarded by most collectors, and with the scantiness of our knowledge of their distribution. My notes are limited to the recent genera; and, unless the contrary is specified, the neuration of the anterior wings alone is taken into consideration. The terminology of the neuration is that of Sundevall, as elucidated in his paper, "Om Insekternas Extremiteter," in the Stockholm Transactions for 1862.

Genus *CÆNIS*, Steph.

Syn. *Brachycercus*, Curt.; *Oxycypha*, Burm, &c.

Type *C. macrura*, Steph.

Distrib.—England, Austria, Sweden, Switzerland; N. China, Ceylon; Indiana, Florida.

Genus *TRICORYTHUS*,* nov. gen.

Syn. *Cænis*, *p.*, Pict.

Type *T. varicauda*, Koll. Mss.; Pict.

Distrib.—Egypt.

The type of this genus differs from *Cænis* in the neuration of the wings. The anterior rib of the vas ulnare is bipartite. Its posterior division is simple; but the anterior vein gives off an alternately pinnate, three-branched veinlet backwards and outwards, near its middle, and forks at the commencement of its apical fourth. These nervures are connected together by numerous cross-veinlets. The second ulnar rib is either bipartite (Savigny, fig. 6), or completely divided (*Id.* fig. 7), and each of the resulting veins sends two simple veinlets backwards to the outer margin. The anterior vas internum is simple; the posterior emits two or three simple veinlets backwards (see Savigny, in "Description de l'Égypte," ii., Névroptères, tab. 2, figs. 6 and 7). No posterior wings.

* *Tricorythus* (Gr.)—tri-Koruthos = triple-plumed.

GENUS OLIGONEURIA, Pict.

Type, *O. anomala*, Koll. Mss. ; Pict.

The typical species has two simple ulnar ribs, and two simple* vasa interna.

Distrib.—Brazil, 1 sp.

Section B, *O. Rhenana*, Imhoff.

The robust anterior and the slender second ulnar ribs are bipartite. The divisions (veins) of the second rib closely accompany the first and the third ribs respectively. From this last a slender vein is sent to the internal margin. Between these ribs and veins a very coarse reticulation is obscurely indicated. The anterior vas internum accompanies the third ulnar rib and its vein: the posterior is very short, and has two strong veins and a feeble one. The ulnar ribs are connected together by a few cross-veinlets. The ♂ has four-jointed forceps, whose proximal joint is upwards of twice the length of the remaining three together.

Distrib.—Central Europe, 2 sp.

Section C, *O. Trimeniana*, McLachlan.

The first and the third ulnar rib is bifid; the second is obsolescent and bipartite, as in *O. Rhenana*. The anterior division of the second rib emits a veinlet nearly parallel with the posterior division of the first rib, which vanishes before it attains the outer margin, and is met obliquely by the cross-veinlets of an obscure coarse reticulation that occupies the space between the two most prominent ribs. There are two simple vasa interna.

Distrib.—Natal, 1 sp. (♀ only known).

GENUS CAMPSURUS, † nov. gen.

Syn. *Palingenia*, Burm., Pict., part.

Type *O. latipennis*, Walker.

Distrib.—The Amazons, 6 sp.

The first ulnar rib is bipartite; its bifurcate anterior division includes a simple supplementary vein; its posterior division separates into an anterior simple, and a bipartite veinlet. The second ulnar rib is bipartite, and is produced over the third rib to anastomose with the common

* I am inclined to regard the first of these an ulnar; but have followed above M. Pictet's explanation of the neuriation, not having seen the type.

† *Campsurus* (Gr.)—Kampse-oura = bent-tailed.

basis of the vasa interna. In its first fifth the third ulnar rib runs close to the first vas internum; it is then curved outwards, and sometimes receives a simple supplementary vein from before. Shortly after this, it either becomes trifid or is resolved into an anterior simple, and a posterior bipartite vein. The posterior of the moderately straight vasa interna sends a recurrent vein towards the base of the wing. From the costa to the vas ulnare inclusive the reticulation is well defined. Forceps of ♂ slender and jointless (apparently). Legs feeble and short. The two caudal setæ are horizontally patent in the dried ♂.

Section B, *C. curtus*, Hagen, = *Palingenia curta*, Hag. List of S. Americ. Neuropt.; Smithsonian Miscel. Coll. 1861, p. 304. = *Pal. albifilum*, var., Walk. Brit. Mus. Cat.

Distrib.—The Amazons, 1 sp.

In this species the cross-veinlets are numerous throughout the extent of the anterior wings; and the forceps of the ♂ are moderately stout and two- or three-jointed.

Genus POLYMITARCYS,* nov. gen.

Syn. *Palingenia*, Burm., part.

Type *P. virgo*, Ol.

Distrib.—Europe and Egypt, 2 or 3 sp.

The anterior ulnar rib is bifid, and is met in front, near its base, by a bipartite supplementary vein whose fork includes several veinlets. The fork of the rib includes one supplementary vein. Second ulnar rib simple. The posterior division of the bipartite third rib is itself bipartite, and is followed by upwards of four supplementary veins. These are succeeded in their turn by some irregular veinlets from the internal margin. The recurrent vein from the robust second vas internum receives two or three simple veinlets from the inner margin. Vasa interna moderately straight, and simple. Reticulation rather fine. Forceps of ♂ four-jointed; their second joints the longest.

Genus PALINGENIA, restricted, Westwood.

Syn. *Palingenia*, Burm., part.

Type *P. longicauda*, Ol.

Distrib.—Europe, 1 sp.; Asia Minor, 1 sp. ?; Silhet and Borneo, 1 sp. (three species in all); and, perhaps, one or two S. American species.

* *Polymitarceys* (Gr.)—polymitos-arkus = a net consisting of many threads.

The neuration of the anterior wings is somewhat like that of the preceding genus; the vasa interna, however, are connected together by a larger number of cross-veinlets. Forceps of ♂ three-jointed; their basal joints much the longest. ♀ with the central seta rudimental, not well developed, as in *Polymitarceys*.

Genus PENTAGENIA, Walsh.

Syn. *Palingenia*, Subgen. A. Walsh, 1862.

Type *P. vittigera*, Walsh.

The first ulnar rib is bipartite; its bipartite anterior, and its bifid posterior, veins, both include a simple supplementary vein in their forks, and the one in addition includes two or three supplementary veinlets. The simple posterior ulnar rib is met not far from its origin by a simple supplementary vein, which is suddenly curved forwards towards the point of contact (as in *Ephemera*). The very convex outermost veinlet from the recurrent vein of the third vas internum, which is succeeded by some very irregular, feeble veinlets, is distinctive of this genus. Forceps of ♂ four-jointed, their second joints the longest.

Genus HEXAGENIA, Walsh.

Syn. *Palingenia*, p., Pictet; *Idem* subgenus B., Walsh, 1862.

Type *H. limbata*, Guer.

Distrib.—Arctic America, Canada, United States, and the Amazons.

The most obvious differences between the neuration of the anterior wings of *Hexagenia* and *Ephemera* are the excess in number of the more or less crowded, parallel, straight, veinlets extending from the third vas internum perpendicularly to the internal margin, over those which unite it and the second supplementary rib. The recurrent vein of the third vas internum gives off several nearly straight parallel veins. The ♂ has the second joints of the four-jointed forceps the longest, and both sexes reject the central seta.

Genus EPHEMERA, De Geer.

Syn. *Ephemera*, Lin., part.

Type *E. vulgata*, Lin.

Distrib.—Europe; N. China, Hindostan, Ceylon (aberrant); Canada, Illinois.

The forceps of *Ephemera* are similar to those of *Hexagenia*, but the central seta is sub-equal to the others. The cross-veinlets between

the second supplementary rib and the third vas internum are more numerous, and the veinlets from the third vas fewer in number, than the last genus; and, lastly, these veinlets are usually opposite to one another.

Genus POTAMANTHUS, Pictet, restricted.

Syn. *Potamanthus*, Pict., part.

Type *P. lutea*, Lin., Pict.

Distrib.—England, Italy, Germany, 2 sp.

The second vas internum near the base of the wing anastomoses with the third, instead of with the first, as in *Ephemera*. The third, after receiving the second, gives off a simple vein on each side. Posterior to the third vas internum there is, at the fewest, one bifid veinlet [? from the recurrent vein of the third vas]. This genus is further distinguishable from *Ephemera* by the ascalaphoid eyes of the male, and by his three-jointed forceps, whose proximal joints are much longer than the other two together.

Genus LEPTOPHLEBIA, Westwood.

Syn. *Potamanthus*, Pict., part.

Baëtis, Burm., Pict., part.

Type *L. vespertina*, Lin.

Distrib.—Lapland, Italy, England, Austria; Canada, United States, Newfoundland. New Zealand, Australia, Ceylon, Cape of Good Hope.

The vas ulnare consists of a simple posterior, and a bipartite anterior rib. Of the divisions of this last the foremost is bipartite at the commencement of its second fourth, and includes in its fork two or three supplementary veins and veinlets; whilst the other is bifurcate, and includes one such vein. A supplementary rib, very like the posterior ulnar rib, intervenes between the vasa interna and the vas ulnare. It is preceded and followed by two shorter veins. These last are united, either with the supplementary rib or with the first, very convex, vas internum. The former arrangement prevails in species inhabiting the southern hemisphere (which also usually have the marginal and sub-marginal areas coloured), the latter in the larger of the American and European species. Forceps three- or four-jointed, the basal joint the longest. Eyes of the ♂ double.* The central seta is rather the longest.

* Ascalaphoid.

Section B, *L. fusca*, Curt.

Distrib.—England, Switzerland, Austria (Carniola), 2 sp.

The posterior wing has the costa curiously excised in its apical half; and the basal joint of the forceps, instead of being upwards of twice as long as the other two together, equals them in length only. So long as the subaqueous stages of development remain unknown, it seems advisable to retain the species in the genus *Leptophlebia*.

Genus EPHEMERELLA, Walsh.

Syn. *Potamanthus*, Pict., part.

Baëtis, Walker, part.

Type *E. excrucians*, Walsh = *invaria*, Walker.

Distrib.—Hudson's Bay, Illinois, 2 sp.; England, Spain, Switzerland, Germany, 3 sp.

The neururation differs from that of *Leptophlebia* principally in the following particulars. The foremost vas internum, instead of curving forwards when it nears the base of the wing, and thus receding from the second vas internum, runs straight up to the thickened root of the wing alongside the second: it gives off a bipartite vein, and is itself bifurcate. The second vas internum is simple, the third bipartite, and united with the second by a cross-veinlet. The ♂ has 3-jointed forceps (whose second joints are the longest), and ascalaphoid eyes (Mr. Walsh says those of *invaria* are simple). In its later subaqueous stages of development the immature insect has six pairs of complex branchial appendages, which are made up of a trapezoidal plate furnished underneath with a bipartite process, which supports several imbricated mellæ arranged lengthwise.

Genus CLÖEON, Leach.

Syn. *Cloë*, Burm., Pict., part.

Chloëon, Lubbock.

Cloëopsis, Etn., *olim*.

Type *C. dipterum*, Lin.

Distrib.—Lapland, Egypt, Madeira, France, Austria; N. China; or perhaps 3 sp. A species (1 specimen in Brit. Mus.) is reputed to be from S. Australia.

Dipterous. During their later aquatic stages of development the insects have six double pairs and a seventh single pair of branchial plates. A series of short, solitary, supplementary veinlets is situated

on the outer margin of the wings. The ♂ has the third joints of its 4-jointed forceps the longest, and the upper divisions of its double eyes turbinate. Egg-valve of ♀ bipartite.

Genus BAËTIS,* Leach.

Syn. *Baëtis*, B, Steph., Curtis.

Cloë, B, Burm.

Brachyphlebia, Westw.

Cloëon, Hagen, p., Etn.

Type *B. bioculatus*, Lin.

Distrib.—Europe; Madeira, Egypt; Hindostan; Hudson's Bay.

Section A, *B. luteolus*, Müller, = *C. translucida*, Pict.

Forceps as in *Cloëon*, egg-valve entire. Posterior wings acute, with two simple veins. Branchial plates of the aquatic insect single. A series of short, solitary, supplementary veinlets proceeds from the outer margin of the anterior wing.

Distrib.—England, Denmark, Switzerland, 1 sp.; Germany, 1 sp.

Section B, *B. bioculatus*, Lin.

Syn. *Brachyphlebia*, Westw.

Species conforming to this, the typical section of the genus, differ from the former group in the following particulars only. Anterior wings with the short supplementary veinlets on the outer margin in pairs. Posterior wings obtuse, with two or three longitudinal veins (the second of which is either simple, bifid, or bipartite, according to the species), and with more or fewer short supplementary veinlets at the apex. The fourth joint of the forceps seems never to be pyriform as it is in *Cloëon*, and in the preceding section of *Baëtis*.

Section (?) C, *B. tristis*, Hagen, = *Cloë tristis*, Hagen.

Distrib.—Ceylon.

I have only seen a ♀ sub-imago of this species, which may typify a separate genus.

Mr. Walsh and Dr. Hagen have described several N. American species of *Cloë*, but I have not seen any representatives of the sections in which they have arranged them.

* Probably a misreading of Bætis, the Latin name of a Spanish river (the Guadalquivir), which is used in some atlases.

Genus BÆTISCA, Walsh.

Syn. *Baëtis*, part., Say.Type *B. obesa*, Say.

Distrib.—United States.

The anterior ulnar rib is seemingly tri-partite. (The anterior division is probably a supplementary vein, which, with its foremost partition, is bipartite, and includes a simple supplementary vein; its second division is simple). The second partition of the first ulnar rib is bifurcate, and includes a simple supplementary vein: its third partition is simple. The simple posterior ulnar rib is succeeded by two supplementary ribs, the hinder of which sends several simple veinlets, parallel one with another, to the internal margin. There are two straight, simple, vasa interna. The forceps of the ♂ seem to be 3-jointed, and to have the second joint the longest, as in *Ephemerella* (but that which appears to be the proximal joining may be a fold in the integument only, in which case the first joint would be by far the longest, and would present an obtuse spine on its under-surface, like the first joint of the forceps of some species of *Leptophlebia*). A jointless remnant of the central seta is retained.

Genus COLOBURUS,* nov. gen.

Syn. *Palingenia*, Burm., part., Walker.Type *C. humeralis*, Walker.

Distrib.—New Zealand.

The vas ulnare resembles somewhat that of the preceding genus in its manner of branching. It is followed by two supplementary ribs, and two supplementary veins. The first of these ribs sends down three or four bent, simple (or slightly bifurcate), veins to the internal margin; the second of them resembles a vas internum. There are about four, slightly curved, vasa interna, some simple, others bifurcate, or even bifid. The outer setæ are upwards of fifteen times longer than the central one. The ♂ has 4-jointed forceps, their second joints are the longest; eyes double.

Genus SIPHLONURUS,† nov. gen.

Syn. *Baëtis*, Ed. Pict., part.*Ephemera*, Zett., part.Type *S. flavidus*, Ed. Pict.

Distrib.—Sweden, England, Ireland, Spain, 1 sp.; Prussia, 2 sp.; United States.

* *Kolobourus* (Gr.) = stump-tailed.† *Siphle-oura* (Gr.) = defective in the tail.

The neuration of the fore-wings, and the proportions of the forcipal joints, are very similar to those of the last genus. But the eyes of the ♂ are simple, and the central seta is rejected. The sides of the dorsal arcus of the last well-formed segment of the abdomen are prolonged posteriorly so as to form an acute, more or less flattened, spine on each side in all of the genera from *Bætisca* to the present genus inclusive.

Genus HEPTAGENIA, Walsh.

Syn. *Baëtis*, auct. part.

Ecdyurus (misspelt *Ecdyonurus*) Etn.

Distrib.—N. Hemisphere; and, according to M. Blanchard, Chili.

The principal difference between this genus and the preceding, in the neuration of the wings, is that the first of the supplementary ribs between the vas ulnare and vasa interna terminates at some distance in advance of the angle of the wing, and supplies with veinlets no part of the internal margin; that portion of the inner margin which is included by the two supplementary ribs receiving upwards of four supplementary veins and their veinlets. The first joint of the 3-jointed forceps is the longest. Egg-valve entire. Central seta rejected. Eyes entire in the male.

Type *H. flavescens*, Walsh.

Distrib.—England, 4 sp.; Germany, &c., N. America.

Lobes of the penis divergent. Wings of the sub-imago with the cross-veinlets not margined with a darker colour than that of the rest of the wing, and of the same colour as the wing until shortly before the last moult.

Section B, *H. venosa*, Fab.

Syn. *Ecdyurus*, Etn.

Distrib.—England, 3 sp.; Europe, &c.

Lobes of the penis slightly separated, horizontally flattened and triangular. Cross-veinlets in the wings of the sub-imago conspicuously margined with a darker colour, in most species. At the time when I proposed the name *Ecdyurus* for this genus, I imagined that Mr. Walsh's *Heptagenia* was a dismemberment of *Palingenia*, Burm.; but he having kindly forwarded to me, for the British Museum, types of his new genera, I find that *Heptagenia* is the same as *Baëtis*, Burm., Pict.

Having now surveyed the genera, I will attempt to point out the affinities presented by them one to another. The family seems to con-

st, as it were, of two or three distinguishable groups welded together. Perhaps their relations may be indicated by means of punctuation: thus—

Cænis, Tricorythus, Oligoneuria, (Campsurus); Campsurus, Polymircys, Palingenia, Pentagenia, Hexagenia, Ephemera; Potamanthus, Leptophlebia, Ephemerella, Cloëon, Baëtis; (Leptophlebia), Bætisca, Colocurus, Siphonurus, Heptagenia.

Equivalents.

1st: Wing nervures.

Costa, Sundevall = margo alæ antica = la costale, Pictet.

Vas sub-costale, Sundevall = sub-costa = la sous-costale, Pictet.

Vas radiale, Sundevall = radius; la médiane, Pictet.

Vas ulnare, Sundevall = ramus thyrifer, Kolenati = la sous-médiane, Pictet.

Vasa interna, Sundevall = cubitus, Kolenati = l'anale, et accessories de l'anale, Pictet = veins on the post costa, Walsh.

[Vas post costale, Sundevall = the anterior margin of the wing between the pterostigma and the cubital point, Haliday, in *Libellulidæ*.]

Supplementary veins are such as proceed from the *outer margin*, but do not reach the *root* of the wing, nor are derived from the principal veins of the wing.

Supplementary ribs reach the base of the wing.

2nd: Margins of Wings.

Margo antica = costa.

Margo externa = apical margin, M'Lach.

Margo interna = post costa, Walsh.

3rd: Divisions of a Vein.

Primary veins are called *ribs*,

Their *branches*, *veins*,

Their subordinate ramifications, *veinlets*.

4th: Modes of Division of Veins.

Divided, separating at the very commencement (e. g. *twice divided*.)

Partite, or *parted*, dividing almost at its origin (e. g. *bi-partite*, dividing into two).

-*Fid*, dividing nearly in the middle of its length (e. g. *tri-fid*).

Furcate, or *forked*, dividing near its extremity (e. g. *bifurcate*, ending in two simple prongs).

NEW SPECIES, &c., OF HETEROCEROUS LEPIDOPTERA FROM CANTERBURY, NEW ZEALAND, COLLECTED BY MR. R. W. FEREDAY.

BY ACHILLE GUENÉE.

(Concluded from page 65).

Genus CAMPTOGRAMMA.

CAMPTOGRAMMA FUSCINATA, Guenée, n. s.

Statura habitusque C. strangulatae. Alæ anticæ lilacino-brunnæ; margine, lineaque media angulata intus diluta, brunneis; puncto cellulari: posticæ dilutiores, immaculatæ: subtus paleaceæ, atomis lineolisque duabus brunneis. Antennæ maris vix pubescentes.

Size and aspect of *C. strangulata*, for a dark variety of which, at first sight, it might be mistaken. Superior wings marked in a precisely similar manner, but with the ground colour pale lilac-brown, which, from the median line to the base, becomes wood-brown. Inferior wings much paler, without lines; but beneath they are ochreous-yellow, strongly sprinkled with ferruginous atoms, which, accumulating between the cellule and the margin, form two short parallel lines. Antennæ and palpi as in *C. strangulata*, of which it is perhaps strictly only a modification.

CAMPTOGRAMMA STINARIA, Guenée, n. s.

Media. Alæ omnes integræ, luteæ: anticæ lineis duabus albis nigro-imbatis: posticæ supra immaculatæ: subtus rufæ, lineis sex ferrugineis. Antennæ pectinatæ.

Size and habit of *C. insulata*. Superior wings ochreous-yellow, suffused with blackish; the only markings are two distant lines, the first forming a single angle in the cellule, the second simply wavy, these lines are slender, white, narrowly bordered with black on the costa, where they approach nearer one to the other, and followed by a brownish tinge; extremity of the fringes finely marked with white; inferior wings ochreous-yellow, without markings above, but beneath they are powdered with red, and traversed by six parallel lines, of which the four first are placed close together and discoïdal, the two others isolated and toothed. Body concolorous, without markings. Antennæ of the male furnished with long pubescent and spatulated pectinations.

Genus DASYURIS, Guenée, nov. gen.

Antennæ of the ♂ simple, granulated, scarcely pubescent. Palpi moderately long, connivent in form of a beak, hairy, the joints distinct. Haustellum robust. Body thick, velvety. Thorax robust, broad, hairy; abdomen scaly, banded, laterally velvety, truncated at the apex. Legs long, scaly, spurs robust; tarsi spiny. Wings stout, entire, with long fringes, the markings similar on both pairs, colours bright, even on the under-side.

I establish this genus on a pretty species from New Zealand, to which may be added my *Coremia euclidiata*, *glyphicata*, and *heliacaria*. All have a peculiar *facies*, which approaches that of some *Fidonidæ*, and even some *Noctuæ*.

DASYURIS PARTHENIATA, Guenée, n. s.

Alæ fulvæ, fimbriis albis, nigro interruptis: anticæ lineis fasciisque nigricantibus: posticæ margine lineisque, ultima interrupta; subtus flavo-lobidæ, nervis pallidis, fasciis interruptis nigricantibus.

28 millimetres in expanse. Wings stout, fulvous, orange, the fringes interrupted with black and whitish. Superior wings traversed by thick angulated blackish lines, which accumulate on the median space, which they in part invade, leaving a distinct cellular dot; afterwards there is a band of the ground colour, and lastly a broad blackish border divided by the subterminal line, which is fulvous and formed of unequal spots: inferior wings more lively in colour, with a toothed border; on the upper-side there is a narrow unequal band of atoms, interrupted in the middle, afterwards two lines, and the base powdered with blackish; beneath these wings are pale yellow, traversed by whitish rays, with the bands interrupted and blackish, in which the nervures are distinctly paler; the superior wings show these nervures only on the terminal space, the rest being occupied by three bands corresponding to those of the upper-side, and there is a black cellular dot. Body black, clothed with greenish-yellow hairs; the abdomen bordered laterally with white hairs, and narrowly zoned with the same colour. Antennæ of the male granulated and scarcely pubescent.

Genus CIDARIA.

CIDARIA PYRAMARIA, Guenée, n. s.

Media. Alæ anticæ lignicolores, fasciis quinque undatis strigisque obliqua apicali albidis: posticæ pallide ochraceæ, immaculatæ, lineolis terminalibus nigris: subtus albidæ, maculis basalibus discalibusque seriatim dispositis fuscis. Antennæ pectinatæ.

Perhaps the prettiest species of the genus. Superior wings divided by wavy and toothed bands, alternately white and wood-brown, these last pale and dark; in the third white band is a black cellular dot touching the brown band; the fourth, which in reality borders the median space, is more sinuous than the others; the last, or sub-terminal, is toothed in a nearly regular manner, and is traversed, beneath the apex, by an oblique white streak; fringe interrupted with whitish and blackish, and preceded by black marks: inferior wings pale uniform silky yellow, the fringe, which is interrupted, separated by well-defined little black marks; the under-side of these wings is dirty white, from the base proceed two brownish waves, of which the second is deeply divided as far as the cellular dot, afterwards is a series of smaller waves, also brown, shaded with white exteriorly. Abdomen marked with indistinct geminated black dots. Antennæ furnished with long and very slender pectinations.

CIDARIA BULBULATA, Guenée, n. s.

Statura vix *C. interruptæ*. *Alæ anticæ lignicolores, variegatæ, line quatuor albis sinuatis, tertia gemina angulata; punctis numerosis terminalibus nigris: posticæ luteæ, immaculatæ: subtus omnes luteæ, absque lineis, posticæ puncto cellulari serieque media punctulorum nigris.*

I have seen only the female, which is one of the smallest of the genus; but the male is no doubt larger.

Superior wings wood-brown, varied with pale and dark; the fringe concolorous, preceded by small geminated black dots; there are four white lines, the two first parallel and somewhat angulated, the third forming a band, divided by an interrupted white thread and followed by another very slender brownish line, the fourth simple, continuous and slightly shaky, no sub-apical line: inferior wings dark ochreous-yellow without any line, and simply with black terminal markings: under-side of all the wings ochreous-yellow without markings, excepting that on the inferior there is a little cellular dot, and a series of very small and distant black dots. Abdomen grey with several black atoms.

CIDARIA DELICATULATA, Guenée, n. s.

Statura C. silaceatæ: alæ anticæ fuscæ, lineolis multis parallelis albidis, spatio medio lato furcula albida nervulari diviso, macula apicali pallida: posticæ ochraceæ immaculatæ; subtus rufescentes, punctulo cellulari lineolaque media dentata fuscis. Abdomen immaculatum.

I have only the female of this pretty species, conspicuous for its delicate markings. It is almost of the size of the European *C. silaceata*, but has the cut of the Australian species.

Superior wings slightly falcate at the apex, pale brown varied with black markings; the two principal nervures are tinged with whitish, and the median forms a little fork in the median space, which is very broad, and enclosing several black markings (of which the lower ones tend to form rings), and also the cellular marking, which is bordered all round with whitish; on each side of the median space is a fascia formed of very slender, undulating, parallel, and closely placed, whitish lines, at the base are two other lines, almost straight and distant, and on the terminal space is a fine line, which is continuous, and descends from a broad triangular apical spot; little geminated black dots, encircled with pale grey, precede the fringe, but without touching it: posterior wings dirty ochreous, the fringe silky, and preceded by scarcely evident little grey triangular spots; the under-side of these wings is tinged with rosy, with traces of parallel lines, of which one, median, is formed of little slender blackish arcs. Body concolorous, without dots or lines.

Genus HELASTIA, Guenée, nov. gen.

Antennæ of the ♂ rather short, furnished with long, robust, but very distant, pubescent pectinations. Palpi very scaly, hairy, connivent in form of a beak, acute. Abdomen and legs as in *Scotosia*. Wings

broad, entire: the superior pair acute at the apex, the lines slightly sketched: inferior pair with scarcely distinct lines, the nervures not punctated: neuration of *Scotosia*.

I establish this new genus on a small New Zealand species, which is not larger than an *Eupithecia*, but which has the aspect of a *Scotosia*, although the pectinated antennæ and entire wings distinguish it at first sight.

HELASTIA EUPITHECIARIA, Guenée, n. s.

Statura Eupitheciæ impuratae. Alæ cano-griseæ, fimbria concolori: antica fasciis tribus incompletis denticulatis punctoque cellulari nigris: posticæ concolores lineolis vix distinctis: subtus anticæ nigricantes, posticæ albidæ lineis duabus denticulatis punctoque nigris.

Size of *Eupithecia impurata*. Superior wings greyish-white, with an olivaceous tinge; three parallel sinuated and toothed blackish bands, rather well marked as far as the middle of the wing, but becoming afterwards indistinct; the third is the best marked and the most sinuated; the sub-terminal is only indicated by slight groups of atoms; the cellular dot very small; fringe concolorous, preceded by indistinct geminated dots: inferior wings paler and more whitish, above with only traces of greyish lines, but beneath there are two sinuated and toothed median lines, and a cellular dot, rather well marked, on a pale, sometimes white, ground colour, while this side of the superior wings is suffused with blackish-grey. Body concolorous; abdomen with ill-defined, blackish, geminated dots.

I have already described the antennæ of the ♂; the only ♀ I possess has lost them; it resembles the ♂.

Châteaudun, 1868.

NOTES ON THE GENUS *ACIDALIA*, WITH DESCRIPTION OF THE LARVA OF *A. HOLOSERICATA*,* &c.

BY REV. J. HELLINS, M.A.

To Mr. A. E. Hudd, of Clifton, I am indebted for the opportunity of watching the earlier stages of another *Acidalia*, viz., *holosericata*; and his kindness is the more thankworthy, in that he supplied me with eggs three years in succession, until I could succeed in breeding the moths. Whilst engaged with this species, I took in hand some others, *disetata*, *scutulata*, and *interjectaria* (as we must now call what used to pass in this locality for *ossicata*), and made notes of their various stages; also *imitaria* and *immutata*, but having described these before, I now go no further with them than the egg.

* It does not please one's sense of the fitness of things to see the two forms of the same word, *holosericata* and *Subsericeata*, standing so close to one another in our lists, but I have not thought myself at liberty to insert the *ε* in the former after receiving the following information from Mr. Doubleday:—"I suppose *Holosericata* was the name given to this species by Duponchel, but I think it was probably written so in mistake for *Holosericata*; the synonymes stand thus in Dr. Staudinger's Catalogue: 'No. 78, *Holosericata* Dup. iv., p. 109, pl. 59, 7. Gn. I. 468, *Holosericaria* H. S. 80-81.'

This is all the information I can give you on the subject,"—J. H.

I confess I am not satisfied with what I have done about the eggs. More careful labour with the microscope than is in my power to bestow is needed to make good work here: I should like the micrometer to be brought into use for the more accurate comparison of dimensions, and a good equipment of condensers and reflectors will be required to make *quite sure* of the colouring and markings of the surface; and, after all, I fancy it will be found that while certain genera—*Ennomos* and *Acidalia* for example—furnish interesting studies in this stage, there are others in which the allied species cannot be safely distinguished in the egg.

The eggs of *holosericata* reached me July 17th, 1867; larvæ hatched on the 25th. They fed on the rock rose, *Helianthemum vulgare*, and their habit was to congregate three or four together near the bottom of a shoot, strip it for some distance of its bark or skin, and then feed on the withered leaves at the tip of the shoot as it hung down: but of course I cannot say whether in nature they are to be found singly or in company. They ceased feeding during the winter, and were at all times very sluggish and quiet in their habits. They moulted for the last time about the end of March, spun up during May, and the moths appeared June 20th to 29th, 1868.

Interjectaria.—Eggs obtained here July 12th, 1867; others sent me by Mr. Brown, of Cambridge, July 17th: larvæ hatched on 24th and 26th: fed on dandelion and scarlet pimpernel, preferring withered leaves, and indeed would eat almost anything withered: spun up in May, 1868, and moths appeared June 24th to 29th.

Scutulata.—Eggs laid July 12th, 1867; larvæ hatched on 17th, ate withered dandelion, and in the spring seemed very fond of a mouldy slice of turnip, which had been put into their flower-pot to catch an intruding slug: spun up during May and June; moths out June 8th to July 2nd

Bisetata.—Eggs sent me by Mr. Doubleday July 26th, 1867; larvæ hatched on 30th; fed on *Polygonum aviculare*, and withered bramble leaves; spun up in May; moths out June 20th to 25th.

The egg of *holosericata* is almost barrel-shaped, and perhaps more evenly flattened at the ends than any other of the *Acidaliæ*; it is covered with a coarser reticulation than *interjectaria*, and in colour is decidedly yellow.

Interjectaria—the egg is flattened at either end, but not so decidedly, the reticulation finer, the colour pinkish.

Scutulata—rather longer in shape, one end flattened, the other more conical, covered with minute pits or depressions; colour whitish, mottled with brownish-pink.

Bisetata—obtusely oval in outline, not quite cylindrical, but rather depressed; irregularly covered with fine shallow reticulation; colour salmon-pink, with large spots of deeper tint.

Immutata—a long cylindrical shape, flat at one end, more conical at the other, strongly ribbed, with transverse reticulation; colour pale buff, speckled with strawberry-pink.

Imitaria—somewhat pear-shaped, but flattened at the smaller end; strongly ribbed, and irregularly reticulated between; colour glistening white, with small blotches of delicate pink.

The larva of *holosericata* belongs to the shorter type of *Acidalia*, and is perhaps the plainest in dress of all this very plain family. When full-grown, the length is a little over half-an-inch, in figure tapering considerably towards the head, which is small and notched, tucked under when at rest, thrown forward when in motion; skin most wonderfully wrinkled and warted, the warts being on the wrinkles, and so arranged that they form on the back a double ridge on each segment, which contracts to a single median ridge at each fold, and another more prominent ridge at the spiracles; the segmental divisions very decidedly cleft; bristles short and clubbed: the larva feels very stiff and firm; when disturbed it curls in the front segments in the same plane with the rest of the body, and not on one side, as the longer *Acidaliæ* do. In colour it varies little throughout its growth, being generally a very muddy reddish-brown, but just after moulting almost black, the markings few and indistinct: the hinder segments are somewhat paler than the rest of the body, the segmental folds are darker: there is a paler dorsal line edged with black threads, which show most distinctly on the hind segments; and the dorsal ridges are paler than the ground.

When full-fed the larvæ retired into some sandy soil to undergo their pupation.

Interjectaria.—This is also one of the short, stiff larvæ, in figure much like *holosericata*. When full-grown, length about half-an-inch; tapering towards head, which is small, notched, and moveable: skin very rugose, and ridged with warts not quite so prominent as those of *holosericata*; bristles slightly clubbed. Colour a brownish-grey, hinder segments paler; a pale dorsal line with dark edges interrupted at the four middle folds by a whitish dot, behind which comes a black X, the arms of which reach beyond the dorsal ridges of warts; the spiracular ridge is paler than the ground, below it some oblique blackish dashes. Pupa in a cocoon just below the surface of the fine soil.

Scutulata—though still belonging to the stiffer type, is yet an advance toward the other; being more slender and elongated in form, while still retaining the spiracular ridge, the great rugosity of skin, and the tapering to the head. When full-grown, about three-quarters of an inch long; slender, flattened, front segments more rounded, head notched and moveable; the front and hinder segments very short, so that the legs appear as if placed close together at either extremity. In repose it keeps the front segments bent down, but the head and neck turned up again, in an uncomfortable-looking attitude, suggestive of a “crick” in the neck. Colour pale ochreous, a brown double dorsal line, showing strong on the head, faint on the front segments, confluent and strongly marked behind; a brown sub-dorsal line, very plain and strong on the head to the fourth segment, then almost lost till it becomes strongly marked again on the hinder segments, but its place is marked at the segmental folds by a pair of dots; on segments 5 to 9 pale brown oblique dashes reaching from the dorsal to below the sub-dorsal line; the spiracles black, placed on a whitish ridge; belly darker than the back, being suffused with blackish, some darker dashes under the spiracles, and a darker, irregular central line.

These larvæ formed compact little cocoons in the sand, and one bit up a piece of paper, and made itself a very neat little envelope.

Bisetata.—Putting *imitaria* in its place as the lengthiest of the *Acidalia* larvæ, and *rusticata* as the stumpiest, *bisetata* seems to occupy a middle station, and, as far as I have seen, to form the connecting link between the two forms; being more slender and of more uniform bulk than the short larvæ, and more rugose than the long ones.

When full-grown, length about three-quarters of an inch, in form slightly flattened, slender, tapering very gently towards the head, which is notched, and scarcely smaller than second segment; skin rugose; bristles slightly clubbed; position in repose something like that of *scutulata*. The colour is variable; I think I have seen three good varieties. 1. Ground colour dingy drab, warmer on the back, and duller below; the six segmental folds between 4 and 10 showing as broad blackish-brown bands round the body, and shaped on the back by some dark oblique dashes, which reach to the spiracles, into a sort of broad, clumsy Λ , pointing forward; there is a double dark brown dorsal line to be traced where the ground in the middle of each segment allows it to be seen. 2. This variety was so dark on the back that the segmental folds were no darker than the ground, but the space between the double dorsal lines was distinctly paler throughout, and the oblique

shes, which in the first variety, outlined the Λ s, could still be traced.

A pale variety sent to Mr. Buckler by Mr. G. T. Porritt, of Huddersfield. Ground colour pale ochreous; the broad bands wanting; the double dorsal line very fine, most distinct at the folds, the sub-dorsal line and the oblique dashes fine also, all brown in colour; under the spiracles a clouded, irregular, blackish stripe, shading off to the pale grey of the centre of the belly, with some oblique dashes.

The pupa, as in the other species, just under the surface of the earth, loose soil.

Exeter: July, 1868.

Localities for Mesites Tardii.—From the editorial note appended to Mr. Wilkin's recent communication about *Mesites Tardii*, I imagine that a list of the localities of this species may not be uninteresting. Accordingly I send a few notes with reference to such of them as have come under my individual notice. The first specimens I possessed were said to have been taken in Ireland, but I know not in what part, or by whom they were taken. Afterwards I had a large series from my friend Mr. E. C. Buxton, taken by him out of a holly-tree, at Sheringham Park, Norfolk, many years ago. The first specimens I saw from the north were some brought to me by the same gentleman, who had found them abundant, but dead, in an ash-tree in the grounds of Furness Abbey. The year afterwards I took a single specimen (a very small one) when sweeping in the woods on Roundway Hill, Wiltshire.

In the spring of 1865, my friend Mr. Edleston and I went to spend a few days at Grange, near Lancaster; after tea on the evening of our arrival we set out for a short walk, and had not gone many yards from the inn, when Mr. Edleston stooped down to examine an old stump of a tree built into the wall, close to the church, and from it produced a fine specimen of *Tardii*. I returned to the inn for our diggers, and we soon found other specimens; but the position of the stump prevented our digging much, so we proceeded on our walk, and were astonished on our return to find the stump had disappeared, its place being filled with stone. On reaching our dining-room we found two immense hampers on the table, containing the portions of the stump; a kind friend, who had heard of our trouble, having planned this surprise for us. On splitting up the logs we found *M. Tardii* in great numbers. There was another ash-tree much perforated, and no doubt containing the beetle, but the large black ants had also effected a lodging there, making examination unpleasant.

My next acquaintance with this species took place at Beaumaris, Anglesea; there I met with it plentifully in the roots and stumps of several ash-trees; it was also abundant in trees near Nant, and on the north-west of the island. Mr. Buxton has since met with it near Capel Curig, and I found a stump of ash this year near Llanrwst, containing some broken, dead specimens. Omitting the Irish locality, of which I know nothing, this will give at least seven distinct localities extending from Wiltshire to Lancashire, and from the east coast of Norfolk to the island of Anglesea to the west.—JOSEPH SIDEBOTHAM, Beech Grove, Bowdon, 1st August, 1868.

[The locality given by Stephens is Powerscourt Falls, Ireland, in holly. It has been taken in profusion at Killarney by Mr. E. Birchall, and commonly at Moun Edgecombe, Plymouth, by Mr. T. V. Wollaston.—E. C. R.]

Addition of eight species of Coleoptera to the British list.—The following names of beetles are entitled to a place in our catalogue, though they do not at present appear therein:—

1. *Meligethes subrugosus*, Sturm.; Er., Ins. Deutsch., iii, 178, 10.

A species remarkable for the transverse striæ of the elytra, occurring in Germany and Sweden. Found by me on the banks of the Water of Ken, in Galloway.

2. *Aphodius scrofa*, Fab.; Er., Ins. Deutsch., iii, 85, 44.

This insect has a very wide distribution in Europe; and is given as a British species in Stephens' works. But no specimens having occurred of late years, it has been rejected from our recent Catalogues; unjustly, however, for Mr. Sidebotham took a specimen two or three years ago at Southport. Though a very distinct and remarkable species, it is small, and might be easily overlooked.

3. *Trachys troglodytes*, Schon.; Kies., Ins. Deutsch., iv, 169, 3.

Closely allied to the rare *T. pygmaeus*, but of a different colour and form, and at once to be distinguished from that species by the furrow on the front of its head being continued to the margin of the thorax. It occurs on the Continent and in Sweden, but is generally rare. I captured a specimen about three miles from Thornhill, in a marshy place, during March of the present year. The family *Buprestidæ* was before only represented in Scotland by a single species, *Agrilus viridis*; a sad contrast to the thirty-one species Sweden possesses.

4. *Cryptohypnus sabulicola*, Boh.; Thomson, Sk. Col. vi, 113.

This remarkably fine species cannot be confounded with any at present in our lists. It is, however, pretty closely allied to *C. pulchellus*, from which it can be distinguished by the following characters:—

C. sabulicola is very much larger, the posterior angles of the thorax are shorter and are not in the least directed outwards, the raised line commencing at the posterior angle only extends about one-third the length of the thorax, and the sculpture of the thorax is much coarser, especially on the disc. The deep furrows with which the elytra are ornamented reach to the apex.

Hitherto *C. sabulicola* has occurred only in Sweden, and there rarely; it appears to have been unknown to Kiesenwetter at the time of publication of the *Insecten Deutschlands*, and it finds no place in the last edition of Schaum's Catalogue of European Coleoptera. I have taken twelve specimens on the banks of the Nith here, but only after many days' unprofitable searching for it. The first specimens I found in some heaps of flood refuse, and have since, at different times found a specimen or two at large. Mr. W. Lennon has also found two specimens on the banks of the river at Dumfries. It is not only very rare, but most difficult to secure when seen, for it is very wary, but most active.

5. *Phratora cavifrons*, Thoms., Sk. Col., viii, 278.

Distinguished from *P. vulgatissima* by its smaller size, regularly striated elytra, different male characters, &c.: from *P. vitellinæ* by the long antennæ, more oblong

form, and the broad excavation on the front of the head. It is, I believe, not uncommon, though it is difficult to understand how we can have confounded it with our other two species. Thomson restores Kirby's name, *Phyllodecta*, for the genus.

6. *Aleochara lygæa*, Kraatz.

I sent, last winter, a specimen of this insect as an *Aleochara* new to us, to Mr. Crotch, when he informed me that he had two specimens of it already in his collection, and that it agreed with a specimen of *Aleochara lygæa* he had received from Dr. Kraatz: this latter specimen he kindly sent for my inspection, and a comparison left me no doubt as to the specific identity of the specimens. Having all the appearance of *A. mæsta*, *A. lygæa* is closely allied to *A. lanuginosa*, but has the abdominal segments throughout densely punctured, and one or two other differences of form and structure not very easy to appreciate. I have found it very rarely in this neighbourhood.

7. *Oxyopoda flavicornis*, Kr., Ins. Deutschlands, ii, 185.

Of this species I have two specimens which I captured among decaying fir branches on the Pinkard Hills, late in the autumn of 1864.

8. *Philonthus nigriventris*, Th., Sk. Col., ix, 147.

Near *P. cephalotes*, but smaller, darker coloured, and with very thickly punctured elytra. It has the colour of *P. sordidus*, but cannot be confounded with that species on account of the close punctuation of the elytra. I have found it sparingly here in a dead partridge, and also in a heap of cut grass in the garden, in company with *P. addendus*, mihi, and twenty-two other species of the genus.—D. SHARP, hornhill, Dumfries, August 3rd, 1868.

Occurrence of Attagenus megaloma, Fab., in London.—Seeing that this insect is found in almost all parts of Europe, and in Syria, North America, the West Indies, Madeira, Gomera (Canaries), &c., I have often wondered that it has not been detected in this country; especially as it is of domestic habits, like its congener, *pellio*, and others of its allies in our lists which have no better claims to be considered as truly indigenous.

In July last I caught a male specimen of it in Finsbury Circus, London. Its average smaller size, narrower shape, entirely unspotted surface, and (in the male) the very long apical joint to its antennæ, at once separate it from the common *A. pellio*.—T. V. WOLLASTON, Teignmouth, August, 1868.

Capture of Malthodes fibulatus, Kies.—I took three specimens of *Malthodes fibulatus* (named for me by Mr. G. R. Crotch) by beating, at Mickleham, in the middle of May last.—G. C. CHAMPION, 274, Walworth Road, London, S., 22nd July, 1868.

New locality for Malthodes fibulatus.—On the 15th May last I took two specimens of this beetle, by sweeping, at Headley Lane, near Mickleham, which I believe to be a new locality for the species.—J. G. MARSH, 842, Old Kent Road, S.E., August, 1868.

Notes on Northern British Lepidoptera.—The following account of an entomological expedition may be interesting, as it relates to a district of Great Britain farther north than the usual range of Lepidopterists, and records the capture of various insects in a higher latitude than they have yet been stated to occur, so far as I know, as well as of some that deserve notice on account of their rarity.

The campaign commenced in the Shetland Islands, on 30th May, a time at which the night, so-called, is not dark enough there to tempt nocturnal insects abroad.

In the hotel where I stayed I remarked the upstart *Ecophora pseudo-spretella* with its ubiquitous companion *End. fenestrella*, and those were the only *Lepidoptera* I met with on the mainland. On the Wart of Bressay, a fine bold hill on the island from which it takes its name, I was more successful, as *Anarta melanopa* occurred not uncommonly; doubtless this species is abundant there, for during my visit it could only be obtained by being beaten from the heather,—the weather being eminently unfavourable for day-flying insects. *Amphisa Gerningiana* frequents the same locality, accompanied by *Anchyl. unguicana*.

Bidding farewell to these barren and treeless islands, I landed at Aberdeen early in June, and proceeded into Ross-shire, where I found the aspect of the country much more promising for entomological results. The south-eastern part of the county is very mountainous, and richly wooded with pine, birch, and oak. The fertile spots are, however, oases (large ones certainly) in the midst of as bleak a district as I have ever seen, and the mountains differ from the prolific summits of Perthshire by being extremely dry,—resembling in this respect almost all the northern Scotch mountains. The climate is, I am informed, remarkably equable and mild, and this may account for the occurrence of some of the insects presently to be named. I was fortunate enough to have the companionship of Dr. White of Perth, well-known for his researches in Scotch Entomology and Botany, with whom I spent some of the pleasantest days I can remember.

Of the butterflies, few occurred deserving of notice. *Argynnis Euphrosyne* and *Selene* were both common, and *Cynthia cardui* and *Thanaos Tages* were occasionally met with, besides others well known in northern localities.

The long-protracted twilight rendered "sugaring" a laborious process, but we persevered on twenty evenings during little more than three weeks, the moths generally beginning to fly about 11 p.m., so that the time of reaching home again was about 1.30 a.m. Usually about eighty trees presented the sweet allurements, and the general character of the weather was favourable,—cloudy and warm with westerly winds, though they were often stronger than I quite like them to be. The result I consider satisfactory, as the average number of guests at the feast cannot have been less than a hundred and fifty. *Cymatophora duplaris* was not uncommon, and *C. or* put in an occasional appearance. Of the genus *Acronycta* there were the following:—*leporina*, *megacephala* (which has been stated not to occur in Scotland), *ligustri* (in large numbers), and *menyanthidis*. *Mamestra anceps*, the only representative of its genus, visited the sugar freely. Of the *Noctuidæ* many species occurred,—the best being *Rusina tenebrosa* (in immense numbers), *Agrotis porphyrea*, *Noctua augur* (nearly black), *triangulum* (a scarce species in Scotland), *brunnea* (very common), and *bella*. The *Hadenidæ* proved the most numerous family, the following being taken:—*Euplexia lucipara* (extremel

abundantly), *Aplecta occulta* (four or five) and *tincta* (very commonly), *Hadena adusta* (in vast numbers), *contigua* (commonly), and *rectilinea* (sparingly). Besides those named, many species less noteworthy occurred, in all about forty, and various "casuals," as *Macaria notata*, several *Eupitheciæ*, great numbers of *Boarmia repandata* (which came as steadily as any *Noctua*), and numerous *Tortrices* and *Tineæ*.

The sides of the hills, near rivers, proved the best ground for collecting by day. Some of these were thickly covered with fine birch woods mingled with willows and poplars, and here many insects were to be found, notably the following:—*Acronycta leporina* (on tree trunks, &c.), *Macaria notata* (rather commonly, but always on birch), *Aspilates strigillaria*, *Ephyra pendularia*, *Cidaria psitticaria*, *Latypteryx lacertinaria*, *Drepana falcataria*, *Antithesia corticana* and *prælongana*, *Anchylopera ramana*, *Phlæodes immundana*, *Mixodia palustrana*, *Lithocolletis vinetorum*, &c. Higher up, where the ground was covered knee-deep with heather, *Anthemionia russula* flew madly about, with occasional specimens of *Arctia plantaginis*. *Andorea atomalis* and *murana*, *Antithesia similana*, *Anchylopera unguicana*, *Eupœtia subroseana*, and other species, were also located in the same parts.

Not far from Contin, there are some large fields of broom and furze, which produced several interesting results, especially *Chesias obliquaria*; of this, three or four specimens occurred at dusk, flying slowly over the bushes. *Depressaria vimilella* was there in profusion, as also *Cemiostoma spartifoliella* and *Dicrorampha umbagana*,—the latter finding its food, no doubt, in the undergrowth at the foot of the broom.

In meadows we met with *Emmelesia alchemillata* and *Orthotænia antiquana*, and a few specimens of *Adela fibulella*, with many common *Tortrices*; while oak woods produced *Halias prasinana* and *Tischeria complanella*,—the latter in profusion. Of the former I took a most remarkable variety, in which the green colour was replaced by pale sulphur, giving the insect so unusual an aspect, that, when seen flying along in the twilight, it greatly resembled *Rumia crategata*.

Fir woods contained their usual inhabitants, *Ellopiæ fasciaria* and *Macaria atrata*, with infinite swarms of *Melanippe biriviata* and a few *tristata*.

Many species frequented flowers at dusk; the most attractive blossoms being those of *Lychnis*, nettle and honeysuckle. Among other insects, *Plusia pulchra* and *Abrostola urticæ* were common; but the rest formed a party more numerous than I select.

About fern-covered slopes on hills *Hepialus vellela* was common at dusk; *Plusia mesomella* occurred near the River Blackwater; *Cleora lichenaria* in various places; *Fidonia brunneata* near Contin; *Larentia cæsiata* in various places; *Cheliceria* on Ben Wyvis; *Coremia munitata* near Loch Achilty; and *Coleophora costata* in several localities. In my room *Cecophora minutella* was not scarce. Up on various hills *Antithesia sauciana* was to be taken freely; and on an elevated marshy spot *Eupithecia pumilata* was in extreme abundance,—I think I never before saw a small piece of ground so perfectly "alive" with a single species. At the same spot *Plusia festuæ* was to be taken in the pupa state.

The principal larvæ that occurred were *Cheimatobia boreata*, *Thera juniperata*, *Chesias spartiata*.

On the whole the country seems very productive of insects, and repays a visit

as well by entomological results as by the rugged grandeur of its scenery. The general type of *Lepidoptera* appeared less boreal than might have been expected. Truly northern species were generally in small numbers, while many decidedly southern occurred—usually in profusion.—THOS. BLACKBURN, Southfields, Wandsworth, S.W.

Notes on Scottish Lepidoptera, &c.—*Macaria notata* in Scotland.—This insect, not hitherto, I believe, recorded as a Scottish species, has turned up in this northern district. As far as I am aware, it is not found even in the north of England, perhaps not farther north than Staffordshire. I should be glad of information on this point.

Fidonia pinetaria (brunneata) has, to the best of my knowledge, only been found at Rannoch. This district is a second British locality for this very local species. It is not uncommon in this neighbourhood.

Trichius fasciatus also occurs here, and has, I suppose for the first time, been bred. I reared a specimen from a pupa found under the bark of a fallen birch-tree on the wood of which tree the larva probably feeds. I have also bred *Quedius lævigatus* and *Pissodes pini* from pupæ found under bark of pine trees.

The following additions and corrections are necessary to my note of the *Lepidoptera* at Rannoch, last year:—

The larvæ of "*Acronycta myricæ*?" produced only *A. menyanthidis*. Additional species are, *Ceropacha or*, bred from pupa found at a poplar. *Hadena glauca* bred. *Eupithecia assimilata* bred from larvæ found on black currant.—F. BUCHANAN WHITE, M.D., Achilty, Dingwall, Rosshire, July, 1868.

Deilephila lineata at Torquay.—Yesterday, at dusk, I had the good fortune to capture *Deilephila lineata*, in perfect condition; it was hovering over the flowers of the common scarlet geranium in my garden.—CHARLES GRINSTEAD Torella, Torquay, July 20th, 1868.

Captures of rare Lepidoptera.—The following list of rare and local species which I have been fortunate enough to meet with in the course of a few spare days devoted to collecting *Lepidoptera*, seems to me to show that this has been a most unusual season. I only include in this list my captures up to the end of June.

May 9th, Darent Wood. *Eupæcilia subroseana*?, *Buc. Demaryella*, *Nep. regiella*, *Röslerstammia Erælebella*, &c., &c.

May 15th and 16th, Norfolk. *Meliana flammea*, *Coccyx distinctana*, *C. Smeathmanniana*, and specimens of what may turn out to be a new species *Eupæcilia*; it seems to be intermediate between *roseana* and *ruficiliana*; &c.

May 29th and 30th, Norfolk. *Eupæcilia anthemidana*, *Phycis abietella*, &c., &c.
June 6th and 8th, Norfolk. *Acidalia rubricata*, *Agrophila sulphuralis*, *Spilosticticalis*, *Eup. notulana*, *Ser. ? herbana*, *Gel. lathyri*, and *Gel. pictella*, &c., &c.

June 13th and 15th, Folkestone. *T. chrysidiformis*, *T. Bondii*, *Eud. ingratiella*, *Ser. euphorbiana*, *C. microgrammana*, *A. decemguttella*, *Eup. rupicola*, larvæ of *hippophæella*, &c., &c.

June 20th, Norfolk. *A. subsericeata*, *Ac. inornata*, *Ar. cnicana*, *O. reliquella*
1 specimen.

June 27th, Wicken Fen. *M. arundinis*, *Ac. immutata*, *Hyria auroraria*, *Collis sparsata*, *Nascia cilialis*, *Bactra uliginosana*, *A. funerella*, *C. Lienigiella*, *Gelechia subdecurtella*, *suffusella*, and *inornatella*.

I also bred *H. Christiernana* from larvæ found at Shoreham, on May the 21st.—
THOMAS DE GREY, 23, Arlington Street, S.W., July 15th, 1868.

Note on Depressaria subpropinquella and D. rhodochrella.—I collected at Folkestone, this year, on the 15th of June, a number of larvæ of *Depressaria subpropinquella*, and from them bred a nice series of the perfect insects: among them came out one specimen of *Depressaria rhodochrella*, with the very conspicuous dark head and thorax which distinguishes that supposed species. As there was nothing in the box in which my larvæ were kept but thistle leaves, I think we must be satisfied that *D. rhodochrella* is only a variety of *D. subpropinquella*.—ID.

Acronycta alni near Manchester.—Among other pupæ obtained in the winter months was one of *D. alni*, which produced an imago in the middle of June.—
JOSEPH LEIGH, 27, Tomlinson Street, Hulme, 15th July, 1868.

Deilephila lineata near Derby.—A specimen of *D. lineata* was brought to me alive on the 2nd of August, by my young friend Mr. F. Balgny, who lives about a mile from Derby. This is the first record of the species that has come to my knowledge in this neighbourhood.—HENRY EVANS, Darley Abbey, Derby.

Deilephila lineata in Kildare.—I captured, on Saturday evening last, a fine specimen of *D. lineata*; it was hovering over Verbena flowers, at about 8 p.m.—
JOHN DOUGLAS, Kilkea Castle, Kildare, 18th August, 1868.

Capture of an hermaphrodite Satyrus Semele.—It may interest the readers of the Magazine to learn that a fine example of hermaphrodite *Satyrus Semele* (right side ♂, left ♀) has been captured this season by Mr. James Garrett, on his garden wall, situated in the Woodbridge Road, Ipswich. The species abounds on Rushmere Heath, some two miles from the spot; and perhaps it may be open to conjecture if the peculiar organization of this specimen may explain its being found so far away from its home and relatives?—EDWARD HOPLEY, 14, South Bank, Regent's Park, August 7th, 1868.

Capture of Pieris Daplidice near Margate.—While hunting *Colias Hyale*, *Acontia uctuosa*, and *Aspilates citraria*, in the lucerne fields near Marsh Bay, Margate, last Wednesday, I captured a female specimen of this rarity. Unfortunately it is not in good condition.—JULIA E. COX, West Dulwich, S., 6th August, 1868.

Pieris Daplidice, Argynnis Lathonia, &c., at Margate.—On the 27th July I started for a morning's ramble along the cliffs to the east of Margate. Just beyond the Newgate Coast-Guard Station there are some patches of lucerne, and I had hardly reached the first patch before I took a male *C. Hyale*. A high north-easterly wind had prevailed for some days previously, in spite of which I had on the Saturday taken a *Hyale*, the first I had ever captured or seen alive, and my hope was that I

might perhaps catch another, which led me to the lucerne patches. I did not then know that *Hyale* was so abundant this year. In Marsh Bay, about a mile and a-half to the west of Margate, I saw them flying by dozens, but by the 7th August they were so much worn as to be hardly worth catching. But to return to the morning of the 27th July. I had hardly boxed my first specimen of *Hyale* when I saw upon a spray of lucerne, just in front of me, a beautiful *Argynnis Lathonia*; this I caught, and within ten minutes, and within a few yards of the same spot, I took a female *Pieris Daphidice*, a very fine specimen, measuring two inches across the wings. Both this and *Lathonia* were in splendid condition. I fancy it has not often fallen to the lot of a collector to take *Hyale*, *Lathonia*, and *Daphidice* within the space of half-an-hour.—ARTHUR COTTAM, Stone Grove Cottage, Edgware, August 13th, 1868.

Argynnis Lathonia at Ramsgate.—On the 7th of this month I captured *A. Lathonia* at the above locality. On the 30th ult. I found *Lycæna Corydon* in Hyde Park.—W. G. ARMSTRONG, 92, King's Road, Chelsea, August, 1868.

Capture of Agrotera nemoralis.—I captured a poor specimen of this rare insect on the 11th of June, at the same spot where I took one in 1866, as recorded in the Magazine [Vol. iii., p. 207].—E. N. BLOOMFIELD, Guestling, August 10th, 1868.

Sphinx convolvuli and *Deilephila lineata* at Guestling.—On Thursday last I had brought to me a very fine specimen of *S. convolvuli*, which had flown into a house in an adjoining parish; and this morning, just before day-break, I took *D. lineata* hovering at scarlet geranium flowers in my garden: the humming noise it made when flying was very marked.—Id.

Chrosis euphorbiana bred.—I have much pleasure in recording the fact that I have lately been successful in rearing *Chrosis euphorbiana*, from larvæ which I found feeding in the heart of *Euphorbia amygdaloides* in this neighbourhood.—W. PURDEY, 15, Grove Terrace, Folkestone, August 13th, 1868.

Colias Hyale and *Argynnis Lathonia* at Colchester.—It will probably interest the readers of the "Entomologist's Monthly Magazine" to learn, that on Saturday last, August 15th, I captured in this neighbourhood one specimen of *Colias Edusa*, twelve of *Colias Hyale*, and one of *Argynnis Lathonia*. The *Lathonia* appeared to me, when it first settled down on a lucerne blossom before my astonished eyes, to be the freshest and loveliest specimen I had ever beheld; but either this was my fancy, or else I must have been exceedingly clumsy in capturing it, for after killing it, I found it was not in such good condition as I had hoped.—W. H. HARWOOD, St. Peter's, Colchester, August 17th, 1868.

Abundance of Colias Hyale in 1868.—In some lucerne fields in the neighbourhood of Gravesend I have found *C. Hyale* tolerably abundant this month. On the 5th, being accompanied by a friend, fifty specimens, including several fine females, were taken between us, in the course of about two hours' collecting in the morning. *C. Edusa* has also been plentiful. My friend, Mr. Howard Vaughan, has also taken both species in the same locality.—P. BASDEN SMITH, Admiralty, Somerset House, 15th August, 1868.

Colias Hyale near Ramsgate.—On the 10th inst. my brother captured, in a lucerne field situated between Ramsgate and Deal, 22 *Colias Hyale* (18 ♂ and 4 ♀), mostly in very fine condition. One ♀ has very fortunately despoited about 40 ova.—ALBERT H. JONES, Eltham, 13th August, 1868.

Deilephila lineata, *Acronycta alni*, &c., in Sussex.—On some Ontario poplars which I had planted last spring in a rough, heathy field, I found two young larvæ of *C. bifida*, which fed up well, and three eggs of the same, which, however, did not hatch. Walking through the same field on the 9th August, about one o'clock, I started a hawk-moth, which flew a few yards, and, on being captured, proved to be *D. lineata*, in good condition. A larva of *A. alni* was found in a wood near, and kindly given me by its finder, a few days before.—F. MERRIFIELD, Belair, Cuckfield, 13th August, 1868.

Sphinx convolvuli and *Colias Hyale* near Birmingham.—On August 8th a female *Sphinx convolvuli* was brought me, which had been found by a gardener near here, in a conservatory, probably attracted there by some *Petanias*. Yesterday morning (August 11th) I caught a fine specimen of *Colias Hyale* (male) flying gently in a clover field close at hand. Is it not very unusual for a maritime butterfly like this to be taken so far inland?—GEORGE H. KENRICK, Church Road, Edgbaston, Birmingham, 13th August, 1868.

Acidalia emutaria at King's Lynn.—This pretty little species is still rather scarce in most collections, and few localities are known for it. Mr. E. L. King, of King's Lynn, met with one specimen last year, and this year has taken two, June 3rd and 26th, about 9 p.m., in his garden, which is situated not far from the salt marshes. The specimen captured by Messrs. Fenn and Jones, which furnished the eggs from which the Rev. J. Hellins reared the larvæ (see E. M. M., vol. iv., p. 88) was taken in a marshy locality.—H. T. STAINTON, Mountsfield, Lewisham, July 13th, 1868.

Eupithecia consignata bred in Belgium.—When passing through Brussels last week, Dr. Breyer asked me the name of a *Eupithecia* he had bred; I replied, "*consignata*," but immediately enquired from what he had bred it, and did he know the larva? He replied that he did not know the larva, but had bred the moth from a pupa found under the bark of an apple-tree. At that time he and I were alike ignorant that the species had been already bred in this country.—Id.

Note on double broods in hot seasons.—I had a full-grown larva of *Smerinthus populi* at the end of last June, which became a chrysalis during the first week in July, and was much surprised to find the perfect insect emerged yesterday.

I do not suppose this is a singular instance, and quite expect to hear that many species which appear as early in the year as *S. populi* are this season exceptionally double-brooded.—A. H. TAYLOR, Folkestone, 3rd August.

Occurrence of a *Plusia* new to Britain.—Mr. D'Orville has asked me to forward you a *Plusia* caught by him in his garden, and considered by us to be something new.—JOHN HELLINS, Exeter, August 21st.

* * * The above is a fine example of *Plusia ni*, Ingramelle.—H. G. K.

Query concerning Chærocampa Elpenor.—A friend of mine had a larva, about an inch long, of *C. Elpenor*, brought to him about three weeks since, which was found on log-beam near here. We afterwards found about twenty at the same spot, and also three or four feeding on bed-straw. I had four pupæ from these, and this morning, to my surprise, two imagos had emerged. Has any other entomologist experienced this unusual occurrence?

My friend had a *Smerinthus populi*, apparently fresh from the pupa, given to him about a week since. Could this be from a last year's larva?—A. MATTHEWS, Oxford, August 5th, 1868.

. We have no doubt that these insects pertained to a second brood, developed through the unprecedented heat of the present summer. Similar instances constantly occur in hot seasons [vide preceding note].—Eds.

Description of the larva of Fidonia pinetaria, Hub. (brunneata, Steph.).—In October, 1867, Mr. Buckler sent me five eggs of this species, which had been kindly given to him by Dr. Buchanan White, of Perth. On receiving them, I examined them carefully under my microscope, and made the following description:—

The egg is oval in outline, but flattened, the upper-side being even depressed in the middle; the whole surface covered with reticulations—generally hexagons, but some only pentagons, in shape; and at each angle where the lines of the reticulation meet, there is a little raised bright white knob (a peculiarity I have not yet observed in any other egg), the whole egg looking as if set with tiny pearls, on a ground-colour of shining salmon-pink.

About the end of February, 1868, the eggs grew darker, and between March 2nd and 8th four larvæ emerged, the fifth dying unhatched. After a little hesitation they began to eat buds of whortle-berry (*Vaccinium myrtillus*), but somehow, within a few days, two of them died. The two survivors, however, grew on steadily; and from being dark brown at their first appearance, after a moult or two began to assume a striped dress: the ground-colour was now pale grey—almost white; the dorsal and supra-spiracular lines almost black, with an intermediate sub-dorsal line of brown; and the spiracular stripe tinged with yellow.

About April 24th the larger of the two larvæ seemed full-grown. At that time it was rather over half-an-inch in length, of uniform bulk, cylindrical, the head horny, the skin smooth, but puckered along the spiracles. The colouring was disposed in a multiplicity of fine lines, which I now give in due order.

The dorsal line—widening in the middle of each segment—dark green, closely edged with almost black threads; then a thin white line; then the sub-dorsal line of pale pinkish-brown outlined with darker brown; then another thin white line then three olive-brown lines (the middle one palest, and the lower one darkest), partly showing distinct, and partly run together, so as to form a stripe just above the spiracles.

The spiracular line broad, white, but tinged with yellow in the centre of each segment. The belly of a dirty white, with some oblique dashes, and lines of brown.

This larva went to earth at the end of April, and the moth from it appeared on June 1st.—J. HELLINS, Exeter, June 23rd, 1868.

NOTES ON THE EARLIER STAGES OF SOME SPECIES OF *LITHOSIDÆ*.

BY THE REV. JOHN HELLINS, M.A.

The lichen-feeding *Lithosidæ* are generally so troublesome to manage, that I feel a sort of satisfaction in announcing that I have this summer succeeded in obtaining the imago of four out of the five species, whose eggs last year came into my care. Not that I have very much to boast of, for although in the case of *griseola* I believe I stumbled upon it at least of its natural pabula, and so kept alive nearly twenty larvæ; in the other species it was but a scanty remnant that appeared in the hatched state, and *mesomella* perished before half grown.

Lithosia molybdeola (Gn.), *sericea* (Gregson). Mr. Doubleday most kindly transmitted to me some eggs he had received of this species, and by the time the parcel reached me (July 26th, 1867,) the young larvæ had appeared. Most of the brood must have soon perished, but the three which lived till September were then about half-an-inch long; and the two final survivors spun up before the end of May, and appeared as moths on July 3rd and 4th, 1868.

I could never see that they ate any food I gave them *freely*; but at different times I saw that they had eaten a little of various lichens on trees or banks, wall moss, withered willow and oak leaves, slices of turnip and carrot, and knot grass, and they must have thriven as well as they would have if they had been at large, for the two bred moths were not at all smaller than captured specimens.*

I noticed, not in this species only, but in all the *Lithosidæ* larvæ I had, that the characteristic markings and tints were assumed very early and long before they had attained a quarter of their growth.

When full-grown this larva is rather more than three quarters of an inch in length; moderately stout, uniform in bulk; head very hard and shining; all the tubercles crowned with tufts of short hairs, mixed with a few longer ones; of the dorsal tubercles the front pair are small, and the hinder pair very large.

The ground colour, when seen between the tufts of hair, is a dead ashy-grey; but the segmental folds are black; there is a rich velvety, very black, dorsal stripe; the sub-dorsal line, being broken on each segment by the hinder tubercle with its tuft of hair, must be rather called a *row* of elongated particoloured spots, each beginning on the hinder part of a segment, and continued across the fold into the next segment, until stopped by the tubercle; the colours being white

* I trust, from what Mr. Doubleday tells me, that Mr. Greening has now a clue to the right food.

for about half the spot, and the tint of a robin's red breast for the remainder, but owing to the position of the white portion so near the segmental fold, only the red hinder part of the spot is to be seen, except when the larvæ is stretched out in walking; on segments 2 to 4 the spots are altogether whitish; immediately below comes another velvet black stripe, broadest at the centre of the body, and tapering considerably towards the head, but less so towards the tail; just above the feet comes a greyish-ochreous interrupted stripe, edged on both sides with a dark brown line; the tubercles and short hairs are brown, the longer ones black.

The pupa stout, reddish-brown in colour; enclosed in a very slight web of silk, under cover of a stone or piece of moss.

Lithosia griseola. Eggs kindly sent to me by Mr. Doubleday August 11th, 1867, larvæ hatched August 15th; by the end of November nearly half-an-inch in length; full grown during May, moths on June 14th to 27th, 1868.

The larvæ fed at first on withered leaves, especially delighting to riddle decaying sallow leaves full of holes; but I saw them also eat little clover, knot grass, and various lichens and mosses; early in the spring they attacked vigorously some slices of turnip, but afterwards on attaining some size, they fed away steadily on *Lichen caninus*, which I have since learnt has been noticed to occur where the moth is most abundant, and no doubt forms part of the natural food of the larva.

When full grown the length is quite an inch, the figure stout and uniform; the head small; all the tubercles tufted with stiff hairs, which are short on the back, and longer on the sides, with a few of extra length on the second and thirteenth segments.

The colour is a rich velvety blackish tint above, dingy blackish brown below; the central portion of the back is, however, to be distinguished as a stripe of more intense black than the rest; there is a sub-dorsal orange-ochreous stripe, which being interrupted by the tubercles appears on segments 4 to 12 as a row of wedge-shaped marks but on the 2nd segment there is no interruption, and on the 3rd the whole dorsal area is occupied by a large orange patch, bisected for part of its length by the deep black dorsal line; and on the 13th the sub-dorsal wedges are replaced by two large squarish marks; the hairs are dark brown; the head a most brilliant black.

Some of the larvæ had the orange marks very faint indeed; and two of them had no orange marks at all, except on segments 2, 3, and 13, thus presenting a good variety.

The pupa short, stout, reddish-brown in colour, the anal segments well enveloped in the cast larva skin (I notice this to be the case with the other species also), enclosed in a thin web, in which bits of moss and lichen were sometimes inwoven, and placed under any protecting cover, such as a stone.

The moths I bred were very fine, much larger than any I ever captured, and although varying somewhat among themselves in the depth of their grey tints, yet none of them were at all like *stramineola*.

Lithosia mesomella. On two or three previous occasions, I kept a larva or two alive from summer till after Christmas, having fed them on willow leaves, green or decaying; and last spring I managed to retain one even until the new willow leaves were out again, but it would not resume feeding after hibernation, and so died; it was then quite half-inch in length; in colour a velvety-black all over, and covered on every segment, save the head and 2nd, with tufts of singular spatulate dark grey hairs. I should much like to procure some sort of food on which this species would feed up, for they would never take to any sort of lichen I gave them.

Lithosia plumbeola (complanula). I will only remark that the larva of this species assumes its lateral reddish-orange stripe at its first or second moult, when but little over a line in length; also that it seems to feed and grow more slowly than the other species.

Calligenia miniata. Eggs obtained from a female captured July 18th, 1867; the larvæ hatched before the end of the month; fed slowly but almost continuously till the end of May, by which time six out of fifteen survived to spin up; the moths out June 19th—30th.

The food chosen at first was a willow leaf, which had become damp and rotten by being kept in a glass stoppered bottle; afterwards when placed outdoors in a flower-pot they ate withered oak and willow leaves and various lichens; in spring they nibbled the slices of turnip put in with them as traps for slugs, and at last settled down steadily to eat the red waxy tips of *Lichen caninus*, and fed up to quite full size on this food. In a state of nature I understand they are found feeding on the lichens that grow on the boles of oak trees.

The eggs of *miniata* are very different from the usual round pearly heads of the *Lithosiæ*, being more fusiform in shape, rich yellow in colour, and placed on end with great regularity at a little distance from each other in rank and file; my batch of eggs was deposited in four rows, viz., three of five eggs each, and one of four.

The larvæ from the first were little dingy foggy-looking with a quantity of fine hair on their backs; and although at the last moult their plumes became denser and darker than before, the description of the last stage is applicable throughout.

When full-grown, the length is a trifle over half-an-inch, the head that project before and behind making it look a little longer, the figure stout, uniform in bulk; the skin very shining, but densely covered with plumes; segments 2 and 13 are furnished only with short simple hairs, but the other segments have each six whorls of wonderful plumose verticillate hairs, those on 3 to 7 being full one-eighth of an inch high, and those on 8 to 12 a little shorter, while along the sides and just above the feet are tufts of plain hairs; when looking at one of them in motion, I could not help mentally comparing it to an animated hearse with palish plumes.

The colour of the skin, when it can be seen, is a waxy dark drab, the plumes from the head to segment 7 are blackish mouse colour, and the rest a paler tint of the same. When disturbed, the larva puts its nose and heels together, bending itself into a circle, with the tuft standing out apart.

The cocoon is a long oval in shape, very slight but close in texture, the silk wonderfully interwoven with the cast-off plumes stuck upright so that whilst fresh and uninjured by rain it might at first sight be mistaken for the larva; one which I watched in progress was completely finished, so far as outward appearance went, in four-and-twenty hours. The pupa is short, reddish-brown in colour, the cast larva-skin adhering to the anal segments.

Mr. Buckler kindly allows me to incorporate with my notes the following descriptions made by him of two other species of *Lithosia* which he has lately figured from specimens supplied by the kind liberality of Mr. Machin.

Lithosia helveola. Four larvæ, not far from full growth, received on June 13th; their food being a large coarse lichen growing on the bark of yew trees. In a few days they had spun rather loose cocoons with a few grains of earth attached to the silk, on the under-side of the pieces of bark. The moths appeared July 2nd—6th.

When full grown, the larva is nearly three quarters of an inch in length, moderately stout, with the posterior segments tapering slightly towards the tail. All the tubercles furnished with tufts of hair.

The ground colour of the back varies—being pale grey, whitish-grey, or white; and the colour of the sides and belly is grey, brownish-grey, or greenish-grey; there is a sub-dorsal stripe of black, separating the white back from the grey sides, and itself interrupted by one of the hinder pair of tubercles on the back of each segment; down the centre of the back run two black lines, which represent the dorsal stripe, appearing united at the hinder end of all the segments, as well as on the front of all, except the last four, and interrupted through the middle of the others; and between these lines and the sub-dorsal stripe comes another fine black line on the hinder half of each segment; on the 4th segment the space between the dorsal lines is filled up with black, forming a conspicuous lozenge-shaped mark; on the 8th segment is another black mark, but triangular in outline; and on the 9th segment the sub-dorsal black stripe is interrupted by a white spot, which extends somewhat into the grey colour of the side; and along the side run two dark brownish interrupted lines; the head is dark brownish-grey, lobed and speckled with black; the tubercles are grey or brownish-grey, and the tufts of hair growing from them are of the same tint.

Lithosia aureola. The larva received on 19th August feeding upon acorns attached to oak.

This larva is very active in its habits; not yet mature, being but little more than five-eighths of an inch in length, rather slender, and of nearly uniform thickness, but tapering very little posteriorly. The tubercles all tufted.

The ground colour of the back is white, but this appears only as narrow white lines separating the black dorsal, intermediate, and broader sub-dorsal stripes; and this pattern is interrupted at the 4th, 8th, and 9th segments by dark brownish-black patches covering the back, and the 4th and 12th looking almost like humps from the greater denseness of the tufts of hair; and on the 9th segment the dorsal stripes are absent, leaving the whole area as a conspicuous whitish spot; the head, sides, belly, and legs are brownish-grey; the folds between segments 3 and 4 are white; there is a white spot just above the legs on the 3rd, and a white blotchy line similarly placed on the 4th; the 2nd segment is dark brown, with a reddish margin in front, and a longitudinal short black mark from it of the same tint on the sub-dorsal region; the dorsal tubercles of all but the three dark segments are orange-red, bearing whitish-grey hairs, the first of each dorsal pair being small in size, the second behind very large, so as to project beyond the sub-dorsal line, on which they are placed, into the side, and behind each tubercle

of this pair comes a white dot; along the sides are two rows of sin tubercles, the lowest being just above the legs, thickly furnished with brownish-grey hairs; a few hairs longer than the rest proceed from the thoracic and anal segments; the head itself is blackish-brown.

This species spins up in autumn, and passes the winter in the pupal state.

Exeter: September 5th, 1868.

P.S.—Eggs or larvæ of *complana* or *stramineola* would be most acceptable now.

LIST OF CAPTURES OF HEMIPTERA IN PALESTINE AND SYRIA
TOGETHER WITH DESCRIPTIONS OF SEVERAL NEW SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

(Continued from page 68.)

Section CAPSINA.

Division BICELLULI.

FAMILY PITHANIDÆ.

Genus PITHANUS, Fieb.

31.—Species PITHANUS MARSHALLI, Doug. & Scott.

(*Forma incompleta*) Niger; elytris membrana carentibus, clavo intacto, corio valde abbreviato, postice rotundato, margine antico postico dilute stramineis; pedibus dilute piceis, coxis nigris, apice flavido; antennis nigris, articulo primo, basi excepto, dilute stramineo, secundo lurido.

Long. 2½ lin.

Undeveloped form black.

Head shining; between the eyes two short, transverse, oblique, brownish-yellow streaks. Antennæ clothed with very short hairs; 1st joint pale yellowish-white, base black; 2nd pale fuscous-yellow, base and apex somewhat dark. 3rd and 4th black, base of the 3rd fuscous-yellow; behind each eye, on the under-side, a yellowish spot. Rostrum yellowish, 1st joint and the apex narrowly piceous.

Thorax—Pronotum with a faint central keel, disc next the anterior margin flattened into a somewhat collar shape, finely wrinkled transversely, and with a deep depression on each side of the centre in a line with the inner margin of the eyes, posteriorly very much constricted; the central portion sub-globose, with a puncture in the middle on each side of the central keel. Scutellum convex in front, flattened posteriorly and very finely wrinkled transversely. Elytra abbreviated, only covering the 1st segment of the abdomen. Clavus flat, distinct from the corium. Corium rounded posteriorly, the entire anterior and posterior margins yellowish-white, broadest at the basal angle. Sternum black. Prosternum xyphus, at the apex brown. Legs brownish-yellow. Co-

black, apex yellow. *Thighs*, 3rd pair at the base on the under-side piceous, each pair with two longitudinal rows of piceous spots on the upper, and one on the under-side. *Tibiæ* yellowish, clothed with long, fine, erect, brown hairs; apex of all the pairs very narrowly brownish. *Tarsi*, 1st and 2nd joints yellowish, 3rd and *claws* piceous.

Abdomen—above black, underneath black, the centre, as far as the genital segments, broadly yellowish white. *Connexivum* yellow.

Taken at Nazareth at the roots of a dwarf thorny plant, where it is abundant in April.

Extremely like *P. Märkeli*, but easily separated from that species by the differences in the antennæ, and the rounded and *entirely* pale margin of the elytra.

We have named it after the Rev. T. A. Marshall, whose collection of *Cemiptera* has been always at our service.

NOTE.—At page 37, for *Pithanus Flori*, read *Pithanus Marshali*.

FAMILY DERÆOCORIDÆ.

33.—Species DERÆOCORIS AMÆNUS, Doug. & Scott.

♂. *Stramineus et niger, dilute pubescens; capite nigro, linea media maculam parvam postice crescente straminea; antennis piceis; pronotum nigro, collari nec non fascia pone callum, stramineis; corio dilute stramineo, macula magna triangulari maculaque interiori piceo-nigris; cuneo late stramineo, apice anguste nigro, membrana piceo-nigra, extus saturatiori; sterno nigro-rufo; pedibus rufo-brunneis, fulcris, nec non femorum apice, piceis; tarsis luridis, basi apiceque piceis; abdomine subtus stramineo, segmentibus nigris.*

Long. $3\frac{1}{2}$ lin.

♂. Pale yellow and black, somewhat sparingly clothed with short, bristled, pale hairs.

Head black, shining. *Crown* with a small yellow spot in the middle of the posterior margin, to which is joined a fine central line, extending to the central lobe of the face. *Antennæ* piceous; 1st joint pitchy-brown. *Rostrum* pitchy-red, apex piceous.

Abdomen—*Pronotum* black, shining, collar and an irregular broad band behind the callosities yellow; disc posteriorly convex. *Scutellum* convex, yellow, considerably raised above the clavus, anterior portion concealed beneath the posterior margin of the pronotum. *Elytra*—*Clavus* pitchy-black, between the inner margin and the nerve almost flat, disc very finely wrinkled transversely, the sutural nerve at the apex, and the apex itself, very narrowly pale yellow. *Corium* pale yellow, almost white, anterior margin piceous, except the basal portion, disc with a large triangular pitchy-black patch extending to the anterior margin, its inner margin convex, apex abrupt, slightly concave, its base occupies the entire width of the cuneus suture; on the margin at the inner posterior angle a small black spot. *Cuneus* bright yellow, apex narrowly black. *Membrane* pitchy-

black, with a darker triangular patch next the anterior margin extending to the apex; inner marginal and cell nerves black; apex of the large cell with a pale margin, below which, is a short, transverse, dark streak; between the apex of the cell nerves and the anterior margin a pale blotch divided by a transverse pitchy-black line, reaching the latter a little below the apex of the cuneus. *Sternum* pitchy-red. *Legs* brown-red. *Fulcra* piceous. *Thighs* piceous at apex. *Tibiæ* dusky yellow, with short, somewhat spinose, black hairs; *tarsi* and apex of all the pairs piceous. *Tarsi* and *claws* piceous.

Abdomen underneath yellow, clothed with fine, pale hairs, genital segments black.

Nearly allied to *D. sexguttatus*, Fab., to which it bears a great resemblance.

The above description has been drawn up from a single ♂ specimen taken in the plains of Jordan by sweeping low plants in April.

GENUS GRYPOCORIS, Doug. & Scott.

Corpus elongatum. Caput, oculis inclusis, triangulare, lobo medio longo, ante clypeum convexum valde producto. Antennæ corporis longioribus, articulo secundo clavato, primo triplo longiore. Rostrum inter coxas posticas extensum. Pronotum elongatum, collari angusto, callisque duobus instructum, lateribus antice constrictis, angulis posticis acutis, elevatis. Scutellum triangulare, sub-equilaterale. Elytra maris abdomine longioribus. Pedes postici longissimi, tarsorum posticorum articulo ultimo longissimo.

Elongate, sides narrowing posteriorly.

Head, including the eyes, triangular, measured through their centre almost equilateral. *Crown* flattish convex. *Clypeus* very convex, apex in a line with the base of the antennæ; antenniferous processes short, in a line with the centre of the lower half of the eye. *Face*, central lobe long, very prominent, projecting considerably in front of the clypeus, convex, base acutely rounded, side lobes longish, rounded outwardly. *Antennæ* as long as the body, 1st joint cylindrical, shorter than the pronotum, slightly curved outwardly, rounded and narrowed at the base on the inside; 2nd three times as long as the 1st, slightly thickened towards the apex; 3rd and 4th filiform; 3rd two-thirds the length of the 2nd, 4th more than one-half the length of the 3rd. *Eyes* somewhat prominent, viewed from above semi-oval, from the side oval. *Rostrum* reaching to the 3rd pair of coxæ, 1st joint stout, almost reaching to the xyphus of the prosternum.

Thorax—*Pronotum* longish, as wide on the posterior margin, as long as the body, with a narrow collar and two callosities, sides constricted in front to behind the latter, then gently sinuate to the acute, raised hinder an-

gles ; posterior margin almost straight across the scutellum, rounded towards and at the hinder angles ; disc posteriorly flattish, convex, deflected to the callosities. *Scutellum* triangular, almost equilateral, convex. *Elytra* longer than the abdomen. *Cuneus* long, triangular. *Sternum*—*Prosternum* xyphus, triangular, concave in the centre, the sides slightly rounded and margined. *Mesosternum* slightly elevated posteriorly, convex above, and with a central channel, sides flattish, posterior margin slightly rounded. *Metasternum* convex, centre convex, with a depression on the sides, apex rounded. *Legs* longish, 3rd pair longest, 1st and 2nd sub-equal. *Tarsi*, 3rd joint of the 3rd pair longest, 1st and 2nd sub-equal.

34.—GRYPOCORIS FIEBERI, Doug. & Scott.

♂. *Griseo-ochraceus et niger*. ♀. *Sanguineus et niger*.

♂. *Capite nigro nitido ; antennis piceis, articulo primo medio, secundo basi, ochraceis ; pronoto dilute ochraceo, medio triangulariter, callis ferrugineque postica piceo-nigris ; scutello dilute ochraceo nitido ; clavo fuscato, nervo stramineo ; corio dilute griseo-ochraceo, vitta juxta clavum nigra ; cuneo dilute ochraceo, apice anguste nigro ; membrana fusco-nigra ; terno rufo ; pedibus ferrugineis.*

♀. *Similiter picta, nisi quod color sanguineus pro ochraceo accidit.*

Long. ♂ $3\frac{1}{4}$, ♀ 4 lin.

♂ pale greyish-yellow and black, ♀ deep red and black.

Head black, shining. *Antennæ*, 1st joint pale yellow, base and apex narrowly piceous ; 2nd black, base yellow ; 3rd and 4th piceous, base of the 3rd yellow. *Strum* reddish-yellow ; 3rd and 4th joints piceous.

Corax—*pronotum* pale yellow, very sparingly and delicately punctured, collar pale yellow, callosities pitchy-black, joined together in front by a short, broad, transverse keel, posterior margin and hinder angles pitchy-black, disc with a triangular pitchy-black patch in the centre, its apex next the callosities, its base on the posterior margin. *Scutellum* shining, anterior portion black, concealed beneath the posterior margin of the pronotum, posterior portion pale yellow. *Elytra* longer than the abdomen, rather sparingly clothed with very short, sub-depressed, blackish hairs. *Clavus* fuscous, finely shagreened, inner margin piceous, nerve pale yellow, the colour broadest at the base and apex. *Corium* pale greyish-yellow, extreme anterior margin piceous, 1st nerve slightly piceous at the base, disc with a longitudinal, broad, fuscous streak between the claval suture and the centre, the colour becoming darker towards and at the posterior margin, the base pale greyish-yellow ; inner posterior angle next the claval suture slightly grey-yellowish, the colour vanishing ; posterior margin along the base of the cuneus piceous. *Cuneus* pale yellowish, anterior margin faintly piceous, apex narrowly black. *Membrane* deep fuscous black, inner

marginal and cell nerves black; cells and a triangular patch next the anterior margin, extending from below the former to the apex, almost black, *Sternum* reddish-brown. *Prosternum* xyphus fuscous, margins pale yellowish. *Abdomen* somewhat fuscous in the centre. *Legs* ferruginous. *Thighs*, pair with two longitudinal rows of brown spots on the inside; 2nd same as 1st, with the addition of a row along the upper-side; 3rd slightly flattened on the sides, with two rows of brown spots on the inside, one down the middle on the outside, and one along the upper-side. *Tibiae*, apex fuscous, with stout somewhat spinose black hairs. *Tarsi* fuscous-brown, 1st joint fuscous. *Claws* brown.

Abdomen, underneath yellow, last genital segment brown.

♀. The characters are precisely as in the other sex, except that the yellow markings are here replaced by deep carmine red, and the margins of the abdominal segments at the base black. *Elytra* as long as the abdomen.

There are only a ♂ and ♀ in the collection taken on the plains of Jordan by sweeping low plants in April.

(To be concluded in our next.)

A LIST OF GALL-BEARING BRITISH PLANTS.

BY H. W. KIDD* AND ALBERT MÜLLER.†

Hoping in the course of a few months to commence a descriptive list of galls, we beg your insertion of the following Catalogue of Plants. The majority of them we know possess galls in Great Britain from personal observation. Those marked with a note of admiration (!) are plants said on reliable authority to possess galls; while those marked with a note of interrogation (?) require inspection, either from the fact of their possessing galls on the continent, or upon which grow excrescences of doubtful origin, or having been hinted at as probably possessing galls.

Plants, not indigenous, possessing galls in this country, are preceded by an asterisk.

? <i>Ranunculus bulbosus</i> , Linn.	? <i>Silene nutans</i> , L.
<i>Papaver dubium</i> , L.	* <i>Althæa rosea</i> .
<i>rhæas</i> , L.	<i>Tilia intermedia</i> , D. C.
! <i>Barbarea vulgaris</i> , Br.	<i>grandifolia</i> , Ehrh.
<i>Brassica oleracea</i> , L.	<i>Acer campestre</i> , L.
<i>rapa</i> , L.	<i>pseudo-platanus</i> , L.
<i>Sinapis arvensis</i> , L.	* <i>Æsculus hippocastanum</i> .
! <i>Reseda lutea</i> , L.	! <i>Geranium sanguineum</i> , L.
<i>Viola odorata</i> , L.	<i>Rhamnus catharticus</i> , L.
<i>canina</i> , L.	! <i>Sarothamnus scoparius</i> , Koch.

* Godalming, Surrey.

† 2, Camden Villas, Fenge, S.E.

- Ulex nanus*, Auct.
Genista tinctoria, L.
 anglica, L.
Medicago lupulina, L.
Lotus corniculatus, L.
Astragalus glycyphyllus, L.
Vicia cracca, L.
 sepium, L.
Prunus spinosa, L.
 cerasus, Auct.
Spiræa ulmaria, L.
 filipendula, L.
Potentilla reptans, L.
Rubus spec.
Rosa spinosissima, L.
 micrantha, Sm.
 canina, Auct.
Mespilus germanica, L.
Cratægus oxyacantha, L.
Pyrus malus, L.
 aria, Sm.
 aucuparia, Gtn.
Epilobium, spec.
Circeæa, spec.
Tamarix.
Bryonia dioica, L.
Cornus sanguinea, L.
Daucus carota, L.
Sambucus nigra, L.
Viburnum opulus, L.
 lantana, L.
Galium verum, L.
 saxatile, L.
 aparine, L.
Hieracium pilosella, L.
 murorum, Auct.
 umbellatum, L.
 boreale, Fries.
Faraxacum officinale, Wigg.
Arctium lappa et bardana.
Carduus arvensis, Curt.
- Centaurea nigra*, L.
 ? *Artemisia campestris*, L.
 vulgaris, L.
 ? *Chrysanthemum leucanthemum*, L.
 Achillea ptarmica, L.
 millefolium, L.
Phyteuma orbiculare, L.
 ! *Vaccinium oxycoccos*, L.
 ? *Ilex aquifolium*, L.
 ! *Ligustrum vulgare*, L.
 ? *Fraxinus excelsior*, L.
 Convolvulus, spec.
 ! *arvensis*, L.
 ? *Veronica beccabunga*, L.
 chamædrys, L.
 Linaria vulgaris, Mill.
 *! *Salvia officinalis*.
 Thymus serpyllum, L.
 ? *Origanum vulgare*, L.
 ! *Teucrium*, spec.
 ! *Lamium galeobdolon*, Crantz.
 Stachys sylvatica, L.
 Nepeta glechoma, Benth.
 ? *Atriplex*, spec.
 ! *Polygonum aviculare*, L.
 amphibium, L. (var.
 terrestre).
Rumex acetosella, L.
Euphorbia cyparissias, L.
Buxus sempervirens, L.
Urtica dioica, L.
Ulmus suberosa, Ehrh.
 montana, Sm.
Quercus robur, L.
Fagus sylvatica, L.
Corylus avellana, L.
Alnus glutinosa, L.
Betula alba, L.
Populus tremula, L.
 nigra, L.

Salix fragilis, L.
cinerea, L.
aurita, L.
caprea, L.
repens, L.
herbacea, L.
 ! *Pinus sylvestris*, L.

* *Abies communis*, L.
 ? *Juniperus communis*, L.
Taxus baccata.
 ! *Juncus*, spec.
 ? *Triticum repens*, L.
Pteris aquilina, L.

In conclusion, we may add that we shall be greatly obliged to any observer who will kindly furnish us with notes respecting galls on any of the plants marked “!” or “?” (also on plants not mentioned at all in our list), either in the pages of the Magazine, or, still better, by letter to either of us, so that the information may be incorporated in our proposed Catalogue in its proper place; and if such communication can be accompanied by specimens of the gall or insect, or both, we shall feel doubly obliged.

August, 1868.

Observations on the habits and transformations of Hylesinus crenatus, H. fraxini and H. vittatus.—As the above mentioned species occur plentifully in this district, I have been induced from time to time to make notes of their habits in their earlier stages; which notes, without any claim beyond original observation, may possibly interest others, as they have interested me. I am quite aware that the oeconomy of these insects has been elaborated by both Continental and English authors.

Most Entomologists are, of course, well acquainted with the fact that the perfect insect of the species of *Hylesinus* forms a burrow or gallery in the cambium layer of the bark of recently fallen trees, along the sides of which the eggs are deposited; the larvæ feeding in the inner bark during the ensuing months, whilst it still retains a modified vitality, and completing their metamorphosis in time to renew the same cycle the ensuing year. They form their burrows transversely to the fibres of the tree, but the species of most of the other genera of the family form them parallel with the fibre. The larvæ, starting at right angles to the parent burrow, form theirs in the reverse direction, or nearly so; their increase in size making them diverge from each other and producing rather a fan-shaped marking.

The two species to which I have directed most attention, *Hylesinus crenatus* and *H. fraxini*, are attached to the ash (*Fraxinus excelsior*). The other species, *Hylesinus vittatus*, is attached to the elm, and is fairly abundant in this district. It is difficult, however, to say of any species of the *Xylophaga* whether it be abundant or not; as, however, difficult it may be to find it, when found, it is almost certain to be in some numbers. Thus, though *H. crenatus* is a somewhat scarce species, I could have taken it last winter in almost unlimited numbers. *H. fraxini* is, nevertheless, an undoubtedly abundant species. At this season (May 22) it may be found on any recently felled ash timber, busily engaged in oviposition, appearing very decidedly to prefer recently fallen timber to the growing tree, and even attacking wood that has been cut many months. Early in May the perfect beetles

are often to be seen swarming about fresh ash logs; they arrive on the wing, preferring the warm sunshine of the early morning for their flight, and often travel considerable distances. They bore very rapidly into the bark. The female commences the gallery by boring obliquely towards the wood, usually in a slightly upward direction, in large timber choosing the deepest part of a crevice of the bark; in younger wood a knot or other irregularity determines the preference, so that, unless the frass lies about the aperture, they are difficult to detect. Usually before the female beetle has quite buried itself in the bark, the male arrives, and is waiting to enter the burrow; if not, the female bores down to the wood, and there awaits his coming; and I believe I have met with burrows uncompleted because the male insect did not appear. In a few days the two beetles are to be found rapidly extending the gallery in both directions from the aperture of entry, close to the wood and usually slightly in it, and transversely to its fibres.

I suspect each of the beetles excavates a branch, but I have found no means of observing them at work, as opening the gallery always stops them; and it is possible that the female does the greater part of the excavation, since I have always found her further from the aperture of entry when both were in the same branch of the burrow; the male is also oftener at its opening, and eggs are laid along each as rapidly as it is formed. Not unfrequently the branches of the gallery are of very unequal length, so much so that sometimes there is practically only one branch, possibly both beetles working together. Undoubtedly the greater part of the excavated material is eaten; and I find that in captivity the beetles will live a long time with fresh ash bark, though without it they soon die. Most insects on their escape from the pupal state contain their eggs ready to be laid and requiring only fertilization, but in these, as in many more active *Coleoptera*, the eggs are developed after attaining the perfect state. In the case of *H. fraxini* the male is often bulkier when the burrow is half completed than on entering it, and the eggs laid by a single beetle must often exceed in aggregate mass the original bulk of the female. The domestic habits and family relations of these beetles deserve further attention. The following suggestive experiment was made: a burrow was opened, in which some few eggs had been laid; each beetle was then encased by a bit of bark in a branch of the burrow, and for each sufficient space was left for air and the discharge of frass. A week after, each beetle had eaten a narrower burrow just long enough to hold it, merely to sustain life, contrasting with the wider burrow outside; but no eggs had been laid.

The eggs are laid along both sides of the burrows, usually at very regular intervals, in little hollows dug out to receive them, leaving the gallery of full size for the beetles within it. They are covered with a gummy material, which soon acquires a coating of finer frass. These eggs being laid in rotation, form a good series for observing the development of the larvæ within the egg, the first being often hatched and the young grub boring into the bark before the last is laid. The eggs laid in one burrow vary from 15 to 40 or 50, or even 60 to 100. The gallery is finished and the eggs laid in from ten to twenty days. During the ejection of the frass, particles adhere by a gummy matter, and form an operculum to the mouth of the burrow, leaving only a minute opening for frass, which on the completion of the burrow is stopped up. Both beetles then usually die in the burrow; the male always does so. The dead beetles may still be found lying in the burrows for several years.

I have observed that, when the eggs are hatched (or rather before that time), the young larvæ have their heads towards the bark, in which, during the summer they busily feed. They are straight, white, footless, fleshy grubs, with a distinct head and powerful mandibles, and I have observed them to be hatched about the third week in May. In the autumn they assume the pupa state, and shortly afterwards that of the imago. The perfect beetles, however, usually remain during the winter months at the ends of the burrows formed by the larvæ, and emerge in spring to continue their ravages, leaving a very distinct circular aperture; on a sculptured piece of bark all the very obvious holes are apertures of exit, those of entry being obscure.

It often happens that the parent beetles have made their burrows so close together that the supply of bark is quite inadequate to the wants of the larvæ, so that their very abundance is its own remedy, and most of them perish. In other instances the vitality of the bark ceases before the larvæ are full fed, the tree having fallen too long when attacked, so that but a small proportion usually come to maturity.

I have remarked the preference of *H. fraxini* for fallen timber, nevertheless it does occur on living trees. On almost any young ash tree I have found marks shewing that a burrow had been formed and a brood perfected, and that the tree is now exfoliating the destroyed bark. Sometimes I think the growth and vigour of the trees appear to have been decidedly checked by them; and, though I have not met with an example, I doubt not that trees are occasionally killed by this beetle. In other instances trees with these marks appear to be uninjured. Where they are injurious, they may be extirpated by cutting down affected trees, stripping off and burning the bark, &c.; but as I suspect that it is the want of dying timber which forces them to attack living trees, I would suggest that placing fresh logs, during the spring months, in the neighbourhood of affected trees, as traps, and destroying the beetles which come to them, would be more effectual.

I have found one tree which owed its fall to the operations of *H. crenatus*. The beetle had obviously been in possession many years; it had commenced the attack near the foot of the tree, and destroyed the bark round more than half its circumference, and to a height of 15 or 20 feet, the limb above being dead. The portion of bark longest destroyed had fallen away,—the wood beneath being in possession of *Sinodendron* and *Dorcus*, and rapidly rotting. The tree was blown over in one of the gales of last winter. I have also found *H. crenatus* sparingly in several other trees, all pollarded or otherwise sickly. Unlike *H. fraxini*, *H. crenatus* takes two years to undergo its transformations, the larvæ assuming the pupal state at the end of the second summer, so that at present full-grown larvæ and perfect beetles are both to be met with. Felled timber would be unable to support this long larval existence. *H. crenatus* accordingly is never met with except in living trees; and, while an affected tree continues alive, I believe that none of the beetles desert it for another. They economise it as much as possible, the destroyed bark being more completely riddled and devoured by them than by any other beetle of the family I am acquainted with; the burrows of the larvæ are much more irregular also, so that it is impossible to find one of those perfect maps of their voyages (as in *H. fraxini*) which have secured for the *Xylophaga* as a family the name of "typographers." Last winter the blown down tree I have mentioned

contained hundreds of the perfect insect ready to emerge on the approach of spring, and but for the fall of the tree would have made their burrows in it again; but now they have all left it, so that last week I had difficulty in finding a specimen. *H. fraxini*, of which odd specimens only were to be found during the winter, now on the contrary abounds in it. The parent galleries of *H. crenatus* are proportionally much shorter than those of *H. fraxini*, and more frequently consist of only one branch, the male and female both entering the burrow as with *H. fraxini*, but the male usually leaving before the gallery is quite completed. The eggs are fewer than with *fraxini*, and laid in a deeper cavity, and so thickly covered with a layer of frass as to require looking for.

H. crenatus appear to be generally distributed in this district, but is hardly likely to prove very destructive; if found to be so, the tree on which it has formed its settlement cannot be rescued without a process of barking,—as serious as the ravages of the beetle. They are not likely to attack neighbouring trees till driven out of their strongholds on the fall of an affected tree, therefore they should be destroyed, or they will establish themselves in others. At the same time I would enter a protest against waging war with any species that is to be regarded as scarce or local.

H. vittatus attacks fallen elm as *H. fraxini* does the ash; its burrows are shorter, and the two branches are very uniformly of equal length, rarely exceeding half an inch long; the number of eggs laid is seldom as many as 20, and, being usually placed more widely apart than those of *H. fraxini*, the burrows of the larvæ are nearly parallel, giving little of the fan form seen in the burrows of that species. *H. vittatus* appears much less common than *H. fraxini*, though I find their burrows abundantly in a piece of elm fallen about the end of April. The operculum of frass which closes the mouth of the burrow is more complete than in *H. fraxini*. They complete their changes in one year. I have been unable to find any evidence of their attacking living trees, so that from an œconomic point of view they must be regarded as very unimportant.

The decay and destruction of fallen timber is much facilitated by these *Hylesini* and their allies. They partially or wholly destroy the bark; their frass-filled burrows absorb and retain much moisture, which is almost essential to decay, and usually the bark is so much loosened that, after a longer or shorter time, it falls off. This rarely takes place before the wood is much injured by fungi, for which the rimped-destroyed bark has been the nidus, and by the various sub-cortical species of insects for which the beetle burrows, have opened a way. The wood is then easily attacked by the numerous wood-feeders, various *Longicornes*, and *Anobia*, *Incendendron*, &c., which soon complete its destruction. But the necessity for a natural method of clearing the ground of dead and dying timber has so long ceased in this country, that we have difficulty in regarding these insects as other than noxious pests.—T. ALGERNON CHAPMAN, M.D., Abergavenny, May, 1868.

Live Clytus arietis in Museums.—Lately, when looking over some old numbers of our venerable predecessor, "The Entomological Magazine," I was irresistibly reminded of the trite maxim that "History repeats itself," by seeing a note of Mr. Penny's (at p. 114 of Vol. ii, 1833) on the occurrence of three specimens of *Clytus*

arietis crawling about in one of the cases in his museum on oak branches upon which stuffed birds were placed. These cases appear to have then been put up for nearly five years, and the last branches put in them were procured three years before the insects were seen, and had been well dried over a stove and in a drying-house.

Our readers may remember a similar occurrence of this *Olytus* in the British Museum, recorded at p. 286 of Vol. iv. of this Magazine, after an interval of 35 years. The beetle may surely adopt "Tempora mutantur, nos haud mutamur in illis" for a motto.—E. C. RYE, 7, Park Field, Putney, S.W.

Curious capture of Lucanus.—Prospecting yesterday for beetles in Wimbledon Park, I found a ♀ of *Lucanus cervus*, quite dead, but still moveable as to its limbs, firmly imbedded in an enormous hard white fungus growing at the root of an old, dead, dried-up beech-tree. The fungus had imprisoned the beetle so tightly ("Que diable allait-elle faire dans cette Galère?") that, when I opened it (with a knife and difficulty), I found a perfect cast of the outline of the thorax, scutellum, elytra, &c.—*Id.*, 11th September, 1868.

Occurrence in Britain of Apion cerdo.—It is with much pleasure that I find myself able to record the discovery of another species of *Apion* new to Britain. It is a large species, of the subulate rostrum group, its place being between *cracca* and *subulatum*; and, judging from the monograph by M. Wencker of the European species of the genus, I have little hesitation in calling it *Apion cerdo*, Gerst. It can only be confounded with *cracca* and *subulatum*; from the former of which, independently of other characters, it will be readily distinguished by its more entirely black colour, and the fact that in both sexes only the first and second joints of the antennæ are obscurely ferruginous, the other joints being quite black. It has much the appearance of a rather large and robust *A. subulatum*, but is readily distinguished by the very different structure of the rostrum. Confusion is likely to arise, however, from the fact that in *subulatum* the structure of the rostrum is very different in the two sexes; that organ in the ♂ being evidently dilated beneath at the base, and thence gradually narrow to the apex; whilst in the ♀ it is scarcely dilated at the base, and is longer and thinner than in the ♂. Comparing the sexes of *A. cerdo* with *A. subulatum*, I find that the ♂ much resembles the ♀ of that species, but has the rostrum thicker and more evidently dilated underneath; the ♀s of the two species are, however, very different, for the ♀ of *A. cerdo*, instead of the long thin rostrum of *A. subulatum*, has its rostrum very broad and dilated at the base (nearly as much so as in *A. cracca*), and suddenly constricted at the insertion of the antennæ. I have found both sexes here on *Vicia cracca*, in the month of July; but it appears to be very rare, many visits to the field where I took it having produced me only seven specimens. This is not the first time, however, that the insect has been taken in this country, for Mr. Lennon captured an example in some flood refuse at Dumfries, early in the spring of this year. There is also a specimen of the ♀ in Mr. G. R. Crotch's collection, taken by Mr. Wollaston, at Killarney. I took a specimen of *A. subulatum* on a common species of *Vicia* with yellow flowers in the same field where I found the *A. cerdo*.—D. SHARP, Bellevue, Thornhill Dumfries, September 1st, 1868.

Addition to the list of British Trichoptera (Agrypnia picta, Kolen.).—Mr. Pryer captured at a gas-lamp at Highgate, in August, a ♂ example of this insect, which was submitted to me by my friend Mr. Wormald. It is a North European species of considerable size, with the facies of a true *Phryganea* (in a generic sense), and it will be remembered that the species was before erroneously brought forward as British, a specimen of *Phry. obsoleta* having been mistaken for it. There is no doubt, however, as to Mr. Pryer's insect. Where it may have been bred is uncertain: perhaps the intense heat had dried up the water in its usual haunts, probably at some distance from London, and it was in search of some congenial locality. *Trichoptera* have been unusually scarce this season, the water in many places where they ordinarily abounded having disappeared altogether.—R. McLACHLAN, Lewisham, 7th September, 1868.

Sialis fuliginosa in Worcestershire.—I have three specimens of a *Sialis* which records very well with the characters of *S. fuliginosa* given in Mr. McLachlan's *British Neuroptera-planipennia*.—J. E. FLETCHER, Worcester.

Captures of rare Neuroptera and Trichoptera.—*Hemerobius inconspicuus*, McLach. On the 25th June last I met with a single example of this species in Addington Park, Surrey. The only locality given by Mr. McLachlan in his excellent "Monograph of the British Neuroptera-Planipennia" (Trans. Ent. Soc. 1868, pt. 2) is Bournemouth, where it has been found by Mr. Dale in old furze bushes. My specimen was beaten from a fir-tree.

Hemerobius concinnus, Steph. I beat from a fir-tree a fine specimen of this species at the same time and place as *H. inconspicuus*.

Setodes testacea, Curt. When at Llangollen, North Wales, in the second week of July, I beat from an alder on the banks of the Dee a single specimen of this other rare species.

Chimarra marginata, L. I also captured at Llangollen some dozen specimens of this local species. I took them by beating alders on the banks of the Dee, and at various places where water was running rapidly beneath the bushes.—PERCY C. WORLD, 35, Bolton Road, St. John's Wood, N.W.

Notes on the earlier stages of Argynnis Euphrosyne.—The pleasure one always feels in striking off another species from the list of desiderata, is in this case greatly enhanced by the fact that for some years *Euphrosyne* eluded the care and search—first of myself only, but of several of my friends.

We never had any difficulty in getting the ♀ to lay its eggs, or the young larvae to begin feeding, but the disappointment lay in the hibernation; we never could get a single larva to feed up in spring, nor could we, with all our searching in fit localities, at that season, ever detect a larva feeding at large. However, our attempts, though fruitless in one point of view, made us acquainted with the earliest stages, which I will give before proceeding to the full-grown larva.

The egg is of a blunt, conical shape, with its lower surface, which adheres to the leaf, flattened, its sides are ribbed; at first it is of a dull greenish-yellow colour, becoming afterwards brownish. Towards the end of June the larva is hatched,

then being of a pale greenish tint; after its first moult it becomes browner-green, and about the middle of July attaches itself to the stem of the plant, and ceases to feed.

On one occasion I prevented this early beginning of hibernation by keeping a larva in a hot sunny window, and at the end of July I had the satisfaction of seeing it half-an-inch long; it was then black and spiny, with a faint indication of a dull whitish stripe along the sides above the feet, but unluckily, after its hibernation commenced, it was killed by mould settling on it; and up to last spring this was all I had to record.

But on April 1st, 1868, I had the indescribable pleasure of receiving a larva of this species, most kindly presented to me by Mr. W. H. Harwood, of Colchester and which he had found during a walk through a wood; his attention having been for a moment arrested by a leaf of primrose being much eaten, and, on turning it up, he detected the larva adhering to it.

From its size and appearance being similar to the one above-mentioned, I felt sanguine in having now a chance of observing and rearing a larva to the perfect state. When received it was barely half-an-inch long, covered with spines and black, excepting a stripe formed of whitish freckles running along above the legs but on the thoracic segments only were they so thick as to make the stripe appear there much whiter than on the others.

A very faint edging of greyish rendered visible the black dorsal stripe.

The spines and legs black, and large in proportion; the prolegs of a dark smoky tint, inclining to reddish.

It at first refused to eat when placed on growing plants of dog-violet and primrose, but within twenty-eight hours it moulted; and then when the sun shone on it, its appetite returned. Its pace when walking was very rapid; and sometimes it fed for a while on the dog-violet leaves, and sometimes rested quite still, basking in the sun's rays; when these were withdrawn it retired to the under-side of a leaf and there remained, apparently without motion, till the hour (*viz.*, 2 p.m.) of the next day which brought the sun round to the window in which its cage was placed and then at once it came forth and actively walked about—fed and basked as before. After a few days it began to appear unwell, ceased to feed, remained on the earth, and kept out of sight for about four or five days.

Towards evening of April 12th it re-appeared, and rejoiced me greatly by showing itself on the side of its glass cylinder in a new coat of black velvet, ornamented with a sub-dorsal row of bright greenish-yellow spines with black tips and branches, all the other spines being wholly black; the prolegs now appeared dull pinkish.

By the 16th of April its pale stripe above the legs had become visible, but greyish in tint, the whitest portion being on the third and fourth segments; the whole of the back remaining of a deep velvety-blackness. The greyish-white stripe above the legs is formed by a series of whitish spots with black centres, and as they are more or less aggregated, so the appearance is whiter or greyer. The anterior legs black; prolegs black, with their tips brownish and semi-transparent; the ventral surface brownish-black.

Towards the end of April it attained its full dimensions—about an inch long, and rather thick when in repose, but when stretched out and walking, one inch and

quarter in length. As it approached its full growth the whitish lateral stripe became more and more visible, and appeared divided into two by a blackish, rather interrupted line, running through it from the fifth to the anal segment: faint greyish indications appeared of a sub-dorsal line, especially at the segmental divisions when stretched out, and the black dorsal stripe was also made visible by its edging of greyish: the sub-dorsal spines remained greenish-yellow with black tips and reached to the last, the front pair slanting a little over the head; the head itself black, and beset with short, obtuse black spines; the lateral and sub-spiracular spines of branched spines were brownish-black, and all slanted a little backwards.

At the end of the month it seemed rather sluggish, and on May 3rd it disappeared amongst the leaves of the dog-violet, which had formed its whole abode, with, I believe, only one exception, when I saw it eat out a small piece from a leaf of primrose.

On May 5th it had changed to a pupa, suspended by the tail to a circular mass of silk spun upon the side of the glass cylinder, hanging about three-quarters of an inch from the earth.

The pupa, five-eighths of an inch in length, was moderately stout and rather sharply pointed, and curved at the tip of the abdomen, and with a depression next the thorax; the wing-cases long in proportion and dull-brown in tint, with two rows of pale greyish dots near their margin; the spiked processes of head and back of thorax pale greyish; the back of abdomen brown, with sub-dorsal rows of blackish tubercles, bordered on each side by a stripe of pinkish-grey, and near the under-sides of abdomen another such stripe.

The butterfly came forth on the morning of 23rd May.—WM. BUCKLER, Sworth.

A few notes on the new Plusia.—*Plusia ni*, Hübner (first noticed by Engramelle under the name *L'ajoutée*) is closely allied to our common *P. gamma*, for a variety which it might easily at first sight be passed over. It also presents some slight points of resemblance to *P. interrogationis*, and between these two species it will be to be placed in our lists and cabinets. As it can only be confounded with *gamma*—and then, mind, only at first sight—I have thought it advisable to lay before our readers some of the more striking points wherein it differs from that species, which I hope may call attention to its peculiarities, and perhaps lead to the detection of other examples in our collections.

The alar expanse is less than that of *gamma*, the fore-wings are less acute at their apices, and lack the smooth, burnished, bronzy lustre of *gamma*; or, to put it another way, the contrast between the ground-colour, which is blackish, and the markings, which are, say, rosy-ferruginous, gives *ni* a duller and more mottled appearance; the letter-mark in the specimen before me is shaped somewhat as in *ureum*—thus \curvearrowright or $\bullet\curvearrowright$, but I find, on examining a series, that though this character is usually pretty constant, it is by no means invariably so. The hind-wings much as with *gamma*, but blacker in hue: the palpi are smaller, the antennæ shorter; and in the abdomen of the ♂ we find still better characters; here the dorsal is of a yellow-ochreous colour, and tufts of ochreous scales fringe the sides of the last segments, terminating underneath the anal segments in an ochreous line.—H. G. KNAGGS, September 9th, 1868.

Further notes on Plusia ni.—Having captured a specimen of *Plusia festucae* on the evening of the 13th inst., on flowers of red valerian, in my garden, I again just at dusk on the evening of the 14th, was on the watch for others of the same species. There were *P. gamma*, *P. chrysitis*, and another *festucae*, which I captured and the *Plusia* sent to you through our friend Mr. Hellins was captured that same evening. The flight of *festucae* is so different from that of *gamma*, that by careful watching I can generally distinguish them on the wing, and I captured the stranger taking it to be a *festucae*; for it was then too dark to make out what it really was.

I have since captured and slaughtered some scores of *gamma*, hoping to meet with another stranger, but no other has yet turned up.

P. festucae must this year have been double-brooded, as I had two in my garden in June.—H. D'ORVILLE, Alphington, near Exeter, August 25th.

Occurrence of Dicrorampha flavidorsana, Knaggs, near Exeter.—Two years ago I met with a specimen of the *Dicrorampha* sent to you by Mr. Hellins, and placed it in my cabinet with *Petiverella*, marked doubtful.

On the 19th June, this year, I beat from the *Artemisia absinthium*, many plants of which I have in my garden to attract *Cucullia absinthii*, the same insect and finding it to differ so much from *alpinana* and *Petiverella*, thought it was, and find it to be, *D. flavidorsana*, Knaggs.

As the species was taken by Mr. Meek, in August, and I took mine in June, should infer it to be double-brooded, and I am on the look-out for others, as I know several moths escaped my net in June.—ID.

Abundance of Sphinx convolvuli near Exeter.—I have not seen so many *convolvuli* since 1859, when I captured 17. Within the last ten days—that is, from the 15th to the present—I have captured 17, good and bad. They are three weeks earlier than in 1859.—ID.

Sphinx convolvuli at Marlborough.—Two specimens have been taken here; one on the 25th August, on a door in the town, the other about the 31st of August, at Tottenham House.—T. A. PRESTON, Marlborough College, September 9th, 1868.

Deilephila lineata at Marlborough.—Two children who were playing in a stubble-field, about the 26th of August, found a specimen of *D. lineata*. They took it to a bird-stuffer in the town, who added to the damage done to it by the children by cutting off the tail and stuffing some cotton into the body. Under these circumstances the specimen is not in very good condition.—IBID.

Catocala fraxini at Ipswich.—Mr. J. Balding, of 5, Lyme Road, Ipswich writes:—Sir,—I thought perhaps it might be interesting to some of your entomological readers to know that a specimen of *Catocala fraxini* was captured on Saturday last at the back of my house.—Extracted from the "Daily News," 26th August.

Occurrence of Catocala fraxini and other rarities in Cheshire.—The season of 1868 will be remembered as a remarkably forward one—a season which rendered calendars, diaries, &c., comparatively useless, since nearly all insects came out by

re their usual time. Altogether, I think we may consider it a very good season we take as a criterion the occurrence of such rarities as *A. Lathonia*, *P. Daplidice*, *. lineata*, *D. Barrettii*, &c., and the abundance of those generally scarce insects, *. Iris*, *C. Hyale*, &c.—indeed, this appears to have been a wonderful season for butterflies. This district, however, is not rich in *Diurni*, and we have nothing to boast of in that respect, but my friend Mr. Wm Lello had the good fortune to meet with a fine specimen of *C. Edusa*, var. *Helice*, on the Sandhills at Wallasey on the 14th August; this specimen is smaller, and not as dark as those taken in the south. It is very extraordinary that it should have occurred here, since the typical *Edusa* is hardly ever met with in this locality, and has not been seen this year.

On the same day I obtained, by "raking" a sand bank, a wonderful variety of *. cardui*, a description of which I hope to give in the next number.

In this district sugaring was not of much use during the summer months, on account of the wind being generally unfavourable—indeed, we have not had a single favourable evening since the end of August. The ragwort flowers, usually such a fine bait, seemed to have lost their attractiveness, perhaps through the excessive drought.

I have taken several pretty good insects in this district this season, among which I may mention *E. unifasciata* (1), *E. dolobraria* (1), *A. subsericeata*, *Eup. subfulvata*, *E. fasciaria*, *C. xerampelina* (3), *T. subtusa*, and I have supplied my friends with our noted local insects, such as *B. trifolii*, *M. albicolon*, *L. litoralis*, *. corticea*, *E. lichenea*, &c.

Of *S. saccharia*, which I had hoped to take this season, I did not see a single specimen, but my friend, Mr. C. S. Gregson, took a fine one at Wallasey towards the end of July.

My best "take" this season has been a specimen of that great rarity *Catocala flavescens*—unfortunately it is in a very dilapidated state. I took it at sugar in Eastwood Wood on the 12th inst., and so little did I expect such an insect on that evening, that when I saw it at a distance I made sure it was a bat, as I had seen several flying about at twilight, and I knew these little animals sometimes indulged in the sweet intoxicant so attractive to their prey, the moth.

The same evening Mr. Lello, who was with me, took a fine specimen of *X. gilvago*, a species which has not hitherto been captured in this locality. I dare say we should have been more successful had the wind not been N.E.—E. L. RAGONOT, 30, Conway Street, Birkenhead, September 18th.

Note on the ovipositing of Pamphila Sylvanus.—As I was resting awhile on the Warren, last July, with a perfect shower of butterflies round me, I had a good opportunity of watching a ♀ *P. Sylvanus* deposit her eggs. She flew from one stem of grass to another several times, as if she were rather particular in her selection, and, having found a suitable one, she slid gently down it. The movement was so easily and so quickly done, that I could scarcely see whether it was performed by means of the legs or the wings, but I rather think the former. When she was gone I opened the sheath formed by the leaf round the stem, and found therein about thirty small white eggs deposited in a line.—HENRY ULLYETT, Folkestone.

Deilephila lineata at Newport, I. W.—On August 11th I caught a specimen of *Deilephila lineata*, rather faded, hovering over a bed of geraniums in the twi-

light; and on the 15th I caught another specimen, very much larger, and of more brilliant colours. Surely it is very uncommon to take two specimens of so rare an insect at so short an interval? From the fact of having also seen lately two specimens of *Sphinx convolvuli*, and a great abundance of *stellatarum*, I hope to see some more Hawk-Moth rarities before the season is over.—E. H. MOBERLY, Brixton, Newport, Isle of Wight, 19th August, 1868.

Deilephila lineata in Derbyshire.—Referring to my note in last month's number, a second Derbyshire specimen of *D. lineata*, taken by Mr. Wood (a gentleman's butler) near Burton-on-Trent, two years ago, has been given to me.—HENRY EVANS, Darley Abbey, Derby, September 2nd, 1868.

Abundance of Colias Hyale in 1868.—Among the notices of *Lepidoptera* in the September No. of the Entomologist's Magazine, I observe more than one on the capture of *Colias Hyale* in some abundance at Colchester, Gravesend, and near Ramsgate. As it will probably be found that this species has been unusually abundant in many other localities, I think it may prove scientifically useful if all such appearances are recorded. I therefore add that a week ago I observed *C. Hyale* in great numbers near Cromer, in Norfolk. I could have captured dozens, but only took an example to convince my friends that I was not mistaken in the species. All that I saw were in fields bordering the cliffs to the west of Cromer. I did not observe one on the eastern cliffs. I may add that *Pyrameis cardui* was to be seen in every locality within six or eight miles of Cromer; in fact it was the most abundant butterfly at that time on the wing.—FREDERICK SMITH, British Museum, 1st September, 1868.

Colias Hyale and *Sphinx convolvuli* at Haslemere.—*Hyale* has appeared here; I have taken a lovely set, but it is not numerous. *Sphinx convolvuli* has also been found.—C. S. BARETT, Haslemere, 22nd August, 1868.

Heliothis peltigera at Exeter.—*H. peltigera* has again occurred here this season, but only one or two specimens have been captured.—J. HELLINS, Exeter.

Capture of A. Atropos on the wing.—A friend of mine, Mr. Basil P. Fielding, came to me this morning to show me a moth which had entered at the window of a brightly lighted room near Reigate, last night. The specimen, successfully preserved in a bottle, where, I must say, it looked anything but comfortable, proved on examination to be a fine *A. Atropos*. Misgivings evidently possessed my friend's mind as to the next step to be taken in dealing with his unwieldy capture, and he frankly offered to entrust me with the task of its destruction. Scarcely had I touched it with the solution of oxalic acid when the loud squeak, which sounded very like a remonstrance, became audible: and the strange sound was continued with unusual distinctness until the powerful poison had done its work.—J. B. BLACKBURN, Grassmeade, Wandsworth, 7th September, 1868.

Occurrence of Argynnis Lathonia at Folkestone.—On the 7th inst. I had the good fortune to capture a large female of this species in the Warren here.—W. PURDEY, Folkestone, Sept. 14th, 1868.

Another capture of *Argynnis Lathonia* at Colchester.—Since I last wrote I have had the pleasure of taking another beautiful specimen of *A. Lathonia*, and have also taken one with *Spilodes sticticalis*, and a few pupæ of *Cymatophora ocularis*.—W. H. HARDY, St. Peter's, Colchester, 16th September, 1868.

Abnormal brood of *E. russula*.—Some of the larvæ from a batch of eggs of this species, sent to me in the third week of last June, fed up with marvellous rapidity. Many of them assumed the pupal state early in August, and the first imago emerged on the 15th of that month. This species usually passes the winter in the form of a small larva, and feeds up in the next spring.—Mrs. HUTCHINSON, Grantsdon, Leominster, September, 1868.

Occurrence of *Euperia fulvago* in Scotland.—About the end of last July I found a specimen of this handsome moth on the flowers of *Erica tetralix*; and subsequently, by working hard, took a few more on the flowers of the same plant and of *Calluna vulgaris*. Two specimens also came to "sugar." This species, which seems to be very local in England, is, I believe, unrecorded hitherto as Scottish.—BUCHANAN WHITE, M.D., Achilty, Rosshire, September, 1868.

New locality for *Scoparia angustea*, Steph.; &c.—During the past week I have taken one with this species at Folkestone, where it appeared to be by no means uncommon; but, believing the locality to be new, think the occurrence should be recorded. I may mention that I also found several larvæ of *Sericoris euphorbiana* in the closed buds of *Euphorbia amygdaloides*, and that a female *Galleria mellonella* made its appearance in the house.—HOWARD VAUGHAN, Kentish Town, 11th September, 1868.

Cerostoma scabrella near Croydon.—During a short stay at Croydon, last July, I was lucky enough to meet with three specimens of *Cerostoma scabrella*, on an old wall in the vicinity of Croham Hurst.—JAMES L. COURTICE, Camden Town, N.W., September 3rd.

Occurrence of a *Scoparia* (*Sc. Zelleri*, Wocke) new to Britain.—One evening in my dining-room, my friend Mr. Horton captured here, in my dining-room, a fine example of a *Scoparia*, as large as, or even larger than, *Sc. cembrae*, but grey in tint, like *Sc. bigualis*. Dr. Knaggs informs me that it is identical with specimens in his possession received from Dr. Staudinger, under the above name.—GEORGE J. HARDY, Joint Counties' Asylum, Carmarthen, August 27th.

Scoparia Zelleri at Norwood.—A second example of this species was left with me for determination some time since. It was taken at Norwood by Mr. Pryor, who will perhaps, when this meets his eye, favour us with an account of its capture.—E. GUARD KNAGGS, September 18th, 1868.

The larva of *Abraxas grossulariata* distasteful to frogs.—At a recent meeting of the Entomological Society, when the question of the distasteful nature of certain insects and their larvæ was being discussed, I mentioned that three individuals of the green lizard formerly in my possession had always shown a particular aversion to certain caterpillars. Amongst those invariably rejected I especially noticed *A. grossulariata*; this, too, seemed particularly strange, inasmuch as they never refused to devour the perfect insect of the same species.

Yesterday I had the pleasure of observing the same fact in the case of two frogs which I now keep in my old lizard-house to destroy slugs, woodlice, spiders &c.,—all of which they swallow with the greatest avidity.

When they first became aware of the introduction of the caterpillars of *grossulariata*, they seemed greatly excited, sprung forwards, and licked them eagerly into their mouths; no sooner, however, had they done so, than they seemed to become aware of the mistake that they had made, and sat with gaping mouths rolling their tongues about, until they had got quit of the nauseous morsels, which seemed perfectly uninjured, and walked off as briskly as ever.

After this, it was useless to attempt to persuade the frogs to touch one of these caterpillars.—ARTHUR G. BUTLER, British Museum, *May 18th*, 1868.

P.S.—Since writing the above I have tried other larvæ from gooseberry, with exactly the same result; such as those of the gooseberry saw-fly, and of *Hali vauarica*. May it not be possible that the plant transmits some peculiar acid to the larvæ which feed upon it, such as to cause their rejection as food by small reptiles &c. ?—A. G. B., *3rd July*, 1868.

Notes on gall insects.—There exists in the library of the Museum at Basle an octavo volume, presented in 1854 by Professor Wackermagel, which contains a nicely-arranged series of insect productions, such as mines, galls, distorted shoots, cut leaves, &c., of various Swiss plants. Years ago it was my great delight to study the numerous biological lessons of this volume, but time and change of residence had almost obliterated my recollection of its contents, until, on a recent visit, my attention was recalled to it through the courtesy of Professor Peter Herian. Acting on the maxim that "*repetitio mater studiorum est*," I perused it carefully. Memoranda made on the spot and specimens compared since my return to England, enable me now to add another link to the solution of two of the queries I advanced in the May No. of the "*Zoologist*" (p. 1201). I there called attention to tubular galls on the upper-side of beech leaves (West Wickham) covered with reddish pubescence, &c. These will have to be referred to *Cecidomyia annulipes* Hartig, or to a closely allied species. Mention was also made (*Zool.*, p. 1201) of discoloured and rolled leaflets of the common Bracken (Allonby, Cumberland), which I can now ascribe to a *Haltica*.

It rests with successful breeders to verify these surmises.

In the same volume, my eye was struck by a leaf of *Quercus pedunculata* bearing on its upper surface numerous spangles of *Neuroterus Malpighii*, Hartig. This display of instinct at fault is of rare occurrence with the insect named, so far as I know, but I shall be glad to hear what other observers have to say. My other memoranda must be left for some future time, but a thought suggested by the handling of the said collection, in which Bremi's name occurs in almost every page may fitly close this notice.

It is to be hoped that the valuable legacy of unpublished biological essays by this naturalist, preserved in another Swiss library, at Zurich, will soon be made accessible, in some way or other, to the entomological public. No one can look over the list of these papers in Dr. Hagen's laborious "*Bibliotheca Entomologica*" without forming some such expectation. When will it be realized?—ALBERT MÜLLER, Penge, S.E., *August 11th*, 1868.

DESCRIPTION OF A NEW SPECIES OF *THYAMIS*.

BY E. C. RYE.

Amongst a series of most of the then known British *Halticidæ*, sent November, 1863, by Mr. G. R. Waterhouse to Herr Kutschera ofenna (and recently returned with certain remarks, of which a notice in the pen of the former gentleman will appear in our next Number), is an example of a large species of *Thyamis*, taken, as far as I am aware, only by myself,*—which Herr Kutschera considers to be distinct and undescribed. I, accordingly, characterize it as follows:—

THYAMIS AGILIS, n. s.

Alata, ovata, convexa, nitida; luridè testacea, oculis nigris, subtus picea, antennarum femorumque posticorum latè apicibus piceis; thorace evidenter punctulato; elytris confusè, sat fortiter, minus confertim punctatis, humeris vix prominulis, apice singulatim sub-rotundatis; tibiis posticis calcari brevissimo, crassiusculo, instructis.

Var. capite elytrorumque suturá vel rufescentibus vel picescentibus, tibiarum tursorumque apicibus picescentibus.

Long. corp. 1½—1⅓ lin. (Anglic.).

I captured about a dozen specimens of this conspicuous insect in September, 1863, by sweeping in Headley Lane, Mickleham; but have subsequently only found one other example, in the same place.

It is about the size of *T. jacobææ*, Waterhouse (*tabida*, Auct.), which, however, it exceeds in comparative width; but it is most closely allied to *T. tabida*, Fab., Waterh. (*verbasci*, Auct.), which it resembles very much in appearance and structure. Compared with that insect, it is considerably smaller, the largest example of it being rather less than the smallest *verbasci*; its colour is not so light; its thorax is more densely and its elytra more strongly and less closely punctured; the second and third joints of its antennæ are equal in length, instead of the third being rather longer than the second; and the spur terminating the posterior tibiæ is very much shorter and scarcely perceptibly curved.

The smallest examples, which are about equivalent in size to large specimens of *T. melanocephala*, may readily be known from that species by their less defined colouration, wider and less acuminate elytra—which are more shining, owing to their wider punctuation—stouter antennæ, light posterior tibiæ, &c.

The testaceous *Halticidæ* are so liable to get discoloured after death, that it is extremely difficult to define their exact tints. The lightest in colour of my specimens has the five apical joints of the an-

* Dr. Power appears to have two very old specimens of this insect in his collection, taken at "Gog, Cambridge. One of my Mickleham examples, given to him by me, has been sent by him to M. Ford, who has returned it as *verbasci*, var., having apparently failed to perceive the structural differences between the two insects.—E. C. R.

tennæ and the upper apical portion of the posterior femora pitchy-black, and the suture very slightly rufescent; whilst in the darkest, the antennæ, head, posterior femora almost entirely and anterior and middle femora slightly, apex of all the tibiæ and tarsi, and the suture (especially behind), are pitchy. This darkness, however, I suspect must principally be attributed to a mere suffusion of fluids in drying after death.

7, Park Field, Putney, S.W.: 14th October, 1868.

ON THE ABUNDANCE OF CERTAIN INSECTS IN CERTAIN YEARS.

BY B. C. R. JORDAN, M.D.

It was formerly a favourite hypothesis with me that either the eggs or pupæ of some insects lay dormant until a favourable season for their development; but I am growing more and more weaned from this idea yearly. I do not wish to deny that the pupæ of *Eriogaster lanestris* for example, may pass over a year when February and March are unusually bleak, but this latent state is not the reason for the periodic abundance of certain insects. Every moth lays a vast number of eggs and generally the greater number of these perish before arriving at maturity, the usual time for such destruction is probably the very young stage of larval life, and a heavy rain about that period may cause great mortality; in some years all circumstances prove favourable, and the usually rare insect becomes abundant. Some lepidopterous insects are peculiarly subject to this periodic plenty, such as *Colias Hyale* and *Edusa* (both I believe always abundant on the continent), *Sphinx convolvuli*, *Agrotis saucia*, insects of the genus *Heliothis*, and many others. These remarks have occurred to me "in populous city pent," and with too much work to touch entomology for the season, from the unusual abundance of two insects in the streets of this town. They have been *Chrysopa perla* and *Coccinella septempunctata*. Of the former I counted more than twenty on each of two consecutive lamps one night, and every other lamp seemed to have an equal number; as for the latter they have been so plentiful that I have seen children of ten collecting them from the walls in little baskets and paper bags. Now it is well known that the larvæ of these two insects are subject to very similar conditions as far as regards the general "struggle for existence," widely different as the perfect states may be. These few remarks are given in the hope that some interesting observations may be drawn out from entomologists as to their experiences during the very peculiar and almost tropical summer through which we have just passed. *Syrphid pyrastris* has been only a little more plentiful than usual.

35, Harborne Road, Birmingham: Sept. 12th, 1868.

LIST OF CAPTURES OF *HEMIPTERA* IN PALESTINE AND SYRIA;
TOGETHER WITH DESCRIPTIONS OF SEVERAL NEW SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

(Concluded from page 118.)

FAMILY LYGIDÆ,

GENUS *CAMPTOBROCHIS*, Fieb.

37.—*CAMPTOBROCHIS SERENUS*, Doug. & Scott.

♀. *Cinereus, nitidus; capite ochraceo, linea media necnon margine postico stramineis. Antennis nigris articulis primo et secundo medio brunneis aut rufis; pronoto nigro, margine antica maculaque conjuncta pallide stramineis; scutello nigro, apice pallide stramineo; clavo griseo-brunneo, apice piceo-nigro; corio cinereo, postice fascia lata picea; cuneo apice late piceo-nigro; membrana pallida, nervis brunneis; pedibus rufobrunneis.*

Long. $1\frac{1}{2}$ lin.

♀. Greyish-white, shining, with remote black punctures, those on the pronotum deeper than those on the corium. *Thighs* not banded.

Head brownish-yellow. *Crown* with a pale yellow central streak, posterior margin pale yellow, widest in the centre. *Face*, central lobe with a pale yellow central streak. *Antennæ*, 1st joint red, base and apex narrowly pitchy-black; 2nd, 3rd, and 4th pitchy-black, 2nd with a broad brown band in the middle. *Eyes* pitchy-brown. *Rostrum* brownish-yellow, apex piceous.

Thorax—*pronotum* black, collar and a triangular spot behind it, separated by a narrow transverse black line, pale yellowish-white; lateral margins broadly brownish-grey, widest at the posterior margin, the latter narrowly pale yellow, disc convex, callosities not punctured. *Scutellum* raised above the clavus, black, convex, sparingly punctured in the centre, sides and a diamond shaped patch at the apex pale yellowish-white. *Elytra*, *clavus* pale brownish-grey, inner margin narrowly, as far as the scutellar angle, pitchy-black, from the latter to the apex a narrow triangular patch, pitchy-black. *Corium*, extreme anterior margin piceous, posteriorly with a broad piceous band, its posterior margin lunate, its anterior margin with a tooth in the middle, extending for some little distance along the centre of the disc. *Cuneus* punctured, apex broadly pitchy-black. *Membrane* pale, iridescent, cell nerves brown, at the apex broadly margined with brown interiorly. *Sternum*—*Prosternum* xyphus and inner margin pale yellowish-white, sides black, punctured. *Mesosternum* piceous, punctured exteriorly, margined with pale yellowish-white. *Metasternum* piceous. *Legs* reddish-brown. *Thighs* red-brown, paler towards and at the apex. *Tibiæ* yellowish; 1st pair, from the base a brown streak extends about half-way down their length, apex brown; 2nd pair, at the base with a brown streak on the outside, terminating in a half-band, apex brown; 3rd with a broad band in the middle and the apex brown. *Tarsi* and *claws* piceous.

Abdomen—underneath piceous, sparingly clothed with fine, depressed yellowish hairs.

Described from a single ♀ example taken near Baalbec in May.

FAMILY STIPHROSOMIDÆ.

Genus STIPHROSOMA, Fieb.

38.—STIPHROSOMA AMABILIS, Doug. & Scott.

♀. *Nigro rubroque varia, nitida, pilis brevibus, erectis, dense vestita; antennis piceis, articulo primo rubro, secundo stramineo apice nigro; capite, pronoto scutelloque rubris; elytrorum clavo nigro; corio nigro, marginibus antico rubro; cuneo rubro, apice piceo; sterno rubro, metasterni marginibus lateralibus nigris; pedibus rufis, tibiis stramineis basi rufis.*

Long. $2\frac{3}{4}$ lin.

♀. Black and red, shining, thickly clothed with short, erect, black hairs. The junctions of the corium and cuneus, and cuneus and membrane, deeply notched.

Head red. *Antennæ*—1st joint red, 2nd yellow, apical third black, 3rd and 4th piceous. *Eyes* black. *Rostrum* brownish-red, base slightly and apex piceous.

Thorax—*Pronotum* red, punctured, somewhat crenate—punctate towards and at the posterior margin, callosities separated by an >-shaped depression, deepest in the centre. *Scutellum* red, convex, raised above the clavus, wrinkled transversely. *Elytra* finely crenate—punctate longer than the abdomen, considerably deflected from the apex of the claval suture. *Clavus* convex, black. *Corium* black, anterior margin reflexed, red, broadest at the base. *Cuneus* red, rounded at the base, leaving a notch next the corium, extreme apex piceous. *Membrane* pitchy-black, cell nerves black, between the apex of the cuneus and the cell nerves a white vanishing streak. *Sternum* shining. *Pro* and *Mesosternum* red. *Metasternum* black on the sides. *Legs* red, clothed with longish, depressed, pale hairs. *Tibiæ* yellow, base reddish, at intervals with a few stoutish, black hairs. *Tarsi* piceous, 1st joint yellow. *Claws* black.

Abdomen—underneath black, shining, clothed with fine, erect, black hairs; last genital segment red. In certain lights the hairs have a yellowish appearance.

A single ♀ example taken at Hebron in April.

Section REDUVINA.

FAMILY EMESIDÆ.

Genus EMESA, Fab.

39.—EMESA DOHRNI, Doug. & Scott.

Supra flavescenti-brunnea, subtus fusco-brunnea; capite linea longitudinali fusca oculis interrupta ornata; antennis longis, pallide fuscis; pronoto linea media angustâ rufo-brunnea; elytris dilute ochraceis, abdomine dimidio paullo longioribus, nitidis, diaphanis, punctis atomisque fuscis, cellula

*icali sub-rhomboidali, fusco-marginata; pedibus testaceis, tibiis anticis
eis maculisque fuscis, necnon ante medium dente longo instructis.*

Long. 6 lin.

Linear, subcylindric, pale yellowish-brown.

caput—divided into two almost equal portions by a deep curved channel between the eyes; viewed from above the anterior portion has its sides parallel, the posterior portion somewhat arcuate and tapering towards the thorax, with a very narrow central line and a broader one on each side extending almost to the posterior margin; viewed from the side ovate, sub-rhomboidal, with a fuscous line throughout its entire length, interrupted by the eye. *Antennae* very long, filiform, pale fuscous. *Eyes* small but prominent, shining, deep pitchy-black.

thorax—*Pronotum*—anterior margin concave, produced on the sides, side margins constricted towards and at the collar; disc with a fine brownish-red central line extending over the collar. *Mesonotum*—sides divergent, with a distinct margin widest at the apex. *Scutellum* minute, basal angles rounded. *Elytra* a little more than one-half the length of the abdomen, nervures strong; base, anterior and interior margins as far as the nerve, pale yellowish and somewhat shagreened; disc whitish, almost diaphanous, shining, somewhat iridescent, with a row of fuscous spots next the inner marginal nerve, and one or two spots, parallel with the other row, nearer the middle of the disc; longitudinal nerves on the inside and the nerve at the apex enclosing a rhomboidal cell, margined on both sides with fuscous. *Sternum* yellowish-brown, more or less mottled with fuscous-brown. *Legs* pale yellowish-brown. *Thighs*—1st pair on the outside with large, irregular, fuscous-brown patches. *Tibiae* with irregular, diagonal, fuscous-brown streaks and spots more or less confluent, 1st pair on the under-side before the middle with a long tooth, and between it and the apex a double row of short teeth, with, at intervals of about every fifth tooth, a longer one, the short teeth entirely and the apex of the others black. *Tarsi* with a brown band at the apex. *Claw* reaches to the long tooth, apical half pitchy-brown. *Tarsi* of the 2nd and 3rd pairs at the apex and the claws piceous.

abdomen—above fuscous-yellow, with a narrow red central line and one down each side next the connexivum, between the central and side lines an interrupted fuscous line, penultimate segment slightly green; underneath fuscous-brown, clothed with minute yellow hairs, central line pale, *connexivum* margin pale brownish-yellow, base and apex of the segments, and five or six oblong spots of various sizes, placed at irregular intervals, fuscous-brown, at the junctions of the segments a small, round, shining, fuscous wart.

We have much pleasure in naming this insect after Dr. A. Dohrn, the author of the admirable monograph of the Family, which was published in the *Linnæa Entomologica*, vol. xiv.

The description has been drawn up from a single specimen, taken April amongst water weeds on the edge of the stream running from Isha's Fountain.

FAMILY REDUVIIDÆ.

Genus LOCHUS, Doug. & Scott.

Corpus ovatum, breve. Caput pronoti longitudine, medio latissimum, partibus ante-oculari et post-oculari æque longis, inter oculus linea profunda impressum, postice nodiformi, inter antennis tuberculis duobus minutis instructum. Antennæ articulo primo capite paullo breviori, basi lobo pendente instructo. Rostrum crassum, curvatum, inter coxas anticas extensum, articulo ultimo longissimo. Pronotum breve, transversum, longitudinaliter valde convexum, margine anteriori carinato. Scutellum breve, transversum, depressum, postice rotundatum. (Elytra brevissima: alæ nullæ). Pedes—femoribus anticis incrassatis, femoribus tibiisque posticis valde elongatis, tarsis omnibus curvatis, articulis primo et secundo brevissimis, ultimo valde elongato. Abdomen latum, ovatum, supra valde concavum, infra convexum, connexivo lato, margine serrato.

Head almost as long as the pronotum, hindwardly a little and gradually narrowed, but not produced into a neck, anteriorly the sides are sub-parallel, the widest part is across the eyes, which are equidistant from the base and front of the crown, between them a deep linear impression produced forwardly in the middle, posterior to which the crown is raised into a node. *Face* decumbent. *Antennæ* short, each set on a stout, obtuse tubercle; 1st joint stoutest, rather shorter than the crown, curved, scarcely clavate; 2nd a trifle longer than the 1st, 3rd and 4th filiform, the 2nd, 3rd, and 4th with fine, projecting hairs: from the base of the tubercle a swollen, free, lobe-like protuberance hangs over the sides of the face: between the antennæ two small tubercles. *Eyes* small but prominent. *Ocelli* posterior to the eyes, on each side of the basal node. *Rostrum* stout, curved, reaching to between the anterior coxæ; 1st and 2nd joints very short, 3rd longer than the 1st and 2nd together; 4th longest.

Thorax—*Pronotum* short, transverse, longitudinally very convex, anterior margine carinate. *Scutellum* short, transverse, flat, rounded behind, the margins slightly reflexed (*Elytra* rudimentary: *Wings* wanting). *Legs*—1st and 2nd pairs in length moderate, *thighs* (of the 1st pair especially) incrassated; 3rd pair, *thighs* and *tibiæ* thinner, both one-half longer than the 2nd pair; all the *tibiæ* with fine, short, projecting hairs: *tarsi*—1st and 2nd joints very short, 3rd nearly three times the length of the 1st and 2nd together.

Abdomen very broad, oval, above concave, but raised along the dorsal line; *connexivum* broad, the margin obtusely serrate; under-side convex.

43.—*LOCHUS SQUALIDUS*, Doug. & Scott.

Niger, impunctatus; nodo verticis et appendicibus antennarum brunneis; abdomine supra lividi-brunneo, lineis brevibus transversis angulisque costicis segmentorum connexivi late nigris. Long. $5\frac{1}{2}$ lin.

Black, except the abdomen, without punctures.

Head—the posterior node obscurely, and the lobes attached to the antennæ light brown.

Abdomen—above, livid testaceous-brown, on the posterior margin of each segment on each side of the raised middle a black spot, and two short black linear marks on each segment towards the *connexivum*; and on the latter the posterior outer angle of each segment has a large triangular black spot.

The whole insect is so thickly clothed with closely-adhering grains of sandy matter, which is extremely difficult to remove, that the colour and markings cannot be given more accurately than above. From its earthy investiture it may be presumed that this insect lies hidden in the soil waiting for its prey; and it is equally easy to believe that its long posterior legs enable it to spring upon its victims.

A single specimen (♀), only, taken on the plains of Jordan by sweeping low plants in April.

Lee, S.E., 1868.

Occurrence in Morayshire of an Elater new to the British lists.—In the beginning of June last I had the pleasure of capturing, on the banks of the Findhorn, Morayshire, two specimens of a *Cryptohypnus* which differed from any species of that genus with which I was acquainted. Knowing that Dr. Sharp possessed types of the European species, I sent these specimens to him for determination, and he informs me that they are, in his opinion, to be referred to *C. pulchellus*, Linn. though given as British by Stephens, in his Manual, that species does not seem to be in his, or in any other, indigenous collection, as it has been omitted from all the subsequently published Catalogues. Indeed, Stephens' description does not apply to the insect in question, which is about the size of *C. 4-pustulatus*, with its elytra not deeply punctate-striate with their interstices slightly raised, but deeply sulcate at the base, after the fashion of *C. sabulicola*, Thoms., recently recorded by Dr. Sharp in this Magazine.—R. HISLOP, Blair Bank, Falkirk, 15th October, 1868.

Note on the habits of Sinodendron cylindricum during oviposition, &c.—In former communications I mentioned an old ash-tree as destroyed by *Hylecinus crenatus*, and containing *Sinodendron cylindricum* in the rotten wood, both in the larval and

imago states. In March last I cut off from this tree all parts then harbouring the latter insect,—leaving, however, plenty of wood unattacked, and in this I have since been observing *Sinodendron* depositing its eggs. On May 23rd I found two burrows, easily detected by the heaps of frass outside, each containing a pair of the beetle,—which, as I left none in or about the tree, were, of course, bred elsewhere. The burrows entered the exposed rotten wood for a short distance at right angle with the surface, and then turned upwards along the fibres of the wood; they were three or four inches long, and wider in places, as if for “shunting.” In these and other burrows found afterwards, before any eggs were laid, the female beetle was always at the side of the burrow with her head at its extremity, as if continuing the excavation, and the male always had his head directed towards the opening and often close to it,—the remarkably flat front of his thorax nicely fitting the burrow, and with sawdust sticking to it, as if it were used for pushing out frass. It is not unlikely that the supposed shunting-places may have been eaten out by the male for nourishment. On the same day I found a solitary ♀, who had only burrowed her own length into the wood. I replaced her in an artificial burrow made with the knife (after examining burrows, I usually replaced the beetles in the way, but doubt not that my proceedings disturbed them very much). The next day there was a ♂ also in this burrow, and on the 25th I found this pair *in cop.* at the top of a burrow about three inches deep. On the 24th there was a burrow containing a solitary ♂, just as that of the 23rd contained a solitary ♀, and, by the next day, this burrow contained a pair of beetles, the ♀, as usual, furthest in. In opening the burrow I destroyed the ♂ of this pair, but on the 28th, two days after, there was another male in the burrow. On the 31st there was a ♀ only in this burrow, which I accidentally killed: no eggs had been laid.

On two other occasions I found burrows commenced by males only; but my proceedings so disturbed them that they were gone the next day. I believe the normal length of burrow to be four to six inches, but my opening them so often made some of them burrow twelve or eighteen inches. On June 11th I opened the burrow commenced May 23rd by the solitary ♀, and found the extremity of the burrow for about three-quarters of an inch tightly packed with frass or sawdust in which were four eggs. The ♂ beetle had backed close up against the extremity, and the ♀ was busily excavating a new branch of the burrow, which left the other just in front of the ♂. On June 23rd I opened another burrow, in which I found only a ♀, excavating a branch. In another was about three-quarters of an inch of tightly packed frass containing nine eggs; in a third, a smaller quantity of frass with one egg. Probably in both of these cases the ♀ was bringing sawdust from the new branch of the burrow to put into the one in which oviposition was going on. It appears that the galleries are always excavated by two beetles, and that they meet first after the burrow is commenced; but what seems somewhat remarkable to me is, that the burrow is commenced indifferently by either the ♂ or ♀ beetle. The ♂ usually, I suspect, when undisturbed, remains until oviposition is well advanced.

In a rotten ash-log, just attacked by *Sinodendron*, I have subsequently found several burrows which enable me to supplement my observations. One of these burrows was a very fine one, about six inches long, besides branches packed with eggs, of which I was able to examine two carefully. These branches were each

about two inches in length, the upper one containing at least twenty eggs, laid with great regularity in spiral lines round the sides of the chamber, each against a slight depression in the rotten wall, about one-eighth of an inch from its neighbour, and carefully packed round with frass. The centre of this branch contained only frass, and no eggs, and its entrance from the main burrow was packed with frass for about three-sixteenths of an inch, as a plug or stopper. The lower branch contained twenty or thirty larvæ, which had been hatched for several days, and had commenced to bore into the wood: they had not at all disturbed their bed of frass. The ♀ beetle, still alive, occupied the main burrow, but the ♂ was not to be found.

Sinodendron evidently only attacks wood that is really rotten. I have found it boring into poplar and beech, as well as ash.

The eggs are white and opaque, ovoid in form, one-twelfth of an inch in length, and one-twentieth in diameter.—T. ALGERNON CHAPMAN, Abergavenny, July, 1868.

Dytiscus lapponicus in Ireland.—I have pleasure in recording the capture, for the first time, of *Dytiscus lapponicus* in the "Emerald Isle." During last August I spent several days in the "Wilds of Donegal," where a combination of scenery, on the one hand of the wildest grandeur, and on the other of the bleakest desolation, may be found, perhaps unmatched in the three kingdoms. The possibility of finding a slug (not a *Limax*) in one's hat seems very much to have prevented tourists and even naturalists from visiting its romantic cliffs. After a drought of three months I was not surprised to find insects of all kinds scarce. There is no part of country which is so much injured entomologically by long want of rain as treeless moorland and mountain-side. The very peat-holes, the loved abode of *Hydropori*, were dried up. During my visit, however, the weather broke, and, oh! such rain!

The loughs and tarns of Donegal are innumerable, but nearly all are so stocked with trout, that beetles have a hard lot. Having searched several tarns without success, I ceased to expect anything; but happening to pass a small one from which no stream seemed to issue, I gave a passing look (having no net at the time) for any signs of entomological life. My surprise was great when, at the first glance, a *Dytiscus* came paddling towards me, and was at once recognised as *lapponicus*. He was speedily secured with the hand (for he was quite unsophisticated), and a regular hunt commenced. I was rewarded ere long with a good number.

Next day, through a perfect "tempest torrent whirlwind" of the elements, I returned with my net, and, amidst the solitude broken only by the hiss of the wind along the mountain side, the rattle of the rain-drops on the surface of the water, and the roar of the Atlantic on the cliffs below, I spent several hours hunting, being up to the knees in water. Success, however, sweetened all disagreeables.

I was much struck by the very close resemblance between the appearance of *D. lapponicus*, while at rest at the bottom, and the half-withered leaves of *Potamogeton natans*. The yellow striæ on the elytra of the freshly emerged males almost exactly mimic the venation of the leaf. Doubtless this has frequently saved them from the attack of herons and gulls.

As I once before noticed (Ent. Monthly Mag., March, 1868), the females were very much less numerous than the males, being in the proportion of 1 to 5. The only other beetles I observed in the tarn were *Acilius sulcatus*, *Gyrinus natator* and *D. minutus*: the last was very abundant.

In one of the neighbouring peat-holes, further up the mountain, I was astonished at finding *Dytiscus marginalis*, which, beside his boreal brother, looked gigantic. Along with him were several of the common *Agabi* and *Hydroperi*.

On the slopes of the same hill I took *Tarus vaporariorum*, *Synuchus nivalis*, *Trechus obtusus*, *Calathus micropterus*, and *Otiorrhynchus monticola*; the last mentioned, along with *Olisthopus rotundatus*, occurs on the very summit of high hills and also on the sea-shore. I suppose we must account for this in the same way as for the similar occurrence of *Armeria maritima* and *Silene maritima*.

I may perhaps mention, for the benefit of those of other tastes, that the attractions of Donegal are multifarious. Of ferns, *Osmunda regalis* is a common one, growing in great luxuriance, sometimes in clumps 20 feet in circumference and 5 or 6 feet high. In the sea caves the fronds of *Asplenium marinum* attain the extraordinary length of 2 feet, and show some fine varieties. The rocks of mountain limestone are literally packed full of fossils; while round the cliffs the chough, with its glossy black wing and red bill and feet, flies in flights, with an occasional sea-eagle, peregrine, and raven.—J. E. SOMERVILLE, 11, South Park Terrace, Glasgow.

Deleaster dichrous in Scotland.—I took a specimen of this insect in the beginning of June, flying at the entrance to the West-End Park of our city. This is rather a northern locality for it, though it has been recorded before in Scotland, I believe.—ID.

Occurrence of Apion cerdo near Newcastle-on-Tyne.—This fine *Apion* has been taken sparingly in three widely separated localities in this district. I have, in my collection, specimens from Gibside, Gosforth, and Bothall, all taken on *Vicia cracca* in July. These examples were taken many years ago, and I have often swept up the same insect since, but, looking upon it as merely *A. craccæ*, it was generally allowed to escape. I have also noticed it to occur about Lanercost, in East Cumberland.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, October 7th, 1868.

Occurrence in Yorkshire of Phalacrus substriatus.—During the last week in July and the first week in August last, I met with this somewhat local beetle on one of our moor bogs, in some abundance, frequenting the flowers of the common Bog Asphodel, *Narthecium ossifragum*. Though widely distributed and abundant when it does occur, the insect seems by no means generally common.—T. WILKINSON, 6, Cliff Bridge Terrace, Scarborough, September 14th, 1868.

Occurrence of Pseudopsis sulcatus at Scarborough.—My friend, Mr. Lawson, and I took a fine series of this interesting species, by sifting the refuse at the bottom of haystacks, in the months of January, February, and March last. It is a most wretched creature to detect; as it lies so long on the sifting-sheet before it will move. We found it in various localities in the neighbourhood.—ID.

Capture of Sigara minutissima, Fab.—It may be interesting to some of the readers of the Entomologist's Monthly Magazine to know that this somewhat local species has turned up here in some plenty, towards the end of June and the beginning of July, in Scalby Beck, amongst *Confervæ*. The only recorded localities that I know of, for it, are by Mr. G. R. Crotch, in the Cambridge Fens.—ID.

Capture of Atomaria ferruginea and A. fimetarii in Yorkshire.—During the month of May, 1867, I captured a fine series of *A. ferruginea*, by shaking moss at the roots of ash-trees, in a very damp part of one of our woods. I had the satisfaction of not finding it the other day in the same place, in some plenty. There are no nests, either in the trees or in the ground, near where I found the *Atomaria*. In the same neighbourhood, in May, 1867, I had the good fortune to take a fine example of *Atomaria fimetarii*.—ID.

Occurrence of Potaminus substriatus near Scarborough.—I have taken this very interesting and local species in Scalby Beck, scantily, from January last up to the present time, amongst moss growing on a timber waterfall, also on submerged trunks of wood, accompanied by *Elmis Volkmani*, *parallelipedus*, and *æneus*, and *Crana pulchella*.—ROBERT LAWSON, 58, St. Thomas Street, Scarborough, October 10, 1868.

Query respecting Bedeguar galls.—There being reasons for supposing that other roses (especially cultivated varieties) besides the dog-rose, sweetbriar, and *Rosa rosissima*, are infested with "Bedeguars" in this country, any information or authenticated specimens, throwing light on this subject, would be very acceptable to me. I particularly wish to ascertain if grafts of the moss-rose have ever been found thus diseased.—ALBERT MÜLLER, 2, Camden Villas, Penge, S.E., October 10, 1868.

[With reference to this query I may remark, that I believe to have seen the gall on *Rosa arvensis*, but am not quite certain. In observations on "standard" roses, it would be noted whether the galls are on the head of the plant, above the point of "budding," or on shoots or "runners" from the root or base of the stem.—MCLACHLAN.]

Enoicyla pusilla, the terrestrial Trichopterous insect, bred in England.—At page 10 of the present volume I noticed the finding by Mr. J. E. Fletcher, of Worcester, of the larvæ and cases of a terrestrial caddis-fly, which were probably those of *Enoicyla pusilla*, Burm. Both sexes of that insect have now been bred by Mr. Fletcher from these larvæ. He found about 200 cases, and remarks that the larva feeds on mosses and lichens at the lower part of the trunks of trees growing in damp situations. When it ceases feeding, it stops up both ends of its case and burrows into the soil or moss, if the earth is not suitable, but only to a slight depth. Some pupæ appeared early in October, though at that time some of the larvæ had not yet pupated. This insect is the most important addition to our Trichopterous fauna that has yet been made. Through the kindness of its discoverer I have received a living example of both sexes; the female (*Dromophila montana*, Heyden) has the merest rudiments of wings, and a stoutly developed abdomen, looking something like certain Coleopterous larvæ (e.g., *Crioceris*), but with long prorected antennæ. The larva has no external respiratory filaments.—R. MCLACHLAN, Lewisham, 14th October, 1868.

Note on Agrypnia picta, Kolenati.—In noticing my capture of *Agrypnia picta* (M. Mag., Oct., p. 125), Mr. McLachlan has made a slight error. He says I

took the insect "in August," but it should be "in June." Mr. McLachlan would appear to think that it must have come from a distance, but there is plenty of water about Highgate—the seven large ponds communicating with each other, for instance, besides other pools, with reeds, rushes, &c., growing in them.—H. PRYOR.

Dipterous larvæ voided by the human subject.—The enclosed larva was sent me from Gloucester to be named; can you assist me? It was taken from between the bed-sheets of an old imbecile patient who was very dirty in his habits. During its life it was of a faint cream-colour, with a black spot on the head. It was very active.—G. J. HEARDER, Joint Counties Asylum, Carmarthen, Aug. 27th, 1868.

[This larva is evidently Dipterous, and Professor Westwood, to whom it was submitted, says it is that of an *Anthomyia* (*Muscidæ*), and was no doubt voided from the intestines of the patient. Similar instances are recorded in his "Introduction," vol. ii., p. 571, and a table of the numerous records of like occurrence may be found in a paper by the Rev. F. W. Hope, in the Transactions of the Entomological Society of London, ser. 1, vol. ii., pp. 266-268, in which the fanciful term "Myiasis" is used to denote the supposed disease occasioned by Dipterous larvae in man. Their presence is no doubt due to depraved and vicious appetite. They live naturally in animal excrement, decayed vegetable matters, &c.—EDS.]

On the Natural History of Acronycta alni.—On Monday evening, July 20th, I was looking over some standard roses growing upon a bank on one side of the drive in front of this house, when I noticed upon a leaf what appeared to be a recent deposit of the same nature as that, which proved so injurious to Tobit's eyesight. A nearer inspection, however, resolved it into a nondescript Lepidopterous larva, half doubled round upon itself, and resting upon a slight silken pad. I will endeavour to describe it. Its length was about 10 lines: head small, dark brown, somewhat deeply notched above: body rather slender, of uniform thickness: colour dark dirty brown, gradually paler towards the belly, except the last three segments which were white, with the ground colour faintly showing through: upon each segment were conspicuous black warts, small but conspicuously raised, bearing short slender brown bristles of the ordinary type, except those on the post-capitulum segment, which were slightly clubbed. Legs sixteen. Whole body very glossy, appearing as if varnished.

I confess that I was quite at fault, and unable to "put a name on" this creature (as they say in the Isle of Man), even after consulting every available book; and I must regret that I did not at the moment indite a more minute description of this—the early stage, which seems to be little known, of a famous caterpillar, for before morning it had effected a wondrous transformation indeed, and appeared as a full-blown and unmistakeable larva of *A. alni*.

Its sombre garb doffed, and in due course devoured, after the manner of its kind, my capture presented itself to my delighted eyes in black velvet suit, broad slashed with gold, and bristling with those peculiar tags which are the distinguishing badge of *A. alni* in embryo. For food, it at once selected the leaves of the lime from the many submitted to its choice rejecting entirely those of the rose, upon which it was found, and of the Spanish chestnut, which was the nearest tree when

ould have fallen. There was no lime tree, I may observe, within twenty yards the spot. It fed well, and thrived accordingly, till the 27th, on which day, having previously ascertained that its features were still a desideratum in Mr. Bekler's (Lepidoptero-) ancestral portrait gallery, I dispatched it per post to that gentleman to sit—or rather recline—for its likeness. I enclosed in its travelling trousseau a piece of dead bramble-stick for its edification, if constructively inclined, *en route*. Of this it appeared to have availed itself without loss of time, for Mr. Bekler writes me word that, on its arrival at Emsworth next day, it had half-dug itself therein, and was hard at work throwing out the dust of its excavation. With some difficulty it was safely withdrawn from its "Adullamite" habitation in the cave," and duly depicted. Again at liberty, after a slight refectation to recruit its strength, it speedily returned to its engineering, which it prosecuted so vigorously, that it soon emerged at the other end of its tunnel, and turned a helpless pupa after all upon the debris of its work on the 1st August.

P.S.—Thus far the individual *A. alni* in question; whose capture further set me searching to learn as much as I could of the history of this somewhat eccentric species. Perhaps a summary of the results, as gleaned from the pages of the *Entomologist*, *Intelligencer*, *Magazine*, and *Entomologist*, may interest some of your readers.

I find the capture of about 75 specimens recorded since 1844; of which 57 were taken in the larval and 15 in the perfect state,—the pupa having been met with only three times. The *earliest* recorded capture of the *larva* is by Mr. Hawley on July 27th, 1846 (*Zool.*, p. 1659), so that mine on the 20th of the same month must be regarded as exceptionally early,—one of the results of a precocious summer. Mr. Douglas, indeed (perhaps in error?) writes of it as occurring in the New Forest on oaks in *June* (*Zool.*, p. 3587). It has been met with at Sutton Park, near Birmingham, as late as September 10th, 1851 (*Zool.*, p. 3334). Mr. Kirby, of Wetherby, alone seems to have noticed the earlier stage which I have attempted to describe. He writes (*Entom.*, Sept., 1865, p. 287), "Whilst beating Bishop's Wood, near Selby, on the 27th of July, I had the good fortune to obtain one larva of *A. alni*, feeding on alder; it was changing its skin for the last time. I must confess I could not make it out until after the change, so totally unlike in colour, and also minus the clubbed hairs, with the exception of two very small ones on the second segment." The trees and bushes, from which the larva has been taken, and upon which it is said to have fed, have been oak, elm, alder, hawthorn, beech, lime, Spanish chestnut, horse-chestnut, sycamore, black alder, willow, and bramble; apparently showing a general preference for the four first named. It has also been picked up upon buckthorn, holly, dock, and ivy; upon gateposts, walls, palings, and, lastly, upon a gentleman's coat. At least a dozen seems to have chosen a death by starvation to the prison-fare offered.

Whimsical as appear to be its tastes in the matter of diet, its vagaries in entering upon the next stage of its existence are even more remarkable. In fact, it would seem to set about the work of *pupation* without any fixed rule or principle proceeding, at least in a state of captivity. Thus (premising that rotten wood is the formation of its cocoon seems generally to have been regarded by its captors

as a *sine qua non*) we find Mr. Hawley's capture, already referred to, gladly avail itself of the provision thus made for it; while Mr. Bedell's, on the contrary, declining the sapid material, devoted its constructive energies to dead leaves (Zool. p. 1140). Another of Mr. Hawley's retired into the earth (Zool., p. 1228). Others, four, taken near York, 1856—1858, all turned pupæ, in Mr. Anderson's words, "or under the earth without the least appearance of a cocoon" (Zool., p. 6284). The bark wigwag was the selected resting-place of one which fell to Mr. Barrett's (Ent. Mo. Mag., iii., p. 37). So much for its metamorphic efforts in captivity. Or its *natural* doings we have, fortunately, one record to guide us in spelling out its true history. Mr. H. Moore was the lucky observer. "Going along a sarsen lane here (Albury, Surrey) on September 1st (writes that gentleman), I observed what appeared to be sawdust sprinkled on some bramble-leaves. I thought it probably the work of a larva, and so looked for some stem whence it might have fallen. I now found an old dead bramble-stick, one end of which was hollow. I split this down about a couple of inches, and disclosed a full-fed larva of *Acronycta alni*. On looking at it two or three days later I found it had changed. The pupa is of a rich deep chestnut colour, and is head uppermost in the stem. There is no appearance of silk or cocoon, and the thin layer of pith above the pupa is very slightly stuck together." (Zool., p. 8211.) The reason why my recent captives deserted its prickly abode was doubtless that suggested by Mr. Buckler, viz., that the stick provided was not long enough to satisfy its energies, and to afford it the complete concealment it desired. The three recorded finds of the pupa throw no further light upon the matter. One is stated to have been "off hawthorn" (Zool. p. 2883), whatever that may mean; the other two are without particulars.

Its appearance in the *imago* state seems to take place between the middle of May and the middle of June; May 22nd and June 23rd being the earliest and latest dates of its capture at large noted. All such captures appear to have been "at sugar." Once only do I find an autumnal emergence to have occurred. The larva, to which reference has been made as captured by Mr. Hawley on June 27th, spun up the next day in rotten bark, and emerged September 18th of the same year. One taken by the late Mr. Stone, and kept in a warm room, made its appearance February 22nd (Zool., p. 7972); and Mr. Pickard-Cambridge has brought it out on the 22nd of May in captivity.

In one state or other *Acronycta alni* has occurred in most of the southern and midland counties of England; but, apparently, not farther north than Lancashire and Yorkshire;—which last county, however, seems, singularly enough, to be the British metropolis of the species, since considerably more than a fourth of the recorded captures have been made within its limits. It has not been reported from Wales; and only a solitary specimen from Ireland.

This about exhausts all I have been able to learn of the natural history of this interesting species.—H. A. STOWELL, Breadsall Rectory, near Derby, *September 8th*, 1868.

Spilonota lariciana.—This insect is not rare amongst the larches on the Lick Hills near here, and has a black variety like its near neighbour. Is this a species or is it not rather like *Ditula angustiorana*, an example of an insect feeding

aceæ and Coniferæ alike? *Zelleria hepariella* seems, like this latter insect, to be common on the yew.—R. C. R. JORDAN, M.D., 35, Harborne Road, Birmingham, September 12th, 1868.

Acherontia Atropos at Margate.—Whilst staying at Margate the end of August, eight fine pupæ of this insect were brought to me by boys who had found them in potato fields there. We have been successful in breeding four splendid specimens; the fifth has no wings, and the remaining three pupæ are dead. They had very powerful voices, and we were once awoken in the night by their loud "creeking" the moment they came out.—H. RAMSAY COX, West Dulwich, 3rd October, 1868.

Small specimen of *Vanessa Atalanta*.—On the 7th September I captured here a very small specimen of this species. It is quite perfect in its markings, but is remarkably small, measuring only 1 inch and 8 lines.—JAMES DALLAS, Heworth, York, September 19th, 1868.

Grapta C-album in Devonshire.—I have much pleasure in recording the capture of *Grapta C-album* at Dartmouth. It is not included in Mr. J. J. Reading's catalogue of the *Lepidoptera* of Devon and Cornwall; but that gentleman remarks, page 23 of Part 1, that it is reputed to have occurred in the district; so it is very satisfactory to be able to add another butterfly to the fauna of the two counties. The insect in question was taken yesterday by my friend J. W. Peers, Esq., while he was regaling himself on some ivy blossom, in company with many brilliant *V. Atalanta*. Mr. Peers saw another, but was unable to catch it, as the ivy was growing on the top of an old ruin, and the greater part of it was out of reach. I should have gone to look for more to-day, but it has rained incessantly.—GERVASE MATHEW, H. M. S. "Britannia," Dartmouth, 6th October, 1868.

Captures of rare *Lepidoptera* in 1868.—The following is a list of species captured this season by myself and brother. Margate—*Argynnis Lathonia* (A. G. Boyd), September 7th; *Heliothis armigera* (ditto), end of August; *Argyrolepis sub-Baumaniana*, A. Dubrisana. Herne Bay—*Fupithecia subumbrata* (2). Cheshunt—*Deilephila lineata*, August 25th; *Acentropus niveus*; *Achroëa grisella*, by mothing; *Hypocrita vigintipunctella*, bred; *Depressaria capræolella* (15) February 28th to April 15th; *D. pastinacella*, at light; *Gelechia rhombella*, common on apple trees; *Phalaena decorella*, in thatch; *Phyllocnistis suffusella* and *saligna*; *Coleophora argentea*, bred; *Nepticula centifoliella*, bred.—W. C. BOYD, Cheshunt, October 15th.

Notes on Mr. Jenner Fust's "Distribution of British *Lepidoptera*."—On looking through Mr. Jenner Fust's paper on the "Distribution of *Lepidoptera* in Great Britain and Ireland," in the "Trans. Ent. Soc.," 3rd ser., vol. 4, I observed that a number of species which occur in Worcestershire are not indicated as occurring in this county, and some of which are indicated with a mark of doubt, and one which is said to rest on the authority of one authority. These species I give as follow:—

L. lurideola (*complanula*), common; *A. interjectaria*, not rare; *A. inornata*, have taken four; *E. consignata*, one; *E. linariata*, two; *E. dondonæata*, three or four; *S. vetulata*, two; *X. sublustris*, one; *N. saponariæ*, two; *C. morpheus*, common; *C. alsines*, attracted to light in three localities—in one plentiful; *A. aquilina* common at flowers, especially *Centranthus macrosiphon*; *A. porphyrea*, one at light; *E. fulvago*, one; *C. pyralina*, one at light; *P. cæspitalis*, one.—J. E. FLETCHER Worcester, 12th August, 1868.

Abuses in nomenclature.—I write to call the attention of the readers of the Entomologist's Monthly Magazine to abuses of nomenclature, which are growing to such magnitude among both British and foreign Entomologists as to threaten soon to become of very serious inconvenience. I do not intend to quote many instances but I hope this protest may not be altogether useless.

In the first place it is very common, when a name is required for a new species or genus, to combine it out of that of an old one. Thus we have for prefixes, in both species and genera, *Hypo-*, *Pseudo-*, *Anti-*, *Epi-*, *Neo-*, *Hetero-*, and many others; and for affixes, *-oides*, *-ides*, *-ina*, *-ideus*, *-ella*, *-illa*, &c. I will give just one instance of the absurdity of this practice. In my Manual of European Butterflies, I adopted the MS. name of *Hypoxanthe* for a new *Chrysophanus*. The true *Xanthe*, by the revolutions of synonymy, had already changed its name, so that the new species had worse than a nonsense-name; it had a name that tended, if anything, to perpetuate error and confusion.

Another practice existing alongside with the other, and, if possible, likely to become more serious, is that of using the name of a genus as the specific name of a new species in another genus (often the next) which has some superficial resemblance to it. This custom, which is, I believe, much more prevalent abroad than at home, is most objectionable, for it is highly probable that in some instances at least, the supposed superficial resemblance may prove real, and the species may find itself in the genus whose name it already bears, necessitating that greatest of evils in nomenclature, a change of the name of a species.

Again, I wish to ask, is it allowable, when a careless author has founded innumerable bad genera which have been ignored by common consent for fifty years, to upset well-established genera combining several of his, to restore his obsolete names, merely because one of his types happens to fall into some good modern genus? I shall be glad to have the opinions of others on these points.—W. F. KIRBY, Dublin, August 25th.

Note having reference to hereditary variation.—Our friend Mr. Harrison sent me last year, some eggs of a *betularia* that had "selected" a black partner, and this spring I bred from them two black females and one black male, and five other very darkly mottled.—H. D'ORVILLE, Alphington, near Exeter.

Note on variation in Amphydasis betularia.—My friend, the late George Gibson received from Mr. Harrison of Manchester, through Dr. Knaggs, some eggs of *A. betularia* which were intended to produce an intermediate variety in the imagines. He fed the larvæ, I think, on birch, and at his death the pupæ were handed over to

The moths have lately emerged, and the result is, that for every specimen of the ordinary type five negroes have appeared, but not one of the intermediate variety. Perhaps you may think this worth a corner in your Magazine.—J. L. CURTICE, 22, College Street West, N.W.

Note on Scoparia Zelleri.—The specimen of *Scoparia Zelleri* mentioned by Dr. Knaggs in this month's "Entomologist's Monthly Magazine," p. 131, was captured by me in the station at Norwood junction, on the 17th August, last year (1867). My friend, Mr. Wormald, was with me at the time, and we were just returning from a rather unsuccessful expedition to West Wickham, the night being rather dark for the time of year, with an east or north-east wind blowing. We had only reached the station a minute or two, when we observed the insect flying near a lamp. Mr. Wormald had folded up his net, and I was about to do the same, when I effected the capture. On examining it some days after, we thought it could not be *Scoparia cembra*; so on the 27th of the same month we took it to Dr. Knaggs, and as he appeared uncertain about it I left it with him, he kindly offering to see if he could identify it with any described species. It has been in his possession ever since, and I suppose he must have overlooked the fact of his having had it so long, as he calls it a "second specimen."—H. PRYER, Holly Village, N.W.

Yama-Mai culture.—As many of your readers may have heard of, or experienced, considerable disappointment in the attempt to rear these useful creatures, perhaps a few words from one who has been more fortunate may not be devoid of interest.

I am indebted to my friend Mr. Gascoyne, of Newark, for fifty fine eggs, the produce of his own English-bred examples. They were nearly all fertile, hatching out young larvæ of such a size as to make it more than usually mysterious how their receptacle, large as it was, could contain them. The young worms were placed at once upon shrubs of the common oak (forced forward some six weeks in anticipation of their emergence), and were never subsequently touched. The little trees were in a large pedestal fernery of glass, between three and four feet in diameter and height, and with a perforated zinc window before and behind. They did pretty well until their first moult, when many died.

I had been cautioned to keep them *dry*; and, beyond an occasional watering carefully applied to the oaks at their roots, this advice was implicitly followed. At each succeeding moult many failed, until ten individuals alone comprised my whole stock. By this time their trees had been nearly bitten bald, but having a Turkey oak in the garden (then in tender green leaflets), pending the providing of a new pabulum, I gathered some bunches, and, saturating a sponge, tied it round their stems. Two circumstances struck me. First, they left what remained of their previous food, and attached themselves so entirely to their later, that the English oak took heart to bud out again, and even get into small leaves.

Next, I constantly observed them (big fellows now) drinking away at the sponge, like haymakers at their beer-keg! From that time I sprinkled their sponges occasionally; their succeeding moults were accomplished without the loss of a single specimen; with one exception, all the rest spun noble cocoons, and I had no further anxiety about them.

I therefore venture, under correction, to differ from those who counsel dryness, and suspect the losses sustained during their earlier changes to be owing to the want of a certain vigour occasional moisture might supply.

They gracefully swathe two or more oak-leaves round their silken tabernacle, which is suspended from above by a substantial ligature. The moth generally escapes by nine a.m., effecting its exit much in the manner of *Saturnia carpini*. The mechanism employed at the top of the cocoon with a view to easy liberation appears more simple than that of *carpini*, judging from the very large aperture which the mere internal pressure of the enclosed insect produces in a moment where no external signs of one was visible.

Surely a little practice might establish the worm in Ireland, and make it a source of considerable profit to a peasantry not inclined to severe manual labour.—EDWARD HOPLEY, 14, South Bank, Regent's Park, October 12th, 1868.

Hadena peregrina at Lewes.—A *Noctua*, which proves to be *H. peregrina*, was taken on the downs at the back of my house, by one of my school children.—MARTHA MEEK, Lewes, September, 1868.

Crambus rorellus at Folkestone.—At the end of May last, I was fortunate enough to capture a fine specimen of this rare species at the above locality.—E. G. MEEK, Old Ford, E., October, 1868.

Orthosia suspecta at West Wickham.—On July 15th of this year, I took, at sugar, a couple of specimens of *O. suspecta* in West Wickham Wood, in good condition and fresh. The same night I took *Acronycta ligustri*.—CHAS. T. CRUTTWELL.

Chærocampa Celerio at Huddersfield.—I beg to inform you that a specimen of *Chærocampa Celerio* was taken by a woman, in one of the streets of this town, on the 26th of last month.—GEO. T. PORRITT, Clare Hill, Huddersfield, 19th October, 1868.

Obituary notice of Dr. Ludwig Imhoff.—On Sunday, the 13th September, 1868, at about three o'clock in the afternoon, there died at Basle, Ludwig Imhoff, Dr. Med. et Phil., after a few weeks' illness, aged 67.

A contemporary of the gifted J. J. Hagenbach, the continuance of whose "Symbola faunæ Insectorum Helvetiæ" he undertook; a fellow-student and subsequent collaborator with Prof. L. Agassiz (Nomenclator Zoologicus, *Hymenoptera*), his name will for all time be connected with most of the Entomological undertakings in Switzerland for the past thirty years or so, as he belonged to that small but energetic band of naturalists who, between 1830-40, undertook to work out the different branches of the Swiss fauna, the *Orthoptera* and *Hymenoptera* being his chosen share. And if to this day we possess but fragments of his labours in these groups, the fault does not altogether lie with him. As regards his doings in other departments, the pages of the standard special works by Pictet, Hagen, Heer, and a host of other workers, afford ample evidence of his constant energy in collecting and observation; and his universal knowledge of general Entomology is well shown by his own works, "Die Insecten der Schweiz," "Gattungen der Rüsselkäfer," and "Schweizerische Käfergattungen," all fully illustrated by Labram.

As a comprehensive handbook, his "Versuch einer Einführung in das Studium Koleopteren" deserves also special mention; and a list of his smaller papers be found in Hagen's "Bibliotheca Entomologica."

Of late years, though always fully and diligently collecting all orders, Dr. Imhoff had devoted most of his time to the *Hymenoptera*, especially to the *Apidæ*, shown, for instance, by recent papers on Swiss *Andrenidæ*, etc., in the "Mitteilungen der Schweiz. Entom. Gesellschaft."

But to my own mind, leaving literary attainments and professional activity—both of which I am quite incompetent to speak—out of the question, the chief merit of Dr. Imhoff's scientific career seems to centre in the unwearied zeal he for many years brought to bear upon the discharge of his entomological lectureship at the Basle University.

The study of insects is not attractive to the many; the smallness of the objects attracts all superficial curiosity; there is to the outsider but little inducement to enter an arena where drudgery is the first prize: it is therefore not to be expected that every one, even of the few earnest students who annually clustered round his lectures, should become an entomologist, though several such instances did happen. Nevertheless, many have gathered a general acquaintance with the science there, and the fact remains, that the departed teacher voluntarily kept the flame of entomological lore burning steadily for a considerable period, and through good and evil report, besides attending uninterruptedly to the collections of insects in the Basle Museum.

If but few would answer as disciples to his call within the pale of the University, his influence in other scientific circles was all the greater; and there are few Swiss entomologists and collectors, alive or dead, of the present and past generation, who have not, at some time or other, derived both instruction and benefit from their intercourse with him. A certain undefined reserve, perhaps pure modesty, has however prevented Dr. Imhoff from communicating, himself, the results of his lifelong labours and ripe experience to the entomological world; but the initiated can only see where others have reaped the fruits of his toil.

Fully interested in the progress of natural science, as Dr. Imhoff was, he, as a matter of course, did study the tide of modern thought; and it speaks well for the independence of his mature judgment, and for the freshness of his mind to the present day, that although trained in the received belief of the immutability of species, he did not shut his ears to modern views, as held by Darwin and others; and, cautious though he was, he did go more than once so far as to observe to the contrary, that although quite unprepared to fall in with Darwin's notions, he yet did see why so much animosity should be imported into this discussion, considering that so many facts in nature seemed to militate in favour of the Englishman's views.

Finally, a word as to Dr. Imhoff's behaviour to beginners, as experienced years ago by the writer himself. Constant cheering-up, though in few words; an appreciation of every step forward; no proud looking down upon the opinion of others; a steady, gentle way of instruction by word and deed: such were the leading features of my late friend's teaching; and, only in June last, on an excursion to the Ursern Valley, this long established intercourse was again cemented by an old days' daily exchange of ideas.

To-day his family, his numerous private and scientific friends at home and abroad, mourn for the departed; and no doubt a full account of his active life will soon be in the hands of all who knew him in science; but, bearing thankfully in mind how much I owe him, and how many acts of unrecorded kindness on his part have fallen to my lot, I pay my sincere tribute to the respected memory of a man whom I shall ever be proud of referring to as having been my steady friend and first mentor in matters entomological.—ALBERT MÜLLER, Penge, S.E., *Sept.*, 1868.

Reviews.

THE CANADIAN ENTOMOLOGIST: Toronto; issued by the Entomological Society of Canada. 1868.

We have received a half-sheet (8 pages) forming the first part of this publication, which is to appear "not oftener than once a month, and only when there is a sufficiency of suitable matter." It is edited by the Rev. C. J. S. Bethune, Secretary and Treasurer of the Society, and, if conducted with spirit, should do much toward fostering a taste for Entomology in Canada. "Exchanges," of course, take a prominent place. Under this head two things will strike a British reader as curious: one correspondent asks for "any *Lycæna* excepting *phlæas*," reminding us of the excessive abundance of that species here this season, notwithstanding the prophecies in which the reviewer joined a few years since, of its gradual extinction; another demands *Pieris rapæ*, the newly-introduced Canadian; what would he think of the state of our cabbages at the present moment?

THE AMERICAN ENTOMOLOGIST: St. Louis, Missouri. Edited by B. D. WALSH and C. V. RILEY. 1868.

The "Practical Entomologist," published by the American Entomological Society (late the "Ent. Soc. of Philadelphia"), would seem to have expired after two years existence, and its place is supplied by the above-named publication, of which we have received the first part (20 pages). The editors hold the position of "State Entomologists" for Illinois and Missouri respectively, our American cousins being more fully alive than we are to the necessity of having scientific advisers on the subject of insect depredations. This periodical, which is to be continued monthly, is devoted to information on the habits of the noxious insects of America with investigations into the most likely means of arresting their ravages; combined with sound popular articles on general entomology; and is illustrated with numerous well-executed woodcuts; all for the low price of one dollar per annum. We cordially wish it a longer life than its predecessor. One "practical" hint strikes us as well worthy the consideration of our apple-growers, as offering a possible means of "stamping out" the apple grub (*Carpocapsa pomonana*), which has been more than usually destructive here during this season. In an article headed "Hogs versus Apple-worms," the editors, on the experience of many orchard-keepers strongly advise turning hogs into the orchard at the time when the infested fruit falls from the trees; these animals greedily devour the "fallings" before the larva has time to escape from the apples, and thrive thereon. Many instances are quoted to show the good effect of this plan, and it is applied also to peach-orchards, to destroy a weevil-grub which causes great damage. The only drawback is the

sightliness caused by the "rooting" of the ground by the hogs; but this might probably be partially avoided were the plan of "ringing," used by English pig-pepers, adopted there.

We hope again to have occasion to notice this useful publication.

CATALOGUS HYMENOPTERORUM EUROPE, auctore L. KIRCHNER. Herausg. von der K. Zool.-Bot. Gesellsch. in Wien, Vindobonæ. 1867.

This work gives in 285 pages the genera and species of *Hymenoptera*, with the author's name to each, and frequently, but not always, a sufficient indication to enable us to find the description. To the parasitic groups is added the name of the insect preyed upon; this, however, is not done so fully as might have been expected. The idea is excellent, and if the execution were in any respect equal to the design, a most valuable contribution would have been made to the literature of the Order. Even as it is, some assistance may be derived from it, but the mistakes and omissions are so frequent, that little confidence could be placed in it as a standard of reference, or as an oracle for the solution of knotty points. Opening the work at page 38 (*Ichneumonidæ*), we observe that the two first genera, *Eristicus* and *Eupalamus*, Wesm., are retained, although expressly discarded by their original author in his subsequent works, and their species distributed among *Ichneumon* and *Eurylabus*. On p. 39, *Ichneumon*, sp. 1 is spelt *abator*, Desv., instead of *obator*, whereby the alphabetical arrangement is broken, and the real *obator*, sp. 173, is sought for in vain. Sp. 5, *albicinctus*, Gr., and 7, *albilarvatus*, Gr., should have been placed under *Phygadeuon*. Sp. 20, *Ichn. Atropos*, Newport, should have been placed under *Trogus*; Curtis, and not Newport, is the author of the name, which term all is a mere synonym of *Tr. lutorius*, Fab. Sp. 32, *Ichn. brunnicornis*, Gr., is repeated on p. 49, as *Herpestomus brunnicornis*, Gr. Spp. 46 and 47 have the same name, *comis*, Wesm. Next to the genus *Ichneumon* is placed *Acrodactyla*, Hal., which belongs to the *Pimplariæ*, and should stand close to *Polysphincta*; the typical sp. *A. madida*, Hal., is omitted. On p. 48 we find *Eurylabus dirus*, Wesm., which figures previously on p. 38 as *Eupalamus dirus*, Wesm. On p. 59 *Microleptes tendidulus*, Gr. (an *Ichneumonoid* form), is given as a synonym of *Pterocormus vans*, Gr., among the *Cryptidæ*, the blunder being caused by a typographical error in Desvignes' Catalogue, corrected in the errata of that work. Nearly all the names of Stephens, Curtis, and Haliday appear to be omitted, unless they chance to be quoted by some continental writer. *Ex pede Herculem*; we have given enough to show the general style of the book, which in its present state can only serve to mislead and confound. It requires a thorough revision, to be carried out not by the mere perfunctory copying of names, but by actually reading the circumjacent matter, which alone can give meaning and arrangement to those names. The task undertaken by the author is a great one, perhaps too much for the powers of any individual. So formidable a list could not be thoroughly purged of errors. It is the duty of a cataloguer requires that he should at least faithfully represent the results attained by the authors whose works he undertakes to examine, leaving them responsible for their own conclusions. We regret to observe that this obvious duty is very far from being fulfilled by the work before us. It is conceivable that a future edition might be more carefully prepared from so laborious a groundwork, which would be hailed with pleasure by students of the *Hymenoptera*, and would go far to place them in the comparatively happy state of certainty enjoyed by the Coleopterists and Lepidopterists.

NOTES ON SOME PARASITIC HYMENOPTERA, WITH DESCRIPTIONS OF
NEW SPECIES.

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

PHYGADEUON SCOTICUS, *n. sp.*

Ph. niger, sub-depressus, capite coriaceo, remote punctulato; mesothoracis disco punctato, parum nitido; alarum squamulis, segmentis 2^{do} et sequentibus, trochanterum femorumque apicibus, tibiis tarsisque, castaneis; alis fusco-hyalinis, stigmatate et radio fuscis, radice pallidiore; areola pentagona, nervo externo obsoleto; terebra segmento 1^o paulo longiore.

♀ Long. 3—3½ lin. (terebra excl.)

Metathorax rugulose; *areolæ spiraculiferæ* and *pleurales* distinct, the others obsolete. Spiracles orbicular. Carinated margin of the declivity of the metathorax distinct, single, not laterally toothed. Vertex with a broad shining fovea behind the antennæ. Antennæ stout, filiform, a little longer than the head and thorax, fuscous. Palpi castaneous. Body sparingly clothed with fulvous hairs. Tubercles of the first segment of the abdomen inconspicuous; all the segments aciculated, not shining; the apical segments sometimes slightly infuscated; the anus whitish.

Allied to *P. abdominalor*, Gr., and *obscuripes*, Tasch (= *abdominator*, var. 3, Gr.), but is larger, wanting the white ring of the antennæ, and with the abdomen opaque, etc.

Two specimens from the Black Wood of Rannoch.

PHYGADEUON ERRATOR, *n. sp.*

Ph. niger, abdomine rufo, polito, apice sub-compresso; segmento 1^{mo} nigro, apice rufo; pedibus rufis, femoribus 4 posterioribus præter basin et apicem, tibiis posticis præter basin, tarsis iisdem totis, nigris; alis fusco-hyalinis, stigmatate et radio fuscis, radice et squamula rufis, areola pentagona, nervo externo obsoleto; antennis fusco-ferrugineis, annulo albo; terebra segmento 1^{mo} paulo longiore.

♀ Long. fere 4 lin. (terebra excl.)

Metathorax and vertex as in the preceding. On the inner vertical orbit of each eye, above the antennæ, is a rufous line. Antennæ moderately stout, filiform, fusco-ferruginous, joints 7—12 white, joint 7 fuscous beneath. Palpi rufous. Metathorax and abdomen on the sides with a few pale hairs. Abdomen elongate, impunctate, shining, red; 1st segment black, long, and slender (for a *Phygadeuon*), red at the middle of the apex, tubercles not prominent.

Might be an *Ichneumon*, but for its exerted ovipositor. Allied to *hygadeuon desertor*, Gr., from which it differs in the number of white joints of the antennæ, the coloration of the legs, the sculpture of the metathorax, etc.

One specimen from the London district.

The following strange piece of synonymy among the *Ichneumonidæ* deserves mention, if only for the purpose of inviting criticism. Of its truth I have thoroughly convinced myself, although unwillingly.

♀ *ICHNEUMON CRASSIPES*, Gr., i, 622.

♂ *Ichn. latrator*, Gr., i, 572 (*excl.* ♀).

♀ Var. with short wings, *Brachypterus means*, Gr., i, 675; Ste. Mand. vii, pl. 40, fig. 2; *Pterocormus means*, Först., Mon. Pez., 24.

The original description of *Brachypterus means* was drawn up by Gravenhorst from a single specimen sent him by the Rev. F. W. Hope from Netley, in Shropshire. A similar form does not seem to have occurred on the Continent; but I fortunately possess four, taken long ago somewhere in the Midland Counties,—I believe at Bridgenorth. They agree *ad amussim* with *I. crassipes*, even in the sculpture of the metathorax, the most certain proof of identity. My specimens of *I. crassipes* are undoubtedly rightly named, having passed through several examinations, including one by the late Mr. Desvignes.

Genus *APTESIS*, Först., Mon. Pezom., 34.

The insect named *Pezomachus hemipterus* by Gravenhorst (ii, 874) was described from a single German specimen, now lost. Upon the strength of that description only, it is placed in Förster's genus *Aptesis*; rightly remarking that it cannot be assigned to any other. It cannot be assigned even to *Aptesis*, unless the following character of the genus be modified, "das erste Segment punktirt, nicht langsrundlich," for the first segment of *A. hemiptera* is most distinctly wrinkled longitudinally. The new species here to be described exhibits the same rugosity, and it is only by claiming for them the same privilege as for *hemiptera* that I can allow myself to refer them to this genus.

APTESIS GRAVICEPS, n. sp.

A. nigra, capite maximo, antennis piceis, basi testaceis, albo semilatis; abdomine picescente, segmentis 1^o apice, 2^{do} disco, plus minus

dilutioribus; alis metathorace longioribus, fusco-hyalinis, stigmatate e radio pallide fuscis, areola irregulari, subtus aperta, vel punctiformi obsoleta; pedibus testaceis; terebra segmenti 1^{mi} longitudine.

♀ Long. 1 lin. (*terebra excl.*)

Head very large, twice as broad as the thorax, and with the thorax and 1st segment of the abdomen finely punctulate. Antennæ tricolorous, joints 1—3—4 testaceous, the rest blackish, 7—8 white above. Areolæ of the metathorax distinct; *areola superomedia* short, small, *posteromedia* hexagonal, narrow above, widest in the middle, and slightly decreasing in width thence to the apex; *areolæ spiraculiferæ* bisected by a transverse carina; all the areolæ distinctly punctulate. First segment of the abdomen with the tubercles inconspicuous, medial three times wider at the apex than the width of the petiole, *punctulate* with 2 abbreviated longitudinal carinæ, and 2 lateral longitudinal furrows; apex glabrous. Segments 2, etc., hardly punctulate, shining black, sometimes more or less pitchy. Terebra fulvous, the sheath testaceous, tipped with black. Fore-wings with a triangular stigma, the apical nervures imperfect (in one specimen the radial cell is closed on the right side, and open on the left); areolet transverse, 4 angular or irregular, the lower nervure incomplete (in one individual the areolet is obsolete, reduced to a punctiform knot; the same insect has also rather shorter wings).

I took four of this distinct and unnoticed species last month, in wood near Milford Haven.

APTESIS STENOPTERA, n. sp.

A. nigra, antennis fuscis, basin versus testaceis; pedibus, abdominis segmento 1^{mo} apice, 2^{do} toto, testaceis; segmentis 3^{uo} et sequentibus fuscis; alis angustis, metathorace longioribus, fusco-hyalinis, stigmatate et radio pallide fuscis, areola irregulari, extus aperta; terebra abdominis longitudine.

♀ Long. 1½ lin. (*terebra excl.*)

Head broader than the thorax; both finely punctulate, almost coriaceous. Joints 1—5 of the antennæ testaceous, the rest dusky, darker at the apex. Areolæ of the metathorax not so distinct as in the preceding; the *superomedia* irregularly hexagonal, slightly narrower above; *areolæ spiraculiferæ* bisected as in the preceding; all these areolæ shining, nearly impunctate. First segment of the abdomen with the tubercles medial, inconspicuous; only twice as broad at the apex as at the base of the petiole; *sub-rugulosely* punctulate; black, the apex testaceous, glabrous; 2 lateral carinæ not reaching the apex.

cond and following segments glabrous, shining, the 2nd testaceous, the 1 and following testaceous suffused with fuscous (the dark intestines shining through). Aculeus as long as the abdomen, red, the sheaths dusky. Fore-wings narrow, not widened beyond the middle; areolet transverse, open exteriorly; beneath it is an oblong whitish spot, which does not invade the areolet.

Resembles *A. brachyptera*, Gr., but may be known by the absence of a white ring on the antennæ, by the black 1st segment, the longer terebra, and the differently constructed wings and metathorax.

Two specimens taken, last year and this, near Milford Haven.

Having captured no less than 8 of *A. hemiptera* in this neighbourhood (some with developed wings), I think it worth while to note some of their characters, by way of supplement to the description of Gravenhorst, made from a single short-winged specimen.

APTESIS HEMIPTERA.

Pezomachus hemipterus, Gr., ii, 874.

Aptesis hemiptera, Först., Mon. Pezom., 39.

*A. alis vel brevibus apice infuscatis, bis albido maculatis, vel com-
punctis, fuscis, fasciis 2 albidis; stigmatibus albo nigroque; nigra; anten-
narum basi, segmentis 2 et 3, pedibusque, rufis; geniculis posticis nigris.*

♀ Long. $1\frac{1}{2}$ — $2\frac{3}{4}$ lin. (terebra excl.)

Antennæ with joints 1—7—8 fulvous; the rest blackish. Metathorax distinctly areolated, as in *A. graviceps* (supra). First segment of the abdomen longitudinally rugose. Six specimens.

Var. ♀. *Alæ abdomine longiores.*

Fore-wings fuscous; one-half the stigma, a transverse fascia beneath and a large indeterminate apical spot, or fascia, whitish. The nomenclature is that of *Hemiteles*, to which genus the insects would be referred, but not necessarily identified with the hemipterous form. Two specimens.

The species of *Ceraphrontidæ*, almost entirely neglected in this country, have found describers on the Continent in Nees von Esenbeck, Boheman, and C. G. Thomson. The following indications will show the genera and species I have hitherto ascertained to be British, including a new *Megaspilus* :—

Antennæ ♂ ♀ 11-jointed.

i. Mesothorax with three dorsal lines. Wings (if any) with a broad stigma.

1. Metathorax with a bifid spine beneath the scutellum.

Gen. HABROPELITE, Thoms., Öfv., 1853, p. 288.

Ceraphron, Boh.,—*Megaspilus*, Westw., Först.

Sp. 1. DUX, Curt., B.E., 249, No. 1 = *scutellaris*, Boh., Handl., 1831, p. 325, ♀ = *tibialis*, Boh., ibid., p. 326, ♂.

Sp. 2. STRIOLATA, Thoms., Öfv., 1858, p. 288.

2. Metathorax with a short simple spine.

a. Radius shorter than the stigma.

Gen. TRICHOSTERESIS, Först., Hym. St., ii, p. 99.

Ceraphron, Boh., Nees; *Thliboneura*, Thoms.

Sp. 1. GLABRA, Boh., Handl., 1831, p. 328 = *C. clandestinus*, Nees Mon., ii., p. 276.

b. Radius longer than the stigma.

† Antennæ ♂ ramose or serrated. Eyes ♀ glabrous.
Both sexes winged.

Gen. LYGOCERUS, Först., Hym. St., ii, p. 99.

Ceraphron, Thoms.

Sp. 1. HALIDAYI, Curt., B.E., 249, fig.

Sp. 2. CARPENTERI, Curt., B.E., 249, No. 10 = *basalis*, Thoms., Öfv. 1858, p. 290.

Sp. 3. RAMICORNIS, Boh., Handl., 1831, p. 329.

Sp. 4. SERRICORNIS, Boh., ibid., p. 334.

Sp. 5. PUBESCENS, Thoms., Öfv., 1858, p. 292.

†† Antennæ ♂ not ramose or serrated. Eyes ♀ hairy. The ♀ often apterous.

Gen. MEGASPILUS, Westw., Phil. Mag., ser. iii, vol. i, p. 128.

Sp. 1. ABDOMINALIS, Boh., Handl., 1831, p. 330 = *tenuicornis*, Boh. ibid., p. 332.

Sp. 2. SYRPHI, Bouché, Naturg., 175, pl. vii, fig. 33, 36—39, and 41 = *Eupelmus syrphii*, Nees, Mon., ii, p. 420.

Sp. 3. BOREALIS, Thoms., Öfv., 1858, p. 297.

Sp. 4. ARCTICUS, Thoms., ibid., p. 295.

Sp. 5. FUSCIPES, Nees, Mon., ii, 278.

Sp. 6. CURSITANS, Nees, Mon., ii, 284.

Sp. 7. HALTERATUS, Boh., Handl., 1831, p. 336 = *brevipennis*, Nees, Mon., ii, p. 283, ♀ = *longicornis*, Boh., Handl., 1831, p. 337, ♂.

Sp. 8. MELANOCEPHALUS, Boh., ibid., p. 337.

Sp. 9. THORACICUS, Nees, Mon., ii, p. 283 = *halteratus*, var. g, Boh., Handl., 1831, p. 336.

10. ALUTACEUS, Thoms., Öfv., 1858, p. 296.
 11. CRASSICORNIS, Boh., Handl., 1831, p. 331 = *sulcatus*, Nees, Mon., ii, p. 277.
 12. RUFIPES, Nees, Mon., ii, p. 277.

Sp. 13. MEGASPILUS ATELOPTERUS, n. sp.

M. piceo-testaceus, capite et thorace nigris; antennarum articulis 2
 nis piceo-testaceis, 3—7 rufo-nigris, cæteris nigris, scapo capite longiore;
 te et thorace alutaceis; alis angustis, fere halteriformibus, abdominis
 n paulo excedentibus; pedibus cum coxis piceo-testaceis; abdomine
 ace latiore et longiore, basi striolato. ♀ Long. $\frac{3}{4}$ lin.

Front broadly excavated above the antennæ, and with a small fovea
 ow the foremost ocellus. Antennæ stout, sub-clavate, nearly as long
 he body, the two apical joints sub-equal. Disc of the mesothorax
 -rufescent. Scutellum large, depressed, somewhat shining. Ab-
 -men glabrous, sub-pellucid, pale pitchy, ovate, depressed at the base,
 he apex sub-compressed, acuminate, and recurved. First segment
 upping two-fifths of the length of the abdomen; the 2nd and following
 ually shortened to the apex. Hinder femora and tibiæ incrassated.
 d deflexed, vertex transverse, as broad as the thorax.

In a wood near Milford Haven; August. Distinguished from large
 ividuals of *M. thoracicus*, Nees, by the stouter antennæ, with the 2
 al joints sub-equal; by the broader and entirely pale abdomen, etc.

There are several more species of *Megaspilus*, not yet known to me
 ame.

- ii. Mesothorax with one dorsal line. Wings ♂ with a linear stigma;
 ♀ apterous.

Gen. LAGYNODES, Först., Hym. St., ii, p. 98.

Microps, Hal., Thoms.

- I. PALLIDUS, Boh., Handl., 1831, p. 338.

II. Antennæ ♀ 10-, ♂ 11-jointed. Stigma linear or none. Both
 sexes winged.

* Mesothorax with an impressed dorsal line; scutellum mar-
 gined.

Gen. CERAPHRON, Jur.,—Först., Hym. St., ii, 98.

Calliceras, Nees, Thoms.

- . BISPINOSUS, Nees, Mon., ii, p. 280.

. NANUS, Nees, *ibid.*, p. 284 = *Call. pallida*, Thoms., Öfv., 1858,
 p. 302.

Sp. 3. *NIGRICEPS*, Thoms., *ibid.*, p. 302.

Besides several more not yet ascertained.

** Mesothorax with an almost invisible dorsal line ; scutellur not margined.

Gen. *APHANOGMUS*, Thoms., *Öfv.*, 1858, p. 305.

Sp. 1. *HYALINIPENNIS*, Thoms., *ibid.*

Sp. 2. *TENUICORNIS*, Thoms., *ibid.*

There are more British species of this genus not yet ascertained. They are the minutest of the group, averaging less than half-a-line in length.

College, Milford Haven : *September*, 1868.

OBSERVATIONS ON THE OCCURRENCE OF *SPHINX CONVULVULI* IN GREAT BRITAIN.

BY THE REV. JOHN HELLINS, M.A.

My friend, Mr. D'Orville, having seen and captured in his garden an unusual number of specimens of this fine moth during the past autumn, has endeavoured to make some observations which may tend to throw some light on its appearance in this country ; and he has kindly placed his notes in my hands for publication.

Between August 15th and September 28th of this year, he captured 27 males and 29 females, and 2 more were brought into his house by the cat ; but a very large proportion of the total number were entirely unfit, from their battered state, to be preserved as cabinet specimens.

But this is to be remarked, that the good and the battered specimens of both sexes occurred *together* throughout the whole period ; was by no means the case that the first taken were the finest, and the last the worst.

The first moth was taken on August 15th, a female, with its abdomen so flat, that Mr. D'Orville concluded it had deposited all its eggs. A few days later, on capturing a battered female with abdomen equally flat, he dissected it, and found in it 220 well-formed eggs, thus proving his first conclusion to have been too hasty. On the 21st August, he dissected another female, and found its ova to be quite undeveloped, mere small green gelatinous spots. On September 5th, he tried another experiment ; he shut up a damaged female in a large box, supplying her with diluted honey and sugar for food ; on the fourth day after he found her dead, but he found also that she had laid eight eggs in the box ; and when he proceeded to open her body, he found not

single egg remaining in it—thus showing that she must have deposited by far the greater portion of her burden before her capture.

On 10th September, he shut up another female in the same way, which also died on the fourth day, without depositing any eggs, and on dissection was found to contain a quantity of eggs, with shells, but not fully developed. On 16th September, he shut up a third female, which lived five days, and being then at the point of expiring, was pinned to a cork, when she laid three eggs; on dissection, 160 well-developed eggs were found in her, and carefully extracted. On 24th September, a fourth female was shut up; she died on the third day, and when opened had no eggs in her.

Of the eight eggs he obtained from the first female, Mr. D'Orville gave me five, which, to my great sorrow, shrivelled up; from two of the remaining three, larvæ were produced on September 26th, a period of something less than three weeks having elapsed since their deposition; one of the other eggs, whether laid or extracted, proved good.

These little larvæ—white in colour, with long, black caudal horns, were put on a growing plant of *Convolvulus arvensis*, and during the following night placed themselves in position on the under-side of a leaf, and ate little holes through it; however, they soon died, one after our days', and the other after ten days' existence.

To these notes made recently, Mr. D'Orville adds one made in 1859. In that year he captured nineteen moths, and from one of the females obtained a single egg; the larva from which was hatched on September 7th, and after feeding ten days on *Convolvulus arvensis*, died in its first moult. And on October 13th of the same year he found a larva about one-third grown, in a potato field, on a spot where *Convolvulus arvensis* was entangled with the potato haulms; it was covered with wet dirt, as if it had been in hiding under the earth. A few days later, a larger larva, more than two-thirds grown, but dead, was found in a similar situation, and brought to me.

From these facts Mr. D'Orville draws the following conclusions: first, that the imago, in this respect unlike *S. ligustri*, and the three species of *Smerinthus*, does not emerge from the pupa with ova fully developed, but rather in a very unformed state, and that they become gradually formed in the body of the female—perhaps after impregnation has taken place. And here I may notice that the egg of *convolvuli* is not more than two-fifths of the size of the egg of *ligustri*, so that even when a female has her full number (somewhat between 200 and 250) ready for extrusion, she would by no means show so stout a figure as a female of *ligustri* in similar circumstances.

The next deduction is that the larvæ are hatched in the autumn, and Mr. D'Orville suggests that perhaps they hibernate—retiring underground for protection from cold; but this I am inclined to doubt, thinking rather that if the weather permits they feed up before winter, but that if frost sets in they die prematurely.

And lastly, Mr. D'Orville concludes, that the moth itself does not hibernate, but dies about the end of September. He has his garden full of flowers, for the purpose of attracting moths, at all seasons of the year when there are flowers to be had, and he is most indefatigable in watching for lepidopterous visitors of all kinds, and yet he has, in a period of eleven or twelve years, never once seen *convolvuli*, save in the months of August and September, although their especial favourites—the white Petunia and the Marvel of Peru, remain in full bloom nearly throughout October, and would still supply them with food. And I remember myself finding in a bed of white Petunias, in 1858, a dead specimen of the moth, which had apparently come to a natural end, without violence. It is but fair to say that, on looking through the ten volumes of the "Intelligencer," I find two instances recorded of the capture of the moth about Midsummer; yet in the face of the overwhelming majority of autumn captures, these instances must be regarded as quite exceptional.

As to the British origin of his specimens Mr. D'Orville has no doubt; some of them, as I can testify, were so fine, with the fringes of the wings so perfect, that they could not have flown many hours before he took them. The larvæ or pupæ, therefore, must have been in hiding near at hand, and yet his offer of a reward for either has never produced any result.

I will only add (without comment—serious or joking) that on measuring the tongues of five or six moths, I found them to vary in length from $2\frac{3}{4}$ to $3\frac{3}{4}$ inches, the males apparently being longer tongued than the females.

Exeter: November 11th.

Sphinx convolvuli at Alloa, N. B.—I have to inform you that a very fine specimen of *Sphinx convolvuli* was brought me on the 5th of this month. It was got at rest in a garden here; it measures about five inches across the wings, and with the exception of being a little rubbed from being carried in the hand, is a perfect specimen. There was also one captured at Stirling, about seven miles from here, on the 1st of the month.—RICHARD BORTHWICK, Alloa, October 16th, 1868.

Sphinx convolvuli, and a second specimen of *Deilephila lineata* in Kildare.—I captured five fine *convolvuli* here, in September. They were all taken at a bed of Petunias in the dusk of the evening. Another specimen of *lineata* was taken by me the day after I reported the former capture to you. It was on the grass lawn, alive, at the middle of the day, and one of our peacocks attempted to eat it.—JOHN DOUGLAS, Kilkea Castle, Kildare, October 26th, 1868.

NOTES ON THE BRITISH HALTICIDÆ.

Learning in October, 1863, that Herr Kutschera, of Vienna, was engaged upon Monograph of the *Halticidæ*, I thought it desirable he should see a series of our British species, and that I should obtain his opinions relating to them. I therefore made up as complete a collection of them as I was able, at the time, to do, and forwarded it to Vienna, together with such observations on the species as I thought might possibly be useful to him. This collection is now returned to me, with the accompanying names and observations kindly furnished by Herr Kutschera. They will, no doubt, interest many of the readers of the "Entomologist's Monthly Magazine."

Species sent by Mr. Waterhouse, the names being those of his Catalogue.	Names and Observations returned by Herr Kutschera.	
	GRAPTODERA.*	
consobrina	consobrina †	Foudr., Allard (non Kutschera), Dufts. ?
pelophaga .....	.....	Guér., Allard. Scarcely specifically distinct from the French specimens, though differing a little in the punctuation of the elytra, the formation of the frontal tubercles, and the anterior angles of the thorax.
	ericeti	Allard.
	longicollis	Allard.
racea	pusilla	Dufts. (<i>helianthemis</i> , Allard, non <i>oleracea</i> , Auctorum).
	montana	Foudras (<i>cognata</i> , Kutschera).
	HERMÆOPHAGA.	
curialis .....	.....	Fab.
	CREPIDODERA.	
inversa .....	.....	Marsham.
ruginosa .....	.....	Scop.
ipes .....	.....	Linn.
	CREPIDODERA (<i>Chalcoides</i>).	
tidula .....	.....	Linn.
xines .....	.....	Linn.
ata .....	.....	Marsh., Foudr. (<i>versicolor</i> , Kutsch.).
		N.B.— <i>fulvicornis</i> , Fab. may be identical with <i>C. aureola</i> , Foudr.
	chloris	Foudr.
	CREPIDODERA (<i>Hippuriphila</i>)	
leeri .....	.....	Linn.
	CREPIDODERA (<i>Epitrix</i>).	
escens .....	.....	Ent. H.
opæ .....	.....	Foudr.

* Herr Kutschera expresses himself dissatisfied with the determinations of the species of *Graptodera* hitherto made, and solicits the loan of specimens, with the view to re-examination of the group.

† Where the name in the second column would correspond with that in the first, it is omitted in the remaining portion of this paper.

Species sent by Mr. Waterhouse, the names being those of his Catalogue.	Names and Observations returned by Herr Kutschera.	
	CREPIDODERA (<i>Ochrosis</i>).	
ventralis .....	.....	Illig.
salicariæ .....	.....	Payk.
	MANTURA.	
rustica .....	.....	Linn.
rustica, var.	rustica, var. semiænea.....	Fab.
obtusata .....	.....	Gyll.
chrysanthemi.....	.....	Ent. H.
Matthewsii .....	.....	Curtis.
	BATOPHILA.	
rubi .....	.....	Payk.
ærata .....	.....	Marsh.
	PODAGRICA	
fuscipes .....	.....	Fab.
fuscicornis .....	.....	Linn.
	SPHÆRODERMA.	
testacea	cardui	Gyll.
centaureæ	testacea.....	Fab. N.B.—Although the two types of <i>Sp. testacea</i> in the Bank-sian collection agree with <i>Sp. cardui</i> , a change in the nomenclature is not justified, because <i>Sp. testacea</i> is very distinctly characterized in the Ent. Syst. and Syst. El. by the words " <i>tho race et elytris lævissimis</i> ," which character certainly cannot be applied to <i>Sp. cardui</i> .
	APHTHONA.	
lutescens .....	.....	Gyll.
pseudacori	cærulea	Payk. var. (non <i>violacea</i> , Ent. H.). The specimens communicated under Nos. 113 and 194* are indeed not specifically distinct from <i>A. cærulea</i> of Paykull, and are a very interesting variety of the same which is not mentioned elsewhere; therefore the statement of M. Allard that <i>Ch. pseudacori</i> of Marsham belongs to <i>Aph. cærulea</i> of Paykull is perfectly correct, and confirmed by the habitat of the insect on the <i>Iris pseudacorus</i> ; whilst <i>Aph. violacea</i> , Ent. H., has a very different form, being more broadly rounded, and has a very different sculpture; and lives on <i>Euphorbia palustris</i> : nevertheless, it exhibits similar variations in the colour of the base of the antennæ and legs.

* The specimens sent under No. 113, are the dark-legged var. common on the *Iris pseudacorus* in the neighbourhood of London; the specimens marked 194 were from Deal, and have the legs entirely testaceous, excepting the posterior femora and the bases of the anterior femora, which are black.—G. R. W.

Species sent by Mr. Waterhouse, the names being those of his Catalogue.	Names and Observations returned by Herr Kutschera.	
euphorbiæ	venustula	Kutsch. (<i>euphorbiæ</i> , Allard; <i>cyarella</i> , Foudr.) var. with the anterior thighs entirely red. I have identified the <i>H. euphorbiæ</i> of Schrank with the species which is very common in Austria on <i>Euphorbia cyparissias</i> , synonymous with <i>Apth. ovata</i> of Allard and Foudr.
tro-cærulea	cyarella.....	Redt. (<i>atro-cærulea</i> , Allard; <i>euphorbiæ</i> , Foudr.).
ilaris .....	.....	Steph., Allard.
erbigradus .....	.....	Curtis (<i>campanulæ</i> , Redt. in Coll.)
PHYLOTRETA.		
odicornis	antennata	Ent. H. (<i>nodicornis</i> , Marsh.).
epidii .....	.....	Ent. H.
aelæna .....	.....	Illig.
æciloceras	obscura	Illig., Foudr. (<i>pæciloceras</i> , Comolli, Allard).
tra .....	.....	Payk.
unctulata .....	.....	Foudr., Allard.
ittula .....	.....	Redt.
dulata .....	.....	Kutsch. (<i>flexuosa</i> , Foudr., Allard.)
emorum.....	.....	Linn.
etrastigma.....	.....	Comolli.
inuata .....	.....	Redt.
chripes .....	.....	Curtis (<i>excisa</i> , Redt., Foudr., Allard)
rassicæ .....	.....	Fab.
PLECTROSCELIS.		
oncinna .....	.....	Marsh.
CHÆTOCNEMA.		
Sahlbergii	subcærulea*	Kutsch. (non <i>Sahlbergii</i> , Gyll., Foudr., Allard).
ridella .....	.....	Payk.
onfusa .....	.....	Bohem.
THYAMIS.		
olsatica .....	.....	Linn.
orsalis .....	.....	Fab.
uadripustulata .....	.....	Fab.
nclusæ .....	.....	Payk.
p.....	absynthii.....	Kutschera.
bliterata .....	.....	Rosenh., Allard, Kutsch. (<i>pulex</i> , Foudr.).
arvula .....	.....	Payk.

* This (which proves to be a new species very nearly allied to *Sahlbergii*) is described by Herr Kutschera from the specimens sent by me, and some others from Steiermark by Herr Kahr. My specimens were chiefly taken in a marshy part of Wimbleton Common, in the month of June, 1857.—D. R. W.

Species sent by Mr. Waterhouse, the names being those of his Catalogue.	Names and Observations returned by Herr Kutschera.	
brunnea	castanea	Foudr., Kutsch. (probably <i>brunnea</i> , Dufts.).
sp.....	fuscula	Kutschera.
lurida	brunnea.....	Redt., Ed. 2; Foudr., Kutsch. (<i>lurida</i> , Gyll., <i>exparte</i> ; probably <i>castanea</i> , Dufts.).
minuscule	membranacea	Foudr., Kutsch. (<i>teucris</i> , Allard, non <i>minuscule</i> , Foudr.).
flavicornis	rubiginosa.....	Foudr., Kutsch. (<i>flavicornis</i> , Allard)
lævis .....	.....	Dufts., Kutsch. (<i>succinea</i> , Foudr., Allard).
sp.....	Waterhousei	Kutsch.
pellucida .....	.....	Foudr., Kutsch. (<i>testacea</i> , All.).
jacobææ .....	.....	Waterh. Catal. (<i>tabida</i> , Illig.). According to your testimony the <i>G. tabida</i> , Fab., belongs to a species hitherto denominated <i>verbasci</i> by authors. We may adopt the name <i>jacobææ</i> , as there is no other.
tabida .....	.....	Fab., hitherto <i>verbasci</i> , Panzer.
thapsi	tabida, var. thapsi	Marsham. Scarcely to be admitted as a distinct species from <i>T. tabida</i> , as similar variations of colouring may be observed in other species.
sp.....	nov. spec.	A very distinct species,* at all events different from <i>T. tabida</i> (<i>verbasci</i>).
exoleta.....	femoralis	Marsh., Kutsch. The name <i>exoleta</i> of Linn. cannot be kept up in the face of the contradictions in the first and second editions of Linnæus' Fauna Suecica.
sp... ..	gracilis	Kutschera.†
ochroleuca .....	.....	Marsham.
ballotæ .....	.....	Marsham.
Reichii.....	.....	Allard, Kutsch.
pusilla .....	.....	Gyll.
lycopi .....	.....	Foudr., Kutsch.
nasturtii .....	.....	Fab.
saturalis .....	.....	Marsh., Allard, Kutsch. (<i>nigricollis</i> , Foudr.).
fuscicollis	thoracica	Allard, Kutsch. (<i>melanocephala</i> , Redt., Foudr.).
atricilla .....	.....	Gyll., Allard, Kutsch. (<i>fuscicollis</i> , Foudr.).
sp. 26	lateralis.....	Ill., Foudr., All., Kutsch., var.‡

* *T. agilis*, Rye, Ent. Mo. Mag., vol. v., p. 133.—G. R. W.

† Described from specimens found by me at Mickleham, in Surrey, on the Ragwort (*Senecio Jacobææ*), in the beginning of September, 1863.—G. R. W.

‡ I took several specimens of this species in Darent Wood in May and June, 1860, on the leaves of a species of *Verbascum*. Specimens sent to M. Allard were returned to me as the *H. lateralis* of Illiger, but as none of my specimens exhibited the slightest trace of any dark mark on the sides of the elytra, as described by Illiger, I was not satisfied with the identification, and mentioned my doubts in my notes accompanying the collection sent to Herr Kutschera.—G. R. W. [This is the insect recently described as *T. patruelis* by M. Allard.—E. C. R.]

Species sent by Mr. Waterhouse, the names being those of his Catalogue.	Names and Observations returned by Herr Kutschera.	
<i>atricapilla</i> .....	.....	Allard (non Dufts.). This is the species described by Foudras as <i>T. atricilla</i> , and certainly different from <i>T. picipes</i> , Foudr., Kutsch. (<i>atricapilla</i> , Redt., 1st Ed.).
<i>melanocephala</i> .....	.....	Gyll. (<i>atricapilla</i> , Dufts., Redt. 2nd Ed., Foudr.).
PSYLLIODES.		
<i>tulcamaræ</i> .....	.....	Ent. H.
<i>halcomera</i> .....	.....	Illig.
<i>api</i> .....	.....	Ent. H.
<i>yoscyami</i> .....	.....	Linn.
<i>hrysocephala</i>.....	.....	Linn.
<i>hrysocephala</i> , var. 2 p. 6 (from Lundy Island).....	<i>nigriocollis</i>	Marsham.
<i>marcida</i>	<i>luridipennis</i>	Kutschera.
<i>cupronitens</i>	<i>cuprea</i>	Illig.
Ent. H. Your opinion regarding this species is perfectly correct, and M. Allard is in error. It is apparent, from specimens sent by him to me, that he really regarded this species as <i>cupronitens</i> of Förster. There is, at all events, confusion. I have never yet seen a specimen of <i>cupronitens</i> of Förster. The <i>cuprea</i> , Ent. H., has been groundlessly referred by Foudras and Allard to a species which is short-ovate, and which I have not seen.		
<i>picipes</i>	<i>instabilis</i>	Foudr., Allard, Kutsch. (non <i>picipes</i> , Redt., Foudr., Allard).
<i>tenuata</i> .....	.....	Ent. H.
<i>atricilla</i>	<i>affinis</i>	Payk., Ent. H.
<i>ateola</i>.....	.....	Müller.
<i>picina</i> .....	.....	Marsh., Allard, Kutsch. (<i>rufilabris</i> , Ent. H., Ill., Redt., non Foudr., nec Allard; <i>picea</i> , Redt., Küster, Foudr.; <i>rufo-picea</i> , Letzn.)
APTEROPEDA.		
<i>graminis</i>	<i>orbiculata</i>	Marsh., Foudr., Kutsch. (<i>graminis</i> Ent. H., Dufts.; <i>ciliata</i> , Oliv., <i>hederæ</i> , Ill.).
<i>plendida</i> .....	.....	Allard, Kutsch.; <i>globosa</i> , Foudras.
MNIOPHILA.		
<i>muscorum</i> ..	.....	Ent. H.

G. R. WATERHOUSE, British Museum, October, 1868.

[It will be observed, that the length of time occupied in the examination of the above *Halticidæ* has allowed of the introduction of certain of Herr Kutschera's alterations and additions from other sources.—Eds.]

Occurrence of Magdalinus duplicatus, Germar, in Scotland.—Last year I recorded among my Morayshire captures that of *Magdalinus carbonarius*. This was a mistake, for the correction of which I am indebted to Dr. Sharp, to whom I sent an example for comparison with his Dumfries specimens of that insect. By him, also, I was furnished with extract descriptions, from Thomson's work, of several of the Swedish species that seemed most nearly allied to it. From a careful perusal of these, I concluded that *M. duplicatus* was probably identical with the Morayshire stranger, and accordingly requested Dr. Power to compare my specimens with those representing that species in the British Museum. This he has been kind enough to do, and his unhesitating verdict confirms my conjectures. I subjoin a description of the specimens.

Blackish-blue, linear elongate. Head sparingly punctured, slightly depressed between the eyes. Rostrum much bent, black, shining and punctulated. Antennæ about the length of the head and thorax, scape rather suddenly bent just before its swollen tip, inserted near the middle of the rostrum. Prothorax as broad as long, bisinuate at the base, with the hinder angles produced; sides nearly straight for about two-thirds of its length, then rounded towards the anterior edge, behind which a faint constriction is observable on the sides and beneath, slightly convex above, closely punctured and dull. Scutellum rather narrow, punctured, and generally shining. Elytra blue, sometimes nearly black, punctate striate, punctures oblong, interstices flat, finely coriaceous, slightly shining, and generally with only one row of shallow, squarish, punctures. Under-side coriaceous and punctured. Legs nearly black, thighs dentate. Length $2\frac{1}{4}$ — $2\frac{3}{4}$ lines.

Antennæ of female inserted immediately behind middle of rostrum.

Found sparingly on Scotch fir in Morayshire.

At first sight the colour and sculpture of my insect suggest our *M. phlegmaticus*; but on further examination, the more cylindrical body, shorter head, and bent rostrum serve to distinguish it from that species. It seems to be more closely allied to *M. violaceus* of the European list, which, however, has the head smooth, and, in the male, the rostrum straightish, with the antennæ inserted at about a third of its length from the tip.

The uniformly black colour and sulcate elytra of *M. carbonarius*, Linn., not to mention other important characters, will prevent any one who sees the two species from confounding them. *M. memnonius*, Fald., formerly *M. carbonarius*, Fab., is said to frequent *Pinus sylvestris*. It is not improbable, therefore, that it, and perhaps others of the genus, may reward future investigators in our northern forests.—ROBT. HISLOP, Blairbank, Falkirk, 7th November, 1868.

Note on the genus Abbotia of Leach.—Having lately had to answer a question concerning the genus *Abbotia* of Leach, I may here note, in order to save persons studying the *Histeridæ* the trouble of searching, that the types of Dr. Leach's two species of *Abbotia* are in the British Museum, and appear to belong to the genus *Platysoma*; the species *A. Paykulliana* being identical with *P. depressa*, and *A. georgiana* with *P. oblonga*.

Dr. Leach (Trans. Plymouth Inst., p. 155) gives the locality for both species as Georgia in America, but this is probably a mistake, the insects perfectly agreeing with the European species above alluded to. As a possible reason for these apparent errors I may refer to the statement at p. 458 of Dr. Hagen's "Bibliotheca Entomologica."—CHAS. O. WATERHOUSE, British Museum, November 14th, 1868.

On difference in shape of thorax in sexes of Hydroporus elegans, &c.—I have lately noticed that in the ♀ of *Hydroporus elegans* (*depressus*, Fab.) the thorax is widest towards the front, with the sides strongly rounded and much contracted behind, whilst in the ♂ the sides are comparatively slightly (sometimes scarcely perceptibly) rounded, the thorax in a few instances being even widest behind. This posterior dilatation is especially conspicuous in all my dark vars. of the species in question, all of which are males. I find, however, some ♀ examples of the dark var. amongst a number of the insect recently sent to me by Mr. Bold. These were taken in a small Cumberland lake, called "Talkin Tarn," and present a somewhat different facies to ordinary brook specimens, being larger, proportionately longer, and altogether darker in tone. Schaum, *Ins. Deuts.*, 1, p. ii, notes that the Swedish specimens are commonly longer than the German, with the black colour predominating; and abandons his former idea that these might be referable to a distinct species. I do not observe any similar sexual thoracic discrepancy in the allied *H. 12-pustulatus*, *Davisii*, *assimilis*, &c.; nor can I find any record of the fact, as to *H. elegans*, in Gyll., Aubé, Redt., Fairm., Schaum, or Thomson, all of whom state the thorax to be strongly rounded at the sides. The latter author, in his *Skand. Col. Supplement* (IX, p. 75), simply notes the very elongate, unequal, anterior claws of the ♂; in which sex the anterior and intermediate legs are, also, more robust. With regard to the dark var. above mentioned, I notice a curious error in Aubé's *Gyr. et Hydroc.*, 507, where he states that the ordinary testaceous spots sometimes disappear, and are replaced by testaceous lines,—"*ce qui constitue la var. b. de Gyllenhal.*" But Gyll., *Ins. Suec.*, i., 526, thus indicates his var. b.—"*elytris pallidis, nigro-lineatis,*" and "*elytra pallida, lineis quatuor disci nigris,*"—a form which has not come under my notice in this country. Schaum, l. c., says that the black sometimes predominates, the yellow forming mere lines; the insect then being Gyll.'s *depressus*. The form in which the yellow predominates he refers to *elegans*, III.

In *Lamophlæus*, of which the sexual thoracic difference of outline is well known, it is the ♂ that has the thorax most contracted behind. This, I presume, is due to the fact that the head, as frequently happens in *Coleoptera*, exhibits an excess of development in that sex, and requires a proportionate widening of the front of the thorax for its reception. The latter segment thus seems to be much narrowed behind, though in fact its posterior part is of the same outline as in the ♀.—E. C. RYE, 7, Park Field, Putney, S.W.

Habitat of Epuræa.—Illiger, *Verzeich. der Käf. Preuss.*, 383, notes the frequent capture of *Epuræa limbata* by Kugelann, under bark of apple and pear trees, in company with *Synchita juglandis*. The former insect is not uncommon with us in fungi; but, knowing, as we do, the parasitic habits of certain of its congeners (o. g., *E. angustula* on *Xyloterus*, *E. oblonga* and *pusilla* on *Hylastes*, &c.), this record of association may not be altogether without interest, especially as the *Synchita* is of such great rarity in this country.—Id.

Occurrence of Rhynchites megacephalus, Germ., in Japan.—I was rather surprised to find among some *Rhynchophora* from Japan obtained by me from Mr. Higgins, of Bloomsbury Street, specimens of a *Rhynchites* which I am unable to

separate from the well-known European *megacephalus*. Mr. Rye, to whom I shewed these exotics, without notice of their origin, was, like myself, quite unable to find any differential characters for them. I believe other British species of *Coleoptera* have been observed from Japan; and readers of this Magazine will remember Mr. Lewis' notes on the singular resemblance to (and even identity with) certain of our indigenous beetles afforded by some of his Chinese captures.—W. TYLDEN, Stanford, Hythe.

Further note on Enoicyla pusilla.—Mr. Fletcher writes me that he has bred fifty or sixty of this insect. He says the insects pair almost as soon as the ♀ emerges, but remain united for only a short time. In confinement the ♀ deposits her eggs under moss near the earth; they are excluded in a conical, amber-coloured mass, which is almost half the size of the insect.

In my previous note (*ante* p. 143) an error has crept in involving an impossibility, viz., the sentence in which the larva is said to burrow into the earth after having closed *both* ends of its case. The facts are that the larva ceases feeding early in June, then stops the ventral end of the case, and burrows; afterwards, in September, it closes the other end, and changes to a pupa.—R. McLACHLAN, Lewisham, November, 1868.

Insects found on glaciers.—Perhaps it is worth while to mention that, last July, while ascending the Maladetta, I observed on the final snowy dome of the glacier, at the height of about 11,000 feet, great numbers of a common-looking *Chrysopa*, both flying and crawling on the snow. Lower down there were none to be seen, during the two days I spent in those regions. Their occurrence in such a situation, and nowhere else, seemed quite unaccountable. On a former occasion I obtained from the glacier of the Vignemale, at a nearly equal height, a fine series of *Ichneumon antennatorius*, Grav. They were picked up at intervals of a few yards, alive, but feeble, each one being at the bottom of a small pit or depression in the snow. With them, and in equal abundance, was a moth, I forget what species, but probably *Plusia gamma*, which swarms in the Pyrenees. There were also a few of *Lygæus equestris*, which Ramond mentions having noticed, together with a *Bupestis*, in his break-neck attempt to scale the Touqueroue glacier leading up to Mont Perdu.—T. A. MARSHALL, Milford, October, 1868.

Lithobius forcipatus *mothig*.—One of my friends, in June last, had "sugared" a strip of wall, near Newcastle, to attract moths, and was considerably astonished when he returned with his light, to find himself forestalled by this centipedoid wretch, which had ascended the wall and captured the only moth attracted by the sweets; the moth, a large *Noctua*, was making the most violent efforts to escape, but all in vain, as the *Lithobius* appeared to hold it with the greatest ease, only quitting its grip when my friend, afraid of losing his specimen, put an end to the struggle by seizing the moth.—T. J. BOLD, Long Benton.

[Mr. Bold's note reminds me of a somewhat analogous (but *post-mortem*) instance of unexpected insect hunting that occurred in my house this autumn. For three consecutive nights I found recently-mounted beetles that had been left out to dry on a setting board carefully placed so as to be unassailable by marauders, as

I fancied,) neatly dissected away from their cards; rows of tarsal and antennal tips testifying to the dexterity of the unknown operator. The insects being merely common species, and my curiosity piqued to discover what it was that caused the mischief, I allowed the setting board to remain for a fourth night, during which a sudden visit with a candle disclosed a large earwig, unctuously scooping out the abdomen of a *Myrmedonia*. "His end was pieces."—E.C. R.]

An economic use for the galls of Cynips lignicola.—I do not remember to have seen it mentioned anywhere that ornamental baskets made of wire, and covered, instead of beads, with rows of the galls of *Cynips lignicola*, are hawked about for sale in the streets of London.

The thought has struck me, that were the more regular specimens of this gall carefully picked before the imago escapes, or rather before the titmouse disfigures them in its search for the tasty morsel within, they might, after destruction of the inmate by heat, serve as a cheap substitute for the turned wooden balls of similar size, so often employed in ornamental woodwork.

For this purpose they might be sorted according to size, and employed, particularly in cases where lightness would be desirable, and where their fragility would not be exposed to too severe a trial: for instance, as inner borders on the frames of looking-glasses and pictures, &c.—ALBERT MÜLLER, Penge, S.E., Nov. 10th, 1868.

Argynnis Lathonia at Margate.—It may interest many of your readers to know that my friend, the Rev. G. Lewis, took at the above place, during September, two fine specimens of *A. Lathonia*; besides some dozens of *Colias Hyale*.—AUGUSTINE SAVILLER, Manor Road, Stamford Hill, 21st October, 1868.

Occurrence of Acherontia Atropos at Dumfries.—On the arrival of the mail train in the evening of 27th September last, one of the *employés* about the station noticed on one of the carriages a large insect at rest, which turned out to be *A. Atropos*, and, through the attention of a kind friend, is now in my collection. It is a very large specimen, measuring over five inches across the wings.—W. LENNON, Winton Institution, Dumfries, October 5th, 1868.

Sphinx convolvuli and Acherontia Atropos at Folkestone.—I had a fine specimen of *convolvuli* brought me last month by a boy. *Acherontia Atropos* has not been at all rare, I have heard of several captures of larvæ and imagos. One specimen of the perfect insect was found by a boy among the grass in the Warren, and brought to me. He kept it a few days, and it died a natural death. It frequently emitted the sounds peculiar to its species, always raising the thorax and bending down the head and abdomen as it did so. When breathing its last it gave out a long succession of sounds growing fainter and fainter, just like a succession of *breathings*, giving me the impression that the noise was produced, not by friction, but by inspiration or expiration of air. It made the noise when I first had it every time I merely touched it with my finger, but when it got accustomed to such treatment, it never made it without rather rougher handling.—HENRY ULLYETT, Folkestone, October, 1868.

Capture of Sphinx convolvuli near Reigate.—On Friday morning my friend Mr. Fielding again called my attention to a large moth, taken by a little country girl at the same place where *Acherontia Atropos* occurred, and proving to be *Sphinx convolvuli*. Considering the rustic manner of his capture, the illustrious stranger had fared well. Shortly after being brought to me, he indulged in a vigorous mid-day flight, and was suffered to remain alive for some hours.

Can any gentleman resident in Scotland tell us whether a parallel has occurred this year to the extreme profusion of *Deilephila galii* (40 specimens) reported to have occurred not many years since at Perth?—J. B. BLACKBURN, Grassmeade, Wandsworth, 12th September, 1868.

Sphinx convolvuli taken at sea.—A fine specimen of this moth was taken on board the "Lord Raglan" steamer on the 29th September last, when she was about five miles off Tynemouth, and is now in the collection of Mr. J. Hamilton Shieldfield, Newcastle. I have among my odds and ends a large individual of the same species, which was captured as it fluttered round the binnacle light of a sailing vessel, when she was making for the Tyne, and at a considerable distance from land.—THOS. JOHN BOLD, Long Benton, Newcastle-on-Tyne, October 14th, 1868.

Chærocampa porcellus near Tynemouth.—Three specimens of the perfect insect were taken on the sea banks, near St. Mary's Island, in the last week of July, and towards the end of August its larvæ was found feeding upon *Galium verum*, some what further to the south, near Whitby.—ID.

Macroglossa stellatarum in the north of England.—This insect has been rather common here this year, and a good many larvæ collected; these were very easy to rear, only requiring to be plentifully supplied with the plant on which they were taken, *Galium verum*.—ID.

Deilephila lineata in Scotland.—I learn from my friend Mr. Dalziel Pearson that he took a good specimen of the insect on August 10th at Dunbar; and that he "has heard of two more specimens of it being captured in the neighbourhood."—REV. E. N. BLOOMFIELD, Guestling, November 2nd.

Chærocampa Celerio at Birmingham.—I have just taken off the setting board very fine and perfect specimen of *Chærocampa Celerio*, which was caught October 2nd and brought to me, *alive*, the next day; a little boy had found it (as he described, *asleep*) on a shutter of a butcher's shop in the Horse Fair, Bristol Street, Birmingham, one of our busiest thoroughfares; he said it did not seem at all inclined to fly away, so he had no difficulty in putting it in a box, without injury. I have no doubt but that the lighted windows had lured it into so busy a place, that it was just getting dusk (6 p.m.) when he found it.—FREDERIC ENOCK, 75, Ryland Road, Birmingham, October 18th, 1868.

Chærocampa nerii at St. Leonards.—Through the kindness of Dr. Bowerbank we have received a specimen of *Chærocampa nerii* (the Oleander Hawk Moth). It was captured in the garden of Decimus Burton, Esq., by his gardener, a few weeks

go, on an Oleander plant, at his residence, Maze Hill, St. Leonards-on-the-Sea and presented to the British Museum by Mr. Wood, of North Lodge, St. Leonards. I send a notice of this capture, in order that a correct list of the specimens taken during this remarkable season may appear in the Ent. Monthly Mag.—FREDERICK SMITH, British Museum, 6th November, 1868.

Chærocampa Celerio near York.—A specimen of this rare species was taken by a woman on the 2nd of October last. It was found sitting on the window blind beside a cottage on Haworth Moor, near York, and was taken to Mr. Dosser, who kept it alive: it is a very fair specimen, and Mr. Dosser has since kindly added the specimen to my collection.—W. PREST, York.

Note on abundance of Sphingidæ in Japan during the past summer.—As I have frequently noticed records of insects, generally more or less rare, being observed simultaneously here and in England, I should like to note that the present season has been most prolific in *Sphingidæ*. *Sphinx convolvuli* has been exceedingly abundant in the imago state, and I collected 50 larvæ of the "Death's Head," in ten minutes, from a small patch of *Sesamum orientale*. It was equally common everywhere on this plant. The "Eyed Hawk," and another *Smerinthus* very similar to it, but wanting the "eyes," have in the larval state stripped various trees of their leaves. I cannot name others that I have found abundantly. A Japanese entomologist has figured the larvæ and pupæ of 18 species; and these, with two others, which I have not met with in their earlier stages, complete a list of 20 *Sphingidæ* noticed this season in the immediate neighbourhood. All but three or four have occurred in profusion.—G. LEWIS, Nagasaki, 10th September, 1868.

Sesia myopæformis? in *Mountain-ash*.—We have a *Mountain-ash* apparently attacked by this clearwing. Next season I propose to make certain of the species by enclosing the affected parts of the tree with network.—H. G. KNAGGS, Kentish Town, N.W.

Catocala fraxini near *Manchester*.—The records of 1868 certifying to several examples of this sensational species, perhaps the following authentic anecdote of a capture of a fine specimen may be new to many. Some five years back, a collector near Manchester had an admirable example brought him, discovered by a little girl, who, being afraid to touch it, captured it safely and conveyed it some distance thence—a pair of tongs! The bold and beautiful thing, experiencing, probably, a sense of intrusion, would seem to have fanned up its indolent wings at the moment best suited to the fireside forceps.—EDW. HOPEY, 14, South Bank, Regent's Park.

Capture of Leucania albipuncta, W.V., a species new to Britain.—I took one specimen at Folkestone, at sugar, on August 15th, 1868. A second, very much like the first, example was taken at the same place, by my brother, on or about October 5th. A third, supposed to be seen by my brother and myself in the same place, was captured.—T. H. BRIGGS, St. John's College, Oxford, November, 1868.

[This insect is closely allied to *lithargyria*, and is more common than that species in some continental localities.—EDS.]

Lepidoptera at Guestling in 1868.—I send herewith a list of the rarer insects which I have met with this year, if you should think it worth insertion in the Magazine. Taken in conjunction with my former notices, it will give a very fair idea of the rarer insects occurring at Guestling. I have this year met with nearly 50 species of Macros. which I had not previously seen here, showing how little a visitor or stranger can speak to the whole number of insects occurring in any locality. This number of novelties, after three previous years collecting in the same locality, is pretty well, I think.

During the spring insects were very scarce; in fact, several species which are usually pretty common at shallows, were either absent or represented by one or two specimens only. As summer approached, however, insects became abundant.

In the following notes the first day on which the species was observed is given in each case.

March 6th, *Tephrosia biundularia*; several specimens on tree trunks; the summer brood appeared as early as June 20th. April 21st, *Eupithecia dodoneata*; one specimen only. April 30th, *Platypteryx lacertula*; Stainton's Manual gives end of May, but I see it occurred here on May 3rd, in 1865. May 8th, *Tephrosia consonaria*, on the trunk of a tree. May 16th, *Platypteryx hamula*. May 18th, *Herminia barbalis*; three among underwood. May 19th, *Selenia lunaria*; four, all females, as were the few I have taken in former years. May 25th, *Arctia villica*; I met with five specimens this day; I believe it is abundant here. May 26th, *Chærocampa porcellus*, flying, at dusk. May 28th, *Eurymene dolabraria*; three taken—one by mothing, one at light, and one at sugar. May 30th, *Eupisteria heparata*; this seems common here among alders; unfortunately I did not search for it early enough, and hence most of the specimens were much worn. June 1st, *Tephrosia extersaria*; came not uncommonly to sugar; *Botys lancealis*, several; *Pterophorus tephradactylus*, this is plentiful here. June 2nd and 3rd, *Boarmia roboraria*, a pair at sugar; *Cymatophora fructuosa*, several were taken, but were very restless when boxed. June 5th, *Aplecta herbida*; three came to sugar. June 6th, *Diphthera Orion*; two at sugar. June 11th, *Agrotera nemoralis*; one worn specimen. June 24th, *Cidaria dotata*. June 27th, *Limacodes testudo*, by mothing; and *Acronycta ligustri* and *Rodophæa tumidella*, at sugar. July 2nd, *Cledeobia angustalis*; plentiful in one spot on the beech at Pelt. July 7th, *Phycis roborella*; several by mothing and at light. July 13th, *Ennomos erosaria*, two females; insects came pretty freely about this time to light; among them were single specimens of *Arctia fuliginosa*, *Notodonta ziczac*, *Cidaria silaceata*, *Macaria notata*, and *Ennomos fuscantaria* (22nd); also several *Eupithecia succenturiata*, *Eupithecia centaureata*, *Tethea subtusa*, *Ptilodontis palpina*, *Notodonta camelina*, *Platypteryx hamula*, *Pyrausta purpuralis*, *Paraponyx stratiotalis*, and *Acronycta auricoma*; the latter insect was very restless, and most of the few specimens taken were much injured. July 30, *Tethea retusa*, and August 1st, *Ennomos tiliaria* ♀ by mothing. August 6th, *Sphinx convolvuli*, a very fine specimen; and August 10th, *Deilephila lineata*, as recorded (Ent. Mo. Mag. for September). August 26th, three *Sphinx convolvuli* appeared in my garden, preferring petunia and scarlet geranium; they were observed almost every night for a week or so, when two out of the three disappeared; but one has been seen occasionally up to the present time.—E. N. BLOOMFIELD, Guestling Rectory, near Hastings, September 23rd, 1868.

Second broods?—August 29th I took, in a wood near Polegate, specimens of *elitæ Athalia* and *Sesia cynipiformis* ♀. Is it not very late for both these species?—ID.

Observations on the occurrence of Colias Hyale in Britain.—The occurrence of *Colias Hyale* in such unusual numbers and localities this year seems naturally to suggest the idea of a migration of this species, which, however, does not seem to be confirmed by the accounts of its appearance in different localities.

For instance, on page 107 of the present volume of the Magazine, a correspondent states that he took *Hyale* in fine condition at Margate on or before July 15th, and that in a few days afterwards it was common, and by August 7th so worn as to be hardly worth catching.

At Haslemere, thirty miles inland, and at a considerable elevation above the level of the sea, the first specimens were met with on August 5th, beautifully fine; and others from day to day until August 15th, all in good condition. After this time the weather became rough, and they disappeared.

On August 31st Mrs. Hutchinson tells me a specimen was taken by her son at Leominster, which, when first seen, was perfectly fine, and was only injured a little in catching.

Now, if this had been a migration of *Hyale*, and it had become worn so early on August 7th on the south-east coast, it could not well have appeared in fine condition at Haslemere from August 5th to 15th, much less at Leominster on August 31st. Neither, for the same reason, could the specimens taken inland be stragglers from its usual breeding places on the coast.

On the other hand, it is absurd to suppose that eggs or pupæ could have laid years waiting for an exceptionally hot summer to bring them to perfection, even supposing that the clover fields, in which they appear to feed, were permanent, instead of being sown in rotation with other crops.

The only way, therefore, in which I can explain its appearance in such unusual and widely separated localities, is by supposing that when engaged in egg-laying, the female must forsake the ordinary habit of the species, of flying up and down over two clover or lucerne fields for hours and, indeed, days together, and fly, as it were, very rapidly across the country, laying a few eggs here and there in the various clover fields over which it passes, and that the larvæ, in a favourable, *i. e.* a warm and dry summer, feed up rapidly, escaping their worst enemy in this climate—the wasp, and so the perfect insects are found, earlier or later according to the climate, one, two, or three in a clover field in the inland districts, and in large numbers in the sea coast districts in which the insect usually occurs.

Thus I am compelled, contrary to my will and usual practice, to offer a theory as an explanation of this unusual visitation, and can only hope that it will be found, ultimately, to be borne out by facts; but I can give one fact slightly to the point.

A young friend of mine, Master Stuart Nicholson, of Liphook, near Haslemere, showed me a female which he had taken there on the railway embankment, and which he had disturbed from a small hollow, and that its wings were not sufficiently strengthened to enable it to fly far, so that it flew heavily very short distances and was easily caught; and the appearance of the specimen, its exquisitely perfect condition, the brilliancy of its reddish fringes, are strong confirmation of his statement. It certainly never could have flown far.

That butterflies may sometimes be disturbed before their wings are dry I know, for last July a *Vanessa cardui* tempted me across a large field before it was secured, by its curiously heavy and short flights, and when captured, its wings were so limp, that it seemed impossible it could have used them for flying.—CHARLES G. BARRETT, Norwich, November 6th, 1868.

Description of the larva of Lycæna Artaxerxes.—On the 8th May, 1868, Mr. Doubleday kindly presented me with three larvæ of *Artaxerxes*, about half-grown, which had been sent to him by Mr. Wilson, of Edinburgh, who found them on *Helianthemum vulgare*.

They fed well on this plant, and were always on the under-sides of the leaves, to which they assimilated so well as to be difficult of detection.

The larva is of the usual *Lycæna* shape, somewhat onisciform, short and thick, being arched on the back, sloping on the sides, the spiracular region swollen, and projecting laterally much beyond the ventral legs; the segments appear deeply divided, especially on the back, down which are two rows of rather peaked cone-like eminences, with a dorsal hollow between them, the second segment simply rounded above, and rather longer than the other, and tapering a little near the head, which is very small and retractible; the anal segment tapers very little, is rounded behind, and hollowed above on the sides; the twelfth segment has a small and prominent wart on each side.

The half-grown larva is from three to four lines in length, pale green in colour and clothed with very fine and short whitish bristles. The dorsal line, beginning on the fourth and ending on the twelfth segment, is of a faint brown, though wider and more strongly marked just at the beginning of each segment, and widest at its termination on the penultimate.

On the sides of the fifth to the tenth segments are double oblique lines slanting backwards and downwards, of paler green in front and darker green behind, than that of the ground colour. At this stage of growth the lateral projecting ridge or swellings broadly pink, with scarcely an indication of a central paler stripe; the belly and ventral legs pale yellowish-green; the anterior legs flesh colour. The head black, base of the papillæ flesh colour, and a streak of the same above the mouth.

On approaching full-growth its length is about half-an-inch; the oblique stripes gradually disappear, and its green colour becomes rather darker; a pinkish-white stripe runs along the lateral prominences, broadly bordered above by a stripe of rose-pink, and beneath by a broader stripe of still darker pink; the spiracles are flesh-colour, situated in the upper pink stripe, very minute and inconspicuous. The ventral legs green, and the anterior legs pinkish spotted with brown.

Two changed to the pupa-state on May 21st, and the third a week later, all in nearly perpendicular positions, amongst, and slightly attached to, the stems of the *Helianthemum* by a few silk threads near the ground.

The pupa is about four lines in length, smooth, and without polish, rather thick in proportion, the head rounded and prominent, the thorax rounded above, the abdomen plump and curved a little backwards, its extremity being hidden in the shrivelled larva-skin which adheres to it. The colour of the head, thorax, and wing-cases blue-green, a black curved streak obliquely placed on each side of the

head; the abdomen yellowish-flesh colour, a deep pink stripe at the sides enclosing a central white one, which can also be seen showing through part of the wing-covers.

Two of the butterflies appeared on June 13th and 14th.—WM. BUCKLER, Emsworth.

Natural history of Hepialus hectus.—To the very arduous, long-continued, and valuable exertions of Mr. Joseph Steele, of Congleton, in elucidating the history of this species, I am deeply indebted.

The eggs are globular, small, and bluish-black, and are laid by the ♀ over fern fronds towards the end of June.

The young larva is hatched about the middle of July, and is then of a drab colour, with brown head, and plates on the second and anal segments, and, with the aid of a lens, the hairs on its body are easily seen.

It burrows in the lower part of the stem, and feeds in the root of *Pteris aquilina*, and grows but slowly its first season.

When a year old it makes good progress, and by or before the end of its second autumn it has apparently attained its full dimensions; it then ceases to feed, and gnaws the root, not however going beyond two or three inches from it, and there in the earth remains dormant until the following spring.

In April it re-commences feeding, and continues to about the end of May or beginning of June, according to the locality and season, though not feeding in the same manner as before, but attacking the young shoots of the fern; the parts bitten are made into small excavations, about five or six lines long in a vertical direction, and from two to three lines broad, and hence considerable exudation of sap ensues, which probably forms part of the sustenance of the larva, as at this time it is found quite wet, and the stem and soil are even saturated.

At the end of May or early in June it is full fed, leaves the fern, and just on the surface of the earth, amongst dead leaves, and often under moss, spins an oblong cocoon, lined with silk, and covered with light vegetable or earthy matter. It remains but a short time in the pupa state, as the perfect insect is disclosed during the month of June.

The full-grown larva is about an inch and one-eighth in length, cylindrical, slender, and tapering a little towards the head, and also just towards the anal extremity; the head being broad in front and rather flattened, the sides rounded.

The transverse wrinkles on the segments beyond the fourth are so regularly and uniformly indented, that the segmental divisions cannot well be distinguished in them, the body appearing like a series of rings, each segment being subdivided into four, the second in front being the widest, and the rest of equal width.

Its colour is a pale drab,—more or less pale in individuals,—and opaque, coming on the thoracic segments only a little transparent and shining, and they are furnished with brilliantly-polished plates or horny markings in the following order. A black or blackish-brown plate, rounded behind, covering the outer surface of the second segment; the third and fourth have each a transverse dorsal narrow oblong plate in front, and a very small one on each side below it; a little further back, on each side, is a drop-shaped plate, and just above them is an oval or circular one; all of these plates, besides one on the anal tip, are black brown, as also is the head, and highly lustrous, contrasting with the dull appearance of the rest of the body.

The tubercular blackish dots are very small, each emitting a fine hair of great sensitiveness. The spiracles very small and black.

The larva is extremely difficult to inspect carefully, and evinces the greatest aversion to light, and makes rapid efforts to hide itself; at such times, if one of its hairs be touched with a finger, most violent contortions ensue, or else it springs backwards, and will run that way quite as rapidly as forwards,—and in its twistings and wriggings it rivals the most nimble of *Tortrices*.

The pupa is about five-eighths of an inch or little more in length, very slender, and of about uniform bulk throughout; the head and back of thorax a little prominent; the abdomen but slightly curved backwards, long, and scarcely tapering at the end, which is obtusely rounded.

The wing-cases very short in proportion.

On the back of each abdominal ring are two transverse ridges of minute curved points or hooks, and a pair of them on the under-surface of each wing, the penultimate having a ridge of them in addition, and a circlet of them on the blunt and rounded tip.

The colour of the pupa is rather dark brown, but the golden blotches begin to appear through the wing-covers, and increase in brightness as the hour draws near for the disclosure of the imago, the pupa previously making its way nearly out of the cocoon in readiness. The moths bred were all out from the 26th of June to 6th of July.—*Id.*

Notes on the larvæ of some fir-feeding Lepidoptera.—Guided by information received from my friend Mr. Machin, I went to work in the beginning of April last to search for larvæ or pupæ of *Retinea turionana* in shoots of Scotch fir. On the 9th, at Woolmer Forest, I found the shoots of the young trees much infested with larvæ which I supposed to be those of that species, and accordingly collected a lot of them. Afterwards, however, being informed that these were probably only young larvæ of *Buoliana*, I desisted from collecting them (which I have since had cause to regret), and confined myself to searching for the pupæ of *turionana*, which I soon learned how to obtain.

Now I know very well that some years ago Mr. Machin carefully described the habits of this species in the "Intelligencer," but as it is necessary to my purpose to give an outline of them here, I hope I shall be pardoned the repetition.

The larva of *turionana* feeds during the winter inside the centre shoot at the tip of a branch of Scotch fir, generally selecting the topmost centre shoot of a young tree. This it hollows out, eating its way quite down into the pith below the ring of side shoots, which it leaves untouched, and makes a hole at the side of the woody part, among the needles, through which the excrement is ejected, and around which the resinous sap exuding from the wound forms a thick lump with the round hole through it. The pupa state is assumed in the centre shoot, but when the moth is ready to emerge the pupa works its way down the passage and out through the resinous tube, till it hangs free all but the last segment or two, which retain a hold in the passage, so that the moth, when it emerges, has no need to touch the resin, to which it might otherwise adhere. Before this, however, the circle of shoots has begun to grow, leaving in the centre the dead one, forming a natural conical cocoon, and this seems to betray the whereabouts of the pupa.

When this is broken off the pupa, if there be one, will be visible, as it hardly forms any web, and fills the space in the shoot; but if, as is more often the case, the larva has been destroyed by an *ichneumon*, a flat, pellucid membrane will be visible inside the shoot, and within this the *ichneumon* pupa lies. After working wherever I could find young firs for three weeks, with various success, finding few pupæ and many *ichneumons*, with occasionally a larva different from the ordinary ones, I chanced, on May 1st, to find a pupa in a *side* shoot (one of the circle), and by close searching procured one or two more. These were light brown pupæ (those of *turionana* being dark brown), and instead of lying in the shoot with the head downwards, were in the reverse position, the head being towards the tip of the shoot, the hard inside of which had been carefully gnawed away, leaving a passage of escape for the moth, but safely closed from any intruder by the natural bracts. From these, in the middle of May, I bred *Retinia pinivorana*; *turionana* having commenced to emerge a fortnight earlier.

In the meantime the larvæ collected first had been feeding voraciously, requiring plenty of fresh food, but at the same time being very restless, and had now most of them spun up; and, to my great surprise, I bred from them nearly twenty *pinivorana*. Thus I had accidentally hit upon both the larva and the habits of the pupa of this species. Supposing the larva to be *Buoliana*, I did not take any description, but they were dark red or liver coloured, and, if I recollect right, without markings, but with the ordinary brown head and plate.

My good fortune did not end here, for on June 26th a *pinicolana* emerged, and July two of *Phycis abietella*. This last must, I think, have been produced from a pale grey larva with darker longitudinal stripes, and I think a few short scattered hairs, which had rather a different form to the other larvæ; but as it fed in the shoots in the same way, I had concluded it to belong to an allied species.

The only other insect that I bred from this lot of fir-shoots was *Sericoris ticana*!! Polyphagous as the larva is, I did not expect it from such a pabulum as this.—CHAS. G. BARRETT, Haslemere, 16th September, 1868.

Reviews.

THE RECORD OF ZOOLOGICAL LITERATURE, vol. iv.; part 2, *Arachnida, Myriapoda, Insecta*; by W. S. DALLAS, F.L.S. London: John Van Voorst, 1868.

The hopes we previously expressed that this elaborate Record would be divided into sections, so as to enable students of one branch of Natural History to know what their fellow-workers were doing without having to pay for a bulky volume, a considerable portion of which would be useless to them, have been realized, and the portion recording the work done in the above-mentioned classes during 1867 may now be had separately, as can the two others concerning the *Vertebrata, Mollusca, and Insecta*, and lower animals respectively. As it is, the present part extends to 100 pages, almost totally occupied by the *Insecta*. We feel sure that entomologists will duly appreciate the boon accorded to them. It may be worthy of consideration whether the size and price might not yet be much reduced with advantage, by omitting the brief abstract of the characters of the new genera. It suffices that a worker at any order or family should know what has been done, and where to find the special paper he may require: moreover, as it is impossible that any man can duly appreciate the relative value of characters in all orders of insects,

so we find occasionally that in the condensed diagnoses given in the Record, the most important points are omitted, and undue prominence given to minor characteristics. We throw this out as a hint, knowing at the same time that Mr. Dallas performs an Herculean labour in a most conscientious and able manner.

THE BUTTERFLIES OF NORTH AMERICA; by WM. H. EDWARDS. The American Entomological Society, Philadelphia. London: Trubner & Co. 4to.

At page 79 we had occasion to notice the first part of this magnificent publication. We have now received the second part, which, for beauty of the figures, and letter-press replete with information, fully sustains the favourable idea we had previously expressed. The five plates are occupied by figures of *Argynnis* 2 sp., *Colias* 4 sp., and *Apatura* 1 sp. Perhaps the most curious of all is the little *Colias Behrii* from the Yo Semite Mountains at an elevation of 10,000 feet; it belongs to the dusky-green group of the genus, peculiar to northern and Alpine regions. If the author continue to maintain the same excellence of description, and fidelity of illustration, any further recommendation we can give him will be superfluous.

ENTOMOLOGICAL SOCIETY OF LONDON, 2nd November, 1868.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Stevens exhibited an example of *Chærocampa Celerio* captured by Mr. Swaysland at Brighton on the 21st of September last; and an insect from the late Mr. Desvignes' Cabinet, which was probably a var. of *Strenia clathrata*.

The President exhibited dwarfed specimens of *Vanessa urticae* and *Anthrocera filipendulae* from the Isle of Man, where these forms appeared to be the ordinary condition of the insect, at any rate during the last season. They were sent by Mr. Birchall, who communicated notes on the subject.

Mr. John Wilson, R.A., of Woolwich, sent a note respecting a gynandromorphous example of *Lasiocampa quercus*; left side ♂, right side ♀.

Mr. Briggs exhibited a *Leucania* captured at sugar at Folkestone on the 15th August; another having been found, much worn, in October (since identified as *L. albipuncta*, W. V., and new to this country; a species more common in France than *lithargyria*, to which it is closely allied).

Mr. Pryer exhibited *Scoparia Zelleri* captured at Norwood, and *Agrypnia picta* captured at Highgate, both new to Britain.

Mr. Mosse exhibited a collection of insects from New York.

Mr. Roland Trimen sent, from the Cape of Good Hope, drawings of an extraordinary orthopterous insect, apparently pertaining to Gray's genus *Anostostoma*. He also sent a paper containing remarks on certain South African *Satyridæ*, with reference to their position and synonymy in Mr. Butler's recently-published Catalogue of *Satyridæ*.

Mr. Fereday, of New Zealand, sent a communication soliciting duplicates of British Insects for the Museum at Christchurch, Canterbury, N. Z.

Mr. Müller sent a letter requesting information respecting British galls; he and Mr. H. W. Kidd being engaged on a work on the subject.

Mr. F. Bates communicated "Descriptions of New Genera and Species of *Heteromera*."

Mr. McLachlan read "Contributions to a knowledge of European *Trichoptera* (part 1)."

Acanthosoma hæmorrhoidalis or *hæmorrhoidale*? with a word or two on the perpetuation of blunders in nomenclature.—At the last meeting of the Entomological Society, I had the pleasure of reading a paper written by my colleague in the Secretaryship. When I came to the genus *Sericostoma*, my memory recalled a vigorous passage on the gender of *Acanthosoma* (Ent. Mo. Mag. iv, 260), and it was only after a timorous glance round the room had convinced me of the absence of the Rev. T. A. Marshall that I dared to give utterance to the name *Sericostoma Carinthiacum*.

When my friend's "few words on bad spelling" were published in the Magazine for April and May last, I was prevented by the pressure of other matters from adding a few words of my own. If not too late, I should like to do so now.

I may remark that Mr. Marshall has given to his papers a title too restricted; the range and scope of his criticisms extend far beyond "bad spelling;" many of the "flagrant instances of cacography* in names" which he adduces are incurable malformations, which must be either retained or rejected, but cannot be amended. The spelling of a mis-spelt name may be corrected, but it remains the same name; reform a malformation, and you make in fact a new name.

(1) I agree that "the ill-used letter H might be easily reinstated in such words as *Abrostola* and *Yponomeuta*," and ought to be. In the "Accentuated List of British *Lepidoptera*" published in 1858 by the Entomological Societies of Oxford and Cambridge, Mr. Marshall will find *Habrostola*, *Hyponomeuta*, *Hypsipetes*, &c.

Suppose that, at a meeting of our Society, Mr. Dash were to announce that on a recent visit to 'Ampstead 'Eath he had caught a new 'Ighflyer, which he intended to describe as '*Ypsipetes* '*Ampsteadiensis*. I not only deny Mr. Dash's right to bind me by his pronunciation, but I think it would be within my duty if, before leaving Burlington House, I caused search to be made on the floor for the dropped H's, and announced the new Highflyer in the "Proceedings" as *Hampsteadiensis*. And if, instead of a verbal announcement, Mr. Dash had sent to a Magazine a description of '*Ampsteadiensis*, and the Editors (omitting to sweep the carpet) had published it, I deny the right of Mr. Dash (either with or without the Editors thrown in) to bind me by his spelling. But unless Mr. Dash has the right to bind me throughout all time, both in writing and speaking, to drop the H of *Hypsipetes*?

(2) Again, I agree that "printer's errors might be rectified," and ought to be. For instance, (*Bucculatrix*) *frangulella*, so named by Goetze because the larva feeds on the alder buckthorn (*Rhamnus frangula*), was first published as *frangutella*. Can absurdity much further go than to perpetuate a misprint like this? Yet it was years before the Historian of the *Tineina* could be induced to abandon it; and there are still some who cling to the *t*. What would these gentry have done if the printer had made it *frangulella*?

In the "Accentuated List" Mr. Marshall will find *Argyrotoxa*. *Argyrotoxa*, however, was not a printer's but an author's error. Stephens made the same substitution of *z* for *x* in other cases, e. g., *Lozotania*, in each instance giving correctly

* *Qu.* Is not "calligraphy" usually taken to mean good writing in the sense of good penmanship? and "cacography," I presume is the opposite of calligraphy. But the opposite of "orthography" is here intended.

the Greek word which he professed to be Latinizing. The unfortunate similarity, in many founts of type, of the diphthongs *æ* and *œ* leads to constant confusion. And nomenclators occasionally forget that the Greek *ai* is represented in Latin by the diphthong *æ*, and the Greek *oi* by *œ*; thus we have *Oinophila* where we ought to have *Enophila*. Mistakes like these ought, in my opinion, to be rectified. And it may be worth while to add that I regard it as perfectly proper to cite *Argyrotoxa* and *Enophila* of Stephens.

(3) Mistakes in the spelling of proper names are not uncommon—sometimes the printer, sometimes the author himself, is at fault. Example, *Stigmodera Yarelli*, Lap. and Gory, for *Yarrellii*. In a note at p. 32 of *Trans. Ent. Soc.*, 1868, I have sufficiently indicated my opinion as to the retention of blunders like this.

(4) But some Medes and Persians are so enamoured of the “law of priority” that they will not even permit an author to correct his own mistakes. It is only on this hypothesis that the retention of *Psocus* can be supported; since Latreille, who published *Psocus* in 1794, himself gave the correct form *Psachus* in 1796. Here, again, I should like to ask what must have been done if the printer, instead of dropping out the *h*, had omitted (say) the *o*, thereby reducing the name to *Pschus*? Must Latreille, and all the world besides, have for ever continued to sputter over the genus *Pschus*?

(5) “Lastly (says Mr. Marshall) a vicious practice has been imported from the Continent, and is daily gaining ground. It is that of making genera which end in -TOMA, -OMA, or -SOMA, neuter, instead of feminine. This extraordinary and illogical vagary seems founded on some confused notion that all Greek words ending in -OMA must be neuter because SOMA is so. It seems necessary to point out that the gender of the different nouns forming a compound can have no influence on the gender of the compound when formed. The latter depends for gender on its own termination, and nothing more. [And is moreover supposed to be *Latin*, whatever its derivation.—EDS.] *Acanthosoma* is feminine by the form of the word, irrespective of the gender of *Acantha* or *Soma*; to make it neuter is to misunderstand the use of words. It would not be more ludicrous to argue that a carriage must be feminine, because it has a lady inside. Nevertheless a German illuminato has gravely propounded this rule, and by way of correction, as a legitimate principle in nomenclature.” (*Ent. Mo. Mag.* iv, p. 260).

En passant, the neutrication of *Acanthosoma* has nothing to do with “bad spelling.”

I may observe that in the aforesaid “Accentuated List” we did not alter, from feminine to neuter, the gender of such generic names as these, but retained *Diplodoma marginipunctella*, *Dasystema salicella*, *Homæosoma nebulella*, &c. On the other hand, in the 3rd series of the *Trans. Ent. Soc.*, there are many such forms treated as of the neuter gender, and I have not attempted to induce the authors to make them feminine. Hitherto, then, I have been indifferent on the point, or perhaps I ought to say, passively, if not actively, inconsistent. But now that the question has been so pointedly raised by Mr. Marshall, I feel compelled to throw off my indifference, and range myself on one side or the other.

The question does not appear to me so simple as Mr. Marshall seems to think; and though I can quite understand my friend's view, I see nothing ludicrous in that of the “German illuminato.” I should like to hear the said German argue the point; failing that, I will (for the sake of ventilating the subject) try to place myself in his position.

So far as I am aware, the practice of making "genera which end in *-toma*, *-oma*, or *-soma*, neuter" has been applied only in cases where the name of the genus is a compound of two Greek words of which the latter is a noun substantive of neuter gender; as *Ortho-stoma*, *Diplo-doma*, *Acantho-soma*. This is the case which I propose now to consider, leaving those (if any) who hold the "confused notion" above mentioned to defend their own "vicious practice" and "illogical vagary."

What then is, or ought to be, the gender of *Acanthosoma*?

The proposition that "the gender of the different nouns forming a compound can have no influence on the gender of the compound when formed; the latter depends for gender on its own termination, and nothing more," is stated too broadly, as shown by Mr. Marshall himself, in the note at p. 281, where he says "DIPSOCORIS=*thirst-bug*; a compound noun substantive, which, therefore, must have *some* gender or other; it takes its gender from the *subject* (bug) . . . the word involves both subject and predicate; the subject is a *bug*, whereof it is predicated that he is *thirsty*." It is clear, then, that where the subject is expressed, the gender of that subject not only has influence on, but determines, the gender of the compound.

But Mr. Marshall distinguishes *Acanthosoma* from *Dipsocoris* on the ground that "in *Acanthosoma* the subject is not contained, but understood. ACANTHOSOMA=*spiny-bodied*; a compound noun adjective, agreeing with some substantive understood, or supposed to be understood, and in this instance, from the termination, supposed to be feminine. Of this subject it is predicated that it has a *spiny body*. Body is not the subject, but part of the predicate."

In other words—a name which denotes what a thing *is*, is a noun substantive; a name which denotes what a thing *has*, some property or quality which it possesses, is a noun adjective.

But is this necessarily and universally so? A "blackbird" is so called because it *is* a black bird; a "redbreast" is so called because it *has* a red breast; a "wag-tail" because it *has* a tail and *wags* it. Are not "redbreast" and "wagtail" as much nouns substantive as "blackbird"? May not *Acanthosoma* be a substantive, just as much as *Dipsocoris*?

The real question is this—Is *Acanthosoma* an adjective or a substantive?

That it *may* be an adjective I do not deny. Such forms as *disomos* and *megalosomos* (for *disomatos* and *megalosomatos*) occur in some late Greek writers, and there is good authority for *distomos* and *megalostomos*. By analogy we have *acanthosomos*, and, Latinizing this, we obtain *acanthosomus*, *-a*, *-um*, as an adjective to express "spine-bodied." [Spine-bodied, not spiny-bodied; *spincorpus*, not *spinosicorpus*. I apprehend that, properly, *Acanthosomus* means "having a body like a spine," or "spine-shaped"—not "spiny," or "covered with spines."]

But conceding that *Acanthosoma* *may* be an adjective, does it follow that it *must* be?

Why may I not say "ACANTHOSOMA=*spine-body*, a compound noun substantive, which, therefore, must have *some* gender or other" of its own?

When, as in the days of Moses Harris, *Papilio Machaon* and *Anthocharis Cardamines* were called respectively "the swallow-tailed" and "the orange-tipped," their vernacular names were "compound nouns adjective, agreeing with some substantive understood." But surely "swallow-tail" and "orange-tip," "blue-bottle," "cow-lady," and "lady-bird," are themselves nouns substantive.

It cannot be said that the Greek language does not recognize compound nouns substantive. And if it be wished to form in Greek the compound substantive corresponding to the English *spine-body*, what would it be, if not *Acanthosoma*?

Is there any reason why a compound noun substantive may not be taken for the name of a genus, when a simple noun substantive may? If *Harma* will do, why not *Chalcarma*? If *Phasma*, why not *Neophasma*?

The word *Trigonaspis* may be either a substantive (a triangular shield), or it may be an adjective denoting the possession of a triangular shield. The mere compounding of *trigonos* with *aspis* does not make the compound *trigonaspis* an adjective any more than compounding "long" and "bow" makes "longbow" an adjective. *Trigonaspis* is as good a substantive as *Aspis*, *Micrornix* as good as *Ornix*.

If *Micrornix* had been applied to a genus of birds, Mr. Marshall's *Dipsocoris* argument would have run thus:—"MICRORNIX = *little-bird*, a compound noun substantive, which, therefore, must have some gender or other; it takes its gender from the subject (bird); the word involves both subject and predicate; the subject is a *bird*, whereof it is predicated that it is *little*." If, instead of a genus of birds, the name were given to a genus of moths—as, in fact, the name *Ornix* has been—then, as a moth is not a bird, the argument would be that "in *Micrornix* the subject is not contained, but understood; of this subject it is predicated that it is like a little bird; bird is not the subject, but part of the predicate." The result is, that as the name of a bird *Micrornix* is a substantive, with a gender of its own—as the name of a moth, *Micrornix* is an adjective, depending for its gender on some imaginary substantive understood!

Suppose that instead of compounding *acantha* and *soma*, the author had formed his name from *acantha* and *thorax*. Adopting the same mode of composition as in *Acanthosoma*, we obtain *Acanthothorax*. By a similar process we have *Uropteryx*.

The three genders of the *adjectives* *Acanthothorax* and *Uropteryx* would be identical. Whatever, then, "the substantive understood, or supposed to be understood," might be, whether masculine, feminine, or neuter, the name of the genus would still remain *Acanthothorax* or *Uropteryx*. The founder of *Acanthothorax* might understand a feminine substantive, and make the name feminine; the founder of *Uropteryx* might have understood a masculine substantive, and made the name masculine. Would Mr. Marshall allow *Acanthothorax spinosa* or *Uropteryx sambucarius* to stand? If not, why not? If he would, he must equally allow *Spilothorax punctatum* and *Micropteryx purpurellum*. We should then have three genera, say, *Ceratothorax* masculine, *Acanthothorax* feminine, and *Spilothorax* neuter; and in like manner with the compounds of *pteryx*. Nay, further, we might have all three genders in the same genus. A., an author of a masculine turn of mind, might call his species *Acanthothorax niger*; B., more partial to the feminine gender, might insist upon naming another species *Acanthothorax alba*; whilst C., an epicene, might have a preference for *Acanthothorax rufum*. And if this noun-adjective principle of the gender being "dependent on the termination and nothing more" be sustainable, no one of the trio can say that either of the other two is wrong.

Is not *Acanthothorax* a noun substantive of masculine gender, and masculine because *thorax* is masculine? *Uropteryx* a noun substantive of feminine gender, and feminine because *pteryx* is feminine? *Acanthosoma* a noun substantive of neuter gender, and neuter because *soma* is neuter?

Mr. Marshall is careful to point out (p. 282) that *Harma*, as a generic name, is neuter; the only reason being that the Greek noun substantive *harma* is neuter.* If any one were to take *Soma* for the name of a genus, this, by parity of reasoning, would be neuter. If *Soma* is properly made neuter, why is *Acanthosoma* to be made feminine? Is not *Chalcarma* of the same gender as *Harma*?

To Mr. Marshall's assertion that the compound depends for gender on its own termination and nothing more, the Editors of the Magazine add the further argument that the word is "supposed to be Latin, whatever its derivation." Admitted—but what then? The name *Harma* is supposed to be Latin. Do the Editors wish to argue that *Harma* should be feminine? If so, I leave them for the present to settle their little difference with Mr. Marshall. In fact, the suggestion of the Editors leaves the question precisely where it was; for if *Acanthosoma* be a substantive, the termination does not decide its gender; I need scarcely remind the Editors that there are plenty of Latin substantives ending in *-a* which are masculine, and plenty which are neuter. *Acanthosoma* as a Greek noun substantive would undoubtedly be neuter; and if that word had been adopted in Latin, the neuter gender would have been retained. Just as we have *Ænigma* (n.), gen. *ænigmatis*; *phasma* (n.), *-atis*; *psalma* (n.), *-atis*; so we should have *Acanthosoma* (n.), gen. *Acanthosomatis*.

On the adjectival hypothesis, we are bound to make the genitive case *Acanthosomæ*; but I presume Mr. Marshall would say *Harma*, gen. *Harmatis*. I see that at p. 274 of the Magazine he sends *glechomæ* of Linné to the right about, and properly writes *Aulæ glechomatis*. If, then, there were an *Acanthosoma* which affected the plant *Glechoma*, Mr. Marshall must make the genitive case of its name to be *Acanthosomæ Glechomatis*.

I have purposely omitted any discussion of the "carriage with the lady inside." But so far from seeing anything "ludicrous," "illogical," or indicative of "misunderstanding the use of words" in making this name neuter, I must confess that *Acanthosoma*, as a Latinized word of Greek origin, a noun substantive of the third declension and of neuter gender, a term absolute, not depending on any other word understood, seems to me admissible; and if the matter were *res integra*, and we were now beginning our nomenclature, I should not hesitate (as at present advised) to adopt the neuter substantive in preference to the feminine adjective; though I beg to reserve to myself the fullest right to go over to the feminine camp when I have heard Mr. Marshall in reply.

My present impression is that *Acanthosoma*, as the name of a genus of bugs, may be deemed to be either an adjective or a substantive, may be made either feminine or neuter—that either of the opposing views is rational, neither of them ludicrous. It may be that in the existing state of nomenclature, expediency and the balance of convenience are in favour of the retention of *Acanthosoma*, fem. gen. case, *Acanthosomæ*, Fam. *Acanthosomidæ*, and the rejection of *Acanthosoma*, neut. (gen. case, *Acanthosomatis*, Fam. *Acanthosomatidæ*); at all events, it is desirable that there should be uniformity in the practice.

(6.) To pass now to Mr. Marshall's "further words" (vol. iv, p. 280), I find no difficulty in discovering, and I hope we shall be further informed, how far my

* For the purpose of this argument I adopt Mr. Marshall's suggestion that the genus *Arma* of Hahn ought to be written *Harma*. I do not find that Hahn himself professes to derive the name from *harma*, but do I know on what ground Mr. Marshall adopts this derivation. It is not justifiable to impute or on conjecture, if any explanation not involving error is forthcoming. If *Arma* can be explained, ought not to resort to *Harma*; and at least two derivations may be suggested for *Arma* without H.

friend desires to go in altering names that are already current. Viewed as canons for future guidance, I agree in the main with Mr. Marshall's propositions; but framing rules for future nomenclators, and applying those rules retrospectively to established names, are very different matters. I desire to see scientific nomenclature scientifically constructed, and think that enough has already been said to show that I am not bigottedly conservative of blunders, however venerable from antiquity; at the same time, considerations of convenience render me averse to making alterations in some, at least, of the instances classified by Mr. Marshall. Take his first class of "barbarism"—words without meaning, or formed from Chinese, Sanskrit, Hebrew, and Arabic roots. These are said to be incurable. Is it, then, proposed to root them out? Though not enamoured of such names, I am scarcely prepared for their wholesale excision from our Lists. True, it is difficult to say where we must stop; if we admit Chinese and Hebrew, why not Zulu? or even American? I have some recollection of having seen printed descriptions of beetles under the specific names of "Copper-head" and "Know-nothing!" Not long ago I read in this Magazine, (iv, 246) a description of an *Aulocera Werang*; the context showed that Werang is the name of an Indian mountain-pass where the butterfly had been captured. What would be thought of a *Papilio Hammersmith*, a *Pieris Mont-Blanc*, or a *Polyommatus Jungfrau*? A few years ago certain French authors gave such names as *Cetonia Hope*, *Lomaptera Latreille*, *Gnathocera Macleay*; but subsequent writers have properly converted these into *Hopii*, *Latreillii*, *Macleayi* [N.B. Not *Hopei*, &c.], and this seems to point out the appropriate mode of treatment for the Werangs, whose nakedness should at least be clothed in a garb of mediæval Latinity.

(7.) Again, take Mr. Marshall's 6th class. "Compounds of two nouns, in which the subject is placed first, and the subordinate idea last, thereby destroying the sense. Let any one try this inversion upon the English compounds London-Bridge, watch-pocket, black-beetle, &c., and the result will be similar to that of *Corimelæna* for *Melanocoris*, *Derephysia* for *Physodera*." Is the "destruction of the sense" by inverting "river-horse" into "horse-river" sufficient to induce us to abandon *hippopotamus*? Is *rhinoceros* to be turned into *ceratorhinus*? To substitute *Physodera* for *Derephysia* is to make a new name, not to correct the spelling of the old one.

(8.) As to the 7th class, perhaps a little more explanation is requisite, lest it should be supposed that Mr. Marshall had laid it down that every compound of two Greek nouns is barbarous unless the two are connected by the letter O. It might be well to point out the distinction between *Acetropis*, *Gonianotus*, &c., and such existing Greek forms as *Oidipous*, *Calliope*, *calligraphos*, *andrapodon*, *sciagraphos*, *acesphoros*, *aspidephoros*, *sagephoros*, &c.

(9.) Again, Mr. Marshall says "*Æliodes* should be *Ælioides*; the termination *-odes* means 'full of;,' similarity is expressed by *-oides*." But surely the termination *-odes* (with *omega*) not unfrequently expresses similarity, being in fact nothing but a contraction of *-ooides* (with *omicron*). Thus *isthmodes*, *cunodes*, *cuclodes*, *sphecodes*, *chalcodes* = *isthmoeides*, &c.; and such instances, occurring in classical authors of repute, if not worthy of imitation, seem to me sufficient warrant for allowing *Æliodes* to stand.

But I fear my discursive remarks are running to too great a length; they should have been shorter had I had more time.—J. W. DUNNING, 24, Old Buildings, Lincoln's Inn, 13th November, 1868.

LYCÆNA MEDON (*AGESTIS*) AND *ARTAXERXES*, ARE THEY DISTINCT?

BY PROF. P. C. ZELLER.

(Translated and extracted from the "Stettiner Ent. Zeitung," 1868, pp. 401—405.)

Englishmen consider it as now proved,* and Staudinger in his Catalogue follows their precedent, that *Artaxerxes* is only a variety of *Medon*, the transition to which is formed by *Salmacis*, Steph. That the latter belongs to *Medon* cannot be doubted; but the former does not yet seem to me so sure as not to necessitate confirmatory experiments. What probably constitutes the rule with *Salmacis*, namely, that white scales border the black median spot of the fore-wings on both sides, I notice only in some specimens of *Medon* from the South of Europe and Asia Minor, where it is more or less finished on the inner side by a few white scales. But that, as in *Artaxerxes*, the whole black spot should be missing, and the white scales so much increased instead, as to form a white oval spot, has probably nowhere been observed on the continent. The natural history of *Artaxerxes* is, in all events, well known to Englishmen. Stainton writes (Manual, p. 62)—"Larva pale bluish-green, with a green dorsal line and a pinkish lateral one; head glossy black. On *Helianthemum vulgare* in May; time of appearance of imago June and July." I doubt not but that in some one of the many English publications, which I am sorry to say are mostly unknown and unused on the continent, the natural history is given at length. The same is no doubt the case with *Medon*; for, if the description of its larva taken from Westwood, and in the Manual,—"green, with a pale angular dorsal row of patches, and a yellow-brownish dorsal line,"—should still be considered as correct, it is not to be understood how people in England could have their doubts about the most complete specific difference between *Medon* and *Artaxerxes*. The natural history of our common *Medon* I have carefully observed from the egg, and described in the Ent. Mo. Mag., vol. iv., pp. 73—77. I therefore mention here only the following. Stainton has indicated the correct food-plant, but the full-grown larva must be thus described:—"Lively pale green, finely white-haired; the head black; the dorsal line purplish-brown; with two very pale green lique lateral lines, and broad purplish-red lateral swellings."

It is owing to the kindness of my friend, Mr. Henry Doubleday, of Liverpool, that I have become acquainted with the caterpillar of *Artaxerxes* in nature; I got from him four larvæ, which, after having probably

* In Stainton's Manual I. (1857) *L. Agestis* (*Medon*) and *Artaxerxes* were still kept separate.

first made the journey from Edinburgh to Epping,* arrived on the 16th May safely at Meseritz. The indications of "frass" showed that a few had partaken of food on the way. On the fresh food, which I secured on the very day of their arrival, no trace of "frass" could be observed, and yet one of them could not have been quite full grown, as it only became a pupa on the 29th May. Can it have disliked the *Helianthemum* grown on a sandy loam, and not on limestone?

The first turned to pupa the afternoon following its arrival; it did not fix itself by a thread, neither did the following ones; but the fourth fixed itself in a corner of the box with a weak thread round the middle of the body. So it sat quite still, having become of an unicolourous pale green, with apparently very deep-lying dorsal vessel. Each of the four pupæ had the hinder extremity inserted in the cast-off larva-skin, which had become pale greyish-yellow, with yellowish bristles.

The caterpillars are pale green, and amply covered with whitish bristles. The dorsal vessel forms a considerably broad longitudinal line, dark green, narrowed in the segments, fading away before the end of the anal shield; which line is laterally accompanied on each segment by a swollen hump, apparently more thickly bristled. The lateral swelling, deeply notched behind each segment, has a reddish-white line, running lengthways, bordered on both sides with dark rose colour, making the colour of the whole lateral swelling appear rose colour when superficially viewed. This colour does not reach round the anal shield, nor does it extend to the thoracic segments. Between it and the dorsal swellings pale faint lines descend from above obliquely downwards and backwards. The ventral legs are somewhat paler than the ground colour of the body; the anterior legs are yellowish-brown, their tips quite pale. The pupa is slightly polished pale green, on the back darker and purer; on the abdomen paler, and shading into yellowish, on the wing-covers into whitish. The abdomen shows very slender small yellowish bristles sparsely scattered; on the face they are somewhat longer, straight, and stiff; on the neck shorter, and much sparser. Over each eye a blackish streak, curved backwards, ranges from the upper border to the lower one. The dorsal vessel, only visible on the abdomen, is dark grey, widened on each segment in the middle, but it is not visible either on the first or last segment. The lateral swelling of the abdomen, which disappears under the wing-cases, is very pale rose colour. Above it the spiracles appear as small whitish raised dots.

* We believe these larvæ were forwarded from Scotland by Mr. Andrew Wilson, of Edinburgh.—Eds.

During the development of the butterflies the wing-covers became at first whitish, and not transparent, and the eyes dark. On the third day before the last the thorax became of a brown colour, the wing-cases and the abdomen pale dirty yellow. Over the brown eyes the darker curved streak was still visible. The leg and wing-cases had each received a broad longitudinal line, and the tips of the antennæ showed themselves as two brown, elongated, longly-elliptical, small spots, between the ends of the wing-cases. On the day before the last the wings and the end of the abdomen had taken a brown colour.* The first butterfly (a female) appeared on the 31st May. According to the time of extrusion of these four specimens, the duration of the pupal state of the first generation (if there be a second) is 12—14 days. The butterflies (2 ♂, 2 ♀) were true *Artaxerxes*. Only, one of the males had on the upper-side of the fore-wing, instead of the white spot, nothing but a very small whitish dot, scarcely perceptible, but, like the others, no trace of the black mark always present in *Medon*.

If I now compare the descriptions of the larvæ of *Medon* and *Artaxerxes*, made after a number of specimens, the difference in the colour of the dorsal stripe is first noticeable; purple-brown in *Medon*, dark green in *Artaxerxes*; and in the latter it is even differently formed, —at least, I find in my memoranda about *Medon* nothing mentioned about a narrowing of the same in the segments.

But this being a difference of colouring, I lay no stress upon it, any more than upon the colour of the lateral swelling, which in *Medon* is simply purplish-red throughout, instead of being lighter in the middle, as in *Artaxerxes*. The difference in the build, and in the pubescence of the swellings, is much more important. It is said of *Medon*, that those (swellings) situated near the dorsal stripe bear numerous bristles of unequal length; of *Artaxerxes*, that they have only apparently thicker bristles than the rest of the body. I am sorry that, relying upon the exactness of my last year's description of *Medon* larvæ, I have not drawn up that of *Artaxerxes*, with my notes upon the former before me, and that, therefore, to make quite sure, new descriptions will have to be taken.

I therefore omit to point out also the other small differences, which perhaps lie more in the words than in the reality. But supposing that both larvæ are built quite alike, and that the colour of the dorsal

* The larva and pupa of *Artaxerxes* were described by Mr. Buckler in our last number (p. 176) in usual careful manner, but we insert Prof. Zeller's description for the sake of comparison; it will be observed that the two agree in all important points, the differences being more those of words than of reality.—Eds.

stripes and the lateral swellings is changeable; that, further, a gradual transition can be put together in the imago, from the true *Artaxerxes* to the *Medon* of the continent, then full certainty can only be obtained through breeding from the egg.

The *Helianthemum*, as food of the larva, no doubt produces *L. Artaxerxes*, the *Erodium* (in southern countries, besides *cicutarium*, certainly also other species), *L. Medon*. That the latter does not lay her eggs with us on *Helianthemum*, I may assert as certain; and there is every probability that *Artaxerxes* does not select *Erodium*.

But we have a right to expect that, if the young larvæ, from the egg forward, accommodate themselves to one or another food unusual to them, their butterflies will also take the distinctions (or, to allow its right to the influence of the climate, at least some of them) of the species living upon that food-plant, thus establishing the proof of being the same. Whether *Artaxerxes* appears in a second brood, as it ought to do if it form the same species with *Medon*, I do not find indicated. As hybernation (according to my observations on *Medon*) is not at all easy, it will be best to choose the summer brood for this experiment. The females of the *Diurnæ* like best to lay their eggs in the hours of the forenoon. Where this has been observed, nothing is wanted but to cut carefully a few days later all the plants near the spots, and to shake them over a white cloth, so as to secure the number of larvæ wanted.

If the result answer my expectations, the *Medon* larvæ will all prefer to die of hunger rather than accept the *Helianthemum*; which means that *Artaxerxes* will turn out to be a species different from *Medon*, however much their larvæ may resemble each other in build, pubescence, and colouring.

ON THE EUROPEAN SPECIES OF *SYRPHUS* ALLIED TO *S. RIBESII*.

BY G. H. VERRALL.

The "*ribesii*"-group of the genus *Syrphus* contains several species, which, though closely allied, afford nearly always, when carefully examined, good tangible points of distinction. By this group I mean those species which have the eyes bare, and the abdomen elliptical (that is, broadest in the middle) with at least three bands, of which only the first is in either sex separated into distinct spots. The male of *S. corollæ* approaches this group, as the spots on the abdomen of that are frequently strung together, but in the female they are always decidedly separate. The group is most widely distributed, *ribesii* itself being

said to occur in Europe, Asia, Africa, and America. There are about a dozen European species, of which only three, *grossulariæ*, *ribesii*, and *vitripennis*, are recorded as British in Walker's *Diptera Britannica*; Stephens and Curtis, in their catalogues, mention a fourth, *nitidicollis*, which I reinstated in the June number of this Magazine for last year, and I have now to add a fifth in *latifasciatus*, and perhaps a sixth in *nitens*. Most, if not all, of the rest may be expected to occur in the British Isles. The European species are—

1. *Lineola*, Zetterstedt, Dipt. Skan., ii, 714, 16 (1843).

2. *Vittiger*, Zetterstedt, loc. cit., 714, 17 (1843).

These two may be distinguished from all the rest by their black epistomal middle line; *lineola* has a darker stigma and duller thorax than *vittiger*. Zetterstedt and Schiner record *lineola* as widely distributed in Skandinavia, and rare in Austria, while *vittiger* is the rarer in Skandinavia, and the commoner in Austria.

3. *Grossulariæ*, Meigen, Sys. Bes., iii, 306, 48 (1822). This may be known by its entirely black antennæ, dull coloured thorax, wholly yellow epistoma, and completely entire abdominal bands, without the trace of a notch. The base of the femora and the coxæ being black, distinguish it from its nearest ally *diaphanus*. It is found uncommonly over nearly all Europe. Walker records it as British, but only says "Rare; in Mr. Saunders' collection (E. S. I.)." I have seen one female specimen, probably from Sussex, but the usual British representatives are only large *ribesii*.

4. *Diaphanus*, Zetterstedt, Dipt. Skan., ii, 711, 12 (1843). Distinguished from the preceding by its smaller size, yellow front, and entirely yellow legs in the female, and with only the coxæ dark in the male. It is found rarely in Sweden and Austria, and probably over all central Europe, though generally in single specimens.

Ribesii, Linné, Fauna Suecica, 1816 (1761). This is probably the commonest species of the genus throughout Europe; it may be known by its entirely yellow epistoma, dull thorax, antennæ with the third joint pale beneath, scutellum clothed with mostly dark hairs, and slightly emarginate abdominal bands. There may be two species still under this, as specimens collected in large woods may nearly always be distinguished at a glance from those collected in gardens, by their darker and more compact appearance. Common throughout England.

Vitripennis, Meigen, Sys. Bes., iii, 308, 50 (1822). I must say, 1

cannot satisfactorily distinguish this from the preceding; all authors seem to say it *may* be a variety of it, but are not sufficiently satisfied in their own minds to unite them. The distinctions most insisted upon are the smaller size, more pellucid wings, and blacker femora; but they vary much in the femora, and I have specimens fully as large as *ribesii* with wholly pellucid wings, and others smaller than the general run of *vitripennis* with dark wings. I hope, however, next summer to come to some conclusion concerning the variations of this and the preceding species. Zetterstedt says himself (Dipt. Skan., ii, 708) that the *confinis* described by him in the Ins. Lapp., 602, 15, is only a variety of this, rather larger and with darker antennæ. It is more common than *ribesii* in gardens, but perhaps less so in woods and open country.

7. *Nitidicollis*, Meigen, Sys. Bes., iii, 308, 51 (1822). This species may be known from the four preceding by its brightly shining thorax. The epistoma has also the cheeks more or less dark. The scutellum being clothed with dark hairs separates it from *ochrostoma*, *melanostoma*, and *latifasciatus*. For its distinction from *nigritarsis* and *nitens*, see the notes upon those species (Nos. 11 and 12). It occurs sparingly probably over all Europe, never seeming to be abundant. It has occurred not rarely at Darenth Wood, and occasionally in Sussex, and even here (Denmark Hill) almost in London.
8. *Ochrostoma*, Zetterstedt, Dipt. Skan., viii, 3133, 12, 13 (1849). This may be distinguished from all the preceding by its yellow-haired scutellum. It has also the whole epistoma yellow, which distinguishes it from its nearest ally *nitidicollis*, and from all the following species. It is found very rarely in Northern and Alpine districts.
9. *Melanostoma*, Zetterstedt, Dipt. Skan., ii, 711, 13 (1843). This is allied to the two preceding species, but may be distinguished by its yellow-haired scutellum and black cheeks and peristoma. It is separated from *latifasciatus* by its abdominal bands being straight behind instead of notched. It is found in similar situations to the last, also rarely.
10. *Latifasciatus*, Macquart, Dipt. du Nord de France, 94, 28 ♂ (1827). This species was described as *affinis* by Loew in the Isis for 1840, and in 1849 the male was again described by Zetterstedt as *excisus*, and the female as *abbreviatus*.* The *latifasciatus* of Macquart has hitherto been considered a doubtful synonym of *corollæ*, but the

* And also by Rondani (Dip. Prod. ii, 153), in 1857, as *flaviceps*.—G. H. V.

wording of his original description "abdomen à trois bandes jaunes, "fort larges—la deuxième sans échancrure antérieurement (mâle)—"Epistome d'un jaune luisant, bord antérieur de la bouche noir—"troisième et quatrième (segments de l'abdomen) à bande très "large, atteignant les côtés près du bord antérieur, légèrement "échancrée du côté postérieur—ventre à bords des segments et "taches transversales noirâtres. Pieds fauves; hanches et base "des cuisses noires," is I consider quite conclusive as to the identity of his species: he says it may be the male of *topiarius*, but the words "yeux nus" render that impossible. The reinstatement of this name will also improve a doubtful piece of synonymy, as Fabricius in the Ent. Syst. described a *Syrphus affinis*, which, however, is a *Phasia (Muscidæ)*; and, in consequence of that, Schiner rejects Loew's name, adopting Zetterstedt's name *excisus* for the male. The species may be known from its allies by its yellow-haired scutellum, black cheeks, and emarginate abdominal bands. I believe it is widely distributed, and common in England. I have captured it in two or three localities in Sussex, and also near Richmond. It is frequently to be noticed in British cabinets under the name of *corollæ*.

1. *Nitens*, Zetterstedt, Dipt. Skan., 712, 14 ♀ (1843). In the original description of this species, a single female only was described, which appeared to be very closely allied to *nitidicollis*, the only tangible distinctions then given being the rather smaller size and the much greater blackness of the femora. To this description was afterwards added (Dipt. Skan., viii, 3137), that the vertex is evidently narrower than in the allied species, and that the epistoma has a rudiment of a brown middle line; and a male was described, probably belonging to this species, concerning which it was stated that there are two oblique brown spots above the antennæ, and that the abdominal bands are rather undulated. The bright thorax and black-haired scutellum distinguish it from all but *nitidicollis* and *nigritarsis*. In August, 1866, I captured in Sussex a female very similar to *nitidicollis*, with the vertex very slightly narrower, with two oblique brown spots above the antennæ, and with the abdominal bands distinctly undulated and much narrowed at their ends; the epistoma has a trace of a dark middle line, the wings are more pellucid, and the pubescence in general is darker, the black hairs predominating on the abdomen, and the four anterior femora are fringed with black hairs instead of all yellow, the abdomen is also broader. All these distinctions might show the spe-

cimen to be *nitens*, but it is scarcely smaller and has the femora quite as yellow as in *nitidicollis*; I have very little doubt, however, but that it is a female *nitens*. The species seems only to have been observed by Zetterstedt and Bonsdorff in the extreme north of Europe. This is most similar in appearance to *latifasciatus*, but may be known from that immediately by its black-haired scutellum.

12. *Nigritarsis*, Zetterstedt, Dipt., Skan., ii, 710, 11 (1843). This species differs from *nitidicollis* in the tarsi being wholly, and the femora for the basal third, black; the wings are more pellucid, the thorax not quite so bright, and the hinder tibiæ have a faint obscure ring. It differs from *nitens* in the broader abdominal bands, rather larger antennæ, black tarsi, &c. If distinct from *nitidicollis*, it is probably overlooked, as it is only recorded from the extreme north of Europe by Zetterstedt, Bonsdorff, and Malm.

I believe the above 12 species are all that have been recorded as European, the first ten are well known to Entomologists, the last two are probably overlooked. *Crenatus*, of Macquart (Dipt. du Nord de France, 95, 29) might at first be considered to belong to this group, but I believe it to be only a synonym of *corollæ*, as I have specimens of the latter agreeing exactly with Macquart's description.

In the previous descriptions the colour of the hairs is always, to a certain extent, yellow, so when I say that the scutellum is clothed with yellow hairs, I mean *all* yellow, and when I say black hairs, I mean *some* black, generally the majority, as the character is a very constant one.

The Mulberries, Denmark Hill, London, S.
November, 1868.

NOTE ON THE GENUS *RYGMODUS*, WHITE.*

BY CHAS. O. WATERHOUSE.

Having had occasion to examine the type specimens of the supposed Heteromerous genus *Rygmodus*† in the British Museum, I find that the position of the genus is with the *Hydrobiidæ*, having, I believe, all the characters of *Hydrobius*, except the simple claws; *i. e.*, the antennæ are 9-jointed; the 1st joint being elongate, the 2nd short, thick, 3rd, 4th, and 5th scarcely longer than the 2nd, sub-equal, 6th very short, and 7th, 8th, and 9th forming a club. The abdomen is composed of

* See "Voyage of the Erebus and Terror," pt. Insects, p. 118.—C. O. W.

† The British Museum is now indebted to the liberality of Major Parry for the type specimen of *R. modestus*.—C. O. W.

five segments. The tarsi are all 5-jointed, slender; the 2nd joint of the four posterior tarsi being long, and the basal joint (especially of the hindermost tarsus) very short; the claws are appendiculated.

I add descriptions of Mr. White's two species—

R. MODESTUS.

Black, with the elytra dark metallic green. Head finely and somewhat thickly punctured, slightly contracted in front, the front margin very gently emarginate, the anterior angle obtuse; clypeus with two small impressions behind. Eyes prominent. Thorax gently convex; the sides flattened, much contracted in front, nearly straight, the anterior angles obtuse, the posterior very little so; posterior margin gently lobed in the middle, the lobe bounded on each side by a somewhat deep puncture near the margin. Disc of the thorax very delicately and somewhat sparingly punctured, the punctures more distinct and more frequent towards the sides. Scutellum elongate, acuminate, sparingly punctured. Elytra gently convex, at the base as broad as the base of the thorax, broadest at the basal third, then gradually contracting to the apex; each elytron with ten punctate striæ, the striæ somewhat strongly and not very closely punctured, the interstices moderately convex, sparingly and finely punctured near the suture, more distinctly and thickly towards the sides; the striæ deeper at the apex of the elytra, the 10th stria confused with the punctures at the base of the elytra. Legs pitchy, very long; claws pale, furnished beneath with a blade. Palpi and the two basal joints of the antennæ testaceous.

Length $2\frac{3}{4}$ lin. (6 mill.). Breadth $2\frac{1}{2}$ mill.

Habitat, N. Zealand (Wellington).

R. PEDINOIDES.

This species differs from the former in being rather larger and less contracted behind. The two impressions on the clypeus are wanting, and supplied by two punctures between the eyes. The thorax has the lateral depressions more distinct at the posterior angles, which are a little more obtuse; the sides are fuscous. The elytra are darker, and tinged, especially at the sides, with fuscous; less contracted posteriorly, and less acuminate at the apex; the striæ are deeper and more strongly and less regularly punctured, the interstices are more convex and extremely delicately punctured (almost smooth), the 10th stria is scarcely abbreviated at the base. The legs are shorter. The antennæ have the six basal joints fuscous. Length 3 lin. ($6\frac{1}{2}$ mill.). Breadth 3 mill.

N. Zealand (under stones).

DESCRIPTION OF A NEW SPECIES OF *PSOCIDÆ* (*CÆCILIVS ATRICORNIS*)
INHABITING BRITAIN.

BY R. M'LACHLAN, F.L.S.

CÆCILIVS ATRICORNIS, n. sp.

Rufo-flavus, nigro-varius. Antennæ sat robustæ, alis dimidio longiores, atræ, (♂) pilis concoloribus brevibus vestitæ; articulo tertio ad apicem testaceo. Caput rufo-flavum, supra nigro-cinctum, nitidum; fronte palpisque flavis haud signatis; oculis rufo-fuscis. Mesothorax antice niger, postice rufo-flavus. Metathorax rufo-flavus, nebula antica lineaque transversali postica nigris. Abdomen rufo-flavum, supra linea utrinque basali, stria mediana longitudinali, punctoque anali, nigris. Pedes rufo-flavi, genubus picescentibus, tarsorum articulo ultimo nigricanti. Alæ hyalinae, vix fuliginoso-flavescentes, impunctatæ; venis venulisque flavis, setis nigricantibus brevibus instructis: anticarum spatio pterostigmaticali elongato, apicem versus dilatato; cellula elliptica parva. Long. corp. $1\frac{1}{2}'''$; exp. alar $2\frac{1}{2}'''$.

Hab. in insula Vectis, mense Novembris jam novo, rima instanti.

Several examples of this little species were taken by Mr. Dale and his son at Freshwater, in the Isle of Wight, on the 5th of November, when the frost was on the ground. It appears to be perfectly distinct from any previously described species, and comes nearest to *obsoletus* of Stephens, but is at once to be separated therefrom by its more robust form, by the black markings on the head, thorax and abdomen, and by the much stronger and intensely black antennæ, which in the ♂ (the only sex I have seen), are more strongly pilose; from *flavidus* of Stephens it is abundantly distinct, *vide* Ent. Mo. Mag. vol. iii, p. 271. It is not a little surprising that so small and delicate an insect should resist a temperature below freezing point.

Lewisham: 1st December, 1868.

Notes on four additions to the list of British Coleoptera.—The following species are entitled to places in our Catalogue:—

1. *Amara fusca*, Dej.

I possess an example of this species, given me by Arthur Adams, Esq., who captured it at Swansea. It is allied to *A. ingenua*, and was presented to me under that name. All the British specimens of *A. ingenua* that I have seen are really *A. fusca*, and come from the same source as my own. Dawson, however, records *A. ingenua* as occurring in Scotland; but I have never seen a Scotch specimen; and, if the species be really indigenous, it must be of the greatest rarity. A very good description of *A. fusca* will be found in the *Ins. Deutschlands*, vol. i, p. 537.

. *Lathrobium angustatum*, Bois. ; Kr., Ins. Deutsch., ii, 678.

This species occurs rarely in various parts of the centre and south of England. It is placed in some collections as *L. rufipenne*, to which it bears, however, a resemblance only in size and colour. *L. angustatum* is more slender than *L. rufipenne*, with long joints to the antennæ; it has a narrower head, which is more densely and finely punctured, &c. I have seen specimens of *L. rufipenne* in the collections of Dr. Power and Mr. Crotch, besides in my own. The only locality I know of for it is the Norfolk fens.

Stenus incanus, Er., Gen. et spec. Staph., 700, 19.

I have found a few specimens of this species on the banks of the Nith here. It belongs to Kraatz's group of black-legged species with simple tarsi.

. *Corylophus sublævipennis*, Duv.

This species was captured last autumn by Mr. Crotch and myself, under some good refuse, near Weymouth.—D. SHARP, Thornhill, Dumfries, 9th December, 1868.

Note on Lithobius forcipatus.—Mr. Bold's note on *Lithobius forcipatus* (p. 170) reminds me that on several occasions I have seen a *Lithobius* at shallows, bent on the same errand as myself; and occasionally I have seen a *Hybernia projemmaria* held tight in the centipede's jaws, but I never saw a *noctua*—not even *Teniocampe ruda*—captured by it. And I have known spiders attack fresh specimens on my setting-boards.—J. HELLINS, Exeter, December, 1868.

Notes on (Motschulskian) British Coleoptera, &c.—Among the voluminous references to Insects contained in Part 2 (by Mr. W. S. Dallas) of "The Record of Zoological Literature," vol. iv, 1867, are the following, which can hardly fail to interest British Coleopterists.

p. 231) *Stenolophus anglicus*, Voet, occurs in Denmark, according to Schiödte, who figures its larva in Naturh. Tidsskr., 3rd Ser., iv, 535, pl. 22, figs. 12—18.

I am not aware to what recognized species Voet's *Buprestis anglicus* is properly referable. It does not appear in any shape in Harold's recently published comprehensive Catalogue. From the plate (xxxv, fig. 18) in Voet's Cat. Syst. Col. (vol. i, p. 67, 18), the insect would seem to be one of the *Geodephaga*, and possibly, therefore, a *Stenolophus*; but the description is ludicrously vague, and no locality whatever is given for the species.

There is another of Voet's species, *Buprestis erythrocephalus Anglus*, figured in pl. xxxvi, fig. 26, stated distinctly to occur in England, and which is clearly recognizable as *Brachinus crepitans*. If Linnæus' name were not a trifle earlier in date, I suppose Schiödte would have proposed to adopt Voet's names for this insect,—or one (and, if so, which?) of them. Fabricius (Spec. Insect.) quotes Voet for this species, but ignores the "*anglicus*."

p. 242) *Necrophorus gallicus*, Duv., and *N. microcephalus*, Thoms., are respectively referred as vars. to *N. fossor* and *N. ruspator* by Grenier, in Bull. Soc. Ent. Fr., 1867, p. x; an opinion anticipated by myself in Ent. Annual, 1866.

p. 246) Motschulsky, Bull. Soc. Nat. Mosc., xxix, 2, p. 225, thinks the *Lathridii* most nearly allied to the *Trichopterygidæ*. He founds a new genus, *ARIDIUS* (l. c., p. 260), of which our *L. nodifer* is the type, and describes and figures a new species, *A. nodulosus* (p. 261, pl. 6, fig. 7) from England.

- (p. 249) Motschulsky also describes (*inter alia*) the following new species:—
Lathridius pini, l. c., p. 236, pl. 6, fig. 3, Russia and England.
L. undulatus, p. 242, England and South Russia.
Corticaria borealis (Wollaston, M. S.), l. c., xl, i, p. 70, England.
- (p. 246) *Myrmecozenus*, still apparently *genus incertæ sedis*, is transplanted by Motschulsky to the *Cucujidæ* from the *Lathridii*, to which it was referred by Lacordaire.
- (p. 255) *Melolontha hippocastani* is incidentally referred to by Perty (Mitth. Naturf. Ges. in Bern, 1867, 305) as *M. vulgaris*. var.
- (p. 261) *Cyphon coarctatus* and *C. fuscicornis* are ♂ and ♀ of the same species *teste* Kies., Berl. Ent. Zeit., 1867, p. 407.
- (p. 281) *Cryphalus abietis*, Ratz., and *C. tiliæ*, Gyll., are identical, *teste* Ferrari, Col. Hefte, ii.
- (p. 296) *Donacia geniculata* and *D. lævicollis*, Thomson, Sweden, = *D. sericea*, *partim*. We shall of course find these two novelties here.
- (p. 301) *Plectroscelis lævicollis*, Thomson. Coleopterists must examine their *P. concinna* for this insect.

It may probably be not generally known that Motschulsky, in Bull. Soc. Nat. Mosc., xxxviii, 2, p. 291, describes a new species of *Carabus*, viz., *C. anglicus*, taken near London! Vide Record Zool. Lit., 1866, p. 299. It is, of course, most likely that in this reference, as in some, at least, of his other localities, he has made some mistake.—E. C. RYE, 7, Park Field, Putney, S.W., December, 1868.

Notes on Cryphalus binodulus and Hylurgus pilosus.—On some aspens growing near Abergavenny I have detected certain beetles, which are interesting not only on account of their rarity but also on account of their habits. Last spring I observed that two of these trees, which are from 20 to 30 years old, had been blown over in a manner similar to that in which poplars often suffer, viz., they had been snapped across at about the level of their lower branches; one of them had fallen last winter, the other during the previous one. On both I found evidence of their having begun to decay before they yielded to the storm, but the more recent one was still so far alive as to be attempting to throw out leaves, yet many of its branches had long been dead and one side of the stem was so also; this I soon found to be caused by a small beetle belonging to the family *Hylesinidæ*. This beetle, *Cryphalus binodulus*, Ratz., appears not to have been taken in England since its original capture by Mr. E. W. Janson at Highgate; and I may observe that very few of my specimens present the (sexual) spines at the apex of the elytra; and that, when present, the spines are very small. This species, unlike *Hylesinus crenatus*, which commences its attack close to the ground, first attacks the branches, and then advances downwards. A colony is probably commenced by one, or by a few pairs; but they rapidly multiply. There are about a dozen of the young aspen trees (*Populus tremula*) on which I find them, and of these, besides the two already mentioned, they have this season killed a third tree. The leaves which it threw out abundantly last spring are now all black and dead, and I suspect that this is entirely the work of the present season. A fourth tree is far gone, and several others are invaded. Like most of the *Xylophaga*, it only

attacks the bark. In the genus *Hylesinus*, and others of this family, the parent beetles make a long straight burrow, and the eggs are deposited more or less regularly along either side. Unlike these, *Cryphalus binodulus* makes what may be called a little irregular cavern rather than a burrow. This is always immediately beneath the outer bark, and does not penetrate to the wood. I find invariably a pair of beetles in each cavern, even when nearly all the eggs are deposited, or when the eggs are hatched; these are laid in little confused heaps in the recesses of the cavern, sometimes all in one heap, generally in three or four, and to the number of from 30 to 60. The larvæ when hatched burrow without any regularity, but tend to travel in a vertical direction. They are footless grubs, with strong jaws, and a distinct head like the larvæ of the other *Xylophaga*. I found that the eggs laid in May had in August produced some perfect beetles, though many still remained in the larval and pupal states. This has also been the case this season with *Hylesinidæ*. I have been watching, and I suspect that this species, like the others, does not usually come to maturity until a month or two later, and then hibernates before emerging. This species appears only to attack the living trees, and though so minute, is from its numbers able to cause the destruction of any tree it colonises. A branch is usually first attacked by several pairs, whose progeny then, laying their eggs in it, complete its destruction. Wherever a brood has been reared a wide rough crack is observable in the bark, and a destroyed branch presents the same appearance in an exaggerated form; the whole bark looks bloated and cracked, and is pierced by the exit holes of the beetles. A branch is probably often attacked in sufficient force to destroy it in the season, and I have already mentioned my belief that the destruction of a whole tree has been accomplished during the present season. The trunk is rarely attacked till most of the branches are dead, and its vitality is then so much reduced that no distortion occurs from their ravages, except of course that it soon becomes quite decayed.

On the same aspen trees that were blown over there was a quantity of ivy, and the bending of its stems, where it was torn down, had proved as injurious to it as if it had been cut across. This has fallen a prey to *Hylurys pilosus*, rare as a British insect. Odd specimens occur; but as no one in this country has remarked on its habits, it has never been found in any quantity. I have found it in almost any ivy that was in proper condition for its attack. Neither healthy living ivy, nor cuttings cut from the tree, suit its taste, but when sickly and dying, it is at once attacked. There is a fashion of treating ivy, observed in many districts, of simply cutting across or removing an inch or two from the stem, the result of which, as is well known, is not the immediate death of the plant, which usually survives for a year or two. The back of either the upper or lower (but usually the upper) portion of ivy so treated is a favourite habitat of *Hylurys pilosus*. In this the parent beetle makes a burrow of about an inch in length, often half round the stem, and the eggs are laid rather irregularly along its sides and covered over with moss. The larvæ eat galleries at right angles to this, and sometimes travel as regularly and symmetrically as those of *Hylesinus fraxini*. When examining ivy cut the beetle last spring, I found several shallow grooves, usually on smaller stems, suitable for oviposition, and along the side in contact with the supporting tree. These were often untenanted, and had been obviously merely eaten as food by the

beetles, which had temporarily sheltered themselves behind the stems, and abandoned them for more promising material at the first opportunity.

All the *Xylophaga* appear to eat largely while in the perfect state, and, unless they find a nidus for oviposition at once, commence to browse on any food at hand.

I have found that during the past warm summer many species have emerged at the end of July, which do not usually become perfect until September, and then do not emerge before the next spring. Every season, probably, a small proportion is perfected early, as the majority have been during the past season; the rest, following their usual habit, remaining till spring. What do these prematurely-developed specimens do?

In August I found *Cryphalus binodulus* engaged in oviposition just as they were in May; and *Hylurgus pilosus*, *Hylesinus crenatus* and *H. fraxini* eating galleries, in each of which there was only one beetle, and, as the bark was not such as they usually choose for oviposition, and there was no sign of that process being carried on, I conclude that they intend to hibernate in these galleries, and to postpone oviposition until spring. Though *Hylurgus piniperda* and *Scolytus destructor* had almost all emerged, I have had no opportunity of tracing them further.

In *Hylesinus* and *Cryphalus binodulus*, I always find a pair of beetles in each burrow. During the entire period of its construction, *Hylurgus pilosus* is often in pairs, but the male usually leaves before oviposition is complete, though with this, as with the former species, pairing occurs in the burrows, and probably only there. The economy of *Hylastes palliatus* is similar. In the burrows of *Hylurgus piniperda*, I have rarely found both beetles, and then only when the burrow was just commenced. Of *Scolytus destructor*, I have only found a pair in a burrow on one occasion, and am inclined to doubt whether the male often enters the burrow at all. In my former notes, p. 140, line 10, the word "side" should be "end" or "far end."—T. ALGERNON CHAPMAN,* Abergavenny, October, 1868.

Captures of Coleoptera near Manchester, &c.—*Scymnus nigrinus*, *S. discoideus*, and *Coccinella hieroglyphica*, beaten out of Scotch fir; April and May. *Ips 4-punctata*, abundantly under bark of freshly-cut pine stumps, accompanied by *Epuræa pusilla* and *F. deleta*. *Tomicus bidens*, completely undermining the tops, downwards, of Scotch fir. *Pachyrhinus 4-tuberculatus*, by sweeping in damp meadows all round the district. *P. comari* (one specimen), at Hale. Two very curious black varieties of *Anthonomus ulmi*, one beaten out of a hedge surrounding an orchard apparently containing no elm, and the other obtained by sweeping in the Bollin valley. *Tropiphorus mercurialis*, sparingly all over the district. *T. carinatus*, at Chorlton and in the Bollin valley, on each occasion singly. *Haliplus elevatus*, common in the river Bollin. *Tachyusa constricta*, abundant on the banks of the Bollin, accompanied in muddy places by *Georyssus* and *Heterocerus marginatus*. *Barynotus Schönherri*, occasionally, by single specimens. *Bembidium paludosum* and *punctulatum*, *Bledius longulus*, and *B. subterraneus*, in profusion banks of the Bollin. *Clivina collaris*, on all our river banks. *Gymnetron becca bungæ*, type form, a single specimen by sweeping in the Bollin valley; the var

* I can send live or unset specimens of the *Cryphalus* to any Coleopterist in need of the species and should myself be glad to receive any duplicate wood-feeders, *Longicorns* or *Lamellicorns*.—T. A. C.

Veronica being common on *Veronica*. *Apteropeda globosa*, a few specimens by sweeping in damp meadows, Bollin, in the spring. *Mantura obtusata*, Bollin valley and Chatmoss; *M. chrysanthemii*, Chatmoss. *Corymbites pectinicornis*, damp meadows, Bollin. *Sitones cambricus*, sparingly distributed in sandy places. *Donacia lentipes* and *D. sagittariæ*, Halemoss. *Psylliodes attenuata*, Bollin valley. *Ceuth. impressicollis*; four or five specimens have occurred in this district to Mr. Hardy and myself. *Silpha rotundata*, a single specimen of the pitchy variety, Llangollen. *Mythra 4-punctata*, beaten off hazel, with *Acalles misellus*, *Orchesia minor*, *Telehorus abdominalis*, and *Pyrochroa coccinea*.

At Sherwood forest in June,—*Eros affinis*, in rotten birch. In decaying fungus, both *Triphylli*, *Colenis*, *Liodes humeralis*, *Triplax russica*, *Scaphidium 4-maculatum*, and *Thymalus*. *Liodes orbicularis*, under birch bark, and *Tritoma bipustulata* in fungus under birch bark. *Scolytus intricatus*, *Trypodendron domesticum*, and *Xylorhynchus quercus*, on felled oaks. A single specimen of *Quedius scitus*, and *Bolitochara scitoides*, under bark, in decaying fungus. *Strangalia 4-fasciata*, in a rotten birch. Under felled trees, *Phymatodes variabilis*, *Athöus rhombeus*, and *Phlæotrya Stephensii*. A single specimen of *Hypophlæus castaneus* under bark. In boletus, *Eledona parvicola*.

At Cleethorpe.—*Cicindela maritima*, sparingly. In mud, between tide marks, *Stenobothrus tricornis* and *bicornis*, both commonly. *B. arenarius* in immense numbers, accompanied by *Diglossa mersa*. A single specimen of *Aphodius villosus* occurred in dung.

At Clifton, a few miles from Manchester, *Donacia bidens* and *sparganii* have been met with in some numbers; and, at Stalybridge, *Aphodius fetidus* and *Nebria sylvestris*.

Telmatophiles Schönherri and *Eriirhinus nereis* have been taken at Mobberby. J. KIDSON-TAYLOR, Thorn Cottage, Lime Grove, Longsight, Manchester, Oct., 1868.

A List of Noctuidæ observed in Morayshire.—It will be seen from the following list of captures that my attention has been exclusively directed to the *Noctuæ*. A few other insects certainly were noticed, but mostly common species—for instance, *N. plantaginis* and *P. fuliginosa* were both common enough; while in the Altyre Woods, *E. versicolor* was seen in great abundance. I succeeded, however, in capturing only four specimens—one ♂ and four ♀, the latter sitting quietly on the bare birch twigs in April. The males were far too lively for me. Some specimens were procured, but, owing to my want of knowledge in rearing the young *Noctuæ*, only one lived into the pupa stage. *E. Blandina*, *H. Semele*, *C. Davus*, *C. ruficornis*, *V. Atalanta*, *A. Selene*, *A. Euphrosyne*, *T. rubi*, all abundant in suitable localities; and *V. Io* was, I believe, seen on one occasion in Altyre Forest. *T. populi* was found in the larva state; those found on *Populus alba* wonderfully matching the colour of its food-plant, being of a pale glaucous-white hue, sometimes blotched with red. *S. convolvuli* was, I believe, frequent throughout the county. I had three specimens sent me which had been captured hovering over *Petunia*. *M. stelion* was observed on several occasions in similar localities. *A. betularia* and *bidens* both very frequent. All the British species of *Hepialus* were taken, and specimens of *H. velleda* occurring at rest in the crevices of birch trees in the Altyre Woods. *C. ligniperda* larvæ abundant all over the country, doing great

mischief to the birch and oak trees. I do not recollect whether a *Cossus*-infested birch has been noticed before to be such an excellent trap for *Noctuæ*. One small tree on my hunting-ground was nightly visited by hosts of moths, and what is remarkable enough, certain species were taken there and nowhere else; for instance, I only took five specimens of *N. glareosa*, the whole of which occurred on this wounded birch, which also yielded one night no fewer than six *E. nigra*. The larvæ of *N. quercûs* were very abundant on heather; one specimen only, however, out of some 20, yielded the perfect insect on 20th July. The remainder are still in their pupa state. *P. populi* scarce, only one pupa at foot of poplar tree. *T. pavonia minor* not very common, smaller and less richly coloured than Yorkshire specimens. *C. spartiata* very abundant.

The subjoined list of *Noctuæ* will show that this locality is a very promising one. Being, however, my first season's collecting after an interval of some 25 years, I was imperfectly read-up in the modern system of collecting larvæ and pupæ, otherwise the list of species might have been considerably augmented.

A notable fact was the remarkable scantiness of most of the insects which, with few exceptions, were fully four or five weeks in advance of their usual time of appearance, owing, no doubt, to the heat of the season.

The date is that on which the first specimen was observed.

T. batis, 20th June, scarce, two specimens at rasp blooms. *C. duplaris*, 27th June, frequent at sugar; or, 20th June, frequent at sugar; *flavicornis*, 30th March, rare at rest, afterwards many larvæ on birch. *A. tridens* (?), 27th June, at sugar: I suspect I am right in referring this to *tridens*, being darker than the next; *psi*, 4th July, not uncommon at sugar, also at rest on birch trees; *leporina*, 25th May, at rest in Altyre Forest, afterwards many larvæ on birch; *ligustri*, bred from pupæ taken on ash trees; *rumicis*, 25th May, two at rest; *salicis*, 17th June, rare at sugar; *myricæ*, 16th June, rare, one specimen at rest near Dallas. *L. lithargyria*, 27th June, very abundant at sugar; *conigera*, 4th July, not uncommon flying near *Lychnis vespertina*, and at sugar; *impura*, 4th July, not common, sugar; *pallens*, 3rd July, very abundant at sugar and flowers. *H. nictitans*, 7th August, not uncommon at sugar; *micacea*, 2nd August, several specimens at sugar. *X. rurea*, 25th May, common at rasp blooms and sugar; *polyodon*, 23rd June, very abundant at sugar and at rest. *C. graminis*, taken last autumn on rag-wort. *L. testacea*, 18th August, abundant at light. *M. anceps*, 25th June, not unfrequent at sugar; *brassicæ*, 23rd June, occasionally at sugar and at rest. *A. basilinea*, 2nd June, very common at rasp blooms; *fibrosa*, 29th June, rare at sugar; *oculea*, 2nd July, very abundant at sugar. *M. strigilis*, 6th July, not common, sugar; *fasciuncula*, 11th June, very abundant at sugar; *literosa*, 25th July, common at sugar. *C. cubicularis*, 19th June to October, over flowers, at sugar, and swarming in hay-fields. *R. tenebrosa*, 7th June, very common over rasp blooms, also at sugar. *A. valligera*, 27th July, not abundant, sugar, several beautiful varieties; *suffusa*, 24th July until October, not uncommon at sugar; *segetum*, 25th July, not common sugar; *lunigera*, 28th July, rare at sugar; *exclamationis*, 24th June, not common sugar; *corticea*, 26th June, not common, sugar; *nigricans*, 17th July, not rare at rest and at sugar; *tritici*, 26th July, sugar, frequent; *agathina*, 14th August, not uncommon on heather, but very difficult to take; *porphyrea*, 8th June, swarming over heather: pupæ very plentiful, under moss on heaths; *præcox*, 7th August

at rest. *N. pyrophila*, 1st July, rare. *T. janthina*, 25th July, not uncommon, on the blossom and at sugar; *fimbria*, 18th July, common at sugar; *subsequa*, 1st August, not uncommon at sugar: unfortunately, I did not recognize the moth in time to secure many specimens; one evening I saw five on one round, but did not take one, thinking it only a variety of *orbona*; *orbona*, 16th June, swarming at sugar, and varying both in colour and markings to an extraordinary degree; *proboscidea*, 23rd June, very abundant at sugar. *N. glareosa*, 26th August, several at a lime tree infested with *Cossus*; *depuncta*, 24th July, not uncommon at sugar; *purpurascens*, 1st July, frequent at sugar; *plecta*, 21st June, rare, flying over grass. *C. circumscripta*, 22nd June, not uncommon at sugar; *triangulum*, 4th July, rare at sugar; *annua*, 12th June, frequent at rasp blooms and at sugar. *N. festiva*, 16th July, not uncommon at sugar; *conflua*, 6th July, not rare at sugar; *Dahlia*, 27th July, swarming at sugar, and presenting an extraordinary range of variation in colour from bistre brown to dark maroon purple,—scarcely two are precisely alike in markings; *bella (rubi)*, 1st August, common at sugar, varying much in colour; *erosa*, 17th July, rare at lime blossoms, also at sugar; *baja*, 22nd July, common at sugar; *neglecta*, 26th July, not uncommon at sugared rags placed on the heath; *orthographa*, 20th July, swarming at sugar, and varying much in colour and markings. *T. piniperda*, 28th March, very abundant at willows, ranging in colour from black red to grey and light green: pupæ under moss at pine trees. *T. gothica*, 28th March, common at willows, also at sugar; *rubricosa*, 17th April, not common, at willows, Califer Hill; *instabilis*, 27th March, frequent at willows; *stabilis*, 28th March, swarming at willows, and after at sugar. *O. macilenta*, 12th Sept., not common, sugar. *A. rufina*, 27th August, very abundant at sugar; *litura*, 12th August, swarming at sugar. *C. vaccinii*, 13th Sept., swarming at sugar, and very abundant; *spadicea*, 16th Sept., plentiful at sugar. *S. satellitia*, 7th Sept., swarming at sugar. *H. cerago*, 6th July, not common, sugar; *ferruginea*, 28th August, frequent at sugar. *E. fulvago*, 8th August, not rare at sugar. *C. trapesina*, 23rd August, swarming at sugar. *D. capsicola*, 29th June, not uncommon, hovering over *Lychnis vespertina*, in the capsules of which the larvæ abounded. *D. cucubali*, 1st August, one specimen bred from larva found in July. *P. chi*, 31st July, very abundant at rest on pine trees, also at sugar. *E. nigra*, 12th August, very abundant at sugar. *M. ozyacantha*, 8th Sept., frequent at sugar. *A. aprilina*, 16th Sept., frequent at sugar. *P. meticulosa*, 23rd Sept., frequent at sugar. *E. lucipara*, 1st August, rare at sugar. *A. occulta*, 15th August, rare at sugar; *nebulosa*, 13th August, I saw but missed at sugar, *H. adusta*, 30th May, rare at rest; *protea*, 5th August, swarming at rest on pine trunks, also at sugar; *oleracea*, 4th July, rare, at rest; *thalassina*, 22nd June, not common at rest and at sugar. *C. vetusta*, 1st August, common at sugar, but not nearly so frequent as the next; last season, on the contrary, *exoleta*, was the rarest of the two; *exoleta*, swarming in vast numbers at sugar; one night I counted more than 200 in one round of my trees. It also swarmed in the spring at sugar and willows. *X. rhicolitha*, 28th Sept., rare at rest. *C. umbratica*, 1st July, rare over *Lychnis vespertina*. *A. myrtilli*, 8th June, not flying over heaths: the larvæ very common. *B. parthenias*, 5th April, very abundant in Altire Forest flying over the birch trees; *notha*, 16th April, same quantity as the above, but not so frequent. *A. urticae*, 26th June, flying over raspas. *pyritidis*, 16th July, rare flying over flowers; *festucae*, 30th June, rare flying over

Lychnis vespertina; *iota*, 25th June, rare over flowers; *pulchrina*, 24th June, common flying over *Lychnis vespertina*; *gamma*, 25th May, very abundant over flowers, and occasionally at sugar. *A. tragopogonis*, 18th July, abundant at sugar and lime blossoms. This reminds me that I have seen, and frequently killed, mice at my sugared trees 4 and 5 feet from the ground. Squirrels were also seen licking the sugar, but only by day. *S. anomala*, 12th August, not uncommon at sugar. *P. ænea*, 16th May, not uncommon flying over heather.—GEO. NORMAN, Cluny Hill, Forres, N. B.

Notes on Scotch Lepidoptera.—The following notes on some common *Lepidoptera* may perhaps be not devoid of interest to the readers of the Magazine.

Calocampa exoleta.—In rearing some larvæ of this insect from the eggs, I was surprised to find that at first sight the two front pairs of ventral prolegs were undeveloped. This fact may be as new to some of the readers of the Magazine as it was to me, so will give all the notes made on the subject. I do not know whether the larvæ of all the *Noctuina* are developed in the same manner, or whether it is a peculiarity of the genus *Calocampa*.

The following are the notes made. 1868, April 15th—Ova of *C. exoleta* hatched. Larvæ with only 12 legs; the first two pairs of ventral prolegs being absent. April 18th—First two pairs of prolegs beginning to appear, but not used. April 20th—First two pairs of prolegs now about half the size of the second two pairs the coronet of hooks also beginning to be visible. April 22nd—Larvæ moulted first two pairs of prolegs bigger, but not yet used. April 26th—Larvæ moulted second pair of prolegs slightly used, first pair not yet used. April 28th—First pair of prolegs in use, but not quite so large as second pair. At this date an accident unfortunately befell the larvæ, and they all perished.

Selenia illunaria.—Some moths of this species emerged about the end of March and laid some eggs. The young larvæ appeared April 15th, fed rapidly, and spun up about May 21st. At this time the imagines were still flying out of doors, so I thought that my brood would be probably developed as perfect insects in June. However, June passed and was followed by July, and no appearance of *illunaria*. On the 7th of August one ♀ came out, and several other larvæ appeared at intervals since—the last on the 15th of October. The pupæ were not subjected to cold in any way, being in a cool room and in the same box with a pupa that produced *Hadena protea* on August 7th.

Melanthia ocellata.—Found a pair *in cop.*, about the end of June. Eggs hatched early in July. The larvæ fed on *Galium* till the beginning of August, then they spun rather open cocoons, brought their heads and tails together, changed to a dirty whitish colour, and (as regards the majority) have remained in the same condition ever since, quite healthy. A few, however, changed to pupæ in September, and one moth appeared October 14th. They have been left in a cold room without a fire.—F. BUCHANAN WHITE, Perth, October, 1868.

Notes on Lepidoptera at Carmarthen.—A few notes regarding the *Lepidoptera* found in this neighbourhood, a locality almost unknown entomologically, may prove interesting to some of the readers of the Magazine. The collecting was confined to the grounds of this asylum, excepting two days spent on the Sand Burrows

embrey. My great expectations of the Burrows were doomed to almost complete disappointment; I got a good series of *A. ripæ*, under pieces of wood lying on the ground, but nothing else worth mentioning. The asylum grounds have proved much more productive, and the very little time devoted to collecting yielded some good things. In July a specimen of *P. isodactylus* was beaten out of a hedge. A day or two later the British specimen of *Scoparia Zelleri*, previously recorded as having been captured by the Rev. E. Horton, appeared at light; and the same agent has since attracted a specimen each of *E. fuscantaria*, *L. cespitis*, *D. Templi*, *E. lutu-
lenta*, and *Diasemia literalis*. These, with a multitude of commoner species, show the richness of the district, and will serve as an incentive to greater exertion next season.—GEORGE J. HEARDER, Joint Counties' Asylum, Carmarthen, December 1st, 1868.

Colias Hyale near London; abundance of *Cynthia cardui*, &c.—A friend of mine saw a specimen of *Colias Hyale* (now in my possession) caught in the waste ground between Finchley and Edgware Road Railway Stations. I have also heard of two other specimens having been taken there, and I was on the spot when another was taken this morning. *Colias Edusa* is not of unfrequent occurrence in the same place. I saw it also in our garden about the middle of July.

I suppose that every entomologist and collector has noticed the extreme abundance of *Cynthia cardui* all over England this year. In a clover field near Kenilworth (where I have been staying during the last month) I and some other collectors who were in the same field caught nearly twenty in one morning; it was very common near here last month, but is not taken nearly so frequently now. ERNEST B. BAX, 12, Mansfield Villas, Hampstead, September 8th, 1868.

Occurrence of *Tapinostola elymi* at Cleethorpe.—I am happy to inform you that the above-named insect is to be taken freely at Cleethorpe, in Lincolnshire. The larva feeds on the sand-reed (*Elymus arenarius*), and the perfect insect may be taken out of that plant in the day-time, and is found at rest on it at night. Time—beginning to end of July.—JOSEPH CHAPPELL, 8, Richmond Street, Greenheys, Manchester, 23rd November, 1868.

Eupithecia irriguata, &c., at Glanvilles Wootton.—I have taken here, during the year, *E. irriguata*, *Macaria alternata*, *Phycis abietella*, &c.; *Heliothis dipsacea* bred on June 4th from a pupa found in October, at Charmouth, amongst the rocks.—CHAS. W. DALE, Glanvilles Wootton, Sherborne, November 12th, 1868.

Larentia salicata in North Devon.—Among some insects taken by my young nephew Master Arthur Chandler, at Chalcombe, North Devon, where he is at school, I find several specimens of *Larentia salicata*. These, he tells me, were taken about a sand-pit on the borders of Exmoor, where they were common. The occurrence of this species so far south seems worth recording. These show hardly any variation from northern specimens.—CHAS. G. BARRETT, Norwich.

Abundance of the larvæ of *Botys asinalis* near Bishopstowe.—*Rubia peregrina*, the food-plant of *B. asinalis*, is very abundant on the rocks and in the hedges just above Bishopstowe, and there is scarcely a plant but has been attacked by the insect; the white patches caused by them in the dark green leaves of the plant are a feature in the landscape.—E. HORTON, Powick, Worcester, Nov. 16th, 1868.

Odour emitted by Sphinx convolvuli.—I omitted to add to the notes on *Sphinx convolvuli*, which appeared in the last number (p. 168), the fact that two or three male specimens of the moth, caught in my garden this autumn, whilst alive, and held between my finger and thumb, gave forth a very perceptible odour of *musk*, as was remarked by several members of my family besides myself; I did not perceive the same smell with the females, but not having been able to procure any more specimens after my attention had been drawn to the males, I do not like to say positively that the sexes differ in this respect.—J. HELLINS, Exeter, December, 1868.

Habits of Coccyx hyrciniana.—If the spruce fir is examined early in the spring, many of the needles will be found to be eaten out and turned brown, and carefully laid down parallel with the shoot, so as to form a covered way for the protection of the larva. This larva seems hard to find, although its traces are plentiful enough, but I believe it to be that of *Coccyx hyrciniana*, which I have bred by keeping a lot of the infested shoots in a bottle.—CHARLES G. BARRETT, Norwich.

Notes on the earlier stages of Dasycampa rubiginea.—I well remember the curious mixture of satisfaction and disappointment with which I once saw a larva of *Cidaria pyraliata* fall into my net, after having for three seasons vainly tried to procure one, in order that Mr. Buckler might be enabled to complete a set of figures of that genus: there was satisfaction that the long-desired species was obtained, disappointment somehow that now there was no other *Cidaria* to be looked for—*reticulata*, of course, excepted; but that seemed, and still seems, so far out of reach, that it did not come into my reckoning. And I must confess to something like a return of the same mixed feelings, as I take up the pen to chronicle my observations on the earlier stages of *Dasycampa rubiginea*, for one of my longest desiderated secrets is now gained, and a twelve years' pursuit has come to an end. Throughout that period scarcely a year has passed without some one of us in this neighbourhood taking a specimen of the moth, but eggs we could not get. If a female were taken at ivy in the autumn it was no good, for she could not be kept alive till the pairing time in spring. Mr. Norcombe once shut up six moths, with the sole result of getting just so many wasted specimens for the cabinet; and if we took a moth at sallows in the spring, it always turned out to be a male. So it had gone on, as I said before, for twelve years. However, this season, Mr. Thos. Terry, of Babbicombe, has been more successful, and to his generosity I am indebted for my present knowledge.

On March 21st, 1868, he took a female at sallows, and shut her up in a glass-topped box about six inches square, putting in for her food a little plum-jam. On March 28th he saw two eggs had been laid on the box; on the 30th, three more on April 1st, two more on the box, and four on a sprig of blackthorn which he had supplied. These were followed by three or four more, for which I have no date and were all laid singly, on the underside of a leaf, or under any little projection on the box. How, after this again, the unhappy moth stuck in the jam, and perished miserably with 87 eggs in her still unlaidd; how, of the few secured, but pursued nearly one-third, either before or just after the hatching of the larvæ, will not relate at length: I mention these mishaps only to enhance Mr. Terry's liberality in still sparing eggs and larvæ to Mr. Buckler and myself.

The larvæ were hatched between April 19th and 23rd; fed freely on plum-leaves, and not so well on sloe, sometimes taking to knotgrass, and became full-fed from June 15th to 20th; and the moths appeared between September 8th and 20th

The egg is unusually large for a *Noctua*, quite as large as that of *Xylocampa lithorhiza*; in shape round and full above, but rather flattened below; the surface is glistening, and ornamented with more than thirty slight longitudinal ribs, of which more than half terminate before reaching the apex; these ribs are connected by very slight transverse reticulations. The colour at first is whitish, faintly tinged with yellow, but it soon becomes blotched with brownish buff, in some specimens irregularly, in others more regularly with a central spot at the top, and a broad belt round the middle, and to the naked eye the egg now appears something the colour of a grain of wheat: after a time the blotches turn to puce, and finally the whole egg becomes pale purplish.

The larva at first is of a semi-translucent purplish tint, with brown shining head, and the usual dots black and distinct, each emitting a long wavy whitish hair. The first food eaten is the empty egg-shell, but after the larva has begun to eat leaves its colour soon becomes greenish. After a few days the colour changes to brown, and the hairs show golden in the sunshine; and after another moult the brown becomes darker, and the transverse rows of tubercular dots show to the naked eye like dark bands. When about $\frac{3}{4}$ inch in length it assumes a waxy shining appearance, reminding one of an *Agrotis*, with the head and collar shining black, but after the next moult it comes out at first nearly black all over; this pigmentation does not, however, last long; in a day or two the skin becomes paler, and from this time till it attains the length of $1\frac{1}{2}$ inch the description is as follows:—The ground colour ochreous-brown, with rather pale dorsal, sub-dorsal, and spiracular lines; the head dark brown, a dark brown dull plate on second segment, also on tip of the anal segment; the tubercular dots black and very distinct, the first dorsal pair of them in each segment after the fourth being placed in a blackish-brown transversely oval patch, which interrupts the dorsal line; the body thinly covered with very fine silky, brown hairs: in some specimens the oval dorsal patches are replaced by pairs of oblong dots, separated by the dorsal line. The length of the full-grown larva is $1\frac{1}{4}$ inch when at rest, but more than $1\frac{1}{2}$ when in motion, its powers of self-extension or contraction being much greater than those of any other *Noctua* larva with which I am acquainted: the figure stoutest at the twelfth segment, and thence tapering regularly to the head, which is the smallest segment, and the thirteenth tapering rapidly behind, the anal pair of legs being remarkably close together; the skin is soft, and each segment swells out plump in the middle, all the tubercles and the plate on 13th segment have disappeared, and amongst the long fine silky hairs there is now a growth of shorter ones. The colour is now purplish-brown, glistening in certain positions with a faint violet, nearly gloss; the pulsating dorsal vessel shows as an indistinct paler line; the dark patches down the back have become in some instances a thick, clumsy X on each segment, in others a pair of curved blotches, and there are also pairs of smaller and fainter dots on segments 2, 3, and 4, those on 4 being the largest, and in a square form; the head is intensely black; the region of the back is curiously speckled with very fine blackish-brown curved marks, which, however, do not touch the X marks, but allow them, as it were, to stand out more distinctly; and in the same way the sub-dorsal and spiracular lines are to be distinguished by the absence of these freckles from the ground colour, rather than by any decided line of another tint; the spiracles small, black, and shining; the belly paler than the back, and somewhat tinged with green; the hairs are all of a beautiful golden brown. The habit of the larva seemed to be to hide itself by day, in spite of its silky, *Bombyx*-like clothing, and to feed and move at night; and I fancy its food, when at large, must consist of low plants, rather than trees or shrubs, otherwise we should hear its capture.

The Zoological Record (vol. ii, 1865) does indeed contain notices, extracted from Berl. Ent. Zeits., 1865, p. 112, and Stett. Ent. Zeit., 1865, p. 113, of its being found in ants' nests, those of *Formica fuliginosa*; but its voluntary presence in such a situation is more than I can comprehend.

When about to change it spins a thin cocoon on the surface of the ground, working in moss or leaves above, and bits of earth, &c., below, but still keeping it of a tolerably oval form. The pupa is about $\frac{3}{4}$ inch long, moderately stout, cylindrical, but a little depressed at the junction of the back of the thorax with the abdomen; from this point the abdomen rather swells out in size for about two-thirds of its length, and then tapers to a somewhat obtuse point, which is armed with a single tiny spike, and attached by two or three threads to the lining of the cocoon; the surface is shining; the colour dark purplish-brown.—JOHN HELINS, Exeter, November 26th, 1868.

Note on Acronycta alni.—In reference to the interesting summary of what is known of this insect by Mr. Stowell, I may add to the last "locality" named for the larva, viz., "a gentleman's coat," another, and the only one where I have found it, and that is "a gentleman's boot!" A friend of mine was sitting one September afternoon, in 1851, on a branch in a plantation in Staffordshire, when I happened to pass by, and he called my attention to a larva, crawling on his boot. I soon produced a pill-box, and secured the unknown stranger. A sycamore was overhead, and probably this full-fed larva of *A. alni* (for such it proved) had fed thereon. The above made a cocoon of some bits of rotten wood, in the corner of a box, and came out a fine ♂, the following June, I believe. Another scrap of information I can contribute about this insect, viz., that it has come to sugar in one instance during the current year, as late as July 3rd, and in this case the specimen was a ♀, two others being missed on the following night. I have a suspicion that this larva may be like that of *A. aceris*, which clings very closely to the leaf on which it rests, and is difficult to dislodge by beating. If so, it may be one of those larvae that should be looked for under the leaves, or even "upon" them, as Mr. Stowell's narrative seems to suggest.—BERNARD SMITH, Marlow, November 27th, 1868.

P.S.—After writing the above, it strikes me that the larva of *alni* above mentioned may be the same as the one recorded in the Zoologist, as taken in 1851. The example is still in my possession, and as fresh as ever.—B. S.

A Reply to Mr. Dunning's Remarks on the Gender of Acanthosoma.—This somewhat important question of nomenclature having been again raised, I hope to be indulged with space for a reply, as short as I can make it. To save trouble, I will take several of Mr. Dunning's questions collectively, as they all depend upon the same principles.

1. Are not *Redbreast* and *Wagtail* as much nouns substantive as *Blackbird*?
2. May not *Acanthosoma* be a substantive just as much as *Dipsocoris*?
3. Is *Acanthosoma* an adjective or a substantive?
4. Why may I not say *Acanthosoma* = *Spinebody*, a compound noun substantive, which therefore must have some gender or other of its own?

Blackbird is a compound noun substantive, grammatically and logically correct. But such words as *Redbreast*, *Wagtail*, *Spinebody*, *Longshanks*, *Lackland*, *Bluebeard*, etc.,—common in English, and some of them sanctioned by usage,—are not gram-

matical or logical. They belonged originally to the language of the vulgar, and of children, and are mere familiar nicknames. Their incorrectness consists in their not containing the real SUBJECT,—whether bird, bug, or man. Instead of this they put forward (graphically and poetically) a new subject—*breast, tail, body, beard,* etc.,—from which our extensive knowledge and reading enable us to infer the real subject of discourse with much readiness. Thus by *Redbreast* and *Wagtail* we understand certain birds; by *Longshanks* and *Lackland*, two English kings; and by *Bluebeard*, a celebrated Eastern potentate. These names are only tolerable in English because the language has no genders. We get into no difficulty by speaking of the *yellow Wagtail*: the gender of *yellow* is undetermined, and the difficulty is concealed. So also *Bluebeard* may be spoken of as a man,—no matter what gender his *beard* may have. But this slovenly idiom is impossible in languages with three genders, like Greek and Latin. The difficulty which is concealed in English becomes in them fearfully apparent. We might nickname an individual *Brazenbeard*, having no fear of genders before our eyes. But in Latin *Ahenobarba*, -æ, f., will not do for a man's name. His name, like himself, must be masculine, and accordingly we have the adj. *Ahenobarbus*, taking its gender from the REAL SUBJECT, from the *man*, and not from his *beard*. Similarly all other words, containing only some attribute of the subject, must in Greek and Latin be adjectives, agreeing in gender with their REAL SUBJECT, and with nothing else. And this actually amounts to no more than that golden rule of our youth, than an adj. agrees with its subst., &c. If this rule is to be evaded in zoological names, as it is in English, the whole system of genders becomes absurd, and there is no end to the incongruities which will occur. Let us take a few published names of genera, such as *Lonchosternus*, *Asystema*, *Dactylosternum*; *Barynotus*, *Aloconota*, *Cyclonotum*; *Stylosomus*, *Dagosoma*; *Amblystomus*, *Sericostoma*; *Chasmatopterus*, *Dictyoptera*, *Liopterum*. Those in italics are, according to Mr. Dunning, substantives neuter, because *Steron*, *Noton*, *Soma*, *Stoma*, and *Pteron*, are neuter. What shall we say then for the others? They must be equally neuter, notwithstanding their terminations, or what becomes of the rule of the "German illuminato?"—Or if some of the above words are substantives and some not, will Mr. Dunning kindly point out which is which, and why? That he will see the impracticability of this, I am well assured, and I have good hopes that he will avail himself of his reserved right to a change of opinion, after hearing the other side, and will henceforth agree with me that such words must be treated as adjectives.

To conclude, let me for a moment revert to the most presumptuous of the nomenclators of the rank of noun substantive, viz., *Acanthosoma*.

The subject of this word is a certain GROUP of BUGS. This subject is not contained in the word *Acanthosoma*, but is understood. Every noun that does not contain the *subject*, must contain the *predicate*, or it has no meaning at all. And if it contains only the predicate, it is what grammarians call an *adjective*. Therefore *Acanthosoma* is an adjective. Q. E. D.

I have something to say to other interesting matters mentioned by Mr. Dunning, but for want of time and space I must leave them for the present.—T. A. MARSHALL, Milford Haven, December, 1868.

[Mr. Marshall's remarks upon the other points raised in Mr. Dunning's paper will appear in our next No.—Eds.]

The late John Curtis's Entomological Drawings.—The original coloured drawings of the plants and insects delineated by Mr. Curtis in the "British Entomology" have been, since his decease, in the possession of his widow, who is now desirous

of disposing of them. We heartily hope they will fall into the possession of some Institution that will render them available for the purposes of science, or become the property of a liberal-minded private gentleman. Beautiful as are the engraved copies, they give no idea of the artistic skill and truth to nature exhibited in the originals. Curtis was Nature's artist *par excellence*. Information respecting them will be gladly furnished by Mr. F. Smith, of the British Museum.—EDS.

ENTOMOLOGICAL SOCIETY OF LONDON, *November 16th, 1868.* H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Bond exhibited *Tapinostola elymi*, captured near Yarmouth, and a strange variety of *Dianthæcia capsicola*, bred by Mr. Greening, having the wings unequally coloured; also seven specimens of *Polia nigrocincta*, bred by Mr. Greening, from Isle of Man larvæ.

Mr. McLachlan called attention to a statement by Mr. Edwards, in the "Canadian Entomologist," respecting the occurrence of *Papilio Machaon* at Fort Rupert, in Hudson's Bay; and also concerning the gradual spread of *Pieris rapæ* on the American continent. He exhibited a fine series of bred examples of *Enoicyla pusilla*, the terrestrial caddis-fly, with the apterous females, and larvæ and cases. These had been sent to him by Mr. Fletcher, of Worcester, to whom we are indebted for the discovery of this curious insect in England.

Mr. Bond mentioned the occurrence of a vast swarm of *Gastrophysa polygoni* at Whittlesford, in Cambridgeshire.

Professor Westwood exhibited drawings and read descriptions of new and curious forms of *Hymenoptera*.

7th December, 1868. H. W. BATES, Esq., F.Z.S., President, in the Chair.

A. G. Butler, Esq., F.L.S., Assistant in the Zoological department of the British Museum, and Dr. Buchanan White, of Perth, were elected Members.

Mr. Bond exhibited some extraordinary cases of melanism in *Limenitis Sibylla*, from Ipswich; also strange forms of *Lycæna Adonis*, and the gynandromorphous example of *Lasiocampa quercus* mentioned at the first November meeting; this latter was a perfect and beautiful combination of the sexes.

Mr. E. Saunders sent for exhibition an example of *Crambus myellus* of Hübner, taken by Mr. N. E. Brown, near Aberdeen, and new to Britain. (It is a species allied to *pinetellus*, but differs in the possession of a sub-apical transverse silvery line.)

Mr. Dutton exhibited a beautiful example of *Catocala frazzini*, captured at Eastbourne this last autumn.

Professor Westwood exhibited some remarkable parasitic *Hymenoptera* from the Amazons, belonging to the genus *Aulacus*, &c., of which he read descriptions.

Mr. Kirby communicated a paper on entomological nomenclature, especially referring to the question as to which was the type-species intended by Linné, Fabricius, Latreille, &c., in their genera of *Rhopalocera*, now that these genera were so greatly subdivided. A long discussion ensued, in which the President, Professor Westwood, and Messrs. Pascoe, Stainton, Butler, Janson, Dunning, McLachlan, and others, took part, the general opinion being, that in the absence of a special type noted by the authors, the generic names should be restricted in accordance with the views of the succeeding writer who first subdivided the old genera, and that the sweeping changes suggested by Mr. Kirby would retard instead of benefit science.

The Secretary announced the death of Prof. Boheman, of Stockholm (one of the Honorary Members), on the 2nd November last, aged 72.

AN ANALYTICAL VIEW OF THE LEPIDOPTEROUS FAUNA OF
HASLEMERE AND ITS VICINITY.

BY CHARLES G. BARRETT.

The neighbourhood of Haslemere, in which very small country town I had the good fortune to reside for upwards of six years, is interesting as having been, in its entomological aspects, previously almost unknown, although lying nearly midway between the London district, the New Forest, and the Sussex downs and coast, all of which have been more or less thoroughly worked, and because it includes elevated ground that in climate and botanical productions resembles some parts of the north of England. The hills and heaths are on the Wealden greensand, and the vallies and oak-woods on the Wealden clay, the two formations occupying almost the entire district.

The area over which I collected extends from six to ten miles in various directions round Haslemere, and includes the woods and lanes towards Godalming and round the village of Chiddingfold, and towards Aldhurst, in Sussex; the heathy hills and marshy vallies of Hindhead and Blackdown, a small portion of Hydon Heath, with its junipers, and the wide heaths and boggy hollows of Milford Heath, in Surrey, and part of Woolmer Forest, Hants, with its abundant fir woods.

The total number of species of *Lepidoptera* observed in this district is 1,088, being nearly five-eighths of the whole number recorded as British up to the present time. The various groups are, however, very equally represented.

Of the *Diurni* there are 42 species—two-thirds of the entire British list, and, excluding *Colias Hyale* and *Argynnis Aglaia*, which appeared only in the past exceptional season, all may be called regular residents. None of the great rarities seem to have occurred, *Apatura*, *Limenitis Sibylla*, *Leucophasia sinapis*, and *Nemeobius Lucina* being but the best species. *Colias Edusa* is of uncertain appearance, and never very common. *Arge Galathea* and *Lycæna Corydon* are very rare, a singular contrast to the usual rule where they occur; but this is accounted for by the absence of chalk. The extreme rarity of *Argynnis Aglaia* seems inexplicable, as the country appears as though especially suited to it. Only two specimens, however, occurred.

Of *Sphingidæ* only 14 species—less than half the list—have been recorded, the great deficiency being in the genus *Sesia*, of which but three have been noticed, *tipuliformis* and *culiciformis* both rarely, and *bembeciformis* only by its burrows in the willow poles. *Smerinthus tiliæ* seems to be absent,—probably from the scarcity of elms—and *Chæro-*

campa porcellus very scarce. *Deilephila lineata*, however, has been taken, and several *Sphinx convolvuli* and *Acherontia Atropos*, as well as the three *Macroglossæ*.

The *Bombyces* are very little better represented in my list, which must, I think, arise partly from the extreme difficulty of collecting much by means of light. I have little doubt that several more species in this group and the *Pseudo-Bombyces* might be obtained at gas-lamps, if ever the place should have the good fortune to be thus illuminated, or by more careful working for the larvæ. The proportion is a little over a half, being 46 species. The *Lithosiæ* are fairly represented by nine species, *quadra* and *complanata* being found at Woolmer Forest, where also *Limacodes testudo* occurs. *Endromis versicolor* I have certainly seen flying in the middle of April, although I never took it; and *Nola strigula* has been found on oak. *Anthrocera trifolii* is abundant in marshy pastures, while, strange to say, *filipendulæ* is hardly to be found in the neighbourhood; and *Liparis salicis* and *Nola cucullalis* are equally rare. All the *Hepialidæ* occur, including the more abundantly northern *velleda* and its variety *carnus*.

The *Geometræ* are well represented by 175 species, nearly two-thirds of the list, several entire genera being found—*Selenia*, *Tephrosia*, *Ephyra* and *Hibernia*, for instance. Of the genus *Eupithecia* 30 species have been met with, *irriguata* and *fraxinata* being the best; but, odd enough, *centaureata* is one of the scarcest, for until this season, when one specimen occurred, it seemed to be entirely absent. *Epion advenaria* and *Emmelesia alchemillata* are plentiful in the woods, and *Pericallia syringaria* not scarce; and of better species, *Selenia lunaria* and *illustraria*, *Eurymene dolobraria*, *Ennomos erosaria*, *Cleora glabraria*, *Boarmia abietaria* and *consortaria*, *Ephyra orbicularia*, *Acidalia stramineata* and *immutata*, *Lobophora sexalata* and *viretata*, and *Campptogramma fluviata*, may all be met with occasionally.

The *Drepanulæ* are represented by 4 species—two-thirds of the list, and the *Pseudo-Bombyces* by 10—about one-third. Of these the best are *Notodonta carmelita*, *trepida*, *dictæoides* and *dodonea*, all scarce.

To the *Drepanæ* I believe *unguicula* ought to be added, and I feel sure that I have seen it flying about beeches, but could never get at it. *Notodonta dictæa* and *dromedarius* have not been found, but I cannot believe them to be entirely absent.

The *Noctuæ* are very unequally represented, owing to the abundance of woods and the almost total absence of fen or marsh land. The number of species found is 160—about one-half the entire list, and of these the whole of the first family, the *Noctuo-Bombycidæ*,

to be found, with the exception of *Ceropacha ocularis*; while on the other hand, of the 30 species of *Leucanidæ*, I have met with but 6,—5 *Leucaniæ* and 1 *Nonagriæ*.

The *Noctuidæ* are well represented for an inland place by 28 species, of which *Agrotis saucia* and *agathina*, and *Noctua ditrapezium*, are the best. It is worthy of remark that *Noctua rubi* and *augur*, and *Agrotis nigricans* seem to be decidedly scarce; also that *Hadena oleracea* was supposed to be entirely absent until last July, when, like *Eupithecia centaureata*, one specimen occurred.

The *Cosmidæ*, with the exception, of course, of *trapezina*, are absent or unaccountably scarce, the only other species found being *affinis*, and that very rarely. This, with the absence of *diffinis*, is doubtless owing to the scarcity of elms, but the *Tetheæ* and other species might have been expected in a country so abounding with willow. Of the better species occurring in other groups may be noticed *Acronycta alni*, *Neuria apolaris*, *Caradrina alsines*, *Tæniocampa leucographa* and *miniosa*, *Dasytropa rubiginosa*, *Hoplorhina croceago*, *Dianthæcia conspersa*, *Hadena conigua* and *genistæ*, *Cucullia lychnitis*, *asteris*, and *chamomillæ*, *Heliothis marginata* and *peltigera*, and *Stilbia anomala*.

The *Deltoides* are well represented by 11 species of the 14 in the list, and conspicuous among them is my favourite, *Madopa salicalis*, for which I worked hard, year after year, with more or less success. Both *Hyponodes* occur in damp woods, and *Schrankia turfosalis* in bogs on Woolmer Forest, where also the single representative of the next family, *Aventia flexula*, is found.

In contrast to the *Deltoides*, the *Pyalides* are very poorly represented, half the list—36—being all that I have met with, and among these is not a single scarce species, while several that are usually most abundant are decidedly uncommon here: *Hydrocampa lemnales*, *Botys verticalis* and *urticalis* and *Ebulea sambucalis*, for instance. The best are *Pyalis glaucinalis*, *Pyrausta octomaculalis*, *Pionea stramentalis*, and *Botys lancealis*, all scarce; *Botys pandalis* rather common in the woods; *Eudorea resinalis* and *basistrigalis*.

Of the *Crambites* only 28 species have been noticed, being but three-eighths of the list, and of these 16 belong to the genus *Crambus*, which is therefore well represented, *falsellus*, *dumetellus*, *lipellus*, *hamellus*, *latistrius*, *uliginosellus*, and *selasellus* being of the number. Of the remainder of the group the best noticed were *Cryptolabes bistriqua*, *Phycis abietella*, and *Oncocera ahcnella*; but possibly more might be taken by means of light.

This neighbourhood is rather rich in *Tortrices*—in quality, however, rather than in quantity, since only half the list have been taken—177 species; but this includes a long list of good ones. *Halias quercana*, *Tortrix cratægana* and *cinnamomeana*, *Dichelia Grotiana*, *Leptogramma literana*, *Peronea aspersana*, *Ditula semifasciana*, *Penthina capreana*, *prælongana*, *sauciana*, *marginana*, and *carbonana*, *Sericoris bifasciana* and *micana*, *Roxana arcuana*, *Euchromia purpurana*, *Phoxopteryx siculana*, *biarcuana*, *diminutana*, *derasana*, and *ramana*, *Grapholita obtusana* and *gemmana*, *Halonota nigricostana*, *tetragonana*, and *ephippana*, *Olindia ulmana*, *Retinea pinicolana*, *turionana*, and *pinivorana* *Carpocapsa grossana*, *Stigmonota perlepidana*, *puncticostana*, and *Germana*, *Dicrorampha alpinana* and *sequana*, *Aylopoda pariana*, *Lobesia Servillana*, *Eupæcilia ambiguana*, *curvistrigana*, *udana*, *rupicola*, and *subroseana*, *Chrosis Audouinana*, *Argyrolepis Baumanniana*, *Dubrisana*, *cnicana*, and *æneana*. and two additions to the British list, *Dicrorampha flavidorsana*, and *Eupæcilia Heydeniana*.

The *Tineina* are also fairly represented, as I have observed 370 species, considerably more than half the list, and feel sure that if the genera *Gelechia*, *Coleophora*, *Elachista*, and *Nepticula* were properly worked (by breeding especially) many more would be added.

The district seems poor in *Psychidæ*, 4 species only having been met with, and of one of these—*opacella*—only cases, which produced nothing but a few *Ichneumons*. On the other hand, the *Tineidæ* show 50 species, including the entire genera *Lampronia* and *Micropteryx*, all of *Incurvaria*, *Nemophora*, and *Adela*, except one species each. Of the *Gelechidæ* the genus *Depressaria* is well represented by 30 species; *Gelechia* not so well, by 48. Of the *Gracilaridæ* 20 species have occurred, and of the genus *Lithocolletis* 32.

The list of good species is so long as to be in danger of becoming wearisome, but in it are included 3 novelties—*Depressaria olerella*, *Gelechia Knaggsiella*, and *Coleophora graminicolella*; also *Xysmatodoma melanella* and *argentimaculella*, *Ochsenheimeria Birdella*, *Scardia carpinetella*, *Tinea albipunctella*, *fulvimitrella*, and *nigripunctella*, *Incurvaria tenuicornis*, *Micropteryx mansuetella* and *salopiella*, *Nemotois cupriacella* and *minimella*, *Hyponomeuta vigintipunctatus* and *plumbella*, *Eidophasia Messingiella*, *Hypsolopha alpella* and *lucella*, *Harpipteryx scabrella*, *Pteroxia caudella*, *Depressaria pallorella*, *carduella*, *pimpinellæ*, *pulcherri-mella*, and *pastinacella*, *Psoricoptera gibbosella*, *Gelechia lentiginosella*, *sororculella*, *basaltinella*, *rhombella*, *Lyellella*, and *vorticella*, *Macrochila fasciella*, *Butalis senescens*, *Pancalia Latreillella*, *Röslerstammia Erxlebella*, *Glyphipteryx oculatella*, *Echmia dentella*, *Tinagma resplendella*, *Gracilaria*

falconipennella, *populetorum*, and *phasianipennella*, *Coriscium citrinellum*, *Coleophora Wöckeella*, *genistæ*, *inflata*, *apicella*, *fusco-cuprella*, and *badiipennella*, *Batrachedra pinicolella*, *Chauliodus Illigerellus*, *Laverna lactëella*, *Raschkiella*, *decorella*, *subbistrigella*, and *rhamnella*, *Elachista magnificella*, *gangabella*, *rhynchosporëlla*, *triatomea*, and *ochrëella*, *Lithocolletis irradiella* and *comparella*, *Cemiostoma Wailesella*, *Opostega crepusculella*, *Nepticula ntimella* and *gratiosella*, *Trifurcula atrifrontella* and *pulverosella*.

Nearly half the *Pterophorina*—13 species—are found, the best being *Pterophorus punctidactylus*, *Loewii*, *tephradactylus* and *paludum*; and the little *Alucita polydactyla* is, of course, plentiful.

This paper would be incomplete without a distinct notice of those species usually considered to belong to northern districts, but which are found on the hills and heaths of this neighbourhood, and also of those that might be expected to be common here, but are comparatively or absolutely rare, or even not observed at all.

Of species, more commonly northern, found here, I may mention *Leptialus vellela* and *Abraxas ulmata*, both rare; *Tortrix viburnana*, *Penina sauciana*, *Mixodia Schulziana*, *Phoxopteryx unguicana* and *myrtillana*, *Coccyx vacciniana*, *Stigmonota coniferana*, *Butalis incongruella*, *Pythipteryx Haworthana*, *Elachista kilmunella*, and *rhynchosporëlla*, *Lithocolletis irradiella*, *Cemiostoma Wailesella*, and *Pterophorus Loewii*.

There are also a few apparently wanderers from the chalk, *Arge Galathea*, *Myrcena Corydon*, *Argyrolepis Dubrisana*, and *Chrosis tesserana*.

Of insects rare here that might reasonably be expected to be common, the following are noticeable:—*Argynnis Aglaia*, *Sesia tipuliformis*, *Liparis lialis*, *Anthrocera filipendulæ*, *Nola cucullalis*, *Eupithecia centaureata*, *Hydræcia micæa*, *Noctua glareosa*, *augur*, and *rubi*, *Hadena oleracea*, *Leptophos parthenias*, *Catocala nupta*, *Nœnia typica*, *Hydrocampa lemnales*, *Agrotis verticalis* and *urticalis*, *Ebulea sambucalis*, *Cartella bilunana*, *Tinea canella*, *Swammerdamia cæsiella*, *Acrolepis granitella*, *Chauliodus chærotyllus*, and *Lithocolletis spinolella*.

And of those conspicuous by their apparent absence I may mention, *Perithous tilix*, *Nemeophila plantaginis*, *Gastropacha quercifolia*, *Gortyna vago*, *Miana furuncula*, *Agrotis puta*, *Noctua Dahlii*, *Orthosia ypsilon*, *Anthocelis lunosa*, *Cosmia diffinis*, *Hecatera dysodea*, *Polia flavocincta*, *Hadena chenopodii*, *Calocampa exoleta*, *Habrostola triplasia*, *Scopula lutealis*, *Tortrix costana*, *Sphaleroptera ictericana*, *Stigmonota regiana*, *Eupœcilia cæana*, *Argyrolepis badiana*, the whole of the species of the genus *Cochylis* (except *inopiana*, which occurs among fleabane), *Tinea biselliella* (happy to mention!), *Plutella porrectella*, *Gelechia fraternella*, *Batrachedra præanata*, and *Cemiostoma scitella*, not one of which I have ever met with in either larval or perfect state.

This scarcity or absence of usually common species is, however, less remarkable when we take into account the fact, that, though so very many species are found, the great majority of them are individually scarce, so that insects are really far less abundant than in many other places. Hardly any species, comparatively, are pests, while great numbers in my list are represented by but one or two specimens.

Norwich, 10th November, 1868.

A SECOND LIST OF GALL-BEARING PLANTS.

BY H. W. KIDD AND ALBERT MÜLLER.

In the October number (vol. v, p. 118) of this Magazine we have attempted to give a list of indigenous and other plants known, or strongly suspected to bear galls, in Great Britain.*

A few additions to this first list will be found in the enumeration below, which, besides, contains the names of many native and introduced plants on which, as yet, no galls have been found in these islands, but which are known to harbour such abroad. All the latter species are marked with a note of interrogation (?), but, with the kind help of other observers, we hope to be able to remove this doubtful mark, after the lapse of next season, from many of them. We have therefore postponed the publication of our descriptive lists, that we may give our readers the opportunity of communicating any discoveries they may make during the summer, and of increasing our own knowledge; though, of course, we are well aware that we cannot expect that all these plants will eventually become known to us as really possessing galls in this country too. We simply submit this list as a guide, to be followed, but by no means to be implicitly trusted; and we shall at all times be glad to hear of any additions or alterations concerning the same. The asterisk marks non-indigenous plants.

? *Berberis vulgaris*, L.
 ?* *Vitis vinifera*.
 ? *Alyssum*, spec.
 ? *Nasturtium sylvestre*, Br.
 ? *Helianthemum vulgare*, Gaert.
 ? *Arenaria trinervis*, L.
 ?* *Cytisus laburnum*.
 ? *Prunus padus*, L.
 ? *Potentilla argentea*, L.
 ? *verna*, L.

? *Rubus idæus*, L.
 Rubus cæsius, L.
 Rubus fruticosus, Auct.
 ? *Rosa arvensis*, L.
 ? *Poterium sanguisorba*, L.
 ? *Pyrus communis*, L.
 Epilobium montanum, L.
 palustre, L.
 parviflorum, Schreb.
 ? *Eryngium campestre*, L.

* In the nomenclature of native plants of this and our last list we have followed the "London Catalogue."

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|---|-------------------------------------|----|-------------------------------------|
| ? | <i>Pimpinella saxifraga</i> , L. | ? | <i>Nepeta cataria</i> , L. |
| ? | <i>magna</i> , L. | ? | <i>Plantago maritima</i> , L. |
| ? | <i>Heracleum sphondylium</i> , L. | ? | <i>Aristolochia clematidis</i> , L. |
| ? | <i>Lonicera xylosteum</i> , L. | | <i>Urtica urens</i> , L. |
| ! | <i>Galium mollugo</i> , L. | ? | <i>Salix pentandra</i> , L. |
| ? | <i>Cichorium intybus</i> , L. | | <i>alba</i> , L. |
| ? | <i>Serratula</i> , spec. | ? | <i>triandra</i> , L. |
| ? | <i>Carduus nutans</i> , L. | ? | <i>purpurea</i> , L. |
| ? | <i>Centaurea cyanus</i> , L. | ? | <i>viminalis</i> , L. |
| ? | <i>Solidago</i> , spec. | ! | <i>lapponum</i> , L. |
| ? | <i>Senecio sylvaticus</i> , L. | ?* | <i>Larix europæa</i> . |
| ? | <i>viscosus</i> , L. | ?* | <i>Juglans regia</i> . |
| ? | <i>Campanula rapunculoides</i> , L. | ? | <i>Alisma plantago</i> , L. |
| ? | <i>trachelium</i> , L. | ! | <i>Arundo phragmites</i> , L. |
| ? | <i>Vinca minor</i> , L. | ? | <i>Poa nemoralis</i> , L. |
| ? | <i>Verbascum nigrum</i> , L. | ? | <i>Festuca ovina</i> , L. |
| ? | <i>Veronica serpyllifolia</i> , L. | ! | <i>Triticum junceum</i> , Auct. |
| ? | <i>Orobanche rapum</i> , Thuill. | | |

In such cases where the British Flora does not possess the identical species on which the gall occurs abroad, we have mentioned the generic name only as a hint to examine all the indigenous members of the genus.

P.S.—The insertion of the genus *Circæa* in our last list was founded in error. We know of no galls on any of the species.

On Gyrinus æneus, Steph.—In the "Entomologist's Annual" for 1869, p. 23, Mr. Rye has noticed *Gyrinus æneus*, Steph., stating that it is quoted and the name adopted by Aubé, in the *Iconographie*, &c. This is perfectly correct, but I think that Aubé's support of Stephens' species must be shelved altogether, for Aubé's *æneus* is certainly not Stephens' *æneus*, as a glance at the two descriptions renders indubitable. In short, Aubé committed an error in citing *G. æneus*, Steph., as identical with the insect he himself described under the same name. How Aubé came to make so curious a mistake, it would be useless to speculate on here. *G. æneus*, Aubé, as noticed in the "Annual," is recognized generally as *Dejeanii*, Brullé, a species confined to the south of Europe. It remains then to ascertain what Stephens' *æneus* is, and I fear that we shall only find that this is one of the numerous cases in which Stephens' work must be considered as non-existent.

Stephens, in Ill. Mandib., ii, 95, quotes *G. æneus* of Leach, M.S.S., 1842. Snffrian, in the best paper which has yet been produced on the European *Gyrini*, informs us that he has received from Dr. Leach an example of *G. æneus*, Leach, M.S., and that it is a specimen of *G. opacus*, Sahl. Bearing in mind this, then we refer to Stephens, expecting to find a corroboration of this; but no, his descriptions indicate undoubtedly (as far as they indicate anything) that *Gyrinus æneus*, Steph. = *G. marinus*, Gyll., while *G. marinus*, Steph. = *G. opacus*, Sahl., and this, though he not only quotes without doubt Dr. Leach's *æneus* as his own *æneus*, but gives localities where Dr. Leach captured the species. Hence it is better not to notice Stephens' *æneus* at all, or we shall introduce to our continental friends a discrepancy in Stephens' work not at all likely to increase his prestige with them.—D. SHARP, Thornhill, 7th January, 1869.

Occurrence in Britain of Homalota rufotestacea, Kraatz.—I have identified an insect taken by Mr. G. C. Champion (by casual sweeping in Headley Lane, Mickleham, in the month of April) with the above-mentioned elegant species, of which a description will be found in *Ins. Deutschl.*, ii, p. 245, 48.

It belongs to Dr. Kraatz's 4th group of the genus, in which the six penultimate joints of the antennæ are strongly transverse, the elytra are larger than the thorax, the abdomen is parallel, &c. The normal size appears to be about that of *H. elongatula*, and the whole insect is elongate, linear, with smooth shining abdomen, and quadrate thorax. In colour it is pitchy-brown, with the antennæ, front of head, legs, and apex of abdomen testaceous; the thorax is rufo-testaceous, and the abdomen has the 5th segment and the margins of some of the other segments usually pitchy.

Mr. Champion's insect seems to differ from Kraatz's description solely in size, it being considerably smaller than $1\frac{1}{2}$ lin. (Germ.).—E. C. RYE, 7, Park Field, Putney, S.W., *January*, 1869.

Note on Balaninus cerasorum and B. rubidus.—Referring to my remarks upon these two insects in the "Annual" for 1869, I may add that M. J. Desbrochers des Loges, in his recently commenced monograph of the European *Balaninidæ* and *Anthonomidæ* (*Ann. de la Soc. Ent. de France*, viii, 1868, 358 et seq.) gives them as separate species without the slightest commentary of suspicion as to the possibility of their identity. He refers to the sexes of each, and gives for *rubidus* (on account of the slight sexual difference in the length of its rostrum, which he notes) the following additional male characters:—"Pygidium more exposed and pubescent, and sutural angle of elytra more marked." M. des Loges, in addition to the characters mentioned by me, states that the eyes are farther apart and the frontal depression is deeper in *rubidus* than in *cerasorum*; he also refers to a difference in the club of the antennæ of the two insects, which he describes as oval, slightly elongate, acuminate at the apex, and sub-rotundate at the base in the former, and merely as oval and contracted at each extremity in the latter.

M. des Loges adopts the name of *tesselatus*, Fourcroy, for the insect known to us as *B. turbatus*, and reinstates Marsham's *glandium*, which is much prior in date to *venosus*, Germ.—ID.

Note on the Donacia geniculata and D. lævicollis of Thomson.—The reference to these species, from the Zoological Record, to which I drew attention at page 198 of the present volume, though correct in fact, is not sufficiently explanatory.

An examination of Thomson's descriptions (*Sk. Col.* viii, p. 123) shews that the former of them is the *D. aquaticæ* of Waterh. Cat. (*Comari*, Ahrens, Suffr.), and the latter is the universally recognized *D. sericea* (*Proteus*, Steph.). *D. aquaticæ* of Linnæus, which Mr. Waterhouse has identified, by means of the collection of that author, with the insect known to us by that name, is referred to *dentipes*, Gyll., by Thomson, who remarks that the so-called original examples of *aquaticæ* have little or no weight, since Mr. Waterhouse gives *Comari*, Suffr., as a synonym of that species, notwithstanding Linnæus' description clearly shows that he had *dentipes* before him, under which species Gyllenhal also quotes Linnæus' *aquaticæ*.

Linnæus' *sericea* Thomson considers inapplicable to any Swedish species, on

account of the expression "*elytris subfastigiatis*;"* and Gyllenhal's he rejects, because the variation in the sculpture of the prothorax allowed by that author would include *both* the species. Supposing, however, that these reasons were allowed as sufficient to disestablish such well-known species, there would still remain the names proposed for them by authors subsequent to Linnæus and Gyllenhal; and (without endeavouring to substantiate others) *Comari*, Suffrian, for the one (though utterly ignored by Thomson, save in the above-mentioned reference), and *Proteus*, Steph., for the other, would effectually bar such sharp practice as that in which Thomson has indulged in the present instance.

M. Marmottan, in the "Excursion de 1866 dans les Vosges et l'Alsace" (Ann. Soc. Ent. de Fr., 1867, vii, p. 679), speaks of the existence of an opinion as to *Comari* being only a simple var. of *sericea* (!); he also states that, up to the time of its capture at the lake of Lispach, it was only known as occurring in Germany. "Discovered by the late James Foxcroft, in Perthshire, in May, 1854," is the statement in Ent. Annual, 1861, on its being recorded as British by Mr. Janson.—ID.

Captures of Coleoptera during the past season.—At Shirley and Wickham I have taken the following species:—*Murmidius ovalis*, one specimen, by sifting heaps of dead leaves, cut grass, &c., accompanied by *Euthia plicata* (Dr. Power appears to have long ago taken a specimen of *M. ovalis*, at Madingley Wood, Cambridgeshire), *Mycetoporus punctus*, *Euplectus Kunzei*, *Pachyrinus comari*, *Ceuthorhynchus crux*, *Miarus campanulæ*, *Homalota angustula*, *divisa*, *triangulum*, and *coriaria*, *Olibrus pygmaeus*, *Stenus pallipes*, and *S. circularis*, in sand-pits. *Salpingus castaneus*, *Phlæophthorus*, and *Tomicus micrographus*, by beating fir branches. *Tachinus elongatulus* (1), by sweeping under fir trees.

At Mickleham, *Homalota rufotestacea*, *oblita*, *angusticollis*, and *divisa*, by sifting dead leaves. *Aphodius porcus*, about a dozen specimens, in dung. By promiscuous sweeping I have taken *Apion filirostre* and *A. atomarium*, *Baridius picicornis*, *Trachys nanus*, *Ceuthorhynchus cochleariæ*, *crux*, *terminatus*, and *alliaris*, *Cassida hemisphærica*, *Mantura Matthewsii*, *Gymnetron melanarium* and *E. noctis*, *Phyllotreta nodicornis* and *P. ochripes*, *Crepidodera ventralis*, *Thyamis gracilis*, *Uccinella hieroglyphica*, and *Psylliodes attenuata*.

At Weybridge, *Homalota lævana*,† *celata*, *Thomsoni*, and *sodalis*. *Smicronyx cicur* and *Haploglossa rufipennis*, by sweeping the heath. *Pachyrinus 4-tuberculatus*, by sweeping in damp places. *Erikinus agnathus*, on sallows.

At Lee, *Magdalinus barbicornis*, by beating hedges; and *Xylophilus populneus*, by casual sweeping. At Herne Bay, *Apion Gyllenhalii* (in some numbers), *A. simile*, and *Ceuthorhynchus terminatus*, by sweeping on the coast. At Birch Wood, *Nossidium*, in profusion, by sifting dead leaves, and *Lycoperdina* in fungus. At Gravesend, *Hister marginatus*, by sweeping in damp places on the river banks, and *Nitidula rufipes* in a dead animal. At Cobham, Kent, *Abdera bifasciata*. At Wimbledon, *Stenus melanarius* (2) and *Chætocnema confusa* (2). At Southend, *Harpalus servus* (2) and *Chrysomela marginata*, under stones on sand-hills. At Sevenoaks, *Apion dissimile*. At St. Leonards Forest, Sussex, *Bembidium obliquum* (3), on the banks

* I am not sure that I exactly appreciate this word: but *fastigium* may, I think, mean "a ridge;" and the elytra of *sericea* can certainly be considered as exhibiting traces of transverse ridges. Or, it may mean "a gable;" in which case Linnæus would possibly refer to the arc of the two elytra.—E. C. B.

† These difficult species, were, we believe, named by Dr. Sharp; and may, therefore, be relied upon.—EDS.]

of a small pond. I have also found a few specimens of *Lasioderma testacea* in ginger. A specimen of *Cryphalus binodulus* was found crawling on a wall near Peckham, last autumn.

The specimens of a *Ceuthorhynchus* recorded by me with some little doubt in the Ent. Mo. Mag. as *C. urticae*, I have since found are undoubtedly to be referred to that species.—G. C. CHAMPION, 274, Walworth Road, S., January, 1869.

Note on a British example of Libellula (Diplax) vulgata.—Among some British Dragon-flies obtained at the sale of the late Mr. Desvignes' collection, I find one male of this species, extremely rare in Britain; but can give no clue as to its locality. That this common north Continental insect should be so little known here is extraordinary. From its great resemblance to our abundant *L. striolata* it may possibly be overlooked; yet I have, at various times and in many localities, captured and examined scores of the latter, in order to obtain its rare ally, but always without success. It may be remarked that, apart from the slight structural differences in this species, *vulgata* may be recognised by the reddish colouring of the principal nervures, as seen when the light is thrown on the wings in a particular direction, a character to which scarcely sufficient importance has been given.—R. McLACHLAN, Lewisham, 30th November, 1868.

On the spinning of the larva of a Cecidomyia.—Winnertz, in his elaborate "Beitrag zu einer Monographie der Gallmücken" (Linnæa Ent., vol. 8, p. 170), mentions that, according to his observations, no Cecidomyian larva possesses spinning-organs, and he finds additional proof for this in the fact that no thread is perceptible in the silken envelopes of the pupæ.

There is now standing before me a corked bottle, containing a quantity of the woody green galls on the mid-ribs of the leaves of *Salix cinerea*, collected in this neighbourhood in the middle of October last. From these polythalamous galls the pale orange larvæ of a *Cecidomyia* are now making their escape, some peacefully to undergo their metamorphosis at the bottom of the bottle, in what I consider their spun cocoons (as these are neatly attached by threads to the glass, and not loosely lying about), others of a more restless disposition forming little "points d'appui," or steps of silken ladders, all up the smooth, perpendicular sides of the bottle. Some gymnasts among them are hanging at their ease, in a curved position, on threads of their own, which are one inch, and even longer, and are attached to the top of the bottle. In short, there are at least three distinct exhibitions of spinning operations to be seen.

This ocular demonstration strengthens the misgivings I have on the statement heading this note; and it now rests to be seen whether spinning powers are the exception or the rule with the larvæ of the numerous other *Cecidomyia*.—ALBERT MÜLLER, Penge, S.E., November 11th, 1868.

Capture of Dianthæcia irregularis, Hufn. (echii, Borkh.) in Britain.—I have been informed that the Rev. A. H. Wratishan captured an example of this insect in Suffolk last year. The name has been in our lists before, but has long been placed among the "reputed" species. According to Guenée, the larva feeds on the flowers (seeds?) of *Gypsophila paniculata*, not a British plant; but it probably also affects other *Caryophyllaceæ*.—R. McLACHLAN, Lewisham, January, 1869.

Macro-Lepidoptera at Rannoch.—At the somewhat gloomy close of a fine day early in July, we left the road which borders Loch Rannoch, and crossed the rough fields which lead to Camachgouran. We had reached the end of a somewhat harrassing journey, and it was with feelings of intense satisfaction that we saw the collecting-cases and portmanteaux, containing all necessaries for a Scotch campaign, laid on the stone floor of our little abode. Our kind hostesses very soon put before us a meal, such as all who have visited Camachgouran will vividly remember; and the sight of the newest of milk and the freshest of eggs* urged us to recruit before we turned out, as we had resolved to do, for a few hours' collecting on our first night.

To one of us the scenery, and, better still, the insects, of the district were quite new; and, as we passed down the long barley-field beyond which lies the great sugaring-ground of Rannoch, the other set himself to combat the slightly gloomy impression conveyed to the mind by the grand mountain solitudes and sloping moors veiled partially, as we saw them now, by uncomfortable looking masses of cloud. Turning to the left, we reached two very different tracts of land separated by the high road: that next the loch being grass-grown, and covered with fine birch trees, while the other produces a mingled mass of heather, reeds, and fern, amongst which grow, singly or in clumps, birch, fir, and alder trees. Here, at nine o'clock, sunlight had scarce faded from the sky: dark banks of cloud were still shot with vivid lines of light; the air was soft and warm, and the loch lay motionless, almost at our feet. Some eighty trees, near the loch's edge, received an application of the sugar, and we retired among the heather and woods in the background to "moth" until the charm should have exerted its sway. Here a fine *G. papilionaria* crossed our path and was safely boxed, and somewhat peculiar forms of *B. repandata* occurred commonly.

Darkness had come on about a quarter to eleven sufficiently to warrant a first visit to the sugar; anxiously, and with darkened lamps we drew near to the first tree. Former experience told us that sugaring at Rannoch was not quite profitless. One held the net below the sweet tract of bark, the other flashed a stream of light upon it: both peered with eyes as greedy as the most ravenous *polyodon*. A *Carabus* drew back, and politely stopped eating; two "daddies" buzzed off, and banged against the lamp; and a great snail seemed to be regarding contemplatively the slimy traces of his own ascent; but there were no moths.

Tree No. 2 surprised us with a goodly sight. The brothers *tincta* and *occulta* absorbed sugar side by side, both in the loveliest of condition; *N. conflua*, *C. cubicularis*, and *X. rurea* having dropped in to complete the party. At the next "spread" we found *tincta* and *nebulosa*, a lovely *H. contigua*, *R. tenebrosa*, and *T. pronuba*. This first night was, indeed, undeniably good. *Tincta* was common; *occulta*, of the deepest shade of blackness, and without a rub, not by any means rare; and a fair sprinkling of *duplaris*, *contigua*, *tenebrosa*, *festiva*, *conflua*, *cubicularis*, *rurea* (and var. *combusta*), *polyodon*, *adusta*, and *augur*.

It was not long before we made an expedition to "Grayvel," the "lion" of the mountains in that district. On the lofty summit, a few *P. trepidaria* resulted

* Milch-cows and productive hens appear to have been imported since our experience in 1865.—McL.; E. C. R.

from a determined search; *S. alpinalis* was not rare on the sides and on the base; *C. populata* swarmed among the bilberries half-way up; *C. furcatellus* was also common on the summit; and by good luck we secured some six or eight specimens of *S. paralis*. Descending, we visited a hollow on which the sun just then shed warm and friendly rays, and here *E. Epiphron* sported to and fro in considerable numbers, its little black form being very conspicuous against the bright green grass.

Our sugaring continued to be good throughout the whole four weeks of our stay. For some time *A. tincta* and *occulta* were of frequent occurrence, and few insects, when in faultless condition, present a more striking appearance than the latter. *H. contigua* and *adusta* were not rare; *viminalis* came out in some numbers; of each of *N. neglecta*, *M. furva*, *C. Haworthii*, *C. duplaris*, and *O. suspecta*, we secured a few specimens; and *S. anomala*, with the last traces of respectability rubbed out of him, one night surprised us by a visit. *R. tenebrosa* was common (and, as usual, far from fine), and *N. conflua* not scarce.

The "vulgar herd," most of them constant attendants, comprised *N. augur*, *baja*, *C-nigrum*, *brunnea*, *wanthographa*, *plecta*, and *festiva*; *X. polyodon* and *rurea* (both species represented by very fine varieties); *T. orbona*, *janthina*, and *pronuba*; *C. cubicularis*; *A. porphyrea*; and *H. pisi*.

The following "trespassers" came to sugar:—*L. cæsiata*, *C. russata*, *M. fluctuata*, *B. repandata*, *M. margaritata*, *R. crategata*, *L. pectinitaria*, *C. populata*, *L. olivata*, and *H. elutata*.

Several other interesting captures fell to our lot among the *Noctuina*. *H. rectilinea*, and *P. interrogationis*, were discovered resting on stumps and stones during dull days. Of the latter, which, when fresh from the pupa, is scarcely to be surpassed for delicate shading, we accumulated a remarkably lovely series.

S. anomala occurred freely on the moors, and remained for three days in exquisite condition, after which it was almost over. From a small poplar tree we took about a hundred larvæ of *C. or*, many of which have now disappeared beneath the soil. *A. lucerneæ*, attracted, probably, by a great jar of treacle which stood by the front door of our cottage, paid us a visit one night, and led off a lively pursuit round the room, which lasted a quarter-of-an-hour, but by which he was in no way harmed.

E. Blandina and *C. Davus* were both common; and of the former, a male occurred with the fulvous patch on one side spotless.

The full-fed larvæ of *S. carpini*, *L. callunæ*, and *C. reclusa*, were in some numbers here and there; nor were those of *H. adusta* any rarities. *C. psittacata* was beaten from mountain ash, and soon entered the pupa state. *A. menyanthidis* resulted from a sweeping of heath, and *N. ziczac* was to be obtained from the willow bushes, where also *C. furcula* was rather common.

Among the *Geometrina* our captures were numerous. *D. obfuscata* was scarce, but a few fine ones consented to come within range; and from two females there sprang a fine brood of larvæ, at present in winter quarters. Certain larvæ beaten from alder would seem to be *S. illustraria*, but presented a most curious variety of colour. *E. blandiata*, together with *E. succenturiata*, occurred at Kinloch; and *E. ericetaria* was very common in all directions. *A. fumata*, of course, swarmed in places; as, to an almost incredible extent, did *L. cæsiata*. *C. munitata* frequented

the sides of mountain streams, and the stony ground at the foot of Grayvel. *F. brunneata* was common, but exceedingly local. *E. fasciaria* flew rather freely at night in the neighbourhood of fir trees. *L. olivata* was obtainable, both at rest and flying by the loch side at night. *S. belgiaria* sat at rest among the heath by day, and *E. tenuiata* was beaten from sallows.

From the bark of a birch tree near Camachgouran we cut an empty pupa of *T. scolioforme*,—rather a tantalizing operation at best.

The *Bombycina* were but sparingly represented:—*E. russula*, flying about ferns and heather; *N. plantaginis*, actively buzzing over the open heaths (one at a height of 2,000 feet); and a fine brood of *D. fascelina* larvæ marching out of the eggs, and arrested in the act of separating to pursue their respective courses in life, comprised about all our captures.

S. turfosalis, which occurred on marshy land near the loch, *C. margaritellus*, common throughout the district, *P. carbonariella*, common among burnt heather, and *P. pinguinalis*, at rest in the kitchen of our cottage, are worth of notice among our lesser friends.

The *Micro-Lepidoptera* must be reserved for another paper.—GEORGE B. LONGSTAFF, New College, Oxford; J. B. BLACKBURN, Grassmeade, Wandsworth, S.W., November, 1868.

Notes on Lepidoptera at Ashford, Kent.—*Chærocampa porcellus*, June 13th. *Euthemonia russula*, not uncommon, June 12th and 13th. I obtained eggs which hatched in ten days, and, feeding up rapidly, produced moths at the end of August. *Scoria dealbata*; this local insect was out in some numbers, and I had an opportunity of observing its habits, and seeing the females deposit their eggs on blades of grass. They are very sluggish on the wing, but fly reluctantly in the sunshine, and, after taking a short flight, would settle on a blade of grass; then commence sliding down in a series of grotesque jerks for about two-thirds of the distance, when, bending the abdomen round, they deposited from two to six eggs in a row on the edge of the concave side of the grass. They would then fly away and repeat the process elsewhere, but when alarmed mounted high in the air and flew to a considerable distance. I gathered several pieces of grass after seeing the eggs laid on them. I believe they were most partial to *Brachypodium sylvaticum*, but it seemed strange that when the young larvæ were hatched, and I offered them this and other grasses, they would not feed. I offered them *Polygonum aviculare* and *tus corniculatus* and *major*, on which last they did well. I have some at the present time about an inch long. The slow flight and conspicuous appearance of this insect makes it an easy prey to birds. One just rising from the grass was snatched upon and carried off by a bird. *Stauropus fagi*; I found a splendid male on a beech-trunk near Wye, on the 13th June. *Notodonta cucullina*; a fine female on a leaf of sycamore on Westwell Downs, June 10th. She laid a batch of eggs on the following day, which hatched in nine days. The larvæ fed quickly on sycamore, producing rather small moths in the beginning of August.—WILLIAM R. JEFFREY, from Walden, December 12th, 1868.

Notes on Lepidoptera at Wicken Fen.—One or two hurried visits to this locality in July last produced the following results:—*Papilio Machaon*; rather common on

the wing, and the handsome larvæ abundant at the same time on *Peucedanum palustre*. I also found the eggs on the same plant. *Acidalia immutata*; several specimens, from which I obtained eggs, and had the moths out again in September. *Simyra venosa*; the larva of this insect was abundant on *Cladium mariscus* and *Arundo*. *Hydrelia unca*; one larva swept up; fed for some time on *Carex*, but it did not live.—ID.

Vanessa Antiopa at Godmanchester.—A specimen of *V. Antiopa* was taken in September last, by Mr. Gerald Hunnybun, of Godmanchester, at rest on a pear-tree, early in the morning. I saw it soon afterwards.—W. JAGGER, St. Ives, Hunts, 6th January, 1869.

Captures of Lepidoptera at Taplow.—This summer I was at Taplow. I cannot say that I found *Lepidoptera* unusually abundant, though, on the other hand, I had very little time for collecting. Yet I tried sugar on several very favourable evenings, but with little or no result; in fact, within my experience there has not been a good year for sugaring since 1865. *Cardui* was very common towards the end of July. I noticed one thing during the very hot weather, viz., that butterflies (I speak particularly of *Alewis*, *Megæra*, *rapæ*, *napi*, and *Argiolus*) were flying about in as great abundance at seven in the morning as they usually are at eleven. This was only on the hottest days; I noticed this particularly; I went by the same path at the same hour every morning.

The only captures at all worthy of record are *D. carpophaga*, at light, in the middle of May; *cucubali*, also at light, in May and early in June, and also on July 10th (I may mention that the various species of *Silene* are very common near Taplow); *E. venosata*, on May 27th; *T. cinctalis*, on June 9th; *P. iota*, June 13th; *O. sambucaria*, on June 17th, i. e. earlier than usual; *T. rhamnata*, very common at light, between June 18th and July 13th; and *L. Argiolus*, June 19th and 20th.—A. H. CLARKE, 16, Furnivals Inn, E.C., November, 1868.

Peronea umbrana in Westmoreland.—I met with *P. umbrana* at Witherslack last autumn, but omitted to note it in the list for the "Annual." I believe this species has not previously occurred in Westmoreland.—J. B. HODGKINSON, Preston.

Captures of Lepidoptera near Perth in 1868.—In looking over the captures of Mr. W. Herd (one of the most active of our collectors), I was surprised to find that he had taken a specimen of *Euperia fulvago*. This species has, therefore, curiously appeared in three distinct localities in Scotland in the same year. Several other species not hitherto observed in this neighbourhood have, I suppose, been developed by the long-continued heat: these are *Nola cucullatella*, *Eubolia cervinaria*, and *Orthosia lota*. *Lycæna Artaxerxes* was very abundant; and among other species taken by Mr. Herd and Mr. James Stewart were *Dasydia obfuscata*, *Eupithecia tenuiata*, *Melanippe tristata*, *Coremia munitata*, *Cidaria silacea*, *Dicranura furcula*, *Agrotis saucia*, *Noctua glareosa* and *Dahlia*, *Orthosia macilenta*, *Cirradia acrampelina*, *Ennychia cingulalis*, &c. The season ended with *Phigalia pilosaria* ♂, taken by Mr. Stewart, at light, on the 6th of December! Does this species usually appear so late in the year?—F. BUCHANAN WHITE, Perth, 12th January, 1869.

Note on the larvæ of Heliophobus popularis, Charæas graminis, and Luperina cespitis.—Through the kindness of correspondents, I have been supplied in different years with the eggs of all these three species, and have reared the larvæ from them to full growth: and as I became acquainted with one species after another, I could not help being struck with the great similarity of appearance presented by all three when full grown.

In fact, from not being at the first prepared for this similarity among them, I found it necessary to rear each species a second time in order to make sure of the distinctive markings of each; but this having been done, and several figures having been carefully delineated, I feel I can now offer a few remarks, which may be of use in helping others to separate them.

The early history of each is similar; the straw-coloured eggs are laid in autumn, and undergo one or two changes of colour—the last not long before the larvæ are hatched—some time in spring, the exact date varying according to the character of the season.

They all feed on grass—showing no decided preference, beyond that of choosing the smooth and hard grasses rather than hairy and woolly species; they feed up in summer, retire underground, and make neat oval chambers for their retreat during pupation,—and the moths appear at the latter end of summer or beginning of autumn.

When young, the larvæ all show a greenish hue, with whitish lines,—*graminis* and *popularis* being of a paler—more olive tint, while *cespitis* is of a bright clear full green, with the lines also of a purer white than in the other species.

I have noticed that *popularis*, when about half-grown, shows a very beautiful opalescent pinkish gleam of colouring about the ventral legs and belly itself which I have not observed in the other two. By degrees, in all of them, the green becomes darkened with brown, and a metallic or bronzy lustre makes its appearance, until at last the full dress is assumed, which I now proceed to describe.

In *shape* all are similar; the head is full and rounded, the body stout and cylindrical, thickest in the middle, and tapering towards each extremity; when disturbed they do not curl up, but bend their head and tail together on one side.

But in *size*, as might be expected from the moths, they differ: thus *popularis*, when full grown, measures full $1\frac{1}{2}$ inch in length; *cespitis* $1\frac{1}{2}$, and *graminis* $1\frac{3}{4}$,—and their bulk is in proportion to their length.

Next as to *colour* and ornamentation; all three are much alike in hue, and all have five conspicuous stripes arranged as dorsal, sub-dorsal, and sub-spiracular. The colour of the head is brown; and that of the back, as far as the spiracles, is a deep brown-greenish or smoky brown, bronzy and very shining; a black (or, at least, darker than the ground colour) semi-circular plate on the second segment, on which commence the dorsal and sub-dorsal stripes, in colour pale pinkish-grey, greyish-ochreous, or pale brownish, widening a little in the stoutest part of the body, and gradually narrowing again, till they converge and meet at the tip of the anal flap, which is covered with another black plate; these stripes are edged with black, and freckled with grey or brown along their middle. The spiracles are black, and immediately beneath them comes the sub-spiracular pale stripe, edged and freckled like those already described.

The legs and prolegs are greyish-green or brown, the latter ringed with darker

brown, or with a brown spot above their extremities; the ventral surface varying in tint, but in all shining and semi-translucent.

Owing to the brilliancy of their skin, the play of light on the polished surface makes a close scrutiny indispensable to detect all the distinguishing marks of each species,—still such are to be found, especially in the region of the sub-dorsal and sub-spiracular stripes.

Popularis then has a rather pale narrow line, edged with blackish, running along midway in the space above mentioned, all the pale stripes being uninterrupted. Perhaps, too, the bronzy gloss of the back is *warmer* in this species, while the belly, though paler than the back, is more dusky than in the others.

Graminis has also a pale line running between the spiracles and the sub-dorsal stripe. In this species the segmental folds offer a good character, being smoother, and of a different tint from the back,—in fact, catching the eye as narrow transverse bands; the whole skin also is much wrinkled transversely; and there are transverse pale streaks in the space alluded to between the sub-dorsal and sub-spiracular stripes, viz., three above the pale line, and two below it, on each segment. The sub-spiracular stripe is wider than in the other species (and the belly seems to have rather a pale golden-brown gloss).

Cespitis has, in the space between the sub-dorsal stripe and sub-spiracular, *three* ragged and irregular, rather paler, longitudinal lines, a little meandering in character, and edged here and there with darker, and being more or less obscure; and the belly and legs in this species are decidedly tinted with green.—WM. BUCKLER, Emsworth.

Note on the earlier stages of Limenitis Sibylla.—Some years ago this butterfly was plentiful enough in the woods in this vicinity, and thinking I could at any time be able to study its history, I postponed any attempt to obtain its egg or larva until I should have worked out other species sent to me from a distance, and which I could not hope to have always at hand.

But since that horribly cold and wet season of 1860-1, I have never seen a single specimen, and apparently, as far as this locality is concerned, *Sibylla* (and I may add *A. Iris* also) was then exterminated.

However, through the kindness of Mr. C. G. Barrett, and his indefatigable exertions whilst at Haslemere, I have been able to study and figure the larva, my notes on its appearance when full grown, as well as on the pupa, having been already published, E. M. M., vol. iv., 33; and I would now offer some account of it at an earlier stage—not as being able to disclose something entirely new, but as describing exactly what I have seen.

The hybernaculum which Mr. Barrett sent me, was placed as he describes it, “*three or four buds down*” from the tip of a twig shooting out from the main stalks of a great honeysuckle-bine, which climbed up a fir tree; the twig chosen for this purpose sloped a little upwards, but he could not discover any hybernaculum that could be fairly called pendulous.

The one I have before me is made of a honeysuckle leaf, which had been first partly bitten through near its axil, and then *securely fixed* by its two edges for about half its length to the twig from which it grew, and across which its edges were firmly bound with a spinning of strong silk; the remainder of the leaf curved

off from the twig at an angle of about 40° , being divided along the mid-rib for about $\frac{1}{10}$ inch from the tip,—thus forming two little hare's ears as it were,—and from them up to the twig, having its two edges firmly spun together; just at the point where this half of the leaf meets the under-side of the twig there is a circular aperture, apparently designed by the larva for its egress in the spring.

As the leaf withers, the hybernaculum assumes a puckered fusiform shape, scarcely more than half-an-inch in length, being convex on the upper outline, and scarcely concave below; with the middle irregularly swollen, and the little hare's ears hanging apart; but I am sure, from the firmness with which the whole structure is fixed to the twig, it could not have swung with an independent motion of its own. Its natural appearance of a small shrivelled leaf clinging to the dry stem would readily escape ordinary observation.

On waking in April, sooner or later, according to the season, the little occupant leaves its abode, but goes no farther than to the upper-side of the twig immediately above the aperture it has quitted, and at this time is about three lines long, spiny, and is wholly of a reddish-brown colour.

Its first proceeding is now to cast off its winter coat, and accordingly it attaches itself to a spinning of silk on the twig, and by degrees crawls out of its old skin, which is left adhering to the silk, not shrivelled up, but still looking much like a larva.

It is now a much fresher looking creature; and after feeding on the just bursting buds of its twig, it is, by the beginning of May, half-an-inch long, brown on the back, with spines of the same colour, and yellowish-white along the sides, on which the blackish spiracles appear very distinct; just above the ventral legs it shows a reddish-brown stripe; the legs and belly are rather paler brown. In a few days it again moults, and then assumes a miniature resemblance of the adult larva, as formerly described.—ID.

Stray notes on Lepidoptera at Haslemere.—Being at Woolmer Forest on May 1st, and the season being forward, I had a look over the wild honeysuckle, and soon found young larvæ of *Limenitis Sibylla*, some only just moving from their hybernacula, and still in their dark winter dress (which I leave to Mr. Buckler to describe). A week later they were growing well, and larvæ of *Pericallia syringaria* appeared; and I also found a bristly-looking green larva, with white dorsal lines and a geometric aspect, which however, as it grew, became an exceedingly smooth larva of a beautiful green with broad white dorsal and sub-dorsal lines, and with two others, which I afterwards found produced lovely *Plusia V-aureum* in the beginning of June. In the meantime the larvæ of *syringaria* had turned up not uncommonly, and in most lovely variety; some very pale brown or drab, others a rich velvety brown or dark red, and some of intermediate shades, while one of the light-coloured specimens was blotched with green at the sides.

These began to spin on May 17th, and emerged early in June. How the larva can enclose itself, dorsal hook and all, in a cocoon which shall fit tightly to the proportionately small pupa, is a mystery; but so tightly does it fit, that the old skin is only shuffled off without being wrinkled up, and, as is well known, remains like a long tail attached to the pupa.

But, to return to *Sibylla*. By the middle of May some of the larvæ were fully grown, and about the 20th they began to spin up. My experience last year led me to put them into a warm room, where they got a good deal of sun, but this year the heat was too great, and certainly caused many of them to spin up before they were fully mature, so that some died in changing, and those bred were smaller than ordinary captured specimens. On June 3rd the first imago made its appearance, and by the 20th all had emerged. On June 16th I was riding down one of its favourite glades in Woolmer Forest, and wondering whether any had appeared at large, when one glided over my shoulder, and was, to my own astonishment, secured by a rapid and almost involuntary stroke of the net. It was a most lovely specimen, just out, and I should think one of the earliest ever seen at liberty in this country. A week later they were common, as also was *Argynnis Paphia*; and by July 11th, when in ordinary years they would have been in their greatest force, there was hardly even a worn-out specimen to be seen.

The great heat had the effect of bringing out several other species of butterflies before their usual time. Thus the second brood of *Leucophasia sinapis* appeared on June 29th, and that of *Lycæna Argiolus* on July 11th. Moreover, I met with what I had never before seen, namely, second brood specimens of *Argynnis Euphrosyne* and *Selene*, and *Thanaos Tages* on July 15th, 28th, and 30th respectively. This must be a very rare occurrence in the cold climate of Haslemere.

I cannot tell whether *Apatura Iris* was tamed a little by the heat, but my friend Mrs. Fraser discovered it settling along a wood-path, on alder and chestnut bushes from twelve to twenty feet high, and there we managed to secure at different times seventeen specimens; while in another wood a magnificent female condescended to settle within reach of my net, and was secured.

Early this month a *third* brood of *Satyrus Megæra* appeared, and is still flying in plenty. The males are unusually dark.

Of moths, I think that every one who has had time for collecting this autumn, will have found many that have re-appeared unusually late. I myself have observed several species that are generally only single-brooded.—CHAS. G. BARRETT, Haslemere, 16th September, 1868.

Note on Hyponomeuta vigintipunctatus.—From larvæ found last autumn on *Sedum telephium*, I bred, in the spring, a host of *Hyponomeuta vigintipunctatus*.

Wishing to obtain eggs, I kept a dozen specimens alive for several days in company, but as no results appeared, turned them out, on April 25th, upon some *Sedum* which I had planted in the garden, and a day or two afterwards turned out several more.

From this time till May 20th—nearly a month—whenever I looked at the plants some of the moths would be visible, settled on the leaves. More utterly inert creatures I never saw. Although I watched them at all times in the day and in the evening, I never saw one move unless disturbed. If touched they would dart down to the ground, and crawl up again soon after, but without using their wings. They did not become worn nor very much faded, and must have died at last from sheer want of energy to keep alive. From all this I feared that they had not paired, and that I should not get a brood, so was much pleased in June to see

a few larvæ on the plants. These fed up very fast in the hot weather, and, before I expected it, had gone into pupa, but where I could never find out, nor did I see one of the moths of that brood; indeed, I was too much occupied at that time of the year to notice them much, but in August the plants were nearly smothered with webs of the second brood of larvæ, which devoured all the leaves and even attacked the seeds, and spun up (in confinement this time) just in time to escape starvation, for their brethren at large, encouraged, I suppose, by the hot weather, had utterly eaten up and destroyed the fine patches of plants upon which I had reckoned for a fresh supply of food, and it was as much as I could do to find the dead stems. Unless they were full-fed, this will make them rare next year.—ID.

Penthina capreana and other *Lepidoptera* bred from *sallow*.—Mr. Machin having given me some hints how to find the larvæ of *Penthina capreana*, I spent some time and pains in searching for them at the end of April. Being, however, unable to find any, even in the places where the perfect insect had occurred, I went to work and picked every rolled-up leaf and spun up shoot of *sallow* that I could find, till I had a good quantity, which I put into flower-pots in a cool place, and supplied fresh leaves when these dried up.

From this lot of *sallow* shoots I bred, early in June, plenty of *Hypermercia angustana* and *Argyresthia pygmælla*, and a fine *Ptycholoma Lecheana*; from the 20th to the end of the month, several *Penthina capreana*, *Tortrix cratægana*, *Spilonota dealbana*, *Epunda viminalis*, and *Gelechia populella*; and in the middle of July a dozen *Semasia populana*. The last appearance is *Orthosia lota*, just out, and there are still a lot of pupæ, which I expect will produce only *Cheimatobia brumata*; but this seems a considerable number of species, with a very wide range of appearance, to be obtained from one lot of *sallow* shoots.—ID.

Extraordinary variety of Cynthia cardui.—I beg to send you a description of a fine variety of *C. cardui*, which I had the good fortune to capture on the 8th of August last, on the sand-hills at Wallasey. Fore-wings, base, and inner margin yellowish-brown, much paler than in ordinary specimens; disc yellowish-red, paler in the discoidal cell, and quite free from dark markings, except a small blotch on the costal nerve in the cell, and an additional one from the sub-median nerve hardly reaching the third inferior nerve: the apical portion of the wing and hind-margin nearly normal.

Hind-wings yellowish-red, paler near the hind-margin. The usual dark markings are totally absent, except the marginal blotches, which are normal, and the sub-marginal, which, in this specimen, are pyriform. The two nervures at the upper margin are streaked with black, and between them is a white streak. Body yellowish-brown.

Underside—Fore-wings. Base ashy-white; centre of the discoidal cell red, the remaining portion, bounded by a dark streak, pale; disc reddish-ochreous, inclining to red towards the base. There are no dark markings, except a small blotch on the costal nerve in the discoidal cell. Apical portion of the wing and hind-margin tawny, with patches of ashy and blackish scales, but the whole much suffused, and with no distinct markings.

Hind-wings. Ground colour ashy-white. The only normal markings are those at the extreme base and the two blotches at the junction of the nervures. The spaces between the nervures are more or less suffused with brownish scales. The ocelli are distinctly outlined, and several are only indicated. Body ashy-white.

The specimen is in good condition, and as only very few specimens have made their appearance on our sand-hills this year, I may congratulate myself that the only one which I took should prove so remarkable.—E. L. RAGONOT, 130, Conway-street, Birkenhead.

A railway train stopped by caterpillars!—We think the following extract from the Melbourne "Argus" (Australian paper), of October 13th, 1868, [worthy of being reprinted here:—"One day last week, the hairy caterpillars that are so destructive to barley at a late period of the year were crossing the Sandhurst railway in such numbers, a few miles from town, that they stopped a train, not by the magnitude of the obstruction, but by rendering it impossible for the engine to grip the rails, as the caterpillars were crushed beneath the wheels." We have no means of ascertaining the name of this larva, but it probably belongs to the *Bombyces*.—EDITORS.

A Rejoinder to the Rev. T. A. Marshall's Reply on the gender of Acanthosoma.—I am much obliged to Mr. Marshall for his answers to some of my questions; but if they prove anything, they prove too much, and they place me in this dilemma, that if I accept them as satisfactory, I cannot see that our old friend *Harma* is anything but an adjective, and if so, I cannot detect why it is neuter, as Mr. Marshall has told us it is.

The contention is, that *Acanthosoma* cannot be, but that *Harma* is, neuter. Substitute *Harma* for *Acanthosoma* in the demonstration, *ante*, p. 209, and it stands thus:—

"The subject of this word is a certain GROUP of BUGS. This subject is not contained in the word *Harma*, but is understood. Every noun that does not contain the *subject*, must contain the *predicate*, or it has no meaning at all.* And if it contains only the predicate, it is what grammarians call an *adjective*. Therefore *Harma* is an adjective. Q. E. D."

I venture to think that, both here and at page 209, Q. E. D. must be read *Quod est dubitandum*. But if *Harma* be really an adjective, is it not as feminine as *Acanthosoma*?

The same line of argument would prove with equal conclusiveness that *redbreast* and *wagtail* are adjectives; though I cannot quite make out whether Mr. Marshall considers them to be adjectives, or admits them to rank as substantives, but substantives "not grammatical or logical," tainted with "incorrectness."

As the word "illogical" did not alarm me on the former occasion, the word "ungrammatical" does not frighten me now. I care not to inquire whether it be true that *redbreast* and *wagtail* "belonged originally to the language of the vulgar

* Mr. Marshall can scarcely say that *Harma* has no meaning at all. He would never have proposed to reject Hahn's significant *Arma* for the meaningless *Harma*. I have been reminded that there is a genus *Harma* of butterflies; which is another ground for retaining *Arma*.—J. W. D

and of children, and are mere familiar nicknames." Mr. Marshall admits them to be now "sanctioned by usage"—

—usus,

Quem penes arbitrium est, et jus, et norma loquendi.

Many familiar, nay many contemptuous nicknames, have become honourable and hereditary surnames. Whatever the origin of *redbreast* may have been, it is now the recognised vernacular name of a particular species of bird, given as a noun substantive in all dictionaries, used as a noun substantive by all writers; and I make bold to proclaim my adhesion to *redbreast* as a compound noun substantive, as grammatically correct, and (if logic has anything to do with the question) as logically correct as *blackbird*. If it be not, will Mr. Marshall favour us with the grammatical, logical, and correct name of that which in "the language of the vulgar" is called the *redbreast*? It seems to me an utterly untenable doctrine that the name of every bird is ungrammatical, illogical, or incorrect, if it do not contain the subject, bird. I hold *thrush* to be as good an English substantive as *blackbird*, *eagle* as good as *butcher-bird*, *swan* as good as *lyre-bird*; just as I hold *shark* to be as good an English substantive as *swordfish*, *crab* as *crawfish*, *moth* as *butterfly*.

But let us leave the *redbreast* and go to the *bluebeard*. "We might nickname an individual *Brazenbeard*, having no fear of genders before our eyes. But in Latin *Ahenobarba*, -æ, fem., will not do for a man's name. His name, like himself, must be masculine, and accordingly we have the adj. *Ahenobarbus*, taking its gender from the REAL SUBJECT, from the *man*, and not from his *beard*." It is quite true that the Romans had a Domitius *Ahenobarbus*; it is equally true that they had an Æmilius *Barbula*, who was probably "downy" in more senses than one. They might equally well have had an Æmilius *Ahenobarbula* or *Ahenobarba*. I am not aware that any one has ever argued, certainly there is nothing in my previous remarks to suggest, that in Latin the name of a man could be feminine. *Barbula*, as the name of a Roman Consul, was masculine, as *Ahenobarba* would have been. There was a distinguished man, Q. Fabius Maximus by name, who had a wart on his lip, was cautious in war, and possessed a mild temper; from these peculiarities he acquired three surnames or nicknames (I care not which they are called), *Verrucosus*, warty; *Cunctator*, tarrier; and *Ovicula*, the lamb. And if a few more examples be required of a "slovenly idiom" which is said to be "impossible in Latin," take L. Pontius *Aquila*, Cn. Corn. Scipio *Asina*, L. Calpurnius *Bestia*, Martianus Felix *Capella*, P. Cornelius *Dolabella*, P. Corn. Lentulus *Sura*, and two or three Emperors, such as C. Cæsar *Caligula*, M. Aur. Ant. *Caracalla*, and Serv. Sulpicius *Galba*. The italicized feminine nouns substantive, when applied as names of men, were, of course, masculine.

The next sentence of Mr. Marshall's reply, that "words containing only some attribute of the subject must in Greek and Latin be adjectives, agreeing in gender with their REAL SUBJECT, and with nothing else," simply begs the question at issue between us. (It will be observed that there are now two subjects—the REAL SUBJECT, and the graphic or poetic subject.) I have never disputed "that golden rule of our youth, that an adjective agrees with its substantive, &c.," or urged that this rule "is to be evaded in zoological names." If *Acanthosoma* be an adjective,

by all means make it agree with its substantive. But the question is this, "Is *Acanthosoma* an adjective, or a substantive?" Is *soma* the subject, or only part of the predicate?

But though the name of an individual of the male sex must necessarily be masculine, what are we to do when we have to coin a name—not for a single individual of one sex—but for a collection of individuals, containing males and females, if not neuters also? The name of a group of bugs, unless it contain the real subject, *bug*, must, according to Mr. Marshall, be an adjective, agreeing in gender with that real subject. But there are real bugs male, and real bugs female. Are we to call the male bug *Acanthosomus verrucosus*, and the female *Acanthosoma verrucosa*? Mr. Marshall can scarcely mean this. We must then have some name for the insect which is independent of the sex or gender of the individual. Are we to understand *Coris* or *Cimex*, according as the name we give to the genus is derived from the Greek or the Latin? in other words, are we bound to make the name of every genus of bugs of the masculine gender? This is a new principle of nomenclature, quite at variance with the practice hitherto. And if not *Coris* or *Cimex*, what is the imaginary substantive, meaning *bug*, that is "understood, or supposed to be understood?" The Greek *Coris*, which Mr. Marshall tells us is masculine,* and the Latin *Cimex*, which also is usually masculine, though sometimes made feminine, were used collectively to include all bugs, females as well as males. We are guilty of no greater violence when we call a genus of bugs, including both sexes, by a masculine name, or when we call another genus by a feminine name.

Are we to abandon the practice of taking for names of genera the names of persons and places, which I have always imagined to be nouns substantive? Or do *Cercyon*,† *Lucanus*, *Rhætus*, *Euterpe*, and *Europa*—for want of the subject, *beetle*—or *Harpalyce* and *Phigalia*—for want of the subject, *moth*—become adjectives, when taken for the names of *Coleoptera* and *Lepidoptera* respectively?

Mr. Marshall refers to "*Lonchosternus*, *Dasyterna*, *Dactylosternum*; *Barynotus*, *Aloconota*, *Cyclonotum*; *Stylosomus*, *Ægosoma*; *Amblystomus*, *Sericostoma*; *Chasmatopterus*, *Dictyoptera*, *Liopterum*. Those in italics are, according to Mr. Dunning, substantives neuter, because *Sternon*, *Noton*, *Soma*, *Stoma*, and *Pteron*, are neuter.‡ What shall we say, then, for the others? They must be equally neuter, notwithstanding their terminations, or what becomes of the rule of the 'German illuminato?' Or if some of the above words are substantives, and some not, will Mr. Dunning kindly point out which is which, and why?" The last question ought to have run thus:—"If some of the above words are *neuter*, and some not, will Mr. Dunning kindly point out which is which, and why?" The sequel will answer the question in both forms.

* Yet there is some authority for the feminine gender; so that, after all, *Corimelæna* is not quite so black as she has been painted.—J. W. D.

† By the way, why do Coleopterists make *Cercyon* neuter? *Cercyon* was the *son* of somebody, and was slain by somebody else; after the exploit of the latter somebody, the corpse of the robber, perhaps, had little masculine vigour left, but this is scarcely sufficient ground for making the genus *Cercyon* neuter.—J. W. D.

[This is corrected in Gemminger and Harold's Catalogue.—Eds.]

‡ I presume Mr. Marshall will agree with me that *Dactylosternum*, *Cyclonotum*, and *Liopterum*, are neuter, whatever may be the gender of *Ægosoma* and *Sericostoma*.—J. W. D.

But before doing that of which I ought to "see the impracticability," may I inquire, who is the "German illuminato," and where and how has he enunciated his "rule?" So far as *my* argument is concerned, it by no means follows that because *Soma* is neuter, therefore *Stylosomus* is neuter; or that because *Pteron* is neuter, therefore *Dictyoptera* is neuter. I have never argued that *every* compound name, into the latter member of which there enters some modification of, or some word formed from, a neuter noun substantive, must necessarily be neuter, notwithstanding its termination. On the contrary, I say that (whether they be substantives or adjectives) *Lonchosternus*, *Barynotus*, *Stylosomus*, *Amblystomus*, and *Chasmatopterus*, are masculine; *Dasytarna*, *Aloconota*, and *Dictyoptera*, are feminine; and *Dactylosternum*, *Cyclonotum*, and *Liopterum*, are neuter. And the reason why? Because Latin nouns ending in *-us* are (as a rule, with few exceptions) masculine; Latin nouns ending in *-a* are (as a rule, but with exceptions) feminine; and Latin nouns ending in *-um* (at this moment I do not remember an exception) are neuter.

But I further say that *Ægosoma* and *Sericostoma* may be either neuter or feminine, according as we regard them as substantives or adjectives. The Græco-Latin neuter substantive denoting "*spine-body*," and the feminine gender of a Græco-Latin adjective denoting "*spine-bodied*," are identical in form; and *Acanthosoma* may be either one or the other. But neither *Acanthusomus* nor *Acanthosomum* can be "*spine-body*."

Reverting to the argument that no name of any group of bugs can be a noun substantive unless the name contains the subject, *bug*, let me ask, how comes "*bug*" to be a substantive? The bugs are only a group of insects. By parity of reasoning, no name of any group of insects can be a noun substantive unless the name contains the subject, insect. *Ergo*, "*bug*" is not a substantive! Similarly "*insect*," "*bird*," "*fish*," "*man*," "*animal*," are not nouns substantive!! And I suppose we should ultimately conclude that there is not such a thing as a noun substantive at all!!!

If I were not afraid of making Mr. Marshall's hair stand permanently on end, I would suggest that *the name of every genus is a noun substantive*. I maintain that a naturalist who has to name a new genus is at liberty to take any one or more Greek word or words, or any one or more Latin word or words, and to apply to the genus such one word or a compound of such two or more words formed by analogy with the compound formations of the Greeks and Romans respectively; that the gender of the generic name is independent of the gender of the Greek or Latin word for *bug*, *bird*, or whatever the group may be; that, whether the word taken or coined was originally a substantive or an adjective, or a compound of each, from the time of its assumption as the name of the genus, it becomes and is a collective noun substantive. It used to be said that "*the name of whatever we can think of or speak about is a noun substantive*;" whilst an adjective is a word added to a substantive to signify some quality or circumstance thereof. I think of a group of bugs, and I wish to speak about that group; I give it a name; the group comprises individuals of two genders; the name of the group can have but one gender; the gender of the name must be independent of the gender of the group, which has no one gender, independent of the gender of the individuals forming the group, which are of two genders; the name is a noun substantive, and has a gender of its own.

I apprehend that all names of things were originally derived from some attribute of the things. In the inception of language, names of qualities would naturally precede the names of things; nouns adjective would precede nouns substantive. When a word denoting some particular quality was once applied to a particular thing, in process of time the reason for the original application was lost sight of, nevertheless the word adhered to the thing, and became the name of the thing. The adjective became a substantive. In many cases, not only the reason for, but the very meaning of, the name, is lost, so that we feel some difficulty in grasping the notion that the now unmeaning name must, at some time or other, have been a significant word.

The process of the formation of new substantives in the manner above indicated is continually going on amongst us, and may be detected by comparing the usage of the same word at different epochs. Take, for instance, the Latin *bidens*, originally an adjective, applicable to any animal possessing a certain formation of teeth; as time wore on, it came to be confined to the sheep; with the older writers it was an epithet, in later days it became a substantive, a synonym of *ovis*. Take, again, *denarius*, originally an adjective "containing ten;" then *nummus denarius*, the coin containing ten asses; soon *nummus* was dropped, *denarius* became the substantive name of the coin, and was retained, though the coin was afterwards made to contain eighteen asses. The Greek *entoma* (*zoa*, understood), and the Latin *insecta* (*animalia*, understood) were no doubt adjectives at first; but afterwards became recognised as, and were deemed to be, substantives. Similarly the names of the subdivisions of *Entoma* or *Insecta* are nouns substantive, and, moreover, substantives of different genders; thus—as groups of *Entoma*, n., we have *Oistros* and *Coris*, m., *Melissa* and *Myia*, f.; and as groups of *Insecta*, n., we have the corresponding *Æstrus* and *Cimex*, m., *Apis* and *Musca*, f.

By whatever process "bug," the name of a group of insects (not containing the subject, *insect*), became a noun substantive, by the same process may "spinebody," the name of a group of bugs (not containing the subject, *bug*), become a noun substantive. In whatever way or in whatever sense *Coris* and *Cimex* are substantives, in the same way and in the same sense (I submit) may *Acanthosoma* be a substantive.

I am therefore still unable to agree that *Acanthosoma* MUST be an adjective. But, consistently with the views here propounded, it is still open to me to agree with Mr. Marshall that *Acanthosoma* should be treated as feminine.—J. W. DUNNING, 24, Old Buildings, Lincoln's Inn, 11th January, 1869.

A Further Reply to Mr. Dunning's Remarks on the Gender of Acanthosoma, &c.—There are a few other points in Mr. Dunning's ingenious paper upon which I should like to speak, if it can be done within moderate compass. I will endeavour to confine myself to such of his propositions as do not depend upon the principles which I last stated, although it may hardly be possible altogether to keep within these limits.

1. Mr. Dunning says (at p. 283):—"So far as I am aware, the practice of making genera which end in *-toma*, *-oma*, or *-soma*, neuter, has been applied only in cases where the name of the genus is a compound of two Greek words of which

the latter is a noun substantive of neuter gender; as *Ortho-stoma*, *Diplo-doma*, *Acanthosoma*."

My original objection was meant to include a class of words like *Phanerotoma dentatum*, *Pentatoma bipunctatum*, *nigricorne*, *vernale*, *Tapinoma erraticum*, and so forth. The list could easily be extended, but these examples will suffice. It is plain that *Phanerotoma*, *Pentatoma*, &c., cannot be excused upon the ground of their ending with a neuter substantive, and consequently that their adjectives are made neuter at the expense of the ordinary rules of gender.

2. "Is there any reason why a compound noun substantive may not be taken for the name of a genus, when a simple noun substantive may? If *Harma* will do, why not *Chalcharma*? If *Phasma*, why not *Neophasma*?"—I see no objection to either word.

It appears that all zoological names are capable of being referred to one or other of the two following classes.

A. SUBSTANTIVES, which may be, as to their form, either simple or compound; and as to their meaning, either literal or figurative. Ex. gr.

a. Simple or compound substantives taken literally:—

Ursus	Bear.	Tragelaphus	Goat-deer.
Cynomyia	Dog-fly.	Psammosaurus	Sand-lizard.
Haliaëtus.....	Sea-eagle.	Lampyris.....	Glow-worm.

b. Simple or compound substantives taken figuratively:—

Ctenidium	little comb.	Scymnus.....	a whelp.
Microrix	little bird.	Sphæridium	a little ball.
Helluo	glutton.	Mormolyce	a hobgoblin.
Nautilus	sailor.	Phasma	an apparition.
Machaon	} ...proper names.	Neophasma.....	a new Phasma.
Artaxerxes		Harma	a chariot.
Feronia		Chalcharma	a brazen chariot.

B. ADJECTIVES, which express only some attribute of their subject (i. e. the creature designated) and never the whole of the subject,—which if they did, they would cease to be adjectives. Ex. gr.

Atomogaster.....	Without abdominal incisions.
Endocephalus	Having the head turned inwards.
Platycephala.....	Broad-headed.
Lepidoptera	Having scaly wings.
Quadrumana.....	Four-handed.
Tetratoma... ..	Quadripartite.
Otiorynchus	With an auriculated rostrum.
Hypophlœus.....	Living under bark.
Haplocnemus	Having the tibiæ simple.
Epilachna	Coated with down.
Aphanogmus	Indistinctly sulcate.
Polyphylla.....	With multifoliate (antennæ).
Acanthosoma	Having a spiny body.
Trigonaspis	Having a triangular scutellum.
Chasmatopterus	With gaping elytra.
Lasioptera.....	With hairy wings.
Liopterum.....	With glabrous wings.
Uropteryx.....	Having caudated wings.

The principles upon which the interpretation of such words depends belongs to Logic and not to grammar. Some of them may grammatically be taken either for substantives or adjectives, as *Trigonaspis*. But it is plain that the author here meant to refer to the *triangular scutellum* which is an attribute of the insect. Hence the word is to be taken as an adjective. To call such an insect a *triangular shield*, would be far fetched, and inappropriate. Similarly if there be any genus named *Chalcharma* (better than *Chalcarma*), it must be taken as a substantive used metaphorically, "Brazen-chariot,"—which includes the whole subject. For to speak of an insect as *having a brazen chariot*, or *brazen-charioted*, like one of Homer's heroes, verges upon absurdity. And herein fails Mr. Dunning's analogy between *Chalcharma* and *Acanthosoma*, both formed alike, grammatically; that logically, the former contains the subject by a metaphor, while the latter does not, i. e. it is an adjective.

3. Mr. Dunning says (p. 184)

[If *Micrornix* had been applied to a genus of birds, Mr. Marshall's *Dipsocoris* argument would have run thus:—"MICRORNIX = *little-bird*, a compound noun substantive, which, therefore, must have some gender or other; it takes its gender from the subject (bird); the word involves both subject and predicate; the subject is a *bird*, whereof it is predicated that it is *little*." If, instead of a genus of birds, the name were given to a genus of moths—as, in fact, the name *Ornix* has been—then, as a moth is not a bird, the argument would be that "in *Micrornix* the subject is not contained, but understood; of this subject it is predicated that it is like a little bird; bird is not the subject, but part of the predicate." The result is, that as the name of a bird *Micrornix* is a substantive, with a gender of its own—as the name of a moth, *Micrornix* is an adjective, depending for its gender on some imaginary substantive understood!]

I am afraid that the above passage involves a fallacy, which leads in one case to a wrong conclusion. The error lies in the statement that if *Micrornix* be used as the name of a moth, then, because a moth is not a bird, *Micrornix* does not contain the subject, i. e. is not a substantive. The fact is that the word *Micrornix*, whether used of a bird or a moth, contains the subject equally,—in the former case literally, and in the latter metaphorically. See above, paragraph 2, A. b. I submit then that we have in the above passage an ingenious mixture of two syllogisms, in each of which *ornix* bears a different sense; (1) Literally, *Bird*; and (2) Metaphorically, *Moth*. Exhibiting these syllogisms separately, as follows, we obtain for each a just conclusion:—

Micrornix (Bird) is a substantive.
Every substantive contains its own subject.
Therefore *Micrornix* contains its own subject,
viz. *Bird*.

Micrornix (Moth) is a substantive.
Every substantive contains its own subject.
Therefore *Micrornix* contains its own subject,
viz. *Moth*.

The form *Micrornis* would be preferable, as *ornix* is only a dialectic variation, and comparatively unusual.

4.—*Acanthothorax* and *Uropteryx* are adjectives, whose gender, as remarked by Mr. Dunning, is not shewn by their termination. The nomenclator in this case

would have to be guided by his own good taste, and if he felt himself at a loss, he might remember a precept, devised to meet a similar difficulty, viz., That the masculine gender is more worthy than the feminine, &c., &c. This would be my argument for making the names masculine. For making them feminine or neuter I should not be able to give any reason.

5. As to the word *Harma*, chariot,—I adopted the reading because “chariot” is an apt similitude for the form of the insect. The only meanings of *Arma* are (1) A medical term for patient’s food, and (2) Union of the sexes. Neither of these significations are likely to have been in the author’s mind. The Latin word, meaning “weapons,” is still less reasonable, on account of its being plural.

6. If there were an *Acanthosoma* which affected the ground ivy, I should, as Mr. Dunning rightly infers, make its gender to be *Acanthosomæ Glechomatis*.

7. I am unable to propose any remedy for Chinese and other unclassical names generally current, or for badly-constructed words like *Derephysia*. It would require a much higher authority than mine to procure their rejection, or probably the concurrent authority of some of the great “head-centres” of entomology. But if by calling attention to them I could be the humble instrument of checking the formation of such names for the future, I should consider that I had effected a good thing.

8. Mr. Dunning quotes the word *Hippopotamus* as a case in point, subversive of the rules for compound terms which I brought forward. I need hardly say that these rules are not of my invention, but are to be found in many grammatical works, and apply to languages generally, as being essential to the process of human thought. *Hippopotamus* means Horse-River and not River-Horse. It is an incorrect compound, used only by Strabo and Galen, and must have sounded strangely to Greek ears. Better writers called the animal *Hippos potamios*. The wart-hog of South Africa in the Regent’s Park probably does not know that he stands ticketed as a River (*Chæropotamus*), instead of a porcine animal. Nevertheless we shall continue to speak of the *Hippopotamus* without much self-reproach, and may throw the blame upon the blundering ancients, who ought to have known better.

9. Mr. Dunning asks the question (p. 186) whether “*Rhinoceros* is to be turned into *Ceratorhinus*?” For no reason that I can see. Both words are correct, and are equivalent terms, differing only in their arrangement of the parts of the predicate.

Rhinoceros==Having a nasal horn.

Ceratorhinus==Having a horned nose.

Like *Rhinoceros* is *Monoceros*, having a single horn, and *Diceros* having two horns. In a Greek author we have *Diceros Selene*, the two-horned Moon. Such words are of course adjectives, and, like our names of genera, only become substantives conventionally.

10. As to the difference between such names as *Acetropis*, *Gonianotus*, &c., and the classical forms not compounded with an *o*, *Edipus*, *Calliope*, &c. The subject is much too extensive to be entered upon here, and is of little interest to entomologists. They will seldom be wrong in compounding names from Greek nouns by the intervention of the letter *o*, elided before a vowel. Those who wish

to know more must consult Greek grammars, and Donaldson's *New Cratylus*, pp. 491—529, where the various exceptions are fully treated. Lastly, the distinction of the endings *-odes* and *-oides* (not *oides*) is unimportant, as pointed out by Mr. Dunning. The former termination is (in Greek) only a contraction of the latter. The canon mentioned by me was laid down by Burmeister, I believe, but have not the book at hand. I shall be glad to leave the word *Æliodes* as it stands.

I may take this opportunity of objecting to another class of words, scattered sparingly through entomological works, viz., *formicæformis*, *muscæformis*, *tipulæformis*, for *formiciformis*, *musciformis*, and *tipuliformis*. I have also noticed *athaliæperda* for *athaliiperda*.—T. A. MARSHALL, Barnstaple, January, 1869.

ENTOMOLOGICAL SOCIETY OF LONDON, 4th January, 1869. H. W. BATES, Esq., F.Z.S., President, in the Chair.

W. F. Kirby, Esq., of the Royal Dublin Society (formerly a subscriber), and E. Holdsworth, Esq., of Shanghai, were elected Members.

Mr. Bond exhibited examples of *Vanessa urticæ* of very small size; he had bred a large number from one brood of larvæ during 1868, and attributed the diminutiveness of the imago to rapid development owing to the hot season. He also exhibited varieties of *Apatura Iris* and *Pamphila comma*.

Mr. Meek exhibited two beautiful specimens of *Dianthæcia Barrettii*, captured by Mr. C. S. Gregson, in Ireland.

Mr. W. C. Boyd exhibited an example of *Crambus myellus*, captured by his cousin, Mr. Adam Boyd, near Blair Athol.

Mr. Horne, late judge in N. W. India (present as a visitor) exhibited a fine series of the nests of many species of Indian bees and wasps, accompanied by specimens of the insects forming them, and by drawings made from the fresh nests. Among them were nests formed in the hollow interior of the handle of an earthenware vase, in the interior of the hay-nest of a mouse, attached to a signet-ring, &c., &c. Mr. Horne remarked on the abundance of these insects in India, and on the rapidity with which they seized upon available positions for nest-building, such as the interior of door-locks, &c.

Professor Westwood said that apropos of the bees-nest in the interior of a mouse-nest, he had observed a contrary instance in his own bee-hives, a mouse having chosen one of them as a place wherein to build its nest; apparently killing the bees, but devouring only their heads.

Mr. Eaton sent a note on the structure of the ovipositor, bearing upon the writings of Dr. Packard, M. Lacaze-Duthiers, and his own, on that subject.

Mr. F. Smith read a paper upon the affinities of *Sibyllina*, an anomalous Hymenopterous genus described recently by Professor Westwood. Mr. Smith combated Prof. Westwood's suggestion that the genus pertained to the *Vespidæ*, and was inclined to refer it to the *Ichneumonidæ*, as having some affinity with *Anomalon*, &c. Prof. Westwood remarked that Mr. Cresson had recently described a genus which he believed to be identical with *Sibyllina*, and also referred it to the *Ichneumonidæ*.

Professor Westwood exhibited drawings of various anomalous forms in *Coleoptera*, and of an *Ichneumon*, the larva of which was an external parasite on a spider.

Mr. E. Saunders read "Descriptions of nine new species of *Buprestidæ*."

ON A NEUROPTEROUS INSECT FROM N. W. INDIA, BELONGING TO
THE GENUS *DILAR*.

BY R. McLACHLAN, F.L.S.

The species of the singular genus *Dilar* are apparently extremely rare, and until recently I had never seen a representative of that genus, and do not think that any existed in this country, either in private or public collections. Up to the present time five species have been described. 1. *D. nevadensis*, Rambur, from the Sierra Nevada in the South of Spain (the typical species); 2. *D. meridionalis*, Hagen, from the same locality (unique); 3. *D. turcicus*, Hagen, from Armenia and Syria; 4. *D. parthenopæus*, Costa, from Naples, perhaps identical with No. 3; 5. *D. Nietneri*, Hagen, from Ceylon (*vide* Hagen in Stett. Ent. Zeit., 1866, p. 291 *et seq.*). Within the last few weeks I have found another species, from North-West India, in a collection made by Mr. Horne, but only represented by males. All the species are much alike, differing chiefly in the formation of the anal parts, a character not easy to discriminate in dry specimens.

The males of *Dilar*, which at first sight look much like species of *Hemerobius*, are especially remarkable for longly pectinate antennæ, which are found elsewhere in *Neuroptera* only in some species of *Chauliodes*.*

Mr. Horne's insect I describe as follows:—

DILAR HORNEI, n. sp.

Fusco-castaneus, abdomine pilis longis pallide-flavis vestito. Antennæ griseo-fuscæ, plus minus 27-articulatæ; articulis 4—21 singulatim processû elongato instructis. Alæ anticæ albido-griseæ, griseo confertim punctatæ vel reticulatæ; punctis duobus discaibus (quorum unum in medio, alterum basin versus situm) punctisque circum marginem apicalem, saturatioribus: posticæ punctis præter disco-medianum fere obsolete. Pedes flavi, pilis longis concoloribus vestiti. Abdomen fuscum; valvis analibus fimbriatis, flavis. Long. corp. 2''; exp. alar. 11'''.

Head castaneous, sometimes slightly suffused with blackish; a large rounded tubercle on each side of the middle, and the raised hinder margin, yellowish with yellow hairs; face fuscous, a deep and broad transverse sulcus before the clypeus; mandibles prominent, yellow, produced into an acute piceous point. *Antennæ* grey, with short greyish-yellow pubescence; about 27-jointed; basal joint fuscous; third joint with a short tooth, the 4th to the 21st, each with a long

* *Euptilon*, which is founded on a figure in Drury, and is represented with pectinate antennæ, is most probably mythical.—R. McL.

flexible process, twice longer than the individual joint. Meso- and meta-thorax usually, but not always, with the surface of the lobes somewhat blackish.

Wings greyish-white: anterior wings with very numerous short transversely-elongate spots, which are more or less confluent; in the middle of the disc is a larger and darker spot, which bears in its centre a horny blackish dot most visible on the under-side; towards the base is another similar but smaller spot, and there are also larger and darker spots round the apical margin; neuration yellowish, the veins and margins shortly fringed with yellow: posterior wings with the darker spots almost obsolete, more evident in the apical portion; the pterostigmatal region yellowish-grey; a vestige of the median dark spot with horny centre, as in the fore-wings; the fringe of the inner margin much longer, yellow.

Legs pale lemon-yellow, with long yellow pubescence; the knees and tarsal articulations marked with blackish.

Abdomen fuscous, densely clothed with long pale yellow hairs. The last dorsal segment apparently carries in the middle a very small yellow lobe: the lateral valves are very large, concave, yellow, and with long yellow fringes; in the middle, above, they seem to be joined together by a band which leaves an open space between it and the margin of the last segment, in which space is seen the small lobe mentioned above; when viewed from above, these lobes appear to end in a long curved process, which is really only the in-turned upper margin; when viewed from beneath, they form two large rounded lobes, not connected in the middle: the parts in the cavity formed by these lobes are piceous, with two small triangular piceous appendices, the tips of which are somewhat mucronate and turned outwards.



Apex of abdomen of *Dilar*
Hornet, McL., ♂.

I have seen three males, taken by Mr. Horne.

20, Limes Grove North, Lewisham, S.E.; February, 1869.

DESCRIPTION OF A NEW SPECIES OF *PHILHYDRUS*.

BY D. SHARP, M.B.

I can find no description of the following species of *Philhydrus* (*Helochares*), which is confounded in our collections with *H. lividus*.

H. PUNCTATUS (*nov. spec.*).

Oblongo-ovalis, suprà fusco-testaceus, capite, palporumque apicibus nigricantibus; confertim, æqualiter, sat fortiter punctatus.

Long. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin

Mas, tarsorum unguiculis elongatis.

I give a diagnosis of *H. lividus*, in order to show the characters of the two species.

H. LIVIDUS, Forst.

Oblongo-ovalis, suprà livido-testaceus, palporum apicibus angustè nigricantibus; confertim vix fortiter punctatus, elytrorum apice subtiliter parcissime punctato.

Long. $2\frac{3}{4}$ —3 lin.

Mas, tarsorum unguiculis elongatis.

H. punctatus, though generally distributed in England, appears to be not so common as *H. lividus*. I have specimens from Whittlesea, Mere, Cambridge, London, and the New Forest.*

Thornhill, Dumfries; 12th February, 1869.

NATURAL HISTORY OF *LYCÆNA ÆGON*.

BY WILLIAM BUCKLER.

On the 31st July, 1867, Mr. C. G. Barrett, then at Haslemere, most kindly sent Mr. Hellins and myself some eggs of *Ægon*, which, by an ingenious contrivance, he had induced a ♀ to deposit on twigs of heather.

Being in doubt as to the proper time for their hatching, I kept those I had in an ordinary room for daily inspection until the approach of winter.

On the 23rd February, 1868, Mr. S. Hudson obligingly forwarded me three eggs, part of a small batch he had obtained from a ♀ during the previous summer, near Epworth, and with them the welcome intelligence that he had satisfied himself by experiment that the larvæ were alive and stirring within the shells, and that he expected them shortly to hatch.

I immediately removed all I had to a cooler place than they had previously been in, so as to retard their progress until something could be learned about the proper food.

Considering the small size of this butterfly, the egg is rather large

* It is curious to observe how all our species of *Philhydrus* run in pairs, viz., *maritimus, testaceus; melanocephalus, nigricans; marginalis, ovalis*; and *lividus* and the above-described insect. Of my short series of *lividus* about one-half answer well to Dr. Sharp's description of *punctatus*. I fancy I perceive in them that the eyes and palpi are more bulky than in *lividus*.—E. C. R.

in proportion ; it is white in colour, of a circular form, flattened and depressed in the centre both above and below, ribbed and beaded boldly at the sides, and from thence more finely by degrees to the centre.

The egg does not change colour, but retains its pure dead-white appearance even after the exit of the larva ; a small hole showing like a black spot on the side of the shell alone betraying the escape of the little creature.

Mr. Hudson informed me of one of his larvæ being hatched on the 29th February, which was followed by others on the 3rd March ; and all were placed on various little plants from the locality where the parent butterfly had been taken, but from want of the right food, and partly by accidents, they were starved and lost.

On the 28th February Mr. Hellins reported that one larva had hatched, and that it soon after died ; and another on 6th March, which was placed on heather, *Lotus corniculatus*, and one or two other vetches, but with no success. On the 18th March two of my eggs hatched, and the larvæ were placed with a variety of food, but they died without eating, and others soon followed in the same way, with Mr. Hellins and myself. However, shortly after, Mr. Hellins acquainted me with the fact of his having seen one distinctly eat a tiny hole in the leaflet of a small vetch, *Ervum tetraspermum*, growing in his garden, and he sent me one of the plants, and upon this, for some days, the young larvæ as they were hatched were placed ; but instead of eating they wandered away or fell off into the earth below, where it was impossible to find them.

Meanwhile we were not idle in ventilating the subject amongst our friends, in what seemed a forlorn hope of obtaining a clue to the proper food-plant, when fortunately at this critical juncture, Mr. Doubleday kindly gave us the benefit of his excellent memory and observation, in recalling the fact of his having seen, twenty years ago, in some place, this little butterfly flitting over *Genista anglica* and *Ornithopus perpusillus*, and that on the latter he had noticed some females alight.

In the midst of my trouble at losing the young larvæ daily, and being unable to find the desired *Ornithopus*, I fortunately happened to mention the subject to Dr. F. B. White, of Perth, and he with great good nature and promptitude despatched me a tin full of the plants. These were at once potted and sprinkled with water, the remaining six or seven eggs put on them in a sunny window, and in a day or two, by aid of a lens, the young larvæ were soon detected. By the 3rd May some small transparent blotches were visible on the leaflets, on which

they had fed, and from that time all went well : and after Mr. Hudson's attention had been directed to *Ornithopus perpusillus*, he satisfied himself that in his locality the butterfly did not occur away from that plant ; so it seems there is little doubt of its being the natural food.

When first hatched the larva is about three-fourths of a line long, thick in proportion, of equal bulk and rounded at either end, hairy and of a dull bluish-green colour, its powers of locomotion of the very feeblest description.

By May 3rd they had become rather more than a line in length, of a drab colour, and hairy like the leaflets on which they were feeding. By May 29th they had grown to about a quarter to three-eighths of an inch in length, eating not through the leaflets, but only the green cuticle : at this time they were of a deep yellowish-grey, and the dorsal stripe blackish olive edged with whitish, and a whitish line along the lateral ridge above the legs ; the sub-dorsal stripe being triple, *i. e.*, two lines of blackish-olive with a whitish-grey one between them. The surface generally studded with minute blackish points, each bearing a fine short hair.

By June 11th to 15th they had all assumed their last coats.

The full-grown larvæ is about seven lines long, thick in proportion, and of the usual onisciform or *Lycæna* shape.

The head small, and retracted when at rest or alarmed, the second segment the longest, rounded, and very slightly flattened above ; the others as far as the tenth with raised prominences on each side of the back, and a dorsal hollow between them ; the sides sloping to the lateral ridge ; the ventral surface rather flattened ; the legs all placed well underneath. The three last segments without dorsal ridges, and sloping gradually to the sides and anal extremity, their sides rather concave, a very prominent wart on each side of the twelfth ; the segmental divisions not observable on these last, but well cut on all the others.

In colour the larva is now a bright yellow-green, with the dorsal stripe blackish-brown edged with whitish from the beginning of the 3rd to end of the 10th segment, it is widest on the 3rd and 4th, being on them of a rather rounded lozenge form, with a whitish dot near the edge on each side ; a dull dark-brown small plate in front of second segment, and a broad semi-lunar shaped blotch of same colour a little behind and divided in the middle by a fine line of the green ground colour. The dorsal stripe on the eleventh segment becomes broad and squarish, but resumes its linear shape on the twelfth and thirteenth.

The sub-dorsal line is visible from the beginning of the third to the end of the eleventh segment as a greenish-yellow line running between

two green ones darker than the ground colour. At the bottom of the sides along the lateral ridge, commencing on the third segment and continued round the anal extremity is a whitish line. Between the dorsal and sub-dorsal, on segments three to ten, are faintly paler oblique lines of yellow-green, viz., one on each segment sloping downwards and backwards; the warts on the twelfth segment are very often suddenly projected considerably, and then a circle of fine short hairs is visible on their extremities. The surface of the body is also clothed with similar hairs. The head is black, having the base of papillæ and a streak across over the mouth of buff colour. They had all turned to pupæ by 24th June, one of them slightly attached to a stem of the plant by the anal extremity, and lying, like the others, amongst a few loose threads at the very bottom of the stems and partly in the earth. The pupa is about five lines long, smooth but without polish, the top of the head slightly projecting, the thorax rounded, the abdomen plump, curving on the back outwards and backwards towards the tip, which is hidden in the larva skin; the wing-cases prominent and long in proportion; it is of a dull green tint, with a dark brown dorsal line of arrow-head marks.

The butterflies appeared July 5th to 17th.

Emsworth: February, 1869.

NOTES ON SOME BRITISH SPECIES OF *EUPECILIA*.

BY CHAS. G. BARRETT.

Although my friend Mr. McLachlan, in concluding his valuable paper on the genus *Eupecilia*, in the Annual for the present year, states that the descriptive part is "sufficiently well done in Mr. Wilkinson's work," I think there is still room for a few words on the distinctive characters of *ciliella* (*ruficiliana*), *subroseana*, and their allies, the two new species noticed by Mr. McLachlan especially, because I have found that great confusion exists in collections among them, and also because, in the case of *subroseana*, the localities given, both in that work and in the Manual, appear to belong to *ciliella* and certainly not to *subroseana*.

I will therefore endeavour to point out the distinctive characters of the four species—*subroseana*, *Heydeniana*, *Degreyana*, and *ciliella*, between which the confusion seems principally to exist, and may in the first place explain it by the fact that they all have certain leading characters almost alike; for instance, all four have the upper part of

the head and thorax very pale ochreous or whitish, the ground colour of fore-wings whitish tinged with grey or ochreous, and a fascia rising on the inner margin of fore-wings a little before the middle, and crossing the wing nearly parallel with the hind margin. Briefly I would describe them as follows:—

Subroseana, Haw. Fore-wings broad, costa and hind margin rounded. Ground colour whitish-ochreous, tinged with reddish beyond the middle, and with the entire apical portion reddish-brown. Fascia broad, reddish-brown, not very oblique, and barely touching the costa. Apical fringes dull ochreous spotted with reddish-brown. Hind-wings dark grey.

Heydeniana, H.S. Fore-wings broad, costa and hind margin rounded, whitish, delicately reticulated with grey, and with a faint rosy or pinkish suffusion, especially towards the apex. Fascia greyish-brown, slender, slightly interrupted and bent back near the costa. Apical fringes very short, ochreous dotted with grey, and with a distinct dark line along their base. Hind-wings pale grey.

In this species I cannot entirely confirm Mr, McLachlan's description. The rosy suffusion is very distinct in my specimens, but totally different from the rich orange-red or reddish-brown of the apical portion of the wings of *subroseana*.

Ciliella, Hüb. Fore-wings long and narrow, and much pointed at the apex. Costa and hind margin nearly straight. Whitish-ochreous, fascia very oblique, parallel indeed with the hind margin, and barely reaching the costa; yellowish-brown or reddish, varying greatly in colour and distinctness. Beyond it, on the inner margin, and before the anal angle, is a triangular spot, and along the hind margin an indistinct band, both of the same colour as the fascia. Apical fringes very long, dull yellow. Hind-wings pale grey.

Degreyana, McL. Fore-wings long and narrow, margins nearly straight. Greyish-white with a pink tinge, which becomes very decided towards the apex. Fascia reddish-brown, very slender, indistinct beyond the middle of the wing, and becoming obsolete before the costa. Apical fringes bright ochreous. Hind-wings dark grey.

Thus *subroseana* and *Heydeniana* have broad wings and rounded margins, the former having an orange-red apex and spotted fringes, and the latter very short fringes with a dark line at their base.


Degreyana and *ciliella* have long narrow wings with straight margins, the former a slender abbreviated fascia and pink apex, and the latter a broad entire fascia and marginal band, both parallel with hind margin.

Finding last spring that the supposed *subroseana* which I have been in the habit of occasionally taking was likely to prove a novelty (*Heydeniana*), I resolved to work carefully for it, and, if possible, take a lot for my friends, this being apparently practicable, since it appears

at intervals all the summer, and seems to have three broods. In this, however, I was partially disappointed, as pressure of business prevented my working more than the first brood to any purpose. The first specimen occurred on May 20th, and was followed by occasional specimens till May 30th, when I took two much worn, and after which they disappeared. Three days afterwards, however, in a damp portion of the same wood, I took a lovely specimen of the true *subroseana*, and in the next fortnight half-a-dozen more. This was most fortunate, as I had never taken it before, and, from meeting with the two species so nearly together, was able to compare them when fresh, and see how very distinct they really are.

As far as my experience goes, both are truly wood frequenting species. Although heath is most abundant around Haslemere, I never saw a specimen of *Heydeniana* among or near it, and cannot, therefore, confirm Mr. McLachlan's habitat for this species.

With reference to the localities given in the Manual for *subroseana* (and in Wilkinson's *Tortrices* they are similar), "Ambleside and near Airthrey, in healthy places," when we began carefully to examine these species, Mr. Stainton, with his invariable kindness, sent me one of his Scotch specimens. This I found to be totally distinct from *subroseana*, but of precisely the form of *ciliella*, but much yellower and more suffused. By the kindness of Dr. White, of Perth, and Mr. Chapman, of Glasgow, I have since received specimens taken near Kirkwall and at Dunoon, and these specimens form connecting links from this to the ordinary English type of *ciliella*, and prove conclusively, I think, that these localities pertain properly to that species.

 Norwich, February, 1869.

Scydmanus fimetarius taken near Newcastle-on-Tyne.—I take here, by no means unfrequently, and always on boards lying on the edges of hot-beds, an insect which accords with the description, by Thomson, Skand. Col. iv, 89, of his *Euconnus fimetarius*, and which has been recently added to the British list by Mr. G. R. Crotch, but rather doubtfully admitted by Mr. Rye in this year's "Annual." It appears, however, to be a good species, and, in addition to the characters pointed out by Thomson, has the elytra proportionately narrower than its near ally, *hirticollis*, of which a Norfolk example has been kindly furnished me by Dr. Sharp.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, January 26th, 1869.

[Mr. Bold refers, I presume, to my remarks with regard to Thomson's apparent inconsistency in attributing so much specific value to the very moderate difference in habitat between *S. hirticollis* and *S. fimetarius*, whilst disregarding a more marked difference in habitat in the case of *Bembidium æneum* and *biguttatum*. In the

Norfolk specimen of *hirticollis* above-mentioned, kindly sent for examination by Mr. Bold, I noticed that the joints of the antennæ are comparatively longer and thinner than in *fimetarius*; and Dr. Sharp, who subsequently sent me also a few *hirticollis*, remarks the same character. He has also taken *hirticollis* at Weybridge, in moss on the banks of a large pool. All my former so-called "*hirticollis*" are *fimetarius*. The majority came from Suffolk, but the insect occurs at Putney, in an open meadow, in vegetable matter, far from any hot-bed. I suspect that the true *hirticollis* will be found to be rare in our collections. Denny has the right species.—E. C. R.]

Notes upon Gemminger and Von Harold's "Catalogus Coleopterorum," Tom ii.—

There are several points in and connected with this work which deserve the special attention of British Entomologists. Notably, it is worthy of remark that Baron Von Harold, who, during his visit to this country, accurately examined (amongst other things) the Stephensian *Coprophaga*, appears to have satisfied himself of the correctness of the view of the Kirbyan and Stephensian species taken by Mr. Waterhouse, in his "Catalogue." Accordingly, we find the British names, so well known to us, at last recognised to the fullest extent in the most comprehensive Continental Catalogue that has ever been published. From internal evidence, however, it is tolerably clear that, in some of the groups comprised in the volume now under notice, Mr. Waterhouse's Catalogue has been adopted without reference to corrections from time to time made in many of the species contained in that work subsequent to its publication; and certain supposed species, passed over in silence by Mr. Waterhouse, are again brought forward as good. This is, perhaps, somewhat to be regretted, in spite of the authors' evident intention to give a place to every species that is either recognized or has not clearly been accounted for; inasmuch as a little additional trouble (and very much trouble has clearly been taken) would probably have enabled the authors to have effectually disposed of these pseudo-novelties, and to have thereby made their useful work of still greater use.

The localities given for the different species are at first sight very puzzling, purely English authors appearing to have described continental species, and continental writers, who never mention English insects, having "Anglia" after their references. The authors' scheme seems to be to give after the name of a species and its synonyms the widest geographical points of the recorded localities for that species, in many cases irrespective of the primâ-facie deductions from the names of the authors quoted, except in the case of recognized *varieties*, when the country is noted from which each such instance is recorded by the author given. The method adopted by De Marseul, attributing to each species, synonym or variety, the country in which it is stated by the author quoted to occur, seems to me the more preferable of the two.

Some grammatical corrections, fearlessly introduced (e. g., *Rhantus*, *Ilyobius*,—for *Rantus*, *Ilybius*,—&c.), will delight many and doubtless displease others; and the addition of their derivations to the generic names can hardly fail to correct certain prevalent abuses (e. g., *Cercyon*, a proper name, should not have neuter but masculine termination to its species;—a correction noted also recently in our columns by Mr. Dunning).

The following specific points also occur to me among the *Hydradephaga* and *Philhydrida* :—

Our rejected *Hydropori*, *minutissimus*, and *bisulcatus* (syn. of our equally rejected *unistriatus*) are still credited to us. *H. derelictus*, Clark, is (as in Schaum) attributed to *erythrocephalus*, Linn.; but, from an examination of Dr. Power's original specimen, I must say I think this assertion of identity cannot be sustained. My suggestion (*Ent. Ann.*, 1869) that *Agabus nigro-æneus*, Er., should be re-named *Erichsoni*, in consequence of the priority of the same Marshamian name, is here anticipated. *Helophorus dorsalis*, Marsh., is reinstated, but *dorsalis*, Muls., is erroneously attributed to it as a synonym. The latter has long been re-named *Mulsanti* by me, a correction adopted by Mr. Crotch. *Ochthebius rufimarginatus*, St., Er., is (erroneously, as I think) considered a var. of *O. bicolor*. Germ. *O. hibernicus*, Curtis, is exalted over the Stephensian *punctatus*;—De Marseul and Stein separating the two, and giving the former as a syn. of *bifoveolatus*, Waltl., a species not yet recorded as British, as far as I know. In *Wat. Cat.* they are given as identical, *punctatus* having the priority. *Hydraena concolor*, Waterhouse, *Ent. Mag.*, I, 1833, 293, not appearing in the synonymy of *Wat. Cat.*, is given as a distinct species. From an examination of Mr. Waterhouse's notes, I find that this insect is *H. riparia*, apparently immature, and accidentally omitted from his *Cat.*

Among the *Brachelytra* I find the following :—

Ischnoglossa corticalis, Steph., and *Mycetoporus brunneus*, Marsh., respectively recognised as identical with *I. rufo-picea*, Ktz., and *M. ruficornis*, Ktz., are nevertheless deposed in favour of the two latter names, in spite of the evident priority of the former. *Aleochara Kirbyi*, Steph., erroneously coupled with *grisea*, Ktz.,—the *algarum* of Fauvel (really identical with and posterior in date to the former) being erroneously given as a distinct species. *Oxypoda nigrofusca*, Waterhouse, seems to me to require re-naming, on account of the prior insect of that name of Kirby and Stephens, which, however, appears to be a synonym of *O. longuiscula*. For the former species I accordingly propose the name "*Waterhousei*." *Homalota planifrons* and *platycephala* of Waterhouse are erroneously given as distinct species: Mr. Waterhouse withdrew the latter name, originally proposed by him for his insect, on account of *platycephala*, Thoms. The wind-bags, *Homalota picea*, Motschulsky, and *Euplectus Easterbrookianus*, Leach, are again inflated. Will no one puncture them? *Gyrophæna Poweri*, Crotch, *Stenus annulatus*, Crotch, *Lathrobium Jansonii*, Crotch, and *Homalium crassicorne*, Matth., are omitted. *Bryoporus Hardyi* is inserted under the genus *Mycetoporus*, though *Bryoporus* is recognized as a distinct genus. *Quedius microps*, Grav., *Stett. Ent. Zeit.*, 1847, is accredited to Britain.

Raphirus (Quedius) nigricornis, Holme, *Trans. Ent. Soc.* iii, pt. 2, 1842, p. 127, and *Homalium mesomelas*, Holme, l. c., 1841, 128, are respectively given as good species. Neither of them is accounted for in the synonymy of *Wat. Cat.*, though *Philonthus sericeus*, Holme, is therein recognized. The *Quedius* is stated by Holme to be barely 2 lines long, and to be distinguished from all others of the genus, except *fuscipes*, by its black legs and antennæ. Stephens' exponent of it appears to be a very small black form of *Q. fulgidus*. The *Homalium* is by Holme himself stated to be possibly a highly coloured variety of *H. sordidum*, Kirby, Steph.,—the type of which insect appears to be *Philorhinum humile*, Er., and which is represented by *H. iopterum* in Steph. *Coll.*

Staphylinus ochropterus, Germar (a synonym of *chalceocephalus*, Fab.) is attributed to England. *Ocypus sericeus*, Marsh., is recognized as a synonym of *picipennis*, Fab. *Philonthus chalceus*, Steph., following Wat. Cat., is made a syn. of *carbonarius*, Gyll.,—the *carbonarius* of Wat. Cat. being *succicola*, Thoms., here given as distinct. To add (how unnecessarily!) to the confusion *re Philonthus punctiventris*, Ktz., it would seem that that insect (if distinct from *temporalis*, Muls., as I am informed by M. Fauvel that in the opinion of himself and other continental authors, it is *not*) will require to be re-named, as there is a prior *P. punctiventris* of Kirby and Stephens, which is, however, only a variety of *varians*. In that case, *rhoticus*, Stierlin in litt., may stand. *Othius punctipennis*, Lac., is identified with and yet improperly placed before Stephens' *laviusculus*.

Stenus aceris, Steph., Lac., &c., is given as distinct, though long ago shown by Messrs. Waterhouse and Janson (Trans. Ent. Soc., iii, n. s., p. v, xvi, 1855) to be synonymous with *impressus*, Germ., and so recognized by Kraatz; and this in spite of Stephens' *subrugosus* and *tenuicornis* being correctly placed as synonyms of *impressus* in the work now being noticed. *Stenus assimilis*, Stephens, is given as distinct, though it is not recognizable or known to British Entomologists: in Steph. Coll. it is represented by his own *brunnipes*. *Stenus debilis*, Dietrich in litt., is attributed to me; and to it *opacus*, Waterh. in litt., is added as a synonym, evidently in error. *S. pallitarsis*, Kirby, Notes and Coll., Stephens Ill. and Coll., is rightly adopted instead of *plantaris*, Er. *S. Shep(h)erdi*, Crotch, is stated to be ♀ of *ruralis*, Er. *S. sulcicollis*, Steph., is given as a species, though, according to Waterh. and Jans., l. c., there is no description, but only a diagnosis of it in Kirby's MSS., which is copied with slight alterations by Stephens, whose description in Illust. probably refers to small *gonymelas*, and whose exponent in Coll. is *melanopus*. *Bledius Ruddii*, Steph., is given as a syn. of *taurus*, instead of *bicornis*, possibly through printer's error in Wat. Cat. *Philorhinum subpubescens*, Steph. (Ill. and Coll.), is apparently correctly adopted instead of *humile*, Er. *Homalium ocellatum*, Woll., and *Allardi*, Fairm., are considered identical; erroneously, as I think,—having examined Mr. Wollaston's type.

Among the *Necrophaga*, &c., I note the following:—

Bryaxis assimilis, Curtis, Brit. Ent., vii, t. 315, Schaum, Zool., 1847, p. 1933, and *B. nigricornis*, Vigers, Zool. Journ., ii, p. 453, are given as good species, and, of course, British. *Bryaxis simplex*, Waterh., will require to be re-named, on account of the prior species from the East Indies of that name, described by Motschulsky, Bull. Mosc., 1851. I accordingly propose the name "*Waterhousei*" for it. It is quite a mistake to suppose this insect can possibly be *wanthoptera*, Reichenb.; and I am surprised that the late Dr. Schaum should have overlooked its sexual character. *Scydmanus fossiger*, and others, Leconte, are not unlikely to mislead through their locality, "Cambridge" ("*Ambiguum tellure novâ Salamina futuram*").

S. Wetterhali, Gyll., through its syn., *quadratus*, Müll. et Kunze, is attributed to Britain. *Necrophorus sepulchralis*, Charpentier, by its syn., *anglicus*, Steph. (not in Wat. Cat.), is referred to this country,—possibly through an *obrutor*, another of its synonymies, being in Steph. Man *Silpha Griesbachiana*, Steph., and *recta*, Marsh., are attributed without doubt to *carinata*, Ill., which, therefore, is to be ranked as a British species,—apparently because Stephens has so referred his insect (not in

Wat. Cat. syn.), though with a query. *Choleva grandicollis*, &c., of Murray, erroneously attributed as varieties to *chrysomeloides*; most likely through a misunderstanding of the remarks of that author, who says there are forms of *chrysomeloides* corresponding with the type as he (erroneously) considers *grandicollis*, &c., to correspond with *tristis*. *C. Kirbyi* (*rotundicollis*) is again sunk as a var. of *tristis*. *C. frater*, Newman, Ent. Mag., 1, 1853, 507 (not in Wat. Cat.), is given as a good species. This, and *C. soror* and *nubifer* of Newman, l. c., are only incidentally mentioned in Murray's introductory remarks, wherein he states that he has not seen types of them, but that Mr. Little had specimens of *soror* and *nubifer*, named by Stephens, which were respectively to be referred to *C. nigricans* and *C. velox*. Apparently in accordance with this inconclusive identification, *C. soror* and *nubifer* are here placed as synonyms of the latter two species. *C. frater*, from the hopeless description, would seem possibly to be either small *nigricans* or *coracinus*. It is likened by its describer to *C. fornicatus*,—a name which I cannot find in Murray or Wat. Cat., but which, I presume, signifies *C. nigricans*, Spence. All three of Mr. Newman's species are stated to have been taken at Halifax, and to be in the Cabinet of Mr. Davis.

Anisotoma vittata, Curtis, Ann. Nat. Hist., v, 1840, 276, not being in syn. of Wat. Cat., is given as a good British species. I presume it is *A. litura*, Steph. *Colenis latifrons*, Curtis, l. c., also given as a good species, is *C. dentipes*, teste Wat. Cat. *Liodes axillaris*, Steph., is stated to be a variety of *L. castaneus* (an insect not known to occur in Britain until late years), but is ♂ *humeralis*. *Agathidium convexum*, Sharp, is placed as a synonym of *globosum*, Muls. et Rey. *Clambus coccinelloides* and *nitidus*, Steph., Ill. Brit. Ent., ii and v, not in syn. of Wat. Cat., are given as good species; and *Ptilium minutum*, Steph., l. c. iii, 61, is in the same rank.

Finding so many note-worthy subjects in this volume, I propose to look through the first vol. in like manner, and will publish the results of my examination.—E. C. RYE, 7, Park Field, Putney, S.W.

Note on Saprinus (Gnathoncus) punctulatus, Thoms.—Among some insects sent to me for examination by Mr. Jos. Chappell of Manchester, I find a specimen of a *Saprinus* (taken at Lytham) which has raised in my mind a certain amount of doubt as to there being sufficient specific distinction between *S. punctulatus* (already recorded as British, from the London district, Ent. Ann., 1867), and *rotundatus*. Thomson's chief characters for his *punctulatus*, as compared with the latter, appear to be its smaller size (1 lin. as against 1½ lin.) and lighter antennæ, legs, and hinder parts of the elytra, which are more sparingly punctured, and have no sutural stria. Now Mr. Chappell's insect is quite 1½ lin. long (my London-district specimens averaging 1 line only), has the antennæ, legs, and hinder part of elytra darker, and the punctuation of the elytra closer (being quite confluent behind) than in my above-mentioned smaller examples,—so far agreeing with the differential characters for *rotundatus*. But its sutural stria is so very short that it may be considered as absent, for it requires a "Coddington" to show that it is represented by the confluence of three basal punctures only. Now, in the much smaller London examples above alluded to (all of which have lighter legs and apex to elytra, and less closely punctured elytra), the sutural stria varies considerably,

being in some as obsolete as in the above-mentioned larger insect, and in others (though always abbreviated) very well marked and distinct. It seems to me, therefore, that Gyllenhal was probably right in ascribing the insect characterized by him as "*longe minor, elytrorum apice pedibusque piceis*" as a variety of *rotundatus*. He evidently knew both forms; and, referring to the striae in his diagnosis including both, says "*suturali nulla*." Thomson is, curiously enough, quite silent as to Gyllenhal's note on the smaller form. Yet for *rotundatus* he quotes him (converting the "*suturali nulla*" into "*suturali abbreviata*"), and also quotes Erichson, who by the sizes given (1—1½ lin.) clearly includes both forms, and who says in his diagnosis "*stria suturali obsoleta*," and in his description "*der Nathstreif fehlt gewöhnlich ganz, höchstens ist hinter der Mitte eine geringe Spur vorhanden*." After seeing Mr. Chappell's insect, I am inclined to think Gyllenhal and Erichson more likely to be right in ascribing considerable variations to *rotundatus* than Thomson (*more suo*) in splitting it into two species.—**Id.**

Note on Neuronia clathrata in England.—I have two specimens of this caddis-fly, captured many miles from Mr. Chappell's locality, but still in Staffordshire. I thought at the time that they pertained to the above species; and the illustration in the last "Annual" places the matter beyond a doubt. They were taken on a "moss" where there is scarcely a rill of running water and no pool, but it is nevertheless very wet.—**E. BROWN**, Burton-on-Trent, 7th February, 1869

Note on British examples of Chrysopa tenella, Schneider.—On re-arranging my collection of *Neuroptera-Planipennia* according to Mr. McLachlan's lately published "Monograph" of the British species of that group, I found that four specimens of *Chrysopa* which I had labelled as *teneUa*, Schneider, did not appear to be referable to any of the species described by him. I therefore submitted them to him for his opinion, and he pronounces them to be truly that species. Three of the examples have been in my possession under that name since 1862, having been captured by myself, in the neighbourhood of Hampstead, in June and July of that year; and a record of their capture will be found in the "Zoologist," at p. 8311 (1862).—**PERCY C. WORMALD**, 35, Bolton Road, St. John's Wood, 1st February, 1869.

[I had overlooked Mr. Wormald's record of this species. A short description of the species is to be found in Dr. Hagen's Synopsis in the "Annual" for 1858, p. 22; where it is noticed as British on the authority of "a doubtful specimen in the collection of the British Museum," which I have been unable to find. It is the smallest native species.—**R. McLACHLAN.**]

Capture in England of the true Hypermercia augustana of Hübner; and correction of synonymy.—In August, 1866, I took one specimen of a *Tortrix*, which in July of the following year I sent to Mr. Doubleday, for his opinion upon it. He kindly informed me in a letter dated July 4th that "he believed it was the true *H. augustana* of Hübner, of which he did not possess a specimen; he had, however, carefully compared it with Herrich Schäffer's figure, with which it agreed very well." In a second letter, dated July 9th, he adds, "The species which has been

called *augustana* in this country is the *excæcana* of Herrich Schäffer, and probably the *cruciana* of Linnæus." The discovery of the true *H. augustana* in this country therefore adds another species to our lists, where the two should now stand as in Dr. Standinger's Catalogue.

"No. 1037. *Cruciana*, Linn. *Excæcana*, H. S. *Viminana*, Gu.

No. 1038. *Augustana*, H. S. 205. H. S. 262."

In the hope of re-visiting the spot where I took my specimen and finding more, I have, up to the present, omitted to mention the circumstance, but was reminded of it by receiving a copy of Dr. Herrich Schäffer's work this morning from Mr. Van Voorst, which enabled me to compare the specimen with his figure 262, pl. 51.

I took the insect at High Force, near Middleton Teesdale, in the county of Durham, in August, 1866. It seems very distinct from the species which has been hitherto accepted as *H. augustana*.—THOMAS DE GREY, Merton Hall, Thetford, 3rd February, 1869.

Another Xylina Zinckenii.—The following must be amongst the earliest captures of this rarity. A brother collector, a neighbour, lately brought me, as a present, what he and his friends at the time (October, 1865) considered a strange example of *Acronycta psi*. At this date it may be borne in mind that Dr. Knaggs had not identified anything British born with *X. Zinckenii*.

It appears that my friend was out pupæ digging in the northern environs of London, when, rising from the root of a poplar, he was surprised to observe this fine example of what struck him as one of a second brood of *A. psi* at rest upon the bark. He had neither pill nor collecting box—merely a small cradle for his "diggings." However, he fortunately found a pin between the walls of his waistcoat, and a cylinder hat, in which the illustrious stranger was duly installed. Until kindly taken out for me, it had ever since remained in his duplicate box.—EDWARD HOPLEY, 14, South Bank, Regent's Park, February 16th, 1869.

Yama-mai culture.—I have received the following notes on *Yami-mai* culture:—

"I had 22 eggs, and 15 larvæ hatched out from May 16th to June 2nd. I fed them on the common oak, in a wooden box 18 × 14 × 8 inches, the front was wire-cloth, and the branches were inserted through holes in the bottom of the box into a basin of water. Fresh food was supplied at first every 1st or 2nd day, but afterwards every 3rd or 4th day. There was no thermometer in the room, nor fire, nor artificial heat; a quantity of cotton and woollen cloths and yarns were kept in the same room. It has been a very warm season, and the temperature would range high; the attic in which they were kept faced south, and measured 21 × 18 × 8 ft., the windows were open by day, the door generally open, there was but little draught, and the room was not exposed to the sun's rays. I have four cocoons, spun July 16th, 17th, and 20th. The worms seemed healthy when hatched; two died before moulting; the rest all attained a good age. The disease shewed itself by changing the worm to a greenish-white, and the dark spots shewed themselves and spread up the worm till they became soft and black all over. I have no proof that the disease was infectious; I tried every means to

avoid infection by separating and cleaning. One day, when the number of the worms was reduced to five, I found one diseased in close embrace with a healthy one; I separated them at once, and the healthy one remained so, and spun July 16th, and emerged subsequently."—(from THOS. SCOTT, Hamilton, Scotland.)

"I had 12 eggs; 8 worms hatched out early in May; the eggs were kept in the quill in which they were sent, and kept in an envelope in a north room. About May 2nd the first larva hatched, and died, not being seen in time. The worms were fed on common oak, indoors; the leaves were given three times a week, in a shallow box kept in the shade in an upper sitting-room, having a south-east aspect, 16 feet square; doors and windows frequently open, as the weather was very warm. During an absence from home 3 worms died, and 2 escaped. I am afraid they were exposed to a hot sun. On my return 2 only were left; they thrived well, till one, after moulting, drank some water which was accidentally spilt: its head swelled up and became of a dirty brown colour, and it wasted away. The last worm I put on a branch of an oak inserted in a pot; it soon began to spin, and emerged, a fine ♂, August 30th."—(from WM. COTTON, Carogh Glebe House, Ireland.)

Dr. A. WALLACE, Colchester: *February*, 1869.

Scoria dealbata; correction of an error.—In my communication respecting the habits of this species (p. 223), a mistake has occurred. Instead of "but fly *reluctantly* in the sunshine," should have been printed "but fly *naturally* in the sunshine." I particularly notice this as I had understood that the insect was generally disturbed from the long grass when walking amongst it; and this I found was the case on *dull* days: but when I saw most of them it was in the forenoon, hot, and the sun shining brightly. They were then to be seen starting up on various parts of the hill-side, where there was nothing to disturb them; so that it is most certainly a true day-flying insect.—W. R. JEFFREY, Saffron Walden, *February 3rd*, 1869.

Early appearance of Tephrosia crepuscularia.—This species made its appearance in the wild state on February 5th, this year; but in ordinary seasons it does not occur before March; the earliest specimen I have hitherto noted having been on February 15th, 1864.

Last year I reared from the egg a good series of the dark smoky variety of this species, and should any of your readers wish for any, I shall be happy to give them away.—JOHN T. D. LLEWELYN, Ynisyerwn, Neath, *February 8th*, 1869.

Late appearance of Hybernia defoliaria.—In contrast with the precocity of *P. pilosaria* (see p. 224), *H. defoliaria* ♂ was found on the 10th inst., apparently fresh from the puparium.—W. HERD, Perth, *January 18th*, 1869.

Notes respecting the abundance of Colias Hyale in 1868.—Having just read Mr. C. G. Barrett's interesting observations on the occurrence of *C. Hyale* in Britain, in the December number of the Entomologist's Monthly Magazine, I thought the following would be of use, as it occurred to me at a much later date than any mentioned by Mr. Barrett.

On the 24th of September, 1868, I was collecting in a lucerne field five miles from Canterbury and three from Faversham, and while kneeling down to pin a specimen of *C. Edusa*, I saw *C. Hyale* hanging downwards from a stalk of lucerne and drying its wings. On being disturbed it flew about a yard and settled again, upon which I took it, and found its wings to be so soft and limp that I should not have thought it would have been able to fly at all. Soon after this I took two more *C. Hyale*, flying heavily, and found, in both cases, that their wings were soft and limp, they having evidently come out the same morning. I may further add, that the entire week before the 24th had been dull and gloomy, and though having visited that field nearly every day, I had not seen a single specimen of *C. Edusa* or *C. Hyale*. I have since found that two days afterwards a friend of mine visited the same spot, and took several *C. Hyale*, but all rather worn and dull. Those I took on the 24th were the most perfect specimens I have seen, the pink fringes to the wings being especially perfect.—V. B. LEWES, 76, High Street, Hampstead, Dec., 1868.

Note on Sphinx convolvuli.—In the December number of this Magazine the Rev. J. Hellins has favoured us with some “Observations on the occurrence of *Sphinx convolvuli* in Great Britain.” Here, as in Devonshire, a large number of this fine insect occurred last year in August and September. His very full and interesting facts leave me nothing to record so far as last season is concerned, for his dates of its appearing and disappearing very nearly agree with my own; and here also “the good and battered specimens occurred together throughout the whole period;” but it may interest Mr. Hellins and others to learn that in the year 1861 a fine and nearly perfect *S. convolvuli* was found, on the morning of October 19th, in a torpid state, near some flower-beds, upon a lawn in this neighbourhood. The insect was sent to me, and, when it had been for some time in a warm room, revived and flapped its wings. This is a later date than the insect appears to have been seen by either Mr. Hellins or Mr. D’Orville.—E. S. HUTCHINSON, Grantsfield, Leominster, February, 1869.

Note on effects of mild winter.—Is it not unusual for the larvæ of *Pieris rapæ* to occur in the winter? One was taken in my garden on the 29th of last December, and became a healthy but *very small* pupa on January 3rd. Doubtless the more than common mildness of the season accounts for its late appearance, as well as for the fact that an imago of *Eup. albipunctata* emerged on January 14th, and a fine ♀ *A. prodromaria* on the 29th, quite without forcing.—ID.

Early appearance of Saturnia carpini.—Perhaps it may be worthy of notice that on the 5th of the present month I bred *Saturnia carpini*. It had been kept in a room facing north, which had not had any fire in the whole winter; whilst, as a rule, the window was open.—FRANK PHILLIPS, Forest Hill, 13th February, 1869.

Acanthosoma; the beginning of the end.—From the concluding paragraph of Mr. Marshall’s paper, referring to “other matters” mentioned by me, and the editorial note, referring to “other points” (*ante*, p. 209), I was under the impres-

sion that the "Reply on the Gender of *Acanthosoma*," as published in the January number of the Magazine, was complete; had I known that there was more to follow on the same matter and the same point, I would have waited for the "Further Reply;" and I trust that Mr. Marshall will pardon the seeming discourtesy of my having interrupted before he had finished.

1. It is quite true that Mr. Marshall's original objection included words like *Phanerotoma*, *Pentatoma*, and *Tapinoma*; it is equally true that such words were excluded from my attempt to maintain the neutrality of *Acanthosoma* (*vide ante*, p. 183). I agree that *Phanerotoma*, *Pentatoma*, and such words, are feminine; but I hold them to be, as names of genera of insects, feminine substantives.

2. No doubt Mr. Marshall will object to the assertion (*ante*, p. 230) that "the subject is not contained in the word *Harma*, but understood." He will now say that *Harma* does contain the subject, not literally, but figuratively or metaphorically. But if figure and metaphor are admissible, why are we to stop short at a chariot? It is allowable to call one bug *Harma*, "chariot," or even *Chalcarma*,* "brazen-chariot," but it is "far-fetched and inappropriate" to call another bug *Trigonaspis*, "triangular-shield!" Many will be apt to think this a distinction without a difference. The difference upon which Mr. Marshall relies is this—in the one case the whole animal is shaped like a chariot, in the other a part only of the animal is shaped like a three-cornered shield. If the whole insect had been shield-shaped, *Trigonaspis* would have been a substantive, "containing the subject by a metaphor;" but as part only of the insect is shaped like a shield—metaphor, away!—*Trigonaspis* is an adjective, expressing only an attribute of the creature, it does not denote "the whole of the subject."

But if recourse may be had to a figure of rhetoric to explain *Harma*, why not also to explain *Trigonaspis*? Metaphor is the figure by which one thing is put for another; synecdoche is the figure by which part is put for the whole—as *caput* for *homo*, *tectum* for *domus*. If metaphor be admissible, why is synecdoche to be excluded?

After all, what for the present purpose is the difference between a name which "contains the subject by a metaphor," and a name which "expresses only some attribute of the subject?" *Harma* is said to contain the subject by a metaphor; in fact it only denotes the possession by the subject of a particular attribute. "*Harma*, chariot,† is an apt similitude for the form of the insect." Being of the form of a chariot is an attribute of the insect, and it is that attribute, and that alone, to which the name refers.

Again, the Greek *soma* signifies *the body* as a whole, the whole body. *Acanthosoma* therefore expresses the whole of the subject or creature designated; and doing so (*vide ante*, p. 230), it "ceases to be an adjective."

* Mr. Marshall says "*Chalcharma* (better than *Chalcarma*)." I am not aware that the noun substantive anywhere occurs in Greek; but the adjective is used by Pindar as an epithet of the god of war. Pindar makes it *Chalcharmatos Ares*, not *Chalcharmatos*. I can therefore continue to write *Chalcarma* "without much self-reproach, and throw the blame upon the blundering ancients, who ought to have known better." Mr. Marshall does not like *Chalcarma*; perhaps some one will say that even *Chalcarma* is capable of improvement; what if *Chalcoharma* were suggested?—J. W. D.

† It is a still more apt similitude for the form of the butterfly; the outline of the wings, when elevated in repose and close together—the side view of the butterfly—is exactly that of a chariot.—J. W. D.

"The principles upon which the interpretation of such words depends belongs to logic, and not to grammar." I agree. The question of what a name is grammatically, is distinct both from the interpretation of the word, and from the reason why the name is given. And it seems to me that the name of a group of animals may well be a noun substantive, even though it express only some attribute of the subject, or even though it were selected by reason of some peculiarity of a part only of the subject. *Ctenidium*, as the name of a beetle, is a "substantive taken figuratively," the genus being named "little comb" either jocularly, because it comes near *Trichopteryx*, "hair-wing," or because the fringed apex of the wings (not the whole beetle) resembles a comb; it would be none the less a "substantive taken figuratively" if applied to a moth with pectinate antennæ. If I may be allowed to say so, Mr. Marshall's argument confounds two different things—the name, and the reason for the name. I name a moth *Uropteryx* because it has caudate wings; but it does not follow that *Uropteryx* means "having caudated* wings," or is an adjective. I am at liberty to take the substantive *Uropteryx*, "tail-wing," as the name of a moth which has tailed wings, just as I may take the substantive *Harma* as the name of a bug which has the shape of a chariot.

Mr. Marshall's division (A. b.), p. 235, includes "proper names" among the "substantives taken figuratively." Whatever its derivation or meaning, the name of a genus is a "proper name," and therefore a noun substantive.

3. Mr. Marshall submits that the *Micrornix*† passage (ante p. 184) is a "mixture of two syllogisms" which are exhibited separately at p. 236. The syllogisms involved in my argument are distinct enough, as follows:—

Micrornix (Bird) is a substantive.

Every substantive has a gender of its own.

Therefore *Micrornix* (Bird) has a gender of its own.

Every substantive contains its own subject.

Micrornix (Moth) does not contain its own subject.

Therefore *Micrornix* (Moth) is not a substantive.

The second syllogism at p. 236 is in fact the reverse of that contained in my argument. It may be that, on the metaphorical theory, which when I wrote had not been developed, the "passage involves a fallacy," owing to the double sense in which, on this theory, *Ornix* is used. I need scarcely say that the passage, like the demonstration at p. 230, was intended as a *reductio ad absurdum* of the contention—taken literally, as I then understood it, not metaphorically, as it is now explained—that the name of a bird or bug, if it be a substantive, must contain the subject, bird or bug, as the case may be.

But now it is conceded that the subject may be expressed by a metaphor, and I begin to think the day may come when Mr. Marshall will admit *Acanthosoma* as a substantive. The metaphorical "chariot" will open the way for the figurative "shield," and leave a passage for the graphic "spine-body" and the poetic "red breast." It is not disputed that a compound noun substantive may be taken as the name of a genus, or that *acanthosoma* is the correct form of the Greek noun

* Query, caudate.—J. W. D.

† Mr. Marshall says "the form *Micrornix* would be preferable." I thought the reference to the Lepidopterous genus *Ornix* was sufficient to show why I took the form *Micrornix*. If "*Ornix* is only a dialectic variation and comparatively unusual," I would not change the established name *Ornix* into *Ornis*, though I might prefer the latter, if the same were now for the first time being published.—J. W. D.

substantive corresponding to "spine-body," or that *acanthosoma*, as a Greek noun substantive, would be neuter. In truth, it is as good a Greek substantive as *neophasma*, and of the same gender. The fact that the *nomina trivialia* are in the genus *Acanthosoma* made neuter, shews that the author had in his contemplation the neuter substantive *acanthosoma*, and not the feminine gender of any such adjective as *acanthosomus*. And if a compound noun substantive, correctly formed, may be applied, and has been applied, are we justified in rejecting the author's own indication of the origin and meaning of his name, simply because we, in framing a name to express the same idea, might have arrived at it by a different process which would have given it a different gender?

4. Mr. Marshall intimates that he would himself have made both *Acanthothorax* and *Uropteryx* masculine, on the principle of the masculine gender being more worthy than the feminine. This strikes me as a new application of that "precept." But what I am most interested to know—particularly with reference to the projected Catalogue—is, whether it is proposed that *Uropteryx sambucaria* shall be changed into *U. sambucarius*, and so on with the rest?

5. *Harma* may be a more reasonable name for the bug than *Arma*; but that is not the question. Agassiz gives a derivation for *Arma* (I do not say a satisfactory one) different from any of those mentioned by Mr. Marshall. If Hahn had written either *Arma luridum* or *Harma lurida*, there would have been stronger ground for supposing that the generic name was derived from the Greek word for a chariot; but the supposition seems to me to be rebutted by (1) the absence of the initial aspirate, and (2) the deliberate adoption of the feminine gender. The case is not like *Hyponomeuta*, where Stephens himself gives the derivation, and if he had not, no other is possible. That the feminine gender was advisedly used by Hahn is shown by the change of the Fabrician *Cimex luridus* into *Arma lurida*, which Mr. Marshall now wishes to change into *Harma luridum*.

6. As to the rejection of barbarian and badly constructed names, I am afraid it would be impossible either to obtain the concurrence of the "great head-centres of Entomology," or with such concurrence to procure such rejection.

Mr. Marshall's opening sentence (iv, 259), "the publication of a Catalogue of British Insects under the auspices of a scientific Society offers an opportunity for getting rid of a number of flagrant instances of cacography in names, which it is to be hoped will not be neglected"—and the passage (iv, 280) respecting the "adoption" of certain "corrections to the nomenclature of British *Heteroptera*," and of the case with which "a similar reformation" might be effected in other Orders—led me to suppose that the rejection of all the specified "instances of cacography" was proposed; and it was particularly with reference to the preparation and publication of the said Catalogue that my enquiries were made as to the extent to which it was wished to carry the expurgation of our Lists. If the object was to "check the formation of such words" for the future, I have only to express my heartiest wish that this object may be effected, and to repeat what I said before (p. 186)—"Viewed as canons for future guidance, I agree in the main with Mr. Marshall's propositions."

7. I referred to *hippopotamus*, not as being a correct compound, or as "sub-

versive of the rule for compound terms," but for the purpose of showing the necessity for caution in the retrospective application of the rule to current names. If *Chæropotamus* is to be changed, *Hippopotamus* ought to go also; if *Chæropotamus* is not to be inverted, why should *Corimelœna* or *Derephysia*?

There is a manifest distinction between the *hippos potamios* of Herodotus and the *hippopotamus* of Strabo; the former was a compendious description of a newly discovered animal, fluvial in its habits, and supposed to be a horse; the latter is the name given to the animal when it was found not to be congeneric with the horse, and to require a name of its own.

8. My question as to *rhinoceros* was asked only in view of the abandonment of *hippopotamus* being insisted on. Both *rhinoceros* and *ceratorhinus* are correct, but I think they are not quite "equivalent terms." The name *Rhinoceros*, "nose-horn," was doubtless given to the animal from its "having a nasal horn;" but *Rhinoceros*, the name of the animal, is a substantive. So *Monoceros*, "having a single horn," is a substantive, when used as the Greek name of the better-known Latin unicorn. In *diceros Selene*, the two-horned moon, *diceros* is no doubt an adjective; but as the name of a genus of *Cetoniidæ*, *Diceros** is a substantive. Mr. Marshall allows that "such words, like our names of genera, become substantives conventionally"—it is by the same convention which makes *Hippopotamus* a substantive, or *Hippos* a substantive, which makes a substantive of the name by which we denote any other existing thing.

9. I am glad that attention has been again called to *formicæformis*, *tipulæformis*, &c. As bearing on this, and the intervening letter *o* in compounds from the Greek, I may mention that when, in the "Accentuated List" before alluded to, *Ourapteryx* was changed into *Uropteryx*, and *formicæformis* into *formiciformis*, a reverend critic indignantly enquired (I forget in which of the then existing serials) upon what principle such innovations had been made!—J. W. DUNNING, 24, Old Buildings, Lincoln's Inn, 13th February, 1869.

[This paper must form not only "the beginning of the end," but the end itself, of this most interesting controversy. May the spirit in which it has been conducted by both gentlemen be emulated by all who enter the arena of argument on scientific questions!—EDS.]

ENTOMOLOGICAL SOCIETY OF LONDON; *January 25th*, 1869. (Anniversary Meeting.)—F. SMITH, Esq., in the Chair.

The Hon. T. De Grey, M.P., and Messrs. Pascoe, A. R. Wallace, and Wormald were elected into the Council in the room of outgoing Members. The President and other officers were elected as before. The Secretary read the report of the Council, and also an address by the President (who was unavoidably absent) on the progress of Entomology during the past year; and the Meeting terminated with the usual votes of thanks to the Council and Officers.

February 1st, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair. The President nominated Messrs. Pascoe, Smith, and A. R. Wallace as his Vice-Presidents for the ensuing year.

* Unfortunately Gory and Percheron mis-spelt it *Dicheros*.—J. W. D.

Mr. E. Saunders exhibited a good example of *Pachetra leucophæa*, taken by Mr. N. E. Brown from off a gas-lamp at the Red-Hill Station, on 14th May, 1868.

Mr. Horne (present as a visitor) narrated an account of the antagonism existing between rats and scorpions in India. He had confined the animals under a glass case, in order to observe their movements, and found that the rat invariably disabled the scorpions by seizing them by the tail, after which it proceeded to pull off the legs; but did not eat the creatures.

Mr. Pascoe made some observations on the genera *Aprostoma*, *Mecedanum* and *Gempylodes* regarding the possible identity of the genera. He exhibited a species of *Hemiptera* (perhaps an *Odontoscelis*) from Toulon, which he could not find described in any work.

The Secretary read a letter addressed to him by Dr. Butterfield, P. O. Box No. 1473, Indianapolis, Indiana, wherein the writer expressed his desire to give a tolerably complete collection of the *Lepidoptera* of his State, in exchange for a similar one of British species.

Mr. Butler communicated a description of a new species of *Hestina* from India, which he proposed to call *H. Zella*. It bears a strong mimetic resemblance to *Danaïs Juventa*.

Professor Westwood exhibited drawings of a minute insect belonging to the family *Aphidæ*, which was causing great damage of the vineyards of the south of France, and also occurs in England. He had first become acquainted with the creature in 1863, when he received some vine-leaves attacked by it. A puncture being made in the upper cuticle, the wounded part thickens, bulging out beneath, and forming a concavity above, round the edges of which small imbricated scale-like growths are produced, closing over the cavity; in this nidus the insect produces its young. In the spring of last year he read a paper on the subject before the Ashmolean Society, and applied the name of *Peritymbia vitisana*. But it is under other circumstances that the greatest damage is done. The same species (for he could detect no difference whatever) is subterranean also, then sucking the extremities of the young root-fibres, thus threatening the life of the plants. Under this condition the French had termed it *Rhizophis vastatrix*. Dr. Signoret considered it to be a species of *Phylloxera*.

Mr. Smith mentioned that he had observed a parallel instance of great diversity of habit in *Cynips aptera*, which ordinarily makes more or less agglomerated masses of galls on the roots of the oak. But he had once found small galls formed of imbricated scales on the surface of the principal stem under-ground, and from them had bred an insect which he could in no way separate from the ordinary *C. aptera*.

BRITISH HEMIPTERA: ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

Section 6.—TINGIDINA.

FAMILY 2.—TINGIDIDÆ.

Genus 1.—MONANTHIA.

Species 9.—MONANTHIA SIMILIS, n. sp.

Ochreous-grey, with small black marks on the reticulation and

keels; side margins of the *pronotum* and anterior margin of the *elytra* wide, with four rows of meshes, the circumference of the former broadly rounded anteriorly.

In structure, marking, colour, and size, this species is very like *M. ampliata*, from which it differs in the following respects. The antennæ are perceptibly thicker, and much shorter, the spines on the head longer and sharper, the side margins of the *pronotum* more rounded at the front, the curve being continued regularly to the hood (in *ampliata* the margin *projects* anteriorly in an obtuse angle, and then goes in an oblique straight line to the hood).

Two specimens taken by Mr. Wollaston, but the place and date of capture are not recorded.

Section 9.—CAPSINA.

FAMILY 3.—MIRIDÆ.

Genus 2A.—TERATOCORIS, Fieb.

Species 2.—TERATOCORIS SAUNDERSI, n. sp.

Bright green, shining, sparingly clothed with short, sub-erect, yellow hairs.

♂. *Head*—With a black central line extending throughout its entire length, widest at the posterior margin; round the insertion of the antennæ narrowly black. *Antennæ*, 1st joint green, clothed with short dark hairs; base with a narrow black ring, apex more or less pitchy-red; 2nd brownish-pink, apex brown; 3rd and 4th pitchy-black. *Eyes* reddish-black. *Rostrum* greenish-yellow, apex black.

Thorax—*Pronotum* green, with a black central line extending throughout its entire length; at the anterior angles a short, somewhat oblique black streak reaching to the callosities, the latter with a slight fovea near the centre; collar and posterior portion of the disc finely shagreened. *Scutellum* green, with a more or less distinct short black streak between the base and the transverse channel; at the basal angles a deep fovea. *Elytra* green, as long as the abdomen, finely shagreened. *Clavus*, inner margin very narrowly black. *Membrane* with only one cell, pale fuscous with a purple iridescence. *Cell* green, almost entirely subcoriaceous and finely shagreened; cell nerve green. *Sternum* green. *Prosternum*, on the sides towards the front, with a short, cuneate, black patch. *Legs* green, clothed with short, sub-depressed, dark hairs, *Thighs*, at the apex, more or less inclined to reddish; 1st and 2nd pairs, on the underside, with a row of erect hairs. *Tibiæ* greenish or greenish-yellow, thickly clothed with short, sub-depressed, brownish-yellow hairs; 2nd and 3rd pairs frequently inclined to brownish-pink or yellow at the apex. *Tarsi* brownish-yellow, apex of 3rd joint black. *Claws* brown.

Abdomen green underneath.

♀. Developed form. *Head* and *pronotum* as in the ♂, the central line of the head not so distinct. *Scutellum* without a central line; apical portion transversely wrinkled. *Elytra* longer than the abdomen. *Membrane* with two cells, the lesser one very narrow, and almost forming an isosceles triangle. All the other characters as in the ♂.

♀. Undeveloped form. *Head*, *pronotum*, and *scutellum* without the black central line; posterior margin of the callosities blackish. *Elytra* shorter than the abdomen. *Cuneus* not distinct from the corium. All the other characters as in the developed form. Length ♂ 2—2½; ♀ 2½—3 lines.

Most nearly allied to *T. antennatus*, Boh. (Fieb. Europ. Hem. 246, 1), but the absence of the streak along the margin of the abdomen, and the blood-red hinder tibiæ, will at once enable any one to separate them.

We have much pleasure in naming the species after Mr. Edward Saunders, its captor, who took a few examples at Deal, by sweeping among rushes, &c., at the end of June and beginning of July. He has also an undeveloped ♀, taken near Aberdeen.

Genus 3.—LOPOMORPHUS.

We now believe that the insect described in the "British Hemiptera," page 224, 1, as *Lopomorphus carinatus*, is only a small and curious variety of *L. ferrugatus*, to which the description must also apply.

FAMILY 4.—PHYTOCORIDÆ.

Genus 2.—PHYTOCORIS, Fall.

Species 2A.—PHYTOCORIS MARMORATUS, n. sp.

Pale green, with large irregular black patches, sometimes almost covering the entire elytra; at others, having somewhat of a banded appearance; clothed with depressed white hairs, slightly curled, and disposed in a confused manner, and interspersed with sub-erect black ones.

Head—pale yellowish or greenish-white at the posterior margin, and adjoining each eye a small piceous or blackish spot. *Antennæ* black, as long as the body; 1st joint a little more than half the length of the second, with one or two small, somewhat round white spots towards the base, and two or three oblong ones towards the apex on the upper side, and a few long, erect, black hairs; apex slightly piceous, 2nd with a narrow white ring at the base, and another, whitish or brownish-white, of about the same size beyond the middle; 3rd about two-thirds the length of the second, base narrowly white; 4th shorter than the 1st; below the eyes and beyond the side-lobes of the face a black streak. *Rostrum* pale-yellowish or greenish-white, apex piceous.

Thorax—*Pronotum* black, collar pale green except at the sides; posterior margin white, in the centre forming a triangular patch, and on either side, next the posterior angle, a lunate one; disc with an oblique green streak on each side of the centre, terminating in a round spot on the callosities; sometimes the entire centre is pale green, of a trapeziform shape, or having, in addition thereto, a black X-shaped patch between the callosities. *Scutellum* green, base as far as the transverse channel piceous or black, except a narrow streak within the basal angles; on each side, before the apex, a short, oblique black streak, becoming fuscous as it approaches the centre, from which it is separated by a pale narrow line; apex white. *Elytra* green. *Clavus* with a large irregular black patch next the suture, interrupted by about three short, oblique green streaks, sometimes dividing it into separate patches, or, almost entirely black with the exception of the three short streaks and a narrow line extending from the scutellar angle to the apex, which last is always black. *Corium*, anterior margin with four or five black spots of irregular size, sometimes fewer, apex broadly black; disc with an irregular broadish black band generally opposite to the apex of the scutellum, and more or less marbled with small green spots of irregular shape; below the band and next the claval suture a few more or less confluent black spots, the obtuse rhomboidal patch at the apex margined with black on its inner margin and along the membrane suture as far as the inner basal angle of the cuneus, where it terminates in a black spot, sometimes detached, between this and the apex of the anterior margin generally rosy. *Cuneus* broadly and irregularly black at the apex, in which are some minute green spots; extreme apex pale. *Membrane* pale, inner basal angle blackish; the entire lower half of the disc with irregular confluent blackish spots and patches, darker towards and at the apex of the anterior margin; below the apex of the cuneus a small triangular blackish patch. Cell nerves pale green; large cell nerve for about two-thirds its length blackish; lesser cell nerve black; base and apex of the large cell more or less and the lesser cell entirely blackish. *Sternum*—*Prosternum* on the sides broadly black, *xyphus* green. *Mesosternum* black or deep pitchy-black. *Meta-sternum* on the sides black. *Legs* greenish-white or yellow. *Coxæ* at the base on the outside with a piceous spot. *Thighs* clothed with fine, short, depressed pale hairs, intermixed with long, erect brown ones; apex narrowly pale; 1st pair marbled with black for more than one-third of their length, generally leaving a narrow black ring before the apex, the colour carried along the upper- and under-side, in a more or less interrupted line, nearly to the base; 2nd with a narrow black ring before the apex, the marbling not encircling the limb generally, but interrupted on the inner and outer sides by the longitudinal furrow, the colour carried in a more or less interrupted line along the under-side nearly to the base; 3rd with a broad, oblique pale ring, and between it and the apex, next the under-side a round pale spot, the marbling carried along the upper- and under-sides somewhat broadly for about three-quarters of their length. *Tibiæ*, all the pairs with three black rings, and clothed with long, erect, brown hairs; 1st pair, at the base on the inside with a small black spot, a ring a little distance from the base, a second in the middle, and a third

at the apex, the latter piceous; 2nd, the knee on the under-side blackish or piceous, a ring a little way from the base, a second in the middle, and a third about its own width from the apex; 3rd, the rings placed as in the 2nd pair, the 1st ring generally continued to the base as a line on the under-side; upper-side with one or two pale spots. *Tarsi* piceous, 2nd joint yellowish. *Claws* brown.

Abdomen—Underneath black, with a broad green central streak.

♀ paler than the ♂.

Length $2\frac{1}{2}$ —3 lines.

This insect is very nearly allied to *P. tiliæ* and *dubius*, but it is most likely to be mistaken for the former. Its general darker appearance may serve to distinguish it from that insect and from *P. dubius* by its unicolorous head and black base of the 1st joint of the antennæ.

A few examples have been taken on palings at Blackheath, in Bexley Road, and round Lewisham, between the end of July and end of August.

FAMILY 6.—LITOSOMIDÆ.

Genus 1.—LITOSOMA.

Species 6A.—LITOSOMA OBSOLETUS.

ORTHOTYLUS OBSOLETUS, Pict. and Mey., Fieb., Europ. Hem., 289, 4.

Elongate, somewhat parallel. Greyish or yellowish-green, thickly clothed with short depressed white hairs, intermixed with longer, erect black ones. Cells of the membrane pale golden yellow.

Head—Posterior margin keeled. *Antennæ* pale yellow, 3rd and 4th joints brownish.

Eyes pitchy-black. *Rostrum* pale yellow, apex piceous.

Thorax—*Pronotum*, callosities prominent, the transverse channel behind them deep.

Elytra—*Membrane* very pale fuscous; cell nerves yellow. *Cells* pale golden yellow. *Legs* pale greenish-yellow. *Thighs* clothed with short, depressed, white hairs. *Tibiæ* pale yellowish. *Tarsi* yellowish, 4th joint and claws brown.

Abdomen—Underneath fuscous-green.

Length $2\frac{1}{4}$ lines.

This insect may be distinguished from *L. concolor*, to which it is closely related, by its larger size and duller appearance (*concolor* being of a deep, somewhat bluish-green colour, and having a much darker *membrane*), and its unicolorous cell nerves.

We have only seen a single example which we can refer with any certainty to this species. It was taken in Bexley Road, Kent, on the 5th August, and was probably beaten out of sallow.

FAMILY 12.—PSALLIDÆ.

Genus 3.—PSALLUS.

Species 8A.—PSALLUS WHITEI, n. sp.

Red or reddish-yellow, clothed with short, depressed, yellow and black hairs intermixed, the latter sub-erect. *Elytra* with a distinct trapeziform blackish patch.

Head—pitchy-black, posterior margin yellowish-white. *Antennæ* pale yellowish, 1st joint at the base narrowly black, 4th at its insertion blackish. *Rostrum* yellowish, 1st joint and apex black.

Thorax—*Pronotum* broad, callosities red, disc posteriorly inclined to reddish-yellow. *Scutellum* red, flattish convex, anterior portion in the middle piceous. *Elytra*—*Clavus* reddish-yellow, inner margin at the base narrowly blackish, suture at the apex slightly piceous. *Corium*, anterior margin as far as the 1st nerve red, posterior margin narrowly white, disc reddish-yellow, next the first nerve very narrowly yellowish, below the centre a distinct trapeziform blackish patch, its lower side almost in a line with the apex of the clavus. *Cuneus* red, base narrowly white. *Membrane* black, between the apex of the cuneus and the lesser cell nerve a white triangular patch, to the apex of which is attached a short oblong whitish patch, in the middle of the disc, and extending from in a line with the apex of the large cell to almost the inner margin, a broad, curved, whitish patch; inner marginal nerve blackish. *Cell nerves* red, apical half of the large cell nerve black; lesser cell almost entirely black, large cell black at the apex. *Legs* red. *Thighs*, 1st pair narrowly yellowish at the apex, 3rd with a blackish patch in the middle of the inner side near the apex. *Tibiae* pale yellowish, with erect, somewhat spinose black hairs, 3rd pair in addition with black spots, apex narrowly brown. *Tarsi* brownish-yellow, 3rd joint and *claws* blackish.

Abdomen—Underneath red, with a piceous line along the sides as far as the genital segments. Length $1\frac{3}{4}$ line.

Resembles *P. varians*, but is of a deeper red colour (more like *roseus*), and the blackish patch in the corium is of a different shape to that in the latter species, besides which the *black head* is sufficient to enable any one to distinguish it.

We have only seen a single specimen (♀), taken by Dr. Buchanan White at Rannoch, after whom we have much pleasure in naming it.

FAMILY 13.—CAPSIDÆ.

Genus 5.—ATRACOTOMUS.

Species 1.—ATRACOTOMUS MAGNICORNIS.

The description (without the synonyms) at page 435 of the "British Hemiptera," and figure 4, plate 14, of the same work, will both require to be transferred to *A. mali*, Mey. The latter insect literally swarmed on apple-trees during the past season, and from a careful comparison of a long series of specimens with the insect described under the former name we have satisfied ourselves that it is an error.

With two exceptions, the distinctness of the following species determined more than a year ago, has been confirmed by Dr. Fieber.

AQUATILIA.

Section 5.—CORIXINA.

FAMILY 1.—CORIXIDÆ.

Genus 1.—CORIXA, Geoff.

CORIXA VENUSTA, n. sp.

Broad, oval, dark brown with ochreous markings, delicately rastrate; *pronotum* with 6—7 straight yellow lines, *corium* with very fine transverse yellow lines interrupted by black longitudinal streaks, of which one across the posterior inner angle and one *at* the angle are the most conspicuous.

Head ochreous; *crown* brownish; facial depression in the ♂ oval, deep, extending the whole length of the face, far up between the eyes.

Thorax—*Pronotum* with 6—7 straight, entire yellow lines, the dark intervals scarcely reaching the sides; disc in front with a very small carinate elevation. *Elytra*—*Clavus* with narrow, oblique, parallel yellow lines, those in the middle a little shortened inwardly. *Corium* with very fine, somewhat contorted, transverse yellow lines, and broad, dark intervals, traversed longitudinally by a long, broad black vitta across the posterior inner angle, a short line *at* the angle, a narrow long line just within the anterior margin, all black, and an indistinct dark interruption down the centre of the disc; marginal channel pale livid yellowish, somewhat infuscated outwardly and at the base, apex yellow. *Membrane* with small, hieroglyphic, ochreous and black markings, on the inner margin straight and parallel lines; the disc traversed longitudinally by two more or less distinct black lines. *Sternum* ochreous, fuscous in the middle, *scapulae*, *pleurae*, and *parapleurae*, pale yellow. *Legs* brownish-yellow; *palae* of the ♂ short, broad, roundly cultrate; 2nd pair, *tibiae* and *tarsi* black at the apex, 3rd pair, cilia of *tarsi* brown-black.

Abdomen ochreous, fuscous at the base.

Length $2\frac{1}{2}$ — $2\frac{1}{4}$ lines.

Allied to *C. semistriata*, Fieb.

Of this pretty and well-marked species, two examples were taken in small streams near Rothsay, Isle of Bute, in September, 1866 (*Doug & Scott*); and one was captured near Carlisle, in 1868 (*J. Hunter*).

CORIXA DECORA, n. sp.

Narrow, parallel-sided, brown-black, rastration of *pronotum*, *clavus*, and *corium* very fine. *Pronotum* with seven fine undulating lines; *Clavus* and *corium* with fine, broken, yellow lines; marginal channel pale, infuscated at the base.

♂. *Head* fuscous-brown, facial depression slight, flat, with a fine ridge in front.

Thorax—*Pronotum* short, rounded behind, in front with a very small elevation, disc with seven transverse, narrow, entire, yellow lines, the front ones undulating, the black intervals of about equal width. *Elytra*—*Clavus* with narrow

yellow lines scarcely reaching the inner margin, three or four of them at the base broader, oblique, and entire, the rest less regular, shorter, and interrupted, some outwardly furcate. *Corium* with short, interrupted, transverse, yellow lines, forming on the inner margin a longitudinal row of small linear spots, exterior to which is a narrow longitudinal black line, the posterior discoidal markings finer and somewhat twisted; marginal channel pale, infuscated on the base and edge, posteriorly with faint transverse lines; membrane suture yellowish, narrow, ill defined. *Membrane* covered with hieroglyphic markings, outer margin black. *Sternum*, *scapulae*, *pleurae*, and *parapleurae* ochreous. *Legs* pale yellow; *pala*, ♂, short, roundly cultrate; 2nd pair, apex of *tibiae* and *tarsi*, and the cilia of the posterior *tarsi*, black.

Abdomen fuscous-black, indistinctly ochreous in the middle. Length $2\frac{1}{4}$ lines.

Allied to *C. limitata*, Fieb.

A single ♂ taken in September, 1866, in a small stream running into Loch Fad, Isle of Bute (*Scott*).

CORIXA DUBIA, (*Fieb.*), n. sp.

Black with yellow markings. *Pronotum*, *clavus*, and *corium* finely rastrate; *pronotum* with a distinct short keel, and 6—7 alternate, narrow, irregular, black and yellow lines; *clavus* with straight lines throughout; *corium* with interrupted unparallel lines; marginal channel pale, black at base.

♂. *Head* yellow, brownish on the posterior margin of the crown; facial depression flat, extending just beyond the angle of the eyes.

Thorax—*Pronotum* in front with a fine, distinct, sharp keel, extending about one-third of the length; disc with 6—7 narrow, irregular, yellow lines, separated by as many similar black ones, the former being interrupted in places by the confluence of the points of the latter, some of the black lines being also abruptly shortened. *Elytra*—*Clavus* with narrow, oblique, parallel, yellow lines throughout, all more or less shortened inwardly, sometimes two or three furcate outwardly; *corium* with transverse, not parallel, subfurcate yellow lines, twice interrupted—first near the inner margin, leaving there a longitudinal row of short lines; second, in a less degree and less regularly, just within the outer margin; marginal channel pale, black at the base, and somewhat infuscated posteriorly; membrane-suture yellow, distinct; *membrane* covered with twisted, hieroglyphic characters, straight and parallel on the inner margin; outer margin black. *Sternum* black, *scapulae*, *pleurae*, and *parapleurae* pale yellow, black inwardly. *Legs* yellow; *pala* of the ♂ rather broad, roundly cultrate; 2nd pair, *tibiae* and *tarsi*, at the apices black; cilia of the posterior *tarsi* brown.

Abdomen black.

Length $2\frac{1}{2}$ lines.

Allied to *C. limitata*, Fieb. A single ♂ taken in September, 1866, in a small stream running into Loch Fad, Isle of Bute (*Scott*).

CORIXA PERPLEXA, n. sp.

Broad, ochreous with black markings; *pronotum*, *clavus*, and *corium* finely rastrate; *pronotum* with 7—9 very fine, irregular, confluent lines; *clavus* with oblique, irregular lines; *corium* with short, twisted lines interrupted on the inner posterior angle; marginal channel livid ochreous.

♂. *Head* ochreous, brownish at the base of the crown, facial depression shallow, flat, reaching to the angles of the eyes.

Thorax—*Pronotum* wide, rounded behind, in front a very short keel, disc with 7—9 very fine, irregular black lines, confluent in places, the ochreous intervals rather wider. *Elytra*—*Clavus* with oblique black lines; those at the base narrow, straight, with clear ochreous intervals, the remainder broader, irregular, undulating, sometimes furcate outwardly; *corium* throughout with irregular, abbreviated, twisted, transverse, black lines, their outer ends more or less joined together; inwardly, on the inner posterior angle, the lines are traversed by, and joined to, a short, irregular, longitudinal black line, and there is a still shorter one at the apex of the clavus; marginal channel livid ochreous; membrane suture distinct, ochreous; *membrane* covered with short, twisted, hieroglyphic markings, the inner and posterior margins with short, straight, close, parallel black lines. *Sternum*, *scapulae*, *pleurae*, and *parapleurae* pale ochreous. *Legs* pale ochreous; *pala*, ♂, narrow, roundly cultrate; 2nd and 3rd pairs, *tibiae* rather infuscated; 3rd pair, *tarsi*, cilia black.

Abdomen black, posterior segments fusco-ochreous in the middle.

Length $2\frac{1}{4}$ — $2\frac{1}{2}$ lines.

Allied to *C. limitata*, Fieb.

Two specimens taken in a small stream at the road-side, near Rothsay, Isle of Bute, in September, 1866 (*Douglas*).

CORIXA FABRICII.

CORIXA FABRICII, Fieb., Spec. Coris., 33, 38, t. 2, fig. 16 (1851). Flor, Rhyn. Liv., i, 796, 9 (1860).

CORIXA FABRICII, Walleng., Oefv., K. Vet. Akad., 149, 16 (1854). Fieb., Europ. Hem. 93, 31 (1861).

? CORIXA ABDOMINALIS, Fieb., Syn. Coris., No 22 (1848).

Brown-black. *Pronotum*, *clavus*, and *corium* rastrate. *Pronotum* with 7 yellow lines, marginal channel of the elytra black, the basal inner half yellowish.

Head yellowish, with the crown brown, or entirely brown; facial depression in the ♂ extending a little beyond the lower angles of the eyes, flat, not hollowed out, on the front margin carinate.

Thorax—*Pronotum* rounded behind, in front a small keel, disc with seven, mostly straight, yellowish lines, sometimes interrupted or obscured. *Elytra* with a

few whitish hairs; *clavus*, as far as the middle, with entire, straight, rather oblique, parallel, yellowish lines, posteriorly the lines are slightly undulating, and sometimes shortened on the inner side; *corium* with fine undulating, or broken and angularly confluent, transverse yellowish lines, interrupted near the inner margin, and there forming a longitudinal series of very short marks, posterior inner angle narrowly black; marginal channel black, the basal inner half and the apex yellowish; membrane-suture narrowly yellow; *membrane* covered with small, irregular pale markings; exterior margin black. *Sternum* black; *scapulæ*, *pleuræ*, and *parapleuræ* black inwardly, more or less broadly pale yellow outwardly. *Legs* yellow or brown, anterior *thighs* with a fuscous blotch at the base; *palæ* in the ♂ short, roundly cultrate, in the ♀ narrower, longer, and more acute. Length $2\frac{1}{2}$ — $2\frac{3}{4}$ lines.

Allied to *C. mæsta*, Fieb.

Taken at Rannoch, by Mr. E. C. Rye and Dr. F. Buchanan White; also in Fifeshire, by Dr. Power.

NOTE.—Fieber described this species in 1848 (Synopsis Corisarum Europæ) under the name of *Corisa abdominalis*, but in 1851 (Species Generis Corisæ) he redescribed it under the name of *C. Fabricii*, without giving any reason for the change. Wallengren and Flor have since adopted the latter name, as also has Fieber again in the "Europäischen Hemiptera," so that as the species has become generally known as *C. Fabricii*, we have not revived the prior name, prefixed to a short and somewhat meagre description, although in strictness the latter should be the name used.

(To be concluded in our next.)

DESCRIPTION OF A NEW SPECIES OF BIBIO.

BY G. H. VERRALL.

On the wings of this and allied species of *Bibio*, only two blackish, strongly-marked veins reach the margin, the first of these (the subcostal) ends in the stigma, the other (the cubital) springs from the first at about two-thirds of its length, and ends before the tip of the wing. From the base of the wing another blackish vein (the discoidal) starts, which becomes indistinct about the middle, shortly afterwards forking and ending in two indistinct veins below the tip; this vein, at the end of its blackish portion, is connected with the base of the cubital by a blackish oblique transverse vein,—which I call *the transverse vein* as in the whole order of *Diptera* it is the chief connecting vein between the front and hinder portions of the wing.

B. ANGLICUS; ♂ *ater*, *pedibus concoloribus*, *nigro-pilosus*; ♀ *rufa*, *nigro-pilosa*, *capite*, *pleuris*, *scutello*, *pedibusque nigris*; *nervo transverso parte nervi cubitalis basali longiori*. Long. corp. 3 — $3\frac{1}{2}$ lin.

The only described European species with black males and red females having black legs are the common *hortulanus*, Lin., and *siculus* Lw. From *hortulanus* it differs as follows:—

ANGLICUS.

♂ ♀. Smaller size, averaging ♂ $3\frac{1}{2}$ lin., alar. $6\frac{1}{2}$; ♀ $3\frac{1}{2}$, alar. $6\frac{3}{4}$.

Transverse vein about $1\frac{1}{2}$ times as long as the basal portion of the cubital vein.

Cubital vein rather wavy.

Indistinct portion of cubital vein before the fork longer.

Edge of the alulæ blackish.

Sub-costal vein with several bristles on it, and costal pubescence stronger.

Knob of the halteres narrower.

Joints of the antennæ more distinct.

♂. Pubescence on all the abdomen blackish.

Pubescence on the under-side of the thorax blackish.

Hairs on the scutellum all black.

Belly duller, rather hairy.

Legs stouter, and all over more thickly beset with stronger bristles or hairs, which are all black; the hinder trochanters are more even at their edge, the femora are rougher, hind pair slightly more clavate, the middle pair of legs is especially more thickly beset with bristles; the tarsi are shorter and stouter, and the close short pubescence beneath them is blackish-grey.

Wings not so decidedly milky-white.

♀. Hairs on the abdomen all black, except on the sides of the basal segment, where they are pale.

Few hairs on thorax and tip of scutellum stronger and darker.

Pubescence about the head shorter and blacker.

Front rough and dull.

Legs rather more bristly; tarsi thicker and shorter.

Wings with darker uniform tinge.

HORTULANUS.

♂ ♀. Larger size, averaging ♂ 4 lin., alar. $7\frac{1}{2}$; ♀ $3\frac{3}{4}$, alar. $8\frac{1}{2}$.

Transverse vein about $\frac{1}{2}$ the length of the basal portion of the cubital vein.

Cubital vein nearly straight.

Edge of the alulæ not very dark.

Sub-costal vein bare or nearly so.

♂. Pubescence at the base and sides of the abdomen whitish.

Pubescence on the under-side of the thorax pale.

Hairs mostly pale on the scutellum.

Belly shining, almost bare.

Legs thinner, and all over more sparingly beset with bristles and hairs, which are evidently pale on the anterior femora; the hind trochanters are somewhat notched, the femora are more shining; the middle pair of legs is very sparingly clothed with bristles; the tarsi are longer and thinner, and the close short pubescence beneath them is whitish-grey.

Wings milky-white, except near the costa.

♀. Hairs on the abdomen all pale.

Few hairs on thorax and tip of scutellum weaker and paler.

Pubescence about the head partly pale.

Front smooth and shining.

Legs slightly less bristly; tarsi thinner and longer.

Wings with the tip evidently paler.

Loew's variety *hirtipes* of *hortulanus* only approaches it in the more abundant bristles on the legs, it being larger than the true *hortulanus* with whiter wings, and more white-haired abdomen.

From *siculus* (Loew, Linnæa i, 344) the female may be at once known by the colour of the thorax, which is black, but the male is not so readily distinguished; Schiner (Fauna Austriaca Diptera, ii., 359) says that it has the base of the abdomen always more or less with a pale pubescence, that the transverse vein is longer than the basal portion of the cubital vein, and that the wing is darker about the costa, but Loew, in the original description says, that the base of the abdomen is only sometimes white haired; *siculus* is also the same size as *hortulanus*, therefore larger than *anglicus*, and is confined to the south of Europe in Sicily and Dalmatia. The male of *marci* may be at once distinguished by its much larger size and different neuration of the wings, which resembles *hortulanus*.

The species is very abundant in the neighbourhood of London, occurring in a garden here (Denmark Hill) by hundreds on leaves of shrubs, principally on currant bushes; the female is, as usual, much more sluggish, and therefore apparently rarer than the male, which, on sunny days, is continually flying and hovering about the bushes. It appears about the third week in April, lasting about a fortnight, almost disappearing before the time for *hortulanus*, which latter comes out about the third week in May; I believe it is common all over the south of England, as it is represented in all collections under *hortulanus*, though in the British Museum there happen to be only females, which may perhaps account for its having been overlooked. There is certainly no species described by Meigen, Macquart, Loew, or Zetterstedt, with which this can be identical, nor can I find a single description of *hortulanus* but what says "*albopilosus*" or its equivalent; I call it *anglicus*, not that I approve of local names, but I think it suits well here in opposition to *siculus*, and even supposing it should eventually be found on the continent, it will show that the species was first noticed in England, and is abundant here.

Denmark Hill, London: March, 1869.

DESCRIPTIONS OF SPECIES OF LEPIDOPTERA, CONFOUNDED WITH
OTHERS DESCRIBED BY LINNÆUS AND FABRICIUS.

BY ARTHUR G. BUTLER, F.L.S.; Assistant, Zoological Department, Brit. Mus.

The following species are some that I have determined during the preparation of a Catalogue of the *Rhopalocera* of Fabricius: many of the errors committed being due to the fact of some authors having

omitted to examine the figures by Clerck as compared with those of Drury or Cramer, and also the types of the Fabrician species in the Banksian collection.

Genus EUCHLOË, Hübner.

1.—*Euchloë Callepheia*, Butler.

♂ ♀, *Anthocharis Eupheno*, Hübner, Samml, Eur. Schmett., 1, pl. 84, figs. 421—3 (1805); but not of Linnæus.

♂, Germany (obtained from Herr J. J. Becker); ♀, Gibraltar (obtained 1866 from Mr. Whitely). B. M.

This species differs from *Eupheno*, Linn. (the male of *Belia*, Linn.) in the male having the prothorax reddish, the orange area of the front wings limited by a blackish streak extending nearly to the anal angle; in *Eupheno* the orange is cut off obliquely before it reaches the angle: below, both sexes have the hind-wings yellow, varied with white spots and marbled with greyish olivaceous; *Eupheno* has the hind-wings yellow, not spotted with white, and with three interrupted angulated fulvous streaks crossing the wings at regular distances; Mr. Blackmore, who has taken a good many specimens of the latter species in Tangier, has generously presented four fine males and a female to the collection: this species is figured by Pierret under the name of *Douei*.

2.—*Euchloë Crameri*, Butler.

Papilio (*D. C.*) *Belia*, Cramer, Pap. Exot., 4, pl. 397, figs. A, B (1782); but not of Linnæus.*

Alæ suprâ albæ, ad basin cinereæ; anticæ maculâ disco-cellulari, punctis minutis costalibus apiceque obscure cinereis, maculis tribus punctisque ciliaribus albis: posticæ immaculatæ: corpus cinereum, præ-virescens, argenteo-hirtum; antennæ cinereæ, albo-squamosæ, puncto ad apicem clavæ fulvo.

Alæ anticæ subtus albæ, maculâ disco-cellulari, pupillâ argenteâ, punctisque costalibus nigris; areâ apicali olivaceo-viridi, maculas octo marginales, sub-argenteas, inæquales, limitante: posticæ olivaceo-virides, maculis plurimis inæqualibus argenteis ornata: corpus albido-virescens.

Exp. alar. unc. 1, lin. 10.

S. Europe (obtained from Herr J. J. Becker).

B. M.

Genus PAPILIO, Fabricius.

3.—*Papilio zonaria*, Butler.

Papilio (*E. A.*) *Sinon*, partim, Cramer, Pap. Exot., 4, pl. 317, figs. C, D (1782); but not of Fabricius

* The *Ausonia* of Hübner cannot stand for this species, but for Dr. Boisduval's *Simponia*.—A. G. B.

Alæ suprâ nigræ, fasciis duabus angustis rectis (quarum mediana latior, apud costam bifurcata), lineolâ intermediâ discoidali necnon altera (cum puncto) sub-apicali, flavido-albidis; maculis octo anticis sub-marginalibus pallidioribus; lunulis sex (sexto duplici) posticis albidis; maculâ elongatâ sub-anali internâ coccineâ: caudâ alarum apice ciliisque analibus albis. Corpus fuscum, lateraliter pallidè fulvo-striatum; antennæ nigræ, puncto apicali albido.

Alæ subtus multo pallidiores, brunneæ, maculis fasciisque supernis partim nigro-marginatis albidis; posticæ striâ coccineâ, alam transerrante, sub-interno-basali, ad angulum analem angulatâ: corpus fulvo-albidum.

Exp. alar. unc. 3, lin. 2.

St. Domingo (obtained 1855; collected by Mr. Tweedie). B. M.

This is the *Sinon* of Doubleday's list, but a comparison of it with the type of the Fabrician species in the Banksian collection shows it to be abundantly distinct; indeed, Mr. Doubleday subsequently became aware of this fact, as is evident from a note in his private copy of Boisduval's Species General, "Another sp. see Bank. Cabt." I am indebted for this, and many other interesting notes upon Fabrician butterflies, to Mr. Osbert Salvin, in whose possession Mr. Doubleday's copy of the above work now is, and who kindly lent it to me, to assist me in my Catalogue of the *Rhopalocera* of Fabricius. *Zonaria* is most nearly allied to *Philolaüs*, from which, however, it is abundantly distinct.

Genus PYRRHOPYGA, Hübner.

4.—*Pyrrhopyga Verbena*, Butler.

Papilio (P. U.) Phidias, partim, Linnæus; Clerck, Icones, pl. 44, figs. 3, 4 (1764).

♀ *Alæ suprâ fuscæ, æneo-nitentes, posticæ obscuriores ciliis omnibus niveis: corpus fuscum, collo anoque coccineo-hirtis; antennæ nigræ.*

Alæ subtus fuscæ, anticarum basi posticarumque area interna æneo-nitentibus, ciliis albis: posticæ fascia externo-costali coccinea: corpus æneofuscum, capite, punctis lateralibus anoque coccineis.

Exp. alar. unc. 2, lin. 1.

S. America (from Mr. Milne's collection).

B. M.

This species is closely allied to *Acastus* of Cramer, but differs in its more robust form, in the wings being more brassy in colouring, with scarcely a trace of the blue shot, and in the hind-wings below having a scarlet (not yellow) band upon the outer margin. Mr. Hewitson preferred that I should describe this species. We have a good series of *Acastus*, both sexes, not differing in colour.

Genus NYCTALEMON, Dalman.

5.—*Nyctalemon zodiaca*, Butler.

♂ ♀ *Alæ* suprà nigræ, ad basin virescentes, fasciâ mediâ communi latâ, aureo-viridi; anticæ fasciâ alterâ lineolari, sub-apicali, pallidiore, striolisque costalibus ad basin aureo-albidis: posticæ caudâ cæruleo-albâ, ciliis albis; maculâ squamisque sub-marginalibus analibus: corpus virescens, abdomine pallidiore.

Alæ subtus pallidè virescentes, fasciis fere velut in *N. Orontariâ*, Hübner (*Orontes*, Linn.), maculis autem posticis sub-apicalibus in marginem sub-rotundatis viridibus: corpus thorace albedo, abdomine aurantiaco, cirrhis maris analibus perlongis, ochreis. Exp. alar. unc. 4, lin. 7.

N. China (obtained 1857, from Mr. Fortune's collection). B. M.

This is the *Orontes* of Mr. Walker's catalogue, but is quite distinct from the *Orontes* of Linnæus and Clerck.

6.—*Nyctalemon Zampa*, Butler.

♂ *Papilio* (*N.*) *Patroclus*, Drury, Ill., 1, pls. 7, 8, fig. 1 (1770); Walker, Lep. Het., 1, p. 8, n. 2 (1854); but not of Linnæus.

♀ *Alæ* multo majores, pallidiores, colore fundi discalis post fasciam mediam magis diffuso, areâque apicali angustiore; subtus, fascia media alba latior, aliter velut in mare.

Exp. alar. unc. 6, lin. 7; ♂ unc. 5, lin. 11.

♂, Silhet (obtained 1845, from the Rev. J. Stainsforth).

♀, —? (from Mr. Children's collection).

B. M.

This species is evidently quite distinct from the *Patroclus* of Linnæus (Clerck's *Icones*, pl. 37, fig. 1), which may possibly be the female of *Patroclaria*, Hübner (*Patroclus*, Cramer, Pap. Exot., 2, pl. 109, figs. A, B), this species, however, seems again distinct from its near ally the *Hector* of Walker, which we have from Borneo and the Philippines.

British Museum: March, 1869

Aphodius porcus, a cuckoo parasite on *Geotrupes stercorarius*.—Last autumn, I examined the economy of *Geotrupes stercorarius* in the matter of oviposition, and in doing so met with the unexpected fact that *Aphodius porcus* was parasitic upon it. As such a habit must be regarded as a highly abnormal one in a Lamellicorn beetle, and consequently requires a considerable amount of proof to establish it, I have given my observations somewhat fully, and have added an account of the oviposition of *Geotrupes stercorarius*, both because it is necessary towards understanding the proceedings of *Aphodius porcus*, and because, though supposed to be known by everyone, no one appears to be acquainted with the details of it, nor have I been

able to find these recorded, albeit *G. stercorarius* is, I suppose, abundant in every meadow. To observe properly the burrows and tunnels of *G. stercorarius*, requires the careful raising of considerable pieces of turf, a work of some labour, and not to be regarded as beneficial to pasture land.

Under a patch of cow or horse droppings, I frequently found a *Geotrupes*, alone, in a burrow of several inches in length; but, whenever the carrying down of pabulum and the deposition of ova were going on, there were invariably a male and female beetle in the burrow.

This burrow extends nearly vertically downwards to a depth of from six to eight or even twelve inches; and as many as five or six pairs of beetles are sometimes at work under one dropping. This vertical burrow is almost always made without any excavation, simply by the thrusting of the earth aside as the beetle forces its way down. It often happens that, when the mouth of the burrow is beneath the centre of the dropping, this opening is kept free for the supply of pabulum, and a subsidiary canal is carried along the surface of the ground from this point to the edge of the dropping, where the removed earth is ejected. The cavities wherein the eggs are laid branch horizontally from the bottom of this burrow in various directions, and at slightly varying heights, to the number of six or eight, the lower ones being made last. Each branch is about an inch wide, and four or five inches long. The earth is removed from these tunnels, and forms the little heaps so conspicuous beside the droppings beneath which *stercorarius* is at work. Each of these horizontal tunnels contains one egg, and a store of pabulum. The rounded further end of the tunnel is firmly packed with concentric layers of dung. In the centre of these is a cavity, half-an-inch deep, and three-eighths high. Its slightly hollowed floor is semi-circular behind, and in front nearly straight. The arched roof descends behind to the floor, and the front of the cavity is a perpendicular wall. This cavity is carefully lined with, perhaps I ought rather to say is formed of, a layer of earth worked to a clay-like consistence, and marked very often inside by the front tibiae of the beetles, as if they had been used as trowels.

The total capacity of the cavity would be sufficient to hold half-a-dozen eggs, one only, however, lies loose on the floor; it is quite unsoiled by the earth, nor is a loose particle of earth often to be found in the cavity. How the beetles close it without allowing earth to fall in, I have been unable to devise any method of observing; it is done comparatively loosely, whereas, as I have mentioned above, the dung previously arranged round the end of the tunnel is tightly packed, as is also that which afterwards is packed, layer upon layer, into the remaining part of the tunnel. The last half or three-quarters of an inch of the tunnel next the perpendicular burrow is filled, not with dung, but with earth.

The egg is $\frac{3}{16}$ of an inch in length, rather thicker at one end (where it is $\frac{1}{10}$ inch in thickness, than at the other), and slightly contracted in the middle; it is of pale straw colour, very delicate and easily broken. Before the young larva is hatched, the egg increases slightly in length, and becomes of nearly double the previous diameter, viz., about $\frac{1}{5}$ inch. This appears to arise from imbibition of fluid, and possibly also partly of air.

These arrangements, so carefully made by *Geotrupes stercorarius*, are turned to their own benefit by *Aphodius porcus*. At or about the time the egg cavity is being closed, the ♀ of *A. porcus* arrives and makes her way into it, usually, I think, by

forcing her way through the earthen wall just after it is closed in. There she eats the egg of *stercorarius*, a mass as large as herself, greater, I suspect, if reckoned by weight. My observations do not show how long this takes her, but I should, judging from the different stages at which I have seen the operation, consider a week as about the time employed. When this is completed, she succeeds in quitting the tunnel. The eggs of *A. porcus* are laid, each by itself in a little spherical cavity, as carefully formed as that of *stercorarius*, though not lined with earth, but similarly much larger than the egg itself, which is almost a sphere of a little under $\frac{1}{20}$ inch in diameter. These little cavities are irregularly disposed in the pabulum surrounding the cavity made by *stercorarius*, the space of which is, finally, almost entirely used up in affording the spaces around *porcus*' eggs. I have counted as many as ten *porcus*' eggs so disposed, and believe there were frequently more, in instances in which I did not count them. In the mean time, the egg of *stercorarius* becomes flaccid and finally disappears; and I have several times seen *A. porcus*' nose applied to it, as if discussing its contents.

As to the extent to which *A. porcus* destroys the eggs of *stercorarius*, I have a note, dated Sept. 21st, 1868, that I brought home the contents of 29 tunnels, on examining which, 15 appeared undisturbed, 6 contained *porcus* at work, and 8 had been visited and quitted by *porcus*. In these, the only cavities present were those around *porcus*' eggs. No trace of *stercorarius*' eggs remained, and only the disturbed clay represented its surrounding cavity, *A. porcus* having completed her work and disappeared.

On another occasion (Oct. 6th), I took 13 *A. porcus* in the tunnels of *G. stercorarius*, under one patch of cow dropping. In this instance, only a fourth of *stercorarius* eggs were undisturbed by *A. porcus*. On two occasions, I have found three *A. porcus* in one egg cavity, and several times two. I did not ascertain whether these were ♂ and ♀, but suppose them to be females accidentally met on the same errand.

I have never taken *A. porcus* elsewhere than in the egg cavity of *G. stercorarius*' nest, except on one occasion, when, for the purpose of making this comparison, I instituted a careful search for it in the loose dung lying on the surface. In about an hour I found four. I then devoted an equal time to a search in their favourite habitat beside *stercorarius*' egg, and found twelve. Though several common *Aphodii* and other beetles swarmed in the droppings beneath which *stercorarius* was at work, I never found any other beetle in his burrows, except an occasional elytron, as though only the remains, after some predaceous beetle had devoured it, had been accidentally brought down with the stores of pabulum. I once found the remains of a beetle squeezed flat against the end of a burrow, obviously by the tight-packing process of *G. stercorarius*. This, on examination, proved to have been an *A. porcus*, which had probably gone down a little too soon. In undisturbed tunnels, no traces of such eggs as those of *porcus* could be found, though a small larva (*Aphodiam*?) occasionally occurred somewhere in the length of the burrow, the egg having probably been accidentally brought down. These observations prove that *A. porcus* destroys the egg of *G. stercorarius*, replacing it by her own. Some doubt may exist as to her eating it, as it is possible that it is injured by her tibiæ, &c., and that its contents soak into the surrounding material. Still, were this so, the egg would surely sometimes escape: its disappearance would not exist *pari passu* with *porcus*'

oviposition ; and, where there is so little room for superfluous fluid, the draining away of the egg-contents would surely leave some trace. I have, therefore, little hesitation in asserting that the egg is eaten by *Aphodius porcus*.—T. ALGERNON CHAPMAN, Abergavenny, *March*, 1869.

Habitats of Ctenicerus pectinicornis and C. cupreus.—Stephens in his "Manual of British Beetles" assigns as locality for the former of these species ; "grassy places in elevated districts ;" and to the latter, "similar situations with the foregoing." I have, however, always found *C. cupreus* at considerably higher altitudes than *C. pectinicornis*. Thus the latter abounds in June, in meadows about Stockport and Staleybridge ; but, on ascending the flanks of Shaw Moor, it is entirely replaced by *C. cupreus*, at the height of about eight hundred feet above the sea level. In central Europe the same rule appears to hold good, *C. pectinicornis* prevailing at the base of the mountains in Bohemia, whilst *cupreus* (along with *castaneus* in smaller numbers) ascends to about two thousand feet above the sea.—J. W. SLATER, Lord Street, Halifax, *7th January*, 1869.

A Trogosita destructive to silk.—On a recent visit to Basle, my friend Mr. H. Knecht presented me with a specimen of an apparently undescribed *Trogosita*, several of which were found alive in the interior of a bale of raw silk imported direct from China. The beetles (or their larvæ ?) had gnawed through some of the tightly packed layers of silk, thus materially injuring its value for industrial purposes.—ALBERT MÜLLER, Penge, S.E., *March*, 1869.

Note on Apion scrobicolle, Gyll.—This insect, of which the sole recorded locality is England, appears to have hitherto escaped a place in our lists. It was described by Gyllenhal in Schönherr's *Syn. Ins.*, v, p. 379, 9, and a translation of that description is to be found at p. 13 of the recent monograph of the *Apionides* ('L'Abeille') by M. Wencker, who places it next to *A. subulatum*, in the second section (having the rostrum gradually subulated, and the tarsi black in both sexes) of his first group, *Subulirostres*. M. Wencker reproduces Gyllenhal's locality without addition or comment ; and the insect is accredited to Britain only in De Marseul's catalogue, which of course also follows the latter author. It is described as black, almost glabrous, with a short wide head, of which the vertex is convex and smooth ; a rostrum as long as the head and thorax, slightly curved, distinctly subulate towards the apex, and brilliant ; a transverse thorax, almost half as wide again as long, strongly and closely punctured, with a short deep stria in the middle of its base ; wide elytra, rounded at the shoulders and extremity, with projecting humeral callus, rather deep punctured striæ, and flat, finely shagreened, glabrous, slightly shining interstices ; and long, stout, black legs.—E. C. RYE, 7, Park Field, Putney, S.W., *March*, 1869.

Discovery of a new British Bee (Colletes cunicularia, L.).—The announcement of an addition to the list of the British *Apidæ* is an incident of rare occurrence ; in my opinion this should not be the case, and I am satisfied it would be otherwise if Entomologists, when visiting remote or rarely-frequented localities, particularly at early periods of the year, were to capture a few *Hymenoptera* as well as the insects of the more favourite orders, *Lepidoptera* and *Coleoptera*.

On the 1st of March I received from Mr. Nicholas Cooke, of Liscard, near Birkenhead, a pair of bees, which he informed he could not find described in my book on the Bees of Great Britain, and as this opinion was verified by his brother, Mr. Benjamin Cooke, he felt satisfied they were likely to prove new. The bees were forwarded to me, and I at once recognized them as an unrecorded British species of the genus *Colletes*; the *Apis cunicularia* of Linné, and the *C. hirta* of most continental authors: it is a fine addition to our fauna, being the largest species found in Europe.

Without an account of its capture, it would appear strange that so conspicuous an insect should not have been previously discovered. Mr. Cooke informs me that in 1867, his son Isaac (accompanied by his friend Mr. Samuel Holdsworth, Jun., a Lepidopterist,) was on an entomological excursion at the Undercliff, Isle of Wight, and that between Ventnor and Niton, in the month of May, his son captured four males and five females; this is an early period of the season, when entomologists rarely visit distant localities—I allude to those who make annual excursions for fresh air and exercise; this is usually done about the end of summer or during the autumn. This fact will, in some degree, account for the *Colletes* having remained previously undiscovered. All the species of the genus delight in forming colonies in sandy banks, or cliffs; therefore, the chance of others finding the new bee is rendered more probable than if it belonged to a group of the more solitary species of the family. I hope myself to have at least the pleasure of searching for it during the coming season.—FREDERICK SMITH, British Museum, March, 1869.

Two additions to the British Trichoptera.—I have recently received the two species noticed below.

1. *Halesus auricollis*,²Pictet (*Phry. auricollis*, Pict., Recherch., p. 141, t. 8, fig. 1; *Hal. nigricornis*, Brauer, Neurop. Aust., p. 47, nec. Pictet), belonging to the true genus *Halesus*, as restricted by me (*i.e.* posterior wings of ♂ without a pouch). A moderately large dark insect, with shining smoky-grey anterior wings, with darker pterostigma, and with a large and conspicuous white spot at the thyridium, and indistinct paler irrorations. Taken in some numbers at Rannoch, Perthshire, by Dr. Buchanan White, to whose kindness I am indebted for a fine series. A detailed description is postponed for my proposed first supplement to the "Trichoptera Britannica." I have carefully compared it with Pictet's type in the British Museum, and with Brauer's types in my own collection, and consider it to agree sufficiently well, though there are some very slight discrepancies. The suspicion expressed by me in the "Annual" for 1868, p. 4, that my *guttatipennis* might be identical with Pictet's species, is unfounded. That species is thoroughly distinct, and my exponent of it still unique as British, though I have since seen Swiss examples.

2. *Tinodes Schmidtii*, Kolenati, (*Potamaria Schmidtii*, Kol., Gen. et spec. Trichop., pt. 1, p. 100, pt. 2, p. 229; *Diplectrona Schmidtii*, Brauer, Neurop. Aust., p. 38). A small insect belonging to the group of *T. pusilla*, differing totally from our recorded species by its dark coloration; the wings being smoky-black with a more or less distinct half-moon-shaped golden spot in the apical half, formed by hairs of that colour. Notwithstanding its diversity in colour from most other species of the genus, it is a true *Tinodes*, as the appendices alone would prove, these being all

arranged after one plan in all the species; other black species are known on the Continent. I have seen five examples taken at the end of the summer of 1868, in Monsall Dale, Derbyshire, by Mr. Edwin Brown, who liberally presented me with a pair. It affects mountainous districts, and is common in central Europe. I have a fine series from Carinthia, taken by Professor Zeller, and types from Herr Brauer.—R. McLACHLAN, Lewisham, 1st March, 1869.

Note on Xylina conformis.—Mr. E. Newman seems to think that very little is known about this rarity; so I will inform your readers that I had an old example which was taken near Halifax, in *spring*, many years since. I did not know what it was, but felt sure it was new to our list. It was seen soon afterwards by several London lepidopterists, but was considered by them as only a variety of *X. rhizolitha (lambda)*; this I never agreed with, but put it aside for further information; it shows the reniform stigma distinctly *red*, as do the more recent ones. Some years since my old friend Mr. John Scott was in Wales, and obtained a fine pair of *conformis* from the original captor: one of these Mr. Scott most kindly gave to me; and as soon as I saw it, my attention was called to my old hibernated specimen. On comparison, I found the latter much paler, but still preserving the character of the Welsh insect; there is a marked difference between that and the continental examples that I have seen, which latter are broader in the fore-wing, and more silvery; the Welsh specimens are *dark rich chocolate*. When I received Mr. Scott's example, I gave my original one to my friend Mr. Thomas Wilkinson, of Scarborough, who still has it. I should like to know whether the specimens of the allied species, *Zinckenii*, taken in England, vary in the same manner?

I have seen four or five British individuals of *X. conformis*. The late Rev. G. R. Read had a specimen from the original captor; at his death it was still among his duplicates, and when I packed up his insects to send to Mr. Stevens for sale, I put it in its right place in the cabinet, it was sold with the others, but I know not who bought it.—T. H. ALLIS, Osbaldwick, York, March 3rd, 1869.

Leucania albipuncta at Yaxley.—In 1862 or 1864, which, I am not quite sure, it was one of my last visits to Yaxley, I happened to want a few fresh specimens of *L. lithargyria*, and on picking them out, took, what I thought, a small variety, which I have had in my cabinet ever since. Early this year my friend H. Doubleday was kind enough to send me a foreign type of *albipuncta*, (a ♀ darkly coloured), as soon as I saw this, it called to mind this example, which I sent to Mr. Doubleday to examine. I have his reply to day, that it is a male of *albipuncta*. This is curious, as it is the oldest recorded capture of this rare insect in this country.—ID.

Curious variety of the larva of Vanessa cardui.—The following note contains the solution of one enigma, but presents another for investigation and solution in its turn.

On July 17th, 1865, Dr. Knaggs sent me (from Folkestone) a larva he had found feeding on Mallow (*Malva sylvestris*). It was then half-an-inch long, with seven rows of spines, all black in colour, except those in the dorsal and sub-dorsal rows on the 6th, 8th, and 10th segments, which were pale primrose-yellow; the

head and upper surface of body black, with a double dorsal stripe of pale yellow, and a stripe of same colour above the legs; the belly and prolegs deep olive-brown. Unfortunately it died when about to moult, and though at the time I reported it as an immature *V. cardui*, yet my figure remained doubtful.

This then was my enigma—to settle whether this larva was *cardui* or not.

In the last week of September, 1868, the Rev. E. Horton sent me some of a number of larvæ he had recently taken, varying considerably in growth, but all quite similar to the one above described, and found also on the same food, *Malva sylvestris*. The mallow plants were growing chiefly on the top of a hilly grass field near a hedge, and some in a clover field on the other side of the hedge, all within a radius of fifty yards; and Mr. Horton's attention was arrested by the mixed-up appearance of certain of the leaves.

On examination, he found the edges of some were drawn together by threads into a kind of purse, each containing a larva; and he noticed that in every case but one, the larva was eating away the upper-surface of the leaf within the purse. The youngest of those I had the pleasure to receive from Mr. Horton on the 25th of September was precisely like the figure taken in 1865, but had attained nearly an inch in length, and showed indications of a narrow, short, oblique yellow streak from near each spiracle backwards, and the tips of the yellow spines were black.

After moulting, the change in its appearance was very great; and its manner of constructing a kind of tent by spinning three or four mallow leaves together, and its habit of feeding concealed therein until its ravages had partly exposed it to view, and then abandoning its ruined abode and making another with fresh leaves, reminded me so much of *Atalanta*, that I now began to think I had been quite wrong in supposing the species to be *cardui*.

The growth was very rapid, the primrose-yellow and the black spines were replaced by others uniformly of a dirty greenish-yellow tint; the whole skin of the upper part of the body was now black, but the extraordinary and puzzling feature now assumed was a dense covering of pale grey hairs, nearly as long as the spines, and almost hiding them; such a combination I had not seen before, but here I had larvæ both spiny and hairy.

I will here confine myself to the details of one, which will do for all the others.

October 9th, larva full grown, about $1\frac{5}{8}$ inch long, and moderately stout in proportion; the second segment bearing only two spines, sub-spiracular in position; the third and fourth each bearing four spines, sub-dorsal and spiracular; but all the other segments, save the thirteenth, bearing seven spines, of which the middle or dorsal one stands a little in advance of the rest, close to the front edge of each segment; all these spines were branched and bulbed at the base, and the sub-spiracular series formed the centres of fascicles of hairs nearly as long as themselves. The body blackish above, with a deep black dorsal stripe, and a primrose-yellow stripe running above the legs, but hardly indicated on the thoracic segments; the belly and ventral legs deep olive-brown, marked with golden-ochreous, generally much hidden from view by the grey hairs diverging from around the base of each sub-spiracular spine, which there interrupts the before-mentioned yellow stripe; a little above the said stripe there is on each segment a slight streak of yellow, sloping upwards to the segmental divisions. The spines are dirty-greenish in colour, with their bases showing slightly pinkish.

The spiracles are greenish-grey, with black centres. The head black, and, like the body, covered with pale grey hairs.

October 10th, after first suspending itself to the top of its dwelling, the larva selected for description left its cave and crawled to the gauze cover of its cage, and on the 11th suspended itself there, and became a chrysalis on the 13th.

The pupa about an inch in length, moderately stout, and of the usual *Vanessa* form.

The ground colour rather dark brown, abdominal divisions bluish, a narrow interrupted stripe of ash colour down the back of the abdomen, and two broader pale ashy stripes along the sides, the superior margin of each wing-cover pale ash colour, the antennæ cases and their knobbed tips marked with ashy, an obscure streak of same tint on the middle of the wing covers, the spikelets ashy, but glossed with gold or silver according to the angle of light. The dark portions of wing cases blackish, the thorax and abdomen sprinkled with atoms of black.

Early in the first week of February, 1869, *Vanessa cardui* came forth; no doubt prematurely, from being kept in a warm room.

My other pupæ are still alive, but Mr. Horton having kept his out of doors has not been so successful, and reports them all dead.

My old puzzle of 1865 is thus made clear, but as Mr. Horton suggests, there now arises a question as to the *how* and the *why* of the larva's hairy coat.

Had these mallow-eaters become hairy through eating the downy mallows, whilst the thistle-fed specimens, as I have seen more than once, are clothed with spines alone?

Or were they a second brood, thus clothed for protection against possible cold in late autumn?

How do the second brood of *cardui* manage in the South of France?—Wm. BUCKLER, Emsworth, *March*, 1869.

Winter Captures.—I send a list of some of my winter captures, as follows:—*Borborus pedestris*, December 10th; *Evapate gelatella*, ♀, December 15th, ♂, January 7th; *Gracilaria elongella*, December 30th; *Hybernia leucophœaria* and *Tortricodes hyemana*, January 20th; *H. progemmaria*, February 6th; *Cidaria psittacata*, February 9th; *Eriogaster lanestris*, February 22nd.—C. W. DALF, Glanville's Wootton, Dorset, *12th March*, 1869.

Early appearance of Eupithecia.—*E. fraxinata*; on the 17th January a friend brought me a fine ♀ fresh from the pupa. *E. helveticaria*; this species appeared in my breeding cage on January 19th. *E. denotata*; a fine ♀ appeared February 4th. *E. albipunctata*; Manchester may be fairly added to the list of localities for this species, an example having appeared on February 28th, from larvæ collected here last autumn.—CHAS. CAMPBELL, 14, Blackburn Street, Hulme, Manchester, *11th March*, 1869.

Nepticula minusculella at Cheshunt.—On February 22nd I bred a specimen of *Nepticula minusculella*, from larvæ in pear leaves collected at Cheshunt last August.—W. C. BOYD, Cheshunt, Herts, *March*, 1869.

[This species must therefore now be added to the British list. Previously having seen only captured specimens, I was cautious on the subject—see Nat. Hist. Tineina, vii, p. 166.—H. T. S.]

Notes on the Lepidoptera inhabiting Rosshire.—Wishing to learn something of the Insect Fauna of the North of Scotland, I, in the beginning of June, 1868, transferred my Lares and Penates (to wit, nets, setting-boards, *et id genus omne*) to the picturesque parish of Contin, in the county of Ross; and pitched my tent beside the birch-clad rock of Tor Achilty. Before beginning an enumeration of the *Lepidoptera* observed, a few words on the character of the country may not be out of place, besides being of use to any future explorer. Taking the picturesque little Loch Achilty as a convenient centre, we find a series of rocky heath-covered hills sloping down on all sides to the lake. These hills are nearly to their summits clad with birch forests, but one, from its numerous oak trees, is appropriately named “the rock of the oaks,” (Craig Darroch). To the north and south of the Loch run the rivers Conan and Blackwater, bordered by hills of the same nature as those surrounding the Lake. Nine miles to the north-east of Achilty lies the great dome-shaped mass of Ben Wyvis (“the extraordinary Mountain”), famed for being one of the few mountains in Britain that always possesses snow. Altogether the scenery is among the best in Scotland, and good scenery I think enhances considerably the pleasures of collecting. Few things are more enjoyable than the “pipe” while watching the hills getting bluer and bluer in the twilight, and the shades of night slowly enveloping the sugared trees, while one thinks of all the rare beauties fast flying to the treacherous feast. The soil of the district is very sandy and rocky, and the climate dry and noted for its remarkable mildness. I was told by a French botanical friend that the place greatly resembled in appearance the Forest of Fontainebleau, a fact, which taken in connection with the occurrence of certain insects here and with the character that Mr. Stainton gives of Fontainebleau, is rather curious. What Mr. Stainton remarks in the “Annual” for 1868, is to the following effect: “that Fontainebleau, with its sandy soil and numerous rocks, is a particularly warm locality and that some insects occur here which are not again met with till the collector has proceeded 250 miles further towards the south.” The insects I refer to are *Acronycta megacephala*, *Macuria notata*, &c., which seem to be found from the south nearly to the north of England, appearing again here in the north of Scotland, without (as far as our knowledge extends) inhabiting any intermediate localities. In connection with the appearance here of southern species, I may mention that I found, among plants, *Rhamnus frangula*, hitherto a doubtful native of Scotland (recorded from Ayrshire), and *Fumaria hibernica*, not I believe recorded from any locality in Britain north of Derbyshire; and among land *Mollusca*, *Helix aculeata*, *Zonites excavatus*, *Pupa ringens*, &c., none of which were supposed to occur so far north in Britain.

Sugar proved very successful, especially in June (Mr. T. Blackburn’s untiring energy contributing greatly to this desirable result, while his pleasant company enlivened the time when waiting for the darkness that *would not* come). Altogether 59 species of *Noctuidæ* visited the sugar, as well as 13 other species of *Lepidoptera* (including *Orygia antiqua* entangled by the wings). I also noticed a squirrel one day paying attention to the old sugar. Honeysuckle and heather blossom produced many species, and the burrows of the goat moth a few.

In the following list I have mentioned every species (to the end of the *Tortricina*), as few, if any, of the insects of this northern county have been recorded previously: the *Diurni* and *Nocturni* are few in number as compared with succeeding groups.

About half of the Scottish *Geometræ* are represented. Both of the 2 Scottish *Drepanulæ*. One-third of the British *Pseudo-Bombyces*. Half of the Scottish species of *Noctuæ*, and but a small portion of the remaining groups. It must be remembered, however, that I was but a short time in the district, and that the country worked was all of one character. The numbers of species in the different groups are:—

<i>Diurni</i> , 13.	<i>Drepanulæ</i> , 2.	<i>Deltoides</i> , 1.	<i>Crambites</i> , 7.
<i>Nocturni</i> , 19.	<i>Pseudo-Bombyces</i> , 9.	<i>Pyralides</i> , 6.	<i>Tortrices</i> , 39.
<i>Geometræ</i> , 72.	<i>Noctuæ</i> , 81.		
<i>Pieris brassicæ</i> . <i>P. rapæ</i> . <i>P. napi</i> .			

Argynnis Euphrosyne, June 5th; *A. Selene*, both common; *Euphrosyne* is by no means a common species in Scotland, whilst *Selene* is perhaps one of the commonest of those "not common everywhere." *Vanessa urticæ*, 2nd brood July 9th. *Pyrameis Atalanta*, not very common. *Pyrameis cardui*, June 22nd; hibernated larvæ, in July. *Satyris Semele*, one worn specimen, August 17th. *S. Janira*, June 23rd, very abundant. *Chortobius Davus*, June 20th (the northern form, *C. Typhon*), *C. Pamphilus* June 3rd. *Lycæna Alexis*, June 16th. *Thanaos Tages*, June 5th, not common, a rare butterfly in Scotland. *Smerinthus populi*, June 9th; larvæ in August, on aspen. *Sphinx convolvuli*, a dead specimen brought to me in September; the ova—it was a female—were well developed. *Macroglossa stellatarum*, larvæ on *Galium verum*. *Cossus ligniperda*, larvæ in birch trees. The sap exuding from the burrows, as usual, was a great source of enjoyment to many insects, five or six species of *Lepidoptera* being among the number. The toads (whose names were legion) seemed to be aware of the insect-alluring powers of the infested trees, and held nocturnal revels among them. One tree, which I passed almost every night in returning from sugaring, had seldom fewer than four of these bright-eyed monsters in attendance. *Hepialus hectus*, June 30th; scarce. *H. sylvinus*, June 19th; *H. velleda*, June 19th (*H. humuli*, which I especially wished to find, thinking there might be some tendency to variation, did not turn up).

Lithosia mesomella, June 22nd, not common. The half-grown larvæ in October.

The food of the caterpillar seems not to be entirely confined to cryptogamic plants, as I found one on the common heather (*Calluna*), the leaves of which it devoured with a good appetite, not only while in my possession, but when in the hands of Mr. Buckler, to whose tender care it was consigned. *Euthemonia russula*, June 4th; larva in October. *Chelonia plantaginis*, June 20th; *C. caja*, June 28th. On July 26th saw some larvæ of *C. caja* about the third of an inch long, feeding on black currant leaves—rather a strange selection of the mother moth! *Arctia fuliginosa*, June 19th, common. Larvæ common in September. *A. menthastri*, June 5th (at Perth, May 2nd); larvæ full-fed August 16th. *Orgyia fascelina*, larvæ not common June and October. *O. antiqua*, August 15th, very common. From the number of batches of infertile eggs to be seen on the birch trees, many females seem to die unimpregnated; yet their power of attracting the opposite sex is great. On various occasions I placed a female on a plant just outside of the window, and in less than half-an-hour one or more males would appear and hunt about till the object of attraction was discovered. At other times not a male would be seen near the house—probably not nearer than about 200 yards off. One

curious thing to be noticed in regard to the power of attraction is, that it was apparently stronger at a distance than quite close to the female, for the males seemed to find their way easily to the window, but when there it took them some little time and trouble to find the exact situation of the lady. *Demas coryli*, larvæ not scarce. *Pæcilocampa populi*, larvæ. *Bombyx rubi*, June 9th. *Bombyx callunæ*, larvæ common, but no moths seen. *Saturnia carpinii*, imago and larvæ. *Rumia cratægata*, *Venilia maculata*, June 4th. *Metrocampa margaritata*, June 12th; *Ellopiæ fasciaria*, June 3rd. *Odontopera bidentata*, June 3rd. *Selenia lunaria*,* larvæ: *Crocallis elinguaris*, July 31st. *Amphydasis betularia*, June 6th. *Cleora lichenaria*, June 22nd. *Boarmia repandata*, June 4th. *Gnophos obscurata*, Aug. 4th. *Geometra papilionaria*, June 29th. *Ephyra pendularia*, June 4th. *Acidalia bisetata*, July 7th. *A. fumata*, June 5th, *A. aversata*, July 1st. *Cabera pusaria* June 3rd†. *Macaria notata*, June 3rd. *M. liturata*, June 5th. *Fidonia atomaria*, June 2nd.† *F. piniaria*, June 3rd;† *F. pinetaria*, June 26th; everywhere in the district, among *Vaccinium myrtillus* *Aspilates strigillaria*, not common. *Lomaspilis marginata*, June 6th. *Cheimatobia boreata*, a few larvæ. *Oporobia dilutata*, Oct. 12th. *Larentia didymata*, July 22nd. *L. cæsiata*, June 8th. *L. salicata*, June 20th, Ben Wyvis. *L. olivata*, July 28th. *L. pectinitaria* June 4th. *Emmelesia alchemillata*, June 11th. *E. ericetata*, not common, July 27th. *E. blandiata*, rare, June 27th. *Eupithecia nanata*, June 3rd. *Eupithecia succenturiata*, *E. absynthiata*, July 9th. *E. tenuiata*, July 17th, not common. *E. sobrinata*, July 31st. *Eupithecia satyrata*, *E. pumilata*, June 5th, very abundant in one place. *E. rectangulata*, June 29th. *Thera juniperata*, September. *T. simulata*, July 1st. *T. variata*, June 4th.† *Hypsipetes impluviata*, June 6th.† *H. elutata*, July 10th. *Melanthia ocellata*, June 3rd. *Melanippe tristata*, June 3rd.† *M. subtristata*, June 16th. *M. montanata*, June.† *M. fluctuata*, July 2nd, brood; *Coremia munitata*, June 11th, not uncommon in the garden; rare on the hill sides. *C. ferrugata*, June 2nd.† *Camptogramma bilineata*, June 26th. *Phibalapteryx lignata*, July 16th. *Cidaria psittacata*, September 23rd. *C. miata*, October 2nd. *C. corylata* (larvæ), and var. *albo-crenata*, June 3rd. *C. rusata*, June 13th. *C. immanata*, July 3rd. *C. prunata*, July 14th. *C. testata*, July 31st. *C. fulvata*, July 1st. *C. dotata*, July 2nd. *Eubolia mensuraria*, July 18th, rare. *E. palumbaria*, June 3rd, very common. *Anaitis plagiata*, June 26th. *Chesias spartiata*, September 26th. *C. obliquaria*, not common, June 18th. *Platypteryx lacertula*, June 6th, larvæ on birch. *P. falcula*, June 3rd, larvæ on birch. *Dicranura furcula*, larvæ not common. *D. vinula*, larvæ common. *Pygæra bucephala*, June 6th, larvæ. *Clostera reclusa*, larvæ on aspen and sallow. *Notodonta camelina*, larvæ. *N. dictæa*, larvæ on aspen. *N. dictæoides*, larvæ on birch. *N. dromedarius*, July 7th, larvæ on birch. *Ptilodontis palpina*, larvæ. *Thyatira batis*, July 6th. *Cymatophora duplaris*, July 17th. *C. or*, June 8th, larvæ on aspen. *C. flavicornis*, larvæ. *Acronycta psi*, July 18th. *A. leporina*, June 6th, larvæ on birch. *A. megacephala*, June 12th, larvæ on aspen; apparently the only Scottish locality for this species. *A. ligustri*, June 9th, larvæ and pupæ from ash. *A. rumicis*, June 5th, larvæ. *A. menyanthidis*, June 5th, larvæ on *Myrica*. *A. myricæ*, July 7th, one at sugar, in good condition—surely very late? *Leucania pallens*, August 5th. *L. lithargyria*, June 20th. *Hydræcia nictitans*, August 16th. *H.*

* There is no doubt of the species, as the imago has emerged (under the influence of artificial heat).—F. B. W.

† Not the earliest appearance; examples seen in Perthshire some time previously.—F. B. W.

micacea, August 11th. At light, *Xylophasia rurea*, June 6th. *X. polyodon*, June 23rd. *Mamestra anceps*, June 27th. *Apamea basilinea*, June 8th. *A. gemina*, June 15th; *A. unanims*, June 12th. *Caradrina cubicularis*, June 22nd,* and September 22nd, 2nd brood. *Rusina tenebrosa*, June 8th. *Agrotis suffusa*, June 11th. *A. exclamationis*, June 10th. *A. aquilina*, August 10th. *A. porphyrea*, June 19th, larvæ. *Triphæna fimbria*, August 3rd. *T. orbona*, June 29th. *T. pronuba*, July 27th. *Noctua augur*, June 23rd. *N. plecta*, June 3rd, and larvæ. *N. c-nigrum*, June 17th. *N. triangulum*, June 24th. *N. brunnea*, June 12th. *N. festiva*, June 20th. *N. conflua*, July 21st. A moth that puzzled me is, Mr. Doubleday kindly told me, apparently a curious variety or aberration of this species. *N. Dahlii*, July 21st. *N. rubi*, June 24th. *N. umbrosa*, July 16th. *N. baja*, July 27th. *N. neglecta*, August 1st. *N. xanthographa*, July 27th; altogether the genus *Noctua* was well represented. *Orthosia suspecta*, July 25th. *O. macilentata*, September 25th. *Anchocelis rufina*, September 22nd. *A. litura*, September 22nd. *Cerastis vaccinii*, September 25th. *Xanthia ferruginea*, September 22nd. *Euperia fulvago*, July 31st. *Dianthæcia capsincola*, larvæ in capsules of *Lychnis vespertina*. Not more than one or two of this plant were to be found in the neighbourhood, and yet they had been found out by the *Dianthæcia*. *Epunda nigra*, September 22nd, males scarce, females common. *Miselia oxyacanthæ*, October 2nd. *Agriopis aprilina*, *Phlogophora meticulosa*, June 10th. *Euplexia lucipara*, June 8th. *Aplecta occulta*, June 22nd. *Aplecta tinctoria*, June 16th. *Hadena adusta*, June 8th. *H. protea*, August 7th. *H. dentina*, June 9th. *H. oleracea*, June 8th, and larvæ. *H. pisi*, June 23rd. *H. thalassina*, June 4th, and larvæ. *H. contigua*, June 12th. *H. rectilinea*, June 11th. *Cloantha solidaginis*, August 12th. *Calocampa vetusta*, September 22nd, larvæ. *C. exoleta*, September 18th. *Cucullia umbratica*, June 24th. *Anarta myrtilli*, June 11th, larvæ. *Habrostola urtica*, June 23rd. *Plusia chrysitis*, July 6th. *P. festuæ*, *P. V-aureum*, June 11th. *P. gamma*, June 9th; August 7th, 2nd brood. *P. interrogationis*, July 9th. *Amphipyra tragopogonis*, August 10th. *Mania typica*, July 7th. *Stilbia anomala*, August 5th. *Phytometra ænea*, June 5th. *Hypena proboscidalis*, June 12th. *Pyrausta purpuralis*, *Pyrausta ostrinalis*, June 3rd. *Botys fuscalis*, June 2nd. *Pionea forficalis*, June 29th. *Scopula lutealis*, *Scoparia ambigualis*, *S. atomalis*. *Crambus pinetellus*, July 8th. *C. Warringtonellus*, scarce, or more probably overlooked. *C. tristellus*, July 10th. *C. culmellus*, *C. pratellus*, June 2nd. *Phycis abietella*, July, one bred. *Melia sociella*, July 8th. *Halias prasinana*, June 8th. *Sarrothripa revayana*, July 31st, one beaten out of an oak. *Tortrix corylana*, common at sugar. *T. ministrana*, June 3rd. *T. adjunctana*, one or two specimens, July 10th. *Leptogramma Treveriana*, a few near aspens, August 16th. *Peronea mixtana*, *P. variegana*, August 7th. *P. maccana*, September 17th. *P. ferrugana*, August 10th. *Teras caudana*, *T. contaminana*, *Penthina picana*, June 26th. *P. betuletana*, July 18th. *P. prælongana*, June 5th. *P. pruniana*, *P. ochromelæna*, June 3rd. *P. sauciana*, *Pardia tripunctana*, June 8th. *Sericoris micana*, *Misodia Schulziana*, *M. palustrana*, June 26th; no fir trees within a mile or two of this reputed-fir-haunting species' localities. *Orthotenia antiquana*, *Cnephasia musculana*, June 3rd. *Phoxopteryx unguicana*, June 2nd. *P. uncana*, *P. myrtilana*, *P. ramana*, *Hypermercia angustana*,

* May 9th, at Perth.

Pædisca solandriana, July 18th. *Ephippiphora bimaculana*, August 15th. *Coccya ustomaculana*, *Dicrorampha plumbagana*, June 3rd. *Grapholita ulicetana*, *G. Scopoliana*, *Xylopada Fabriciana*, *Eupæcilia ciliella*, beginning of June, end of June, and end of July, among heather. I sent a specimen of this to Mr. Barrett,* as *E. subroseana*, as he had expressed a desire to see the heath-frequenting species recorded under this name (vide E. M. M., vol. v, p. 246). He, however, kindly told me that it was the above species. The few specimens I took vary much. The true *subroseana* does not appear to be a northern or heath-frequenting species. *Argyrolepis subbaumanniana*, *Aphelia pratana*.—F. BUCHANAN WHITE, Perth, March, 1869.

Review.

Bullettino della Società Entomologica Italiana; anno primo; Firenze, 1869.

We announced some time since that, through the exertions of Mr. A. H. Haliday, long resident at Lucca, combined with those of leading Italian Entomologists, an Entomological Society had been established in Italy; and we recently had the pleasure of receiving the first part of their Bulletin, which is most creditable. It is occupied, as it should be, chiefly by articles on Italian insects, by various authors, among whom we see the well-known names of Rondani, Piccioli, and Ghiliani, with others not yet so familiar. A coloured plate is devoted to a *Hymenopteron* described by Piccioli as *Astata Costæ* (is not this a ♀ of *A. oculata*, Jurine?). Four parts, of 80 pages each, will be published annually. We have private information that the second will contain a paper by Mr. Haliday, on a new species of *Cassida*, collected by him in Sicily, which he proposes to name *C. suædæ*, accompanied by figures of the larva; it frequents *Suæda fruticosa*.

The establishment of this Society institutes a new era in Italian Entomology. Hitherto the numerous valuable memoirs by the workers in that, by nature, much-favoured land, have been almost useless to most students, through having been published in some one or other of the Transactions of the Academies devoted to general science, and which exist here in very few libraries; the Bulletin of the new society will, on the contrary, gain a wide circulation.

Mr. Wilson Saunders, of Hillfield, Reigate, has, with his usual generosity, undertaken to act as agent of the Society in England, and gentlemen desirous of becoming members should communicate with him, or with Mr. Haliday, Villa Pisani, Lucca. The annual subscription is ten shillings in England, for which the Bulletin will be forwarded free.

ENTOMOLOGICAL SOCIETY OF LONDON; 15th February, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

Dr. Wynne Foot, of Dublin, was elected a Subscriber.

Mr. Butler exhibited a living locust belonging to the genus *Conocephalus*, which had been found in the beginning of the month, on board a vessel arrived from the West Coast of Africa. According to the captain's account, a swarm of these insects had alighted upon the vessel, and several had arrived alive in the Thames; the specimen exhibited had not eaten anything since being in Mr. Butler's possession.

Professor Westwood exhibited two *Nycteribidæ*, from Ceylon, parasitic upon bats, a *Strebla* and a *Nycteribia*. These insects were prepared as microscopic objects, by first being squeezed between the leaves of a book, afterwards placed upon the slide, and hot canada-balsam poured upon them.

* Mr. Barrett has inadvertently stated in his interesting notice of certain species of *Eupæcilia*, that I took this species near Kirkwall. It should have been near Dingwall.—F. B. W.

Mr. Smith exhibited a collection of honey-bees (*Apis*) from all parts of the world, together with pieces of the comb of several species. Being engaged on the preparation of a supplement to his monograph of the genus published a few years since in the *Annals and Magazine of Natural History*, he solicited the assistance of any gentleman who possessed specimens of exotic honey-bees. The species exhibited were *A. mellifica*; *A. ligustica* in all sexes; *A. fasciata* in all sexes (considered by Gerstäcker as only a form of *ligustica*, but, in Mr. Smith's opinion, quite distinct); *A. indica*, male and worker from Calcutta; *A. nigrocincta* (according to Gerstäcker, only a var. of *indica*); *A. floralis*, the smallest species (worker=*lobata* of Smith); *A. dorsalis*, the largest species (*testacea*, Smith var.); all forms of a species from the Cape, which might possibly be only *ligustica*; and a queen from Japan, sent by Mr. Lewis, which was probably only *mellifica*.

Mr. Druce exhibited a collection of butterflies from the Chontales mines, Nicaragua, formed by Mr. Belt. The President made some remarks on this collection, and also on the beetles collected by Mr. Belt at the same place; the latter were numerous and fine, which was to be accounted for by the wood-cutting operations connected with the mines in the vicinity.

Mr. E. T. Higgins communicated a description of a new genus and species of *Prionidæ* from the mouth of the Niger. He called it *Ommatomenus sericatus*.

A vote, expressing the sympathy and condolence of the Society with the Rev. T. A. Marshall, who had recently lost the whole of his collections and library through the foundering of the vessel which was conveying them from Milford to Barnstaple, was unanimously passed.

1st March, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

Charles Horne, Esq., of Upper Norwood, was elected a Member.

Mr. Bond exhibited examples of *Heliothis armigera*, from the Isle of Wight, Java, and Australia, this cosmopolitan species showing no appreciable local conditions.

Mr. McLachlan exhibited three males of *Dilar Hornei*, (described by him in the March No. of this Magazine) from N.W. India. Mr. Horne, in answer to a query respecting its habits, said the insect occurred among grass on damp hill-sides.

Mr. W. C. Boyd exhibited dwarf examples of *Vanessa urticæ*, *Pygæa bucephala*, &c., &c., bred during the hot season of 1868.

Mr. Horne exhibited a substitute for cork, useful in cases when the latter be not procurable; it was the inner bark of the Indian *Pinus longifolia*, which separated into large sheets, and was tolerably soft.

Dr. Wallace exhibited a number of cocoons of *Bombyx Yama-Mai*, together with the moths; he had bred between forty and fifty in 1868. Also *B. Pernyi*, from China, on which he hoped to be able to make experiments as to its possible utility as a silk-producer. Further, he exhibited a specimen of *Saturnia pyretorum*, which he had reared from a parcel of cocoons given to him by Dr. Hooker as those of the insect producing the silk-worm gut in China.

Mr. Weir exhibited a number of larvæ of *Tipulæ* from Blackheath, where many acres of ground were so greatly infested that there appeared to be more grubs than earth, and the birds in the neighbourhood did not diminish their numbers. Mr. Bond said he had once seen four hundred of these larvæ taken from the crop of a pheasant.

Professor Westwood mentioned that he had seen, last month, a luminous larva of the glow-worm, this being remarkably early.

Mr. C. O. Waterhouse read a paper "On a new genus and some species of *Lucanidæ*."

Mr. Weir read a paper "On insects and insectivorous birds, particularly in the relation between colour and edibility of Lepidopterous larvæ."

Mr. Butler read a paper "On some Caterpillars, &c., which are unpalatable to Lizards, Frogs, and Spiders."

These two papers went to prove that the larva of *Abraxas grossulariata* (among others) was extremely distasteful both to birds and reptiles. A long discussion ensued, in which the President, and Messrs. A. R. Wallace, Horne, McLachlan, &c., and Dr. Wallace, took part.

NOTES ON *CICINDELIDÆ* FROM TROPICAL AMERICA, WITH DESCRIPTIONS OF FOUR NEW SPECIES (GEN. *ODONTOCHEILA* AND *PSEUDOXICHEILA*).

BY H. W. BATES, F.Z.S., PRES. ENT. SOC.

The *Cicindelidæ* of the wooded plains of Equatorial America belong chiefly to the genera *Odontocheila*, *Tetracha*, and *Ctenostoma*; the true *Cicindelæ* being there few in number, and not remarkable for size or beauty. This accords with the local conditions of the country, viz., wide plains, uniformly covered with lofty forest and traversed by immense rivers fringed with sandy beaches. The *Ctenostomæ* are exclusively arboreal insects, searching for prey along the slender branches of trees; the *Odontocheilæ* are shade-lovers, running along the pathways of the forest and occasionally flying to the bushes on either side; the *Tetrachæ* live on sandy shores, burrowing deep in the light soil, and coming forth only at night. The *Cicindelæ* proper are creatures of the sunshine, and abound in species and individuals only in warm countries, where there is a varied surface, not too much overshadowed with forest. It is on the sandy beaches of rivers that the few members of the genus *Cicindela* inhabiting the Amazons region are found; these tracts occupy a large portion of the surface of the country, at least in the dry season, but the uniformity of the conditions they offer is not favourable to the multiplication of forms. Of *Cicindela* only 7 species are found in the Amazon region; of *Tetracha*, 16; of *Ctenostoma*, 12; and of *Odontocheila*, 21; two *Iresiæ* and one *Aniara* complete the fauna in this department.

The *Odontocheilæ* are distinguished structurally from *Cicindela* only by the advanced and strongly-toothed labrum and the grooved tarsal joints; but their general appearance, or facies, is very different; they are of elongate, cylindrical form, generally roughly sculptured and of dark bronzed hues. Some of the most beautiful (as *O. Batesii*) are found only on the margins of brooks in the deep forest, and are rare and local; others swarm in incredible numbers, like house-flies in Autumn, in dry paths near villages. The species change in a singular manner from district to district; closely-allied but constant forms representing each other in different areas.

The following descriptions comprise a few *Odontocheila* from the Amazons which have not hitherto been published, and I have added some synonymical notes.

ODONTOCHEILA RUBEFACTA, n. sp. *O. cayennensi* (F.) *simillima*, differt autem antennarum articulis quatuor basalibus pedibusque rufis. *Cylindrica*, capite thoraceque supra creberrime subtiliter punctato-rugosis,

rubro-cupreis, lateribus viridi-æneis; capite inter oculos strigoso; elytris ut in O. cayennensi grosse ereberrimeque punctatis, fusco-cupreis, lateribus viridi-æneis et cupreis, macula alba unica marginali; labro rufo; pedibus rufis, tibiis posticis pallidioribus, tarsis anticis læte violaceis; prothorace subtus nigro-cyaneo, pectore abdomineque piceo-violaceis, hoc apice pallidiori.

Long. 7—8 lin. ♂ ♀.

This species belongs to the *cayennensis* group of the genus,—having the thorax rectilinear and the surface of the elytra even,—but differs from all its allies by the fine ruddy-copper hue of its head and thorax and the four red basal joints of the antennæ. In the colour of its legs it does not differ from *O. erythropus*, Chaud.; the breast, however, and abdomen except towards its apex, are of a pitchy-violet colour, instead of red, as in that species.

From Yunmaguas and other places on the banks of the Huallaga, Upper Amazons; taken first by M. Barraquin, and afterwards by Mr. E. Bartlett. It appears to represent in that district the *O. cayennensis* of Guiana.

ODONTOCHEILA CAYENNENSIS.

Cicindela cayennensis, Fab., Mantissa, 1, 187 (1787).

„ *id.*, Oliv., Ent., No. 33, p. 23, pl. 1, f. 2 (1790).

„ *bipunctata*, Fab., Ent. Syst., i, p. 174 (1792).

„ *bipunctata*, Dej., sp. gen., i, 22 (1825).

„ *bipunctata*, Chaud., Bull. Mosc., 1860, p. 51 (separata) (1860).

„ *bipunctata*, Gemminger and Harold, Cat. Coleop., i, p. 30.

I give the above synonymy to indicate the confusion that has crept into the nomenclature of this group, owing to Fabricius having given two names to one and the same species. He first described *O. cayennensis* in his Mantissa, and afterwards re-named Olivier's figure of the same species, or rather misquoted Olivier as describing a "*Cicindela bipunctata*," this latter author having done nothing of the kind, but described and figured a species as *C. cayennensis* of Fabricius, which appears from the description really to be that species. Dejean described two species under the two Fabrician names, giving the term *bipunctata* to the one that seems really to be the species described by the older author. The Baron Chaudoir has lately treated both as varieties of one species, unfortunately retaining the erroneous name of *bipunctata* for it. I think, however, the two Dejeanian species are really distinct; and, in this case, his *cayennensis* ought to receive a new name.

ODONTOCHEILA OSERYI, Lucas, Voyage de Castelnau, Entom., p. 37
(nec fig. 7, pl. 1, a).

This is a fine and distinct species of the *cayennensis* group, discovered by the Castelnau expedition in 1846, and recently obtained in considerable numbers at Pebas, Upper Amazons, by Mr. J. Hauxwell. The figure given by Lucas is totally opposed to his description with regard to colours, and seems to have been taken from *O. rubefacta, miki*; *O. Oseryi* has the legs of a rich dark blue, with the sole exception of the hindmost tibiæ, which are saffron-yellow.

ODONTOCHEILA TROCHANTERICA, n. sp. *O. margineguttatæ* (Dej.)
forma et colore similis, differt autem trochanteribus anoque testaceo-albis. Cylindrica, thoracis lateribus rectis: supra fusco-cuprea, thoracis elytrorumque lateribus cyaneis, horum marginibus albo-tri-guttatis; subtus saturate cærulea, trochanteribus anoque albo-testaceis, pedibus violaceis, genibus tibiisque posticis obscure rufo-testaceis, labro antice rufo-testaceo.
Long. $5\frac{1}{2}$ lin. ♂ ♀.

This was a common species in dark forest pathways at Pará, flying and running on the sandy ground, and over bushes. The description is taken from 8 examples perfectly agreeing with each other.

ODONTOCHEILA RUGATULA, n. sp. *O. margineguttatæ affinis, sed minor. Cylindrica, nigro-cuprea, pedibus cyaneis, trochanteribus femoribusque basi rufo-piceis; labro obscuro, marginibus late testaceis; thorace angusto, medio apicem versus paulo rotundato, suprâ subtilissime transversim strigoso, margine postico læte cupreo; elytris marginibus cyaneis, albo-tripunctatis, puncto mediano magno, triangulari; suprâ vix inæqualibus, creberrime punctato-rugosis, rugis suturam versùs longioribus magisque distinctis; subtus omnino cyanea.* Long. $4\frac{1}{2}$ —5 lin. ♂ ♀.

Allied to *O. margineguttata*, but smaller, the elytra much shorter in proportion, the median marginal spot much larger, surface blacker in colour and more distinctly rugulose. It resembles also *O. eximia* (Lucas) in size and general colour, but differs in the finer punctuation and less uneven surface of the elytra. The colour is a blackish bronze, with the sides of the elytra gradually shading into brassy-green, then into blue, and finally, on the margin, into violet. As in *O. margineguttata*, the abdomen is wholly dark blue; the legs are also of this colour, with the exception of the trochanters and extreme base of the femora, which are dark pitchy-red or brown.

Common at Obydos, on the northern side of the Lower Amazons; all the specimens examined agree in the characters above given. I did not find the species on the Upper Amazons or at Pará.

Many of the new species of *Odontocheila* obtained by me have been described by the Baron de Chaudoir, in the Bulletin d. l. Soc. Imp. des Nat. de Moscou, 1860, but the following complete list will be useful in comparing the productions of the Amazons region in this genus with those of other parts of Tropical America.

1. *O. Oseryi*, Lucas ; Pebas, Upper Amazons.
2. *O. rubefacta*, Bates ; R. Huallaga.
3. *O. femoralis*, Chaudoir ; St. Paulo, Upper Amazons.
4. *O. ocreata*, Reiche ; R. Tapajos.
5. *O. erythropus*, Chaud. ; Ega.
6. *O. rufipes*, Dejean ; Pará.
7. *O. postica*, Chaudoir ; St. Paulo, Upper Amazons.
8. *O. Trilbyana*, Thomson ; Upper Amazons, common.
9. *O. distinguenda*, Chaudoir ; Pará.
10. *O. trochanterica*, Bates ; Pará.
11. *O. margineguttata*, Dej. ; Ega.
12. *O. confusa*, Dej. ; common throughout the Amazons region.
13. *O. rugatula*, Bates ; Obydos, Lower Amazons.
14. *O. eximia*, Lucas (*rhytiptera*, Chaud.) ; St. Paulo, Upper Amazons.
15. *O. cyanella*, Chaudoir ; Ega, rare.
16. *O. amabilis*, Chaudoir ; Ega, rare.
17. *O. Batesii*, Chaudoir ; St. Paulo, Amazons.
18. *O. Castelnaui*, Lucas (= *O. Batesii*, local var.) ; Pebas, Upper Amazons.
19. *O. Lacordairei*, Gory ; general throughout the Amazons region.
20. *O. chrysis*, Fab. ; St. Paulo, Amazons (agreeing precisely with Surinam specimens).
21. *O. egregia*, Chaud. ; Amazons, from Obydos westward ; in cacao groves.

PSEUDOXYCHEILA TARSALIS, n. sp. *Saturate-cærulea, elytris plaga magna atro-velutina, maculam parvam transversam pallide-ochraceam includenti ornatis ; (♂) apice prolongatis, suturâ in dentem latum recurvum productâ ; tarsorum intermediorum et posticorum articulis basilibus duobus paulo incrassatis, subtus nudis, grosse punctatis.*

Long. 8 lin. ♂.

Differs from the allied species in its rich dark indigo-blue colour, and the pale hue of the elytral spot. In the ♂, also, the apex of the elytra at the suture is much prolonged, and forms a broadish tooth curved a little outwards. The underside is rich dark blue, and the legs are shining black. A remarkable feature is the perceptible thicken-

ing of the first two joints of the middle and hind tarsi, which, instead of being clothed with bristles beneath, are naked, and marked with several large punctures. The elytra have a few raised points on the shoulders, and shallow punctures near the apex; the apical part, as in the allied species, is glossy. Costa Rica, Central America; taken by the collectors of Mr. O. Salvin.

40, Bartholomew Road, Kentish Town, N.W.
March, 1869.

NOTES ON THE BRITISH SPECIES OF *SCOPARIA* (LEPIDOPTERA).

BY H. GUARD KNAGGS, M.D., F.L.S.

The great stumbling-block to the study of the *Scopariæ* is undoubtedly the difficulty experienced in procuring decent specimens, owing to an unfortunate tendency many of them have of quickly divesting themselves of characteristic markings when pill-boxed and conveyed in the usual fashion. To prevent this disappointment, the necessity of killing, pinning, and even setting the captures on the spot, is advocated; and it cannot be too strongly urged that none but good examples should be preserved, for of all things a miserable array of irrecognisable objects is calculated to bewilder and repel those who might otherwise take an interest in the genus. In the present sketch an attempt will be made to show that the various species comprised in this group of little *Pyrales* are by no means so difficult of separation as is generally supposed; and it is hoped that, when collectors begin to see their way to a knowledge of their distinctive characters, they will then regard them with a less unfavourable eye, and consequently devote a fairer share of attention to them than they have yet received at the hands of British Entomologists.

Of one thing there can be no doubt, namely, that the bulk of European *Scopariæ* affect high altitudes and boreal latitudes, and it is therefore but natural to expect that our mountains and northern districts will yield many species as yet unsuspected to occur here—some, perhaps, altogether new.

The fore-wing of a *Scoparia* is divided into three tolerably equal areas by two lines, termed "first" (cut A, 1) and "second" (cut A, 2), the former being nearest the base of the wing: these areas may be respectively designated basal (cut A, 3), medial (cut A, 4), and apical (cut A, 5). It is in the medial area that the most important characters are found, but the other two render us occasional assistance in the determination of closely allied species.

In the medial area are contained three stigmata (similar to those observable in the *Noctuæ*), which are here correspondingly spoken of as the orbicular (cut A, 6), claviform (cut A, 7), and reniform (cut A, 8); and we shall find that the disposition of the two former in relation to the first line will enable us readily to separate the species into groups; thus:—



I. Both orbicular and claviform stigmata attached to first line (cuts A and C).

II. Orbicular attached, claviform detached (cuts B and E).

III. Neither orbicular nor claviform attached (Plate fig. 16).

IV. Orbicular detached, claviform attached (cut F).

In the next place the form of these two stigmata themselves will help us to a further subdivision; for instance, in group I.

a. Orbicular and claviform both linear (pl. fig. 1).

b. Orbicular and claviform both open (cut C).

c. Orbicular open, or partially so, claviform dash-like (cut A).

d. Orbicular and claviform indistinct, owing to shading beyond first line (pl. fig. 11).

Similarly group II.

e. Claviform dot-like (cut E).

f. Claviform dash-like (cut B).

Again in group III.

g. Both orbicular and claviform dot-like (pl. fig. 9).*

h. Orbicular open, claviform dot-like (pl. fig. 15).

i. Claviform dash-like (pl. fig. 16).

And again in group IV.

k. Orbicular dot-like (pl. fig. 18).

l. Orbicular open (cut F).

Of these sub-divisions 7 represent single species, viz., I *a* = *pallida*.

* This species is misplaced in the plate. The numerous dark scales beyond the first line originally led me to include it in the fourth subdivision—Group I, but I now see that both its stigmata are distinctly detached from the first line.—H. G. K.

II *e* = *cratægella*. II *f* = *truncicolella*. III *g* = *resinea*. III *h* = *murana*. III *i* = *gracilalis*. IV *k* = *alpina*. Four groups yet remain to be separated:—

Firstly—*dubitalis* and *ingratella*, the latter being separable from the former by its larger size, broader fore-wing, and by the almost entire absence of black markings.

Secondly—5 species, of which *ambigualis* is the type, namely, that species *cembræ*, *basistrigalis*, *Zelleri*, and *atomalis*. *Cembræ* is pretty easily distinguished from *ambigualis* by its fuscous tints and indistinct markings; *basistrigalis* by the first line being produced along the costa, towards the base of the wing; *Zelleri* by its large size; *atomalis* by its small size.

Thirdly—3 species, of which *mercurella* is the type. From the latter *ulmella* is at once separated by the form of its renal stigma, which is as in group I *b* (cut C); *phæoleuca* by the whiteness of its ground colour and pretty rounded fore-wings.

Fourthly—2 species, *lineola* and *angustea*, the latter having very narrow fore-wings, and otherwise differing much from the former.

For the rest the reader is referred to the plate.

EXPLANATION OF PLATE.

Fig. 1. *Scoparia pallida*, Stp.

Fig. 11. *Scoparia mercurella*, Linn.

- | | |
|-----|--------------------------------|
| 2. | <i>ingratella</i> , Zell. |
| 3. | <i>dubitalis</i> , Hüb. |
| 4. | <i>cembræ</i> , Haw. |
| 5. | <i>ambigualis</i> , Treits. |
| 6. | <i>basistrigalis</i> , Knaggs. |
| 7. | <i>Zelleri</i> , Wocke. |
| 8. | <i>atomalis</i> , Dbld. |
| 9. | <i>resinea</i> , Haw. |
| 10. | <i>phæoleuca</i> , Zell. |

- | | |
|-----|---------------------------------|
| 12. | <i>ulmella</i> , Dale. |
| 13. | <i>cratægella</i> , Hüb. |
| 14. | <i>truncicolella</i> , Stainton |
| 15. | <i>murana</i> , Curt. |
| 16. | <i>gracilalis</i> , Dbld. |
| 17. | <i>lineola</i> , Curt. |
| 18. | <i>alpina</i> , Dale. |
| 19. | <i>angustea</i> , Stp. |

BRITISH HEMIPTERA: ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

(Concluded from page 268.)

CORIXA BOREALIS, n. sp.

Black, shining; *pronotum*, *clavus*, and *corium* finely rastrate; *pronotum* with 8–9 obscure yellowish lines; all the other yellowish markings obscure.

♀. *Head* and *eyes* tawny. *Pronotum* short, rounded behind, in front with a slight, short keel, disc with 8–9 interrupted or confluent, obscure yellowish lines, the black intervals with a depressed line on each. *Elytra*—*clavus* and

corium with a few short, whitish hairs. *Clavus* with obscure, yellowish, transverse lines, 3 or 4 at the base straight, the rest irregular, interrupted, and rarely reaching the inner margin. *Corium* with transverse, irregular lines, straight at the base, then becoming more and more irregular to the apex, on the inner margin forming a longitudinal row of short streaks, the posterior angle clear black; marginal channel pale livid tawny; membrane-suture very narrow, yellow. *Membrane* filled with short, curved and twisted yellowish marks, inner margin broadly black. *Sternum* black; *scapulae*, *pleurae*, and *parapleurae* pale yellow. *Legs* brown-black; *thighs* tawny at the base; *pala* narrow, round-cultrate.

Abdomen tawny-black.

Length $2\frac{1}{2}$ lines.

♂. Unknown.

Allied to *C. Fabricii*, Fieb.

Two specimens, received by Mr. Brewer, were captured in Shetland, in 1866, by Mr. E. Smith.

CORIXA WHITEI, n. sp.

Tawny-black, with obscure yellowish markings, shining. *Pronotum*, *clavus*, and *corium* finely rastrate. *Pronotum* with 7—8 scarcely perceptible yellowish lines, the middle ones interrupted; *clavus* and *corium* with indistinct, fine, yellowish lines, on the former straight, much shortened inwardly, on the latter short and sinuous; marginal channel pale. *Sternum* entirely pale ochreous.

Head—*Crown* brown, posteriorly raised into a sub-acute point, on each side of the elevation a row of 4 or 5 punctures; face yellowish.

Thorax—*Pronotum* in front with a short keel; disc with 7—8 obscure yellowish lines, straight, except 2 or 3 in the middle, which are interrupted by the junction of the narrow, incised, intervening black lines. *Elytra*—*clavus* with fine, distant, oblique, straight yellowish lines, all visible on the outer margin, but so much abbreviated inwardly that the disc appears black. *Corium* with short, sinuous, interrupted, transverse yellowish lines, sometimes connected by longitudinal streaks; inner posterior angle wholly black; marginal channel pale; membrane-suture distinct, yellowish. *Membrane* with very fine, short, hieroglyphic markings. *Sternum*, *scapulae*, *pleurae*, and *parapleurae* pale ochreous. *Legs* tawny-brown; *thighs* paler at the base; 1st pair, *pala*, ♀, narrow, roundly cultrate; 2nd pair, *tibiae* black at the apex; 3rd pair, cilia of *tarsi* dark brown.

Abdomen fuscous, ochraceous at the sides.

Length $2\frac{1}{2}$ lines.

Intermediate between *C. Fabricii* and *C. mæsta*. A single ♀ taken by Dr. F. Buchanan White, at Rannoch, in 1867.

The next two species belong to the section of the genus in which the *pronotum* has a long middle keel—not hitherto represented in our collections by British examples.

CORIXA SHARPI, n. sp.

Black-brown, shining. *Pronotum*, *clavus*, and *corium*, at the base, finely rastrate; *pronotum* carinate nearly throughout the length, with 10—12 yellow transverse lines, the posterior ones obliterated. *Elytra* with very fine, short, yellowish lines in longitudinal series.

♀. *Head* above, black-brown, face yellow.

Thorax—*Pronotum* long, rounded behind, disc with a slight middle keel nearly throughout the whole length, and 10—12 narrow, transverse, yellow lines, several of the posterior ones obliterated by the dark ground colour. *Elytra*—*Clavus* and *corium* with many long, distant hairs; *clavus* with fine, hieroglyphic, yellow markings, straight at the base; *corium* with very fine, twisted, transverse, yellowish lines, broken into longitudinal series, of which 4 are visible at the widest part; marginal channel dull, pale brownish-yellow; membrane-suture broadly clear. *Membrane* with very fine, short, twisted, yellowish lines, on the inner margin especially disposed in a parallel series. *Sternum* black; *scapulae*, *pleurae*, and *parapleurae* pale yellowish outwardly. *Legs* brownish; *thighs* paler at the base; *pala* long, narrow, cultrate; cilia of the 3rd pair of *tarsi* black.

Abdomen brown, paler at the sides, basal segments black.

Length 4 lines.

Male unknown.

Of this fine, distinct species, a single ♀, captured by Dr. Sharp, and presented by him to us, is the only example known. Allied to *C. carinata*, Sahlb.

CORIXA INTRICATA, n. sp.

Shining, black-brown with ochreous markings, and many fine, light, decumbent hairs. *Pronotum* distinctly rastrate, a middle keel on the anterior half, and 8—9 fine, black, transverse lines, which, except 2 or 3 in the middle, are entire. *Elytra* wholly covered with similar close, fine, irregular, twisted lines, broken by 3 fine longitudinal black lines; *clavus*, and *corium* at its base, very delicately rastrate, marginal channel pale.

Head ochreous, *crown* brownish, posteriorly raised sub-angularly, on each side of the elevation a short row of close punctures; facial depression wide, ovate, reaching beyond the lower angle of the eyes.

Thorax—*Pronotum* long, with a middle keel extending perceptibly on the anterior half, but only indicated posteriorly, and 8—9 transverse, fine black lines straight and entire, except 2 or 3 in the middle, which are abbreviated and confluent. *Elytra* entirely covered with similar, close, fine, short, angularly twisted, transverse yellow lines. *Corium*, viewed lengthwise, the fractures of the lines appear as 3 longitudinal, fine, irregular, jagged, black lines; at the apex the transverse lines are more straight and parallel; marginal nerve (next the channel) black. Marginal channel pale yellow, infuscated slightly

at the lower end of the embolium; membrane-suture obliterated by the markings. *Membrane* covered with longer and more angular yellow lines, less closely in the middle, on the inner margin the lines are straight and parallel; outer margin narrowly black. *Sternum*, *coxæ*, *scapulæ*, *pleuræ*, and *parapleuræ* entirely pale yellow. *Legs* pale yellow; 1st pair, ♂, *tibiæ* thickened to the apex, curved; *palæ* long, narrow, round-cultrate; ♀, *tibiæ* not thickened, *palæ* narrower than in the ♂; 2nd pair, end of the *thighs*, *tibiæ*, and *tarsi* brown or blackish; 3rd pair, cilia of the *tarsi* black.

Abdomen pale ochreous, first 3 segments fuscous-black, posteriorly pale.

Length $3\frac{1}{4}$ lines.

Three ♂ and one ♀ taken by Dr. Power, in Loch Gelly, Fifeshire, August, 1868.

Allied to *C. Germari*, Fieb., which is 4 lines long, has the facial depression extending scarcely beyond the angles of the eyes, the middle of the sternum and the inner side of the scapulæ and pleuræ black, the anterior tibiæ swollen, the hairs of the posterior tibiæ (? tarsi) yellowish, the membrane suture yellowish, &c.

FAMILY 2.—SIGARIDÆ.

Genus 1.—SIGARA, Fab.

Species 2.—SIGARA POWERI, n. sp.

Ochreous, with well-defined black-brown markings, dull.

Head ochreous; *crown*, in the middle, with a large wedge-shaped brown mark, its widest part at the base of the head.

Thorax—*Pronotum* brown-black, in the middle an ochreous line widened posteriorly into the pale hinder margin, the sides also broadly pale ochreous. *Scutellum* black. *Elytra*—*clavus* black-brown, a small spot posteriorly, and the entire inner margin, ochreous; claval suture narrowly pale. *Corium* ochreous, at the base a dentate patch, across the middle another, more irregularly dentate, the longest lobe on the inner side, followed by two curved, sublinear spots, all brown-black; marginal channel pale, with two long, dark streaks opposite the large brown patches. *Membrane* infuscated, gradually darker to the apex. *Legs* yellow.

Length 1 line.

Very like *S. minutissima*, but by its general habit, larger bulk, and definite markings, appears to be distinct.

A single specimen was captured by Dr. Power, in the New Forest, in 1866, in company with *Agabus brunneus*.

Species 3.—SIGARA SCHOLTZI.

SIGARA SCHOLTZI, Fieb., Europ. Hem. 90, 4 (1861).

Pale ochreous with ill-defined fuscous spots, shining.

Head, including the large black eyes, wider than the pronotum; *crown* in the middle of the posterior margin raised to a point, which is brown; front, on the curve, with 3 brown longitudinal streaks.

Thorax—*Pronotum* in the middle and on the posterior margin pale ochreous, the remainder of the disc fuscous. *Scutellum* pale, sometimes with an oblique fuscous streak on each side. *Elytra* delicately punctulate. *Clavus* fuscous, the base broadly, the inner margin narrowly, and the claval-suture indistinctly, pale ochreous. *Corium* with 3 long, fuscous, longitudinal streaks, of which the longest is on the posterior inner angle, the other 2 shorter, less distinct, on the middle of the disc, all 3 more or less confluent; anterior margin pale, with a long fuscous streak in the middle, and one before the apex. *Membrane* pale, fuscous in the middle and inwardly. *Legs* ochreous, posterior *tarsi* with brown cilia. Length rather more than 1 line.

Distinguished from *S. minutissima* especially by its larger size, greater breadth of the head, and lighter colour. Varies according to maturity in the darkness of the markings, very young examples being almost wholly pale.

A few examples were taken by Dr. Power, at St. Leonard's Forest, Sussex, in 1866.

ERRATUM.

At page 261, 10th line from the bottom, insert a comma after "white" and erase the one after "margin."

Page 263, 15th line from the bottom, for "4th" read "3rd."

Lee, April, 1869.

Note on the oviposition of Octotemnus glabriculus.—Last autumn, I had a portion of a thick white tough fungus (*Polyporus* — —?) containing this beetle abundantly, several of them being engaged in oviposition. The female beetle by herself makes a sinuous gallery of rather more than her own width; the eggs, each of which is of a somewhat flattened ovoidal form, its longest diameter being about one-fifth the length of the beetle, are laid at the bottom of little cavities, irregularly disposed along the sides of the burrow. The egg, laid on its flattened side, just fits the bottom of the cavity; the remainder of the cavity, which is wide towards the burrow, is filled up level with its wall with the finely comminuted fragments of fungus removed from the end of the burrow, and so firmly packed, as easily to come out in one mass; six was the largest number of eggs I found so placed along one burrow, but I had no reason to suppose this to be the full number, as the beetle was still at work. Having placed some beetles on a fresh portion of fungus, I found, at the end of a week, that a newly-formed burrow contained three eggs.—T. ALGERNON CHAPMAN, M.D., Abergavenny, April, 1869.

Note on the pairing of Cheiropachus quadrum.—Some months ago I picked up a few branches broken from an apple tree, which were completely infested by *Scolytus rugulosus*;* beneath the bark were numerous Chalcididous larvæ, which had preyed on the *Scolyti*, so numerous, that they must have destroyed quite half of them. Having kept them in a warm room, though the *Scolytus* is only just beginning to appear (April 8th), the parasites emerged during February; they were chiefly *Cheiropachus quadrum*, of which a dozen or two came out every day for some time. As the opportunity of making the following observation cannot be frequent, I think it is probably worth recording.

* I shall be happy to send the *Scolytus* to any one who will enclose return postage.—T. A. C.

On February 15th, I observed two specimens of *Cheiropachus* face to face on a piece of stick, their antennæ, though bent downwards, as in the position of repose, were in active tremulous motion, and the insects occasionally advanced so that those organs touched. They frequently touched the wood also with their antennal tips; and, on looking closely, I saw a minute orifice in the bark, in which I soon made out a pair of jaws working. This hole was enlarged rapidly, and the head of a *Cheiropachus* soon became visible. On the head emerging, the antennæ of those outside worked even more vigorously, and seemed to increase the efforts of the enclosed *Cheiropachus* to escape.

On the thorax of the latter (which proved to be a female) appearing, it became obvious that the two outside were sworn foes, each alternately edging the other off for a little way, the antennæ continuing vigorously working, and now all the time touching the female. Suddenly the two males seized each other by the jaws, and for a moment were quite still, just as the female completed her escape. The next movement was so extremely rapid, that I could not see the details—the female came out so quickly, that it appeared as if she would have got away; but in an instant one of the males completely disappeared, the other was seated on the back of the female, and pairing had occurred; the whole transaction having lasted less than a minute, though possibly my observations disturbed them. Several other specimens were close by, apparently males, whose size and strength were unequal to a competition with the two in possession. I may remark that *Cheiropachus* is able to leap a distance of nearly an inch. The above observations explain at least one use of that power, and also that in a winged species of *Chalcis* pairing occurs immediately on the exclusion of the female, as it is well known to do in some apterous and partly apterous species.—ID.

Discovery of a male Cynips.—Through the kindness of Mr. Darwin I have received both sexes of a species of *Cynips*; they were bred from the Black Oak (*Quercus spongifica*) by Mr. Benjamin D. Walsh, the American Hymenopterist. The gall from which the male and female (*Cynips aciculata*) were obtained is larger than the bullet-gall of the oak so common in England, being two inches or more in diameter. According to Mr. Walsh's observations the males are only obtained from those galls which develop flies early in the season, two months before the great autumnal brood appears; the latter all being invariably of the female sex. Following up this hint, we may hope this year to obtain males of *Cynips lignicola*.—F. SMITH, British Museum, 16th April, 1869.

An early swarm of Formica nigra.—I was walking yesterday through the Botanical Gardens here, when my attention was suddenly attracted by some winged ants running up the glass of the Cactus-house. Many male and female specimens were struggling in the webs of sundry gaunt, hungry-looking spiders. Upon inquiry I ascertained from one of the attendants that they had begun to swarm about the 2nd inst. Their nests seem to be situated close to the hot-water pipes, which have maintained a temperature in the house, during the last two or three months, of 60°—65° Farenht. by day, and 55°—60° by night. The attendant has not been aware of the existence of the nests for more than a fortnight; but, unless memory fails me, this ant used to remain active all through the winter in the neighbouring Palm-house, which is scarcely, if at all, warmer.—A. E. EATON, The Union Society, Cambridge, April 9th, 1869.

Cilix spinula and *Notodonta trepida* in Kircudbrightshire.—In his interesting list of Rosshire *Lepidoptera*, Dr. F. Buchanan White mentions *Platypteryx lacertula* and *falcula* as the only two Scottish *Drepanulæ*. There are, however, at least three, as *Cilix spinula* is found in Kircudbrightshire. I found, under oak, last autumn, two pupæ of *Notodonta trepida* in the same county, one of which emerged on the 3rd April.—W. DOUGLAS ROBINSON, Edinburgh, 5th April, 1869.

Lepidoptera captured in Morocco.—During the spring of the year 1868, I resided for two months (February, March, and beginning of April) in Tangier (Morocco); and although the state of my health did not permit me to devote much time or energy to entomological pursuits, still I made a point of capturing such insects of all orders as happened to fall in my way; and thinking that a list of the *Lepidoptera* thus secured may not prove uninteresting to the readers of the Entomologist's Monthly Magazine, I have much pleasure in contributing the following, in which I have adopted the arrangement and nomenclature of Standinger and Wocke's "Catalog der Lepidopteren Europa's und der angrenzenden Länder, 1861."

RHOPALOCERA.

Papilio Podalirius.—One specimen of the var. *Feisthamelii* (Dup.), taken in a deserted garden near Tangier beginning of April.

Thais rumina (L.).—Of the typical form of this beautiful species I met with but two examples. The variety *Medesicaste* (Ill.) was common during the month of March in lanes in which the food-plants of the larva, the *Aristolochiæ*, were growing profusely, and I captured several fine and unusually large specimens.

Pieris brassicæ (L.).—Very abundant both in the larva and imago state.

„ *rapæ* (L.).—Abundant.

„ *napi* (L.).—Not common.

„ *Daphidice* (L.).—I saw, but did not capture, several specimens of a *Pieris*, which I imagine must have been this species, early in February.

Anthocharis Belemia.—The var. *Glauce* (Hb.) not uncommon on waste land end of March.

Anthocharis Douei (Pierret).—The ♂ occurred frequently throughout the months of February and March. The ♀ was very scarce, and I only obtained three specimens. Mr. A. G. Butler has pointed out to me that this species is the true *Anthocharis Eupheno* of Linnæus, whose typical specimens were captured in *Barbary*, and whose description answers exactly to Pierret's *Doueï*, and to the specimens the occurrence of which I now record. A new name must now be assigned to the very distinct South European species which has hitherto represented *A. Eupheno* (L.) in our collections, and the name *Doueï* (Pierret) must sink into a synonym for *Anthocharis Eupheno* (Linn.). (*Vide ante p. 271*). It is extremely probable that both species occur on the European continent.

Colias Edusa (Fab.).—Common at the end of February on the Dar-al-Clow, a range of hills lying some twenty miles S.W. of Tangier. A few specimens taken close to Tangier a month later.

Rhodocera rhamni (L.).—Common in February.

„ *Cleopatra* (L.).—Ditto ditto.

Thecla rubi (L.).—Abundant; March.

Thestor Ballus (Fab.).—Common in the beginning of March; its favourite habitat being rubbish-heaps near the town.

Polyommatus Phlœas (L.)—Very abundant ; February and March.

Lycœna Argiolus (L.)—Common ; March.

Vanessa Atalanta (L.)—Very abundant.

„ *cardui* (L.)—Ditto.

Pararga Egeria (L.)—Of the typical form of this species I did not observe a single specimen, but the var. *Meone* (Hb.) was excessively abundant during the whole time of my stay in Africa, and of this variety I secured a fine series.

Cœonympha arcanoides (Pierret).—Not uncommon in the hills in the neighbourhood of Cape Spartel ; March and April.

Spilothyrus malvarum (Ill.)—I met with a few examples of the var. *australis* (Zell.) early in February in the village of Marshen, near Tangier.

HETEROCERA.

SPHINGES.

Deilephila Livornica (Esp.)—Several specimens, in fine condition. This insect seemed especially to affect the flowers of the various kinds of lupin with which the hills in the neighbourhood of Tangier are clothed during the month of *March*. Is this species usually double-brooded ? I observe many notices of its capture in England last season, most of which are recorded in *August*.

Macroglossa stellatarum (L.)—Common.

BOMBYCES.

The only example of this family which I obtained was a large insect, apparently of the genus *Bombyx*, to which I cannot at present assign a cognomen. Should it prove to be a new species, it may form the subject of a further communication to the E. M. M. I met with several colonies of a processionary caterpillar, I presume of the genus *Cnethocampa*, on the plain of Had-el-Gharbea, 30 miles S. of Tangier, but, unfortunately, I had no opportunity of rearing them to the imago state.

NOCTUÆ.

Agrotis ravida (W.V.)—One specimen ; February.

„ *pronuba* (L.)—Common at light.

„ *puta* (Hb.)—One specimen at light ; March.

Hypena lividalis (Hb.)—One specimen ; March.

„ *obsitalis* (Hb.)—Several specimens ; March.

GEOMETRÆ.

Acidalia incanaria (Hb.)—I met with one specimen of the var. (?) *calcearia* (Zell.) in April.

Eupithecia pumilata (Hb.)—Common ; early in April.

CRAMBINA.

Botys ferrugalis (Hb.)—Abundant ; March.

Nemophila noctuella (W.V.) [*hybridalis* Hb.]—Abundant.—TROVEY BLACKMORE, The Hollies, Wandsworth, S.W.

[TINEINA.

The following species, collected at Tangier, in March, have been kindly handed to me by Mr. Blackmore :—

Tinea pellionella, L.

Micropteryx imperfectella, Staudinger, Stett. E. Z. 1859, p. 236, H.—S., N. Schm., f. 113. Of this pretty little species I did not previously possess a specimen. Dr. Staudinger met with it in the S. of Spain, in May.

Plutella cruciferarum, Z.

Lithocolletis pomifoliella, Z. and a single specimen of another *Lithocolletis*, which does not seem referable to any known species. Mr. Blackmore informs me that *Coronilla* was one of the commonest plants where he took these insects, and possibly the undetermined *Lithocolletis* may be attached to that plant. I throw out the suggestion for future travellers.—H. T. STANTON, Mountsfield, Lewisham, March 20th, 1869.]

Reviews.

REPORT ON THE CULTURE OF THE JAPANESE SILK-WORM, BOMBYX YAMA-MAI, IN 1867-8, IN ENGLAND; by ALEXANDER WALLACE, M.D., M.R.C.P. Colchester, Benham and Harrison; 8vo. pp. 64. 1869.

In this bulky but inexpensive pamphlet Dr. Wallace gives the experience of two years' efforts to rear this fine Japanese silk-worm in England, by himself and by numerous other gentlemen who take an interest in the praiseworthy attempt to introduce among us a new branch of industry. If these endeavours should not meet with the success they deserve, it will not be for want of enthusiasm on the part of the author, who has for years devoted all his spare time to his favourite pursuit. We recommend this pamphlet to the notice of country gentlemen especially. Space will not admit of extracts; but we remark that the excessive heat of last season seems to have been anything but favourable to Dr. Wallace's object.

A CATALOGUE OF THE INSECTS OF NORTHUMBERLAND AND DURHAM (ACULEATE HYMENOPTERA). Newcastle-on-Tyne, 1869. T. J. BOLD.

The Natural History Society of Northumberland has for many years afforded an excellent example to other local Societies by publishing thoroughly scientific and well-worked Catalogues of the productions of its district; and the pamphlet now under notice will add considerably to its renown, as being probably the first attempt towards a local Catalogue of the *Aculeata* in this country. Its author, Mr. T. J. Bold (well known in connection with the Catalogue of *Coleoptera* published by the same Society, and who luckily continues to work indefatigably at Entomology, as our columns testify), has wisely followed the arrangement used by Mr. F. Smith in his Museum Catalogues, and chronicles 133 species, being little more than one-third of those recorded as inhabitants of Britain. The strong points are evidently the *Vespidæ* and *Sociales*, whilst the *Scoliadæ*, *Sapygidæ*, *Sphegidæ*, *Larridæ*, *Philanthidæ*, and *Andrenoides* appear to be utterly unrepresented. Mr. Bold expects to add considerably to his list, and attributes the dearth of *Fossores*, &c., chiefly to the clay sub-soils, which are unfavourable for burrowing.

It would be as well if the printer of future Catalogues issued by the Northumberland Society were more carefully looked after, the present excellent little work being disfigured by certain mistakes, which are evidently merely typographical.

ENTOMOLOGICAL SOCIETY OF LONDON, 15th March, 1869. H. W. BATES, Esq., F.Z.S., President, in the Chair.

H. Grose Smith, Esq., of Surbiton, was elected a Member.

Mr. McLachlan exhibited a gigantic species of the family *Ephemeridæ*, measuring 3 inches in expanse of wings, sent from Veragua. He thought it might possibly be *Palingenia Hecuba* of Hagen.

Mr. F. Smith exhibited the new British Bee, *Colletes cunicularia*, collected in the Isle of Wight by Mr. Cooke, jun.

Mr. Butler exhibited varieties of several European Butterflies, captured by himself in Switzerland.

Mr. Stainton mentioned that in the neighbourhood of Mentone, &c., early in the year, *Vanessa Atalanta* was the commonest butterfly, and scarcely appeared to hibernate, whereas in England hibernated examples were rarely seen until the early summer.

The President exhibited a collection of *Papilios* from Japan, sent to him by Mr. Ward, of Halifax. They consisted of *P. Machaon*, *P. Xuthus*, and *P. Xuthulus*; in Japan *P. Machaon* was very variable, and shewed a tendency to approach its allies in coloration, whereas in Europe it was very constant. He looked upon that country, therefore, as the one which was the most favourable to the formation of incipient species in this group. For comparison he had added examples of the allied *P. Zelicaon* and *P. Asterias*, from N. America.

Mr. Hewitson communicated "Descriptions of new species of Diurnal *Lepidoptera* from Nicaragua and Ecuador."

The President read "Contributions to a Fauna of the Amazon Valley."

Mr. McLachlan read a Synopsis of the European species of *Panorpa*; and a description of a new species from Java.

5th April, 1869. H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Pascoe exhibited curious and interesting forms of *Curculionidæ*.

Prof. Westwood exhibited an example of the new species of *Panorpa* (*P. nematogaster*) from Java, described by Mr. McLachlan at the last meeting; this was from the Oxford Museum. Also examples of a *Blatta* (*B. melanocephala*) which had been found destructive in Orchid-houses in this country.

Mr. Bond exhibited *Sciaphila communana*, H.—S., new to Britain, captured in Wicken Fen.

Mr. Druce exhibited two males of the very rare and magnificent *Papilio Zalmoxis* from Old Calabar.

Mr. Smith exhibited a series of British *Bombi*, with their respective parasitic *Apathi*. He mentioned, with regard to *B. subterraneus*, *muscorum*, and *lapidarius*, that the parasitic *Apathi*—*campestris*, *vestalis*, and *rupestris*, exhibited all the gradations of variation common to their respective foster-parents; whereas with *B. pratorum*, a moss-builder, the parasitic *Apathus Barbutellus* was considerably different. This latter *Bombus* was, however, a very good-tempered bee, whereas the others were very irritable; hence the non-necessity of exact mimicry.

Mr. A. R. Wallace read "Notes on eastern Butterflies." Mr. Hewitson read "Descriptions of new species of Diurnal *Lepidoptera*."

Mr. Baly communicated "Descriptions of new *Phytophaga*."

Dr. Sharp communicated a "Revision of the British species of *Homalota*," enumerating and describing 157 species, 29 being new to science.



C. V. RILEY,
Washington, D. C.

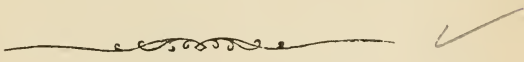
THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE:

CONDUCTED BY

H. G. KNAGGS, M.D., F.L.S. E. C. RYE.
R. McLACHLAN, F.L.S. H. T. STANTON, F.R.S.

VOL. VI.

“The sight of a well-stored cabinet of insects will bring before every beholder not conversant with them, forms in endless variety, which before he would not have thought it possible could exist in nature, resembling nothing that the other departments of the animal kingdom exhibit, and exceeding even the wildest fictions of the most fertile imagination.”—*Kirby & Spence.*



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LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

1869-70.

LONDON :

PRINTED BY A. NAPIER, SEYMOUR STREET, EUSTON SQUARE.

Entomologist's Monthly Magazine

VOLUME VI.

DESCRIPTION OF A NEW SPECIES OF HEMIPTERA (*NYSIUS SCOTTI*)
OCCURRING IN BRITAIN.

BY EDWARD SAUNDERS, F.L.S.

NYSIUS SCOTTI, n. s.

Pale ochreous-brown. *Head* with a fuscous spot on each side on the inner margin of the eye, and extending to the base. *Antennæ*: 1st joint with a narrow brown ring near its middle; 2nd joint at its apex, and 4th joint slightly, darker than the rest. *Thorax* very largely and deeply punctured, with a raised pale central keel; posterior angles produced and rounded, flavous, with a brown spot above and below them. *Scutellum* fuscous near its base, deeply and largely punctured, with a strongly marked flavous central keel. *Clavus* and *corium* covered with short, fine, adpressed golden hairs; their junction with the membrane narrowly fuscous; apex of corium with a small brown spot. *Membrane* purely transparent. Beneath: the first abdominal segment black in the middle; 2nd segment also black in the middle, but with two spots of the ground-colour on each side; 3rd with two brown stripes on each side; 4th and 5th ochreous. *Thighs* with round brown spots: intermediate and posterior tibiæ slightly fuscous at the apex: tarsi with the end of the first joint, and the two apical ones wholly, fuscous. Length $2\frac{1}{4}$ lines.

I took three examples of this very distinct species by sweeping heather on Reigate Heath, in August of last year. Of the continental species it appears nearest allied to *N. senecionis*, from which it may be separated by the narrower membrane, the differently coloured antennæ, and other structural characters. I have named it after Mr. J. Scott, who has so long devoted himself to the British insects of this group, and to whom I am greatly indebted for much valuable information and assistance.

Hillfield, Reigate: 8th May, 1869.

TWO NEW SPECIES OF DIPTERA (*SCATOPSE PLATYSCELIS* AND
THRIPTICUS BELLUS, LOEW) INHABITING ENGLAND.

BY G. H. VERRALL.

The above two species having just been described by Loew, in his Supplement to Meigen, from a specimen of each taken by me in England, I think a few notes on them may have some interest.

1. *SCATOPSE PLATYSCELIS* is described as "a trifle larger than *S. bifilata*, Hal., consequently one of the largest species of this genus, and easily recognised by its affinity to the much smaller *S. clavipes*, Lw. It is shining black, with only the last segment of the abdomen dull. The hind tibiæ flat, exceedingly enlarged toward the tip; halteres blackish. I captured one specimen near Lewes in 1867, crawling on a bare piece of ground on a steep bank under bushes.

2. The other species belongs to the *Dolichopidæ*, and is described by Loew as "*THRIPTICUS BELLUS*, ♀. Front and upper half of the face bluish-green, lower half more steel-blue; antennæ and palpi black; cilia of lower orbit setiform, yellowish-white; vertex with tawny bristles; thorax shining violet with yellowish hairs, which are numerous and short on the anterior part, scanty, long, and setiform on the posterior; scutellum steel-blue with two yellow bristles; abdomen shining bluish-green, without bristles, but with short yellowish-white hairs; coxæ bluish-green, front pair with short pale yellowish hairs, trochanters yellow, front pair partly brown; femora shining blackish-brown, the base being pale yellowish to a small extent; halteres whitish; tegulæ (alulæ) with white cilia; wings limpid, hardly greyish, with the veins brownish-black, third and fourth longitudinal veins totally obliterated." This is one of the most brilliant species of the whole of this brightly-coloured family, though it is one of the smallest. I have taken it between Kew and Richmond, but it is most difficult to capture from its smallness and activity. The genus *Thripticus* was only erected in 1864, in the *Stettiner Ent. Zeit.*, by Gerstäcker, from a single male specimen caught near Berlin.

Denmark Hill, London, S.: May, 1869.

ADDITIONS, &c., TO THE LIST OF BRITISH *COLEOPTERA*, WITH
DESCRIPTION OF A NEW SPECIES OF *OCHTHEBIUS*.

BY E. C. RYE.

Having recently communicated certain of our *Brachelytra*, concerning which I entertained doubts, to M. Albert Fauvel of Caen, who is making an especial study of that group, and who has courteously given me the benefit of his opinion upon my difficulties, I am enabled to publish a few remarks tending, as I hope, towards that reconciliation of British and Continental species which is so much needed by us.

Oxypoda exigua, of my collection at least, is, as I had anticipated, *O. investigatorum*, Kraatz, Berl. Ent. Zeit., 1864, p. 130. I have not

seen the true *exigua*, which is stated to resemble *Homalota pygmæa*, and to have the apex of the abdomen almost entirely unpunctured and shining.

Oxypoda glabriventris, mihi (Ent. Mon. Mag., 1st Feb., 1865), is the *Calodera (Ilyobates) Bonnairei* of Fauvel (Bull. Soc. Normand., ix, 1865, p. 287). The generic diagnosis of *Ilyobates* appears to differ from that of *Oxypoda* solely as follows (the ligula, palpi, and tarsal formula being in each identical):—ILYOBATES, “*maxillæ mala interiore intus summo apice spinulis 12 longioribus ciliata;*” OXYPODA, “*maxillæ mala interiore intus apice spinulis ciliata;*”—the latter of which propositions would logically include the former. Not feeling inclined to destroy my solitary example by dissection, I referred it to the latter genus, on account of its great structural resemblance to *O. lucens* and certain other of the small yellow species, and also on account of not observing in it the characteristic coarse punctuation of *Ilyobates*.

Oxypoda rufula, Wat. Cat., appears to be identical with *O. riparia*, Fairm., Soc. Ent. de Fr., 1859, 38.

Oxypoda Waterhousei, mihi (nigrofusca, Waterh., *nec* Steph.), according to M. Fauvel, is *O. amæna*, Fairm., Faune Ent. Fr., 436.

Oxypoda annularis, Wat. Cat., appears to be *pallidula*, Sahlb.

Oxypoda misella, Waterh. (*nec* Kraatz), according to M. Fauvel, who has examined one of my specimens from Shirley, on which the species was introduced as British, is *O. ferruginea*, Er. The latter has hitherto been considered by us as synonymical with *O. brachyptera*, Steph.; but the long antennæ of that insect render such a conjunction impossible.

Oxypoda nigrina and *aterrima* of Waterhouse are, as already recorded, respectively to be referred to *O. sericea*, Heer, and *O. incrasata*, Muls. In the last edition of de Marseul's Catalogue, *O. aterrima* is, however, reinstated, and *O. nigrina* is separated from *O. sericea* by 14 species,—*O. exigua*, moreover, as has been before observed, being given as a synonym of the latter.

Bryoporus Hardyi, a good species, closely allied to *Bolitobius pygmæus*, is, according to M. Fauvel, who has seen other examples from the Pyrenees, to be referred to *Mycetoporus*.

Tachyporus scitulus of our collections is *T. pusillus*, dark var. True *scitulus* is more convex, deeper black, and with more widely punctured elytra.

Philonthus temporalis, judging from a type kindly communicated to me by M. Fauvel, has certainly not yet been correctly recorded as British.

Lathrobium Jansoni, Crotch, according to M. Fauvel, who has seen the original type, is most decidedly only *L. pallidum* of a rather darker colour than usual; variations in that respect being found on the continent. M. Fauvel does not, however, make any remark as to the discrepancy in the length of the elytra.

Lithocharis ruficollis, Crotch Cat. (*tricolor*, Marsh., Steph.), is *L. vicina*, Brisout, 1859, according to M. Fauvel.

Stenus annulatus, Crotch, is referred to *S. aceris*, Boisd. et Lac., by M. Fauvel, who states that species to be erroneously considered as identical with *impressus*, Germ. (*annulipes*, Heer). They are given as distinct by de Marseul (1866). M. Fauvel states that our *S. impressus* is his *pyrenæus*, M.S.

Homalium crassicorne, Matthews (of which the unique type has been most kindly lent to me by that gentleman), is, in my opinion, certainly a depauperised immature example of the rare *O. salicis*. In this view I am corroborated by M. Fauvel.

Homalium brevicorne, Matthews, *nec* Er., is *vile* var., according to M. Fauvel.

HOMALIUM GRACILICORNE, Fairm., Faune Ent. Fr., 642. I have long had a single, highly-coloured (possibly immature) example of this species set aside as new to our lists; and I now possess typical specimens given me by Dr. Power, who has recently taken several. It is closely allied to *vile*. M. Fauvel has corroborated this species for me.

OCHTHEBIUS POWERI, *n. sp.*

Elongato-ovatus, leviter convexus, fere opacus, obscurè æneo-piceus, pedibus fuscis, geniculis tarsis palpisque nigrescentibus; prothorace subtransverso, antice valde dilatato, angulis anticis prominentibus, grosse creberrimeque punctato, canalicula mediana, foveolis quatuor discalibus (quarum duo basales, majores, insecto à posteriori viso, Trogophlæorum thoracis signaturam simulant), sulcisque lateralibus (irregularibus, antice profundius impressis foveolasque discalibus anticis invadentibus) insculpto; elytris nitidulis, setis brevissimis, albidis, sat evidentè striatis instructis, creberrime fortiterque punctato-striatis, punctis primo visû fere transversim confluentibus.

Long. corp. vix $\frac{3}{4}$ lin. (Angl.).

I am unable to refer this well-marked little species satisfactorily to any published description; and M. C. Brisout de Barneville has returned it as utterly unknown to him.

A single example was originally taken in brackish water on the south coast by Dr. Power in 1866; and it has recently been found in some numbers by Drs. Sharpe and Crotch under similar conditions near the Chesil Bank.

Its small size prevents it from being confounded with any of our species but *O. exaratus*; from which its duller appearance, closer punctation, posteriorly more contracted thorax, &c., at once distinguish it; but it cannot be satisfactorily compared with any of our recorded *Ochthebii*, suggesting, as it does, some of the characteristics of *rufi-marginatus* and others of the giant *punctatus*.

CIS VESTITUS, Mellié, Soc. Ent. de Fr., 1848, p. 354. I possess a single example of this species, given to me by Mr. T. Morley, who took it in the neighbourhood of Manchester. It is about the size of medium *festivus*, but is narrower and flatter than that insect. Its thorax is narrower and more contracted in front than in any of our species, and is dull, being very closely punctured. The elytra are rather shining, irregularly and closely punctured, and clothed with pile, as in *hispidus*.

BAGOUS INCERATUS, Gyll. (*encaustus*, Boh.), Schön., 76. Mr. Douglas took a single specimen of this exotic-looking beetle whilst hunting for *Corixæ* in a brackish ditch near Gravesend, and I bring it forward on M. Brisout's authority. It appears to occur in Austria and the meridional parts of France in salt and brackish waters; also in Germany and South Russia, and in the Caucasus and Pyrenees. It is larger than any of our recorded species, except *binodulus*, but is utterly unlike any of them, owing to its comparatively short legs, broad flat build, shining appearance, &c. Mr. Douglas' specimen is of an olive-grey colour, with more or less distinct brownish markings on the elytra, an irregular transverse band on the disc being the most conspicuous. The funiculus of its antennæ is 6-jointed.

CEUTHORHYNCHUS ARCUATUS, Herbst, Gyll. (Schön., 154). This handsome species (which I also bring forward on the authority of M. Brisout) was taken some years ago (and also recently) by Mr. J. Kidson Taylor of Manchester; it has also been found by Mr. J. Chappell of the same place, at Cleethorpes, and on the Lancashire coast. I am indebted to each of those gentlemen for a specimen of it. According to M. Brisout it is rare in the north but more abundant in the centre and south of France. It differs from *chrysanthemii*, Wat. Cat., amongst other things, in not having the lateral white marking carried on to the scutellar patch, and from *asperifoliarum* in having the lateral marking originating nearer the shoulder, &c.

CIONUS OLENS, Fab., Redt. I have detected a single example of this fine species among some British *Rhynchophora* taken by Mr. Douglas, and sent to me for names. It appears to be spread over the whole of Europe, and is not rare in the environs of Paris, on *Verbascum*,

during the early spring months. It is about the size of *C. thapsus*, but unlike any of our other species, is uniformly set with greenish-grey hairs, with a black discal and smaller sub-apical spot on the suture of the elytra.

TOMICUS AUTOGRAPHUS, Ratz., Forst., i., 160, 7. My friend, Mr. T. Wilkinson, of Scarborough, has sent this fine species to me to be named. It was taken by Mr. Lawson, of the same place, about five weeks ago, in tolerable plenty, in some young larch trees in a fir plantation about a mile and a half from Scarborough, where, from the appearance of the trees, it must have been very abundant last year. It belongs to the sub-genus *Dryocætes*, Eich., and is allied to *villosus*, being larger and especially broader than that common insect, with the hairs not so stout or long, the thorax broader and shorter, the sutural stria not so well defined, the apex of the elytra less abruptly retuse, &c.

7, Park Field, Putney, S.W.

13th May, 1869.

Note on the habits of Phlæophthorus rhododactylus and Hylastes obscurus.—In May, and earlier or later, according to the season, *Phlæophthorus rhododactylus* makes the galleries in which its eggs are deposited, in the bark of Furze (*Ulex europæus*). That the furze be dying, or recently dead, seems the only requisite to its attack. I have found it in furze killed by being cut, and in that which appeared to have died of old age; and, though preferring branches about or under an inch in diameter, it is found in all—from the largest to the smallest. As branches of old and sickly plants die from year to year it attacks them, and probably accelerates the death of the plant. It is equally abundant in Broom (*Cytisus scoparius*). The only apparently suitable materials in which I have not found it were a number of furze bushes smothered out of existence by the rapid growth of some fir trees, larch, and spruce.

The gallery is formed directly upwards for nearly a quarter of an inch, and then divides into two branches, at first at right angles to each other, but, as they go upward, tending to become parallel. They are usually of unequal length, and one is sometimes absent. The longest I have seen was less than an inch in length, and half-an-inch would be a fair average. I always find in them a pair of beetles during their construction, and would note here the analogy with *Hylesinus*, where a two-branched burrow is also associated with the habit of both beetles being engaged in its construction. The entrance of the gallery is placed out of sight behind a loose scale of bark, or some slight projection. The ejected frass, which all appears to have been eaten, lies loosely agglutinated together outside, but no operculum covers the opening. I have several times met with an inverted gallery—that is, one going downwards instead of upwards from its entrance. The eggs are laid along both sides of the branches, twenty-five being a maximum for one side of one branch, and the total rarely exceeding forty. The time occupied in their con-

struction I do not know ; in some kept under observation, about a dozen eggs had been laid in three weeks from the date of commencement of a burrow. The eggs were situated rather closely together, each in a little hollow scooped out of the bark ; and they, as well as the interspaces between them, are covered over with a layer of fine frass, which does not appear to have been eaten ; so that the sides of a completed burrow are formed of this frass, behind which are the eggs. The larvæ start in every direction from the parent gallery, but tend to travel vertically ; so that, when full grown, most of them do so. The greater part of the broods become perfect beetles in late autumn, and pass the winter at the ends of the larval burrows, slowly eating a gallery upwards or downwards, according to the direction the larval gallery had assumed. I have seen galleries so eaten for winter sustenance more than an inch long ; the majority, however, eat very little.

What becomes of those beetles that escape in autumn I do not know ; their number is not great. Others, also few in number, remain as larvæ throughout the winter ; and I have found odd beetles, and even larvæ, under bark from which the broods had apparently gone during the previous year.

Hylastes obscurus also attacks furze, but is more particular as to its pabulum than *P. rhododactylus* ; it rarely attacks stems of less than an inch in diameter, and rarely, almost never, cut-down sticks ; it is partial, however, to the stumps that remain in the ground, and stems of plants dying of age. The latter frequently die on one side first, and this first-dying side is the favourite habitat of *H. obscurus*. The sticks that it has abandoned for one or more years are very numerous, as compared with those that still contain it ; whereas, with *P. rhododactylus*, abandoned sticks are rare. This probably arises from *rhododactylus* more completely separating the bark (leaving a very beautiful "typograph"), and from the smaller size of the branches affected by it causing them much sooner to assume the aspect of dead and rotten wood ; whereas those long abandoned by *obscurus* often continue to look as if they might contain the beetle, until they are quite rotten. I have found few likely stems of furze without traces of *obscurus*, but only a small proportion with that beetle still present. I have also found it, though not abundantly, in broom.

The parent gallery of *obscurus* has only one branch, which is very straight, accurately transverse to the stem, and $\frac{3}{4}$ of an inch to an inch in length. I usually find only one beetle in it, but I have several times found a second, which I believe to have been the male, and in these cases there was usually an abortive branch of the burrow in the opposite direction from the main one, about the length of the beetle ; apparently eaten by the male for food, and containing no eggs.

The eggs are laid at the bottom of little cavities on either side of the burrow, and covered by frass, which fills the cavities to the level of the wall of the burrow, of which there is usually a small unoccupied portion between each cavity, often of such a length that it looks as if four or five eggs had been omitted. I have supposed that the male, or several different males, came and went during the construction of the burrow ; and that these blanks represented periods when the male was too long absent, as I have found them also in other species where the male is sometimes absent, but very rarely in any species in which the male is always present or always absent. I have found eggs laid so near the advancing extremity of the burrow that the beetle must have come out and gone in again backwards to have laid it, though I have never seen a beetle in this position. The number of eggs

laid is small; a dozen on either side would be above the average, though I have seen more. The larvæ burrow upwards and downwards. Many of the beetles assume the perfect state in autumn, and either continue the larval burrow until spring, after the manner of *rhododactylus*, or, escaping, make a fresh longitudinal burrow in a higher portion of the same stick in which they hibernate, apparently eating a little all the winter. I was much puzzled by finding, during the winter, one or more beetles in longitudinal burrows branching from parent galleries, of which the young brood were already for the most part perfect. I believe these were beetles of the young brood which had used the openings of the old galleries to enter the bark, just as they instinctively go to the bottom of a crevice to begin burrowing. Some assume the perfect state during the winter, and not a small proportion pass the winter as larvæ; even now (May 14th) I have some still in the larval state. The period of oviposition is rather later than in *rhododactylus*, and occupies nearly a month.

The full-grown larvæ of *Scolytus* almost invariably burrow into the wood to form a hibernaculum; I have frequently noticed a similar habit in *rhododactylus*, and more rarely in *obscurus*; and, as throwing light on the use of this habit, I may note that in furze they rarely do so, but that those passing the winter as larvæ in broom almost invariably do, the bark of broom being thinner, and when mined by these beetles much more easily separated, a mere touch removing it when soaked with rain.

Obscurus, under the name of *trifolii*, is said to occur in the roots of clover, which is its recognised habitat; and as clover belongs to the same natural order as furze and broom, it seems by no means unlikely that it would eat clover in default of them, but I am inclined to doubt its ovipositing in them.

These beetles seem very free from parasites, a predaceous-looking larva, with a double-hooked tail (very like a miniature *Pyrochroa* larva), and from which I have bred *Rhinosimus planirostris*, is the only one I have found. It is more abundant in old burrows than in those still containing larvæ; so that, if it is carnivorous, and is not satisfied with the damp frass, it probably eats *Acari*, a *Thrips* which is common in old burrows, and other such creatures, more frequently than the larvæ of *Phlæophthorus* or *H. obscurus*.—T. ALGERNON CHAPMAN, M.D., Abergavenny, May, 1869.

Note on Argyra leucocephala.—Mr. Scott told me lately of an interesting habit he has observed in this Dipteron. He met with it in considerable abundance near Morpeth, and says it resembled snow falling and melting immediately it touched the ground; for, when on the wing, the silvery gloss on the body appeared white, but, when the insect settled, the closed wings at once obscured it. This is probably an instance of an obscure colour protecting an insect when at rest, like the brown underside of the common ♂ "ghost" moth.—G. H. VERRALL, London, April, 1869.

Queries respecting a few willow galls.—Thanks to a botanical friend, I shall be enabled to give all my willow galls, except a few, their true botanical position in the descriptive list of galls upon which Mr. Müller and myself are now engaged for this Magazine. I therefore take the liberty of making a few remarks on these galls, but before I commence so doing, I may observe that my collection is indebted

or all of them to the kindness of friends, none of whom, however, sent a specimen of the willow fit for identification. I shall therefore be much obliged to anyone who can send me any of the galls I have briefly described below, accompanied by a specimen of the willow from which the gall was obtained; and I may add that I shall be much obliged if any other willow galls, sent to myself or to Mr. Müller, be similarly accompanied.

The first gall to which I will draw attention was found in Hare Wood, about seven miles from Leeds. It is the form and size of a pea—yellow, with brown spots. The leaf of the willow is lanceolate, and finely serrate towards the tip. The second is a flattish, bag-like gall, orbicular or lobed. The willow is a very small leaved species, and is probably very closely allied to *Salix repens*. I also wish to know the species of the willow upon which the Cambridge rose gall occurs, which Mr. Bond exhibited at the Meeting of the Entomological Society in March, the leaves of which are broadly lanceolate, serrate, and white beneath. I have received a leaf which I imagine to be that of *Salix cinerea*, bearing a large reniform gall on its underside, from Cornwall, and I believe also from the North. In conclusion I may add, that I am much in want of the gall *Andricus noduli*, which Mr. Marshall (vol. iv, p. 102) states, on the authority of Hartig, is the young shoot of the oak, distorted, and loaded with excrescences, said to be common in England.—HENRY WARING KIDD, Godalming, May 7th, 1869.

Note on Aetorhinus bilineatus, Fallen.—Very few collectors of British Hemiptera have, I fancy, met with this little bug, so that a few notes on its distribution here may be interesting. The first record, and probably the only one, of its capture in Britain, is in vol ii, p. 246, of this Magazine, where, after describing the species, Mr. Douglas mentions that three specimens had been taken by the Rev. T. A. Marshall in Leicestershire. When at Rannoch, in 1867, I collected a few Hemiptera, and among them four or five specimens of the *Aetorhinus*, which I did not recognise at the time, nor until Mr. Douglas, in looking over my specimens, named it for me. Moreover I did not know the exact spot where I had taken it. My visit to Ross-shire not only revealed the metropolis of the species, but gave me a hint as to the locality at Rannoch. At Achilty there are numerous small groves of aspens (*Populus tremula*) here and there along the hill-sides, and almost every one of these groves appeared to be dedicated to *Aetorhinus bilineatus*. Now at Rannoch the aspen is not a common tree, and I only remember one off which I got any bugs, and these I have no doubt were this species. For the benefit of Hemipterists who may visit Rannoch I will give precise directions. About three miles from Kinloch on the road to Dall, the first cultivated field (bounded by a wall) appears, lying between the road and loch. On the left side of the road is a small wood; near a very small barn that runs through the wood and crosses the road, stand the aspens. At Achilty the bug was very common, but the male was much rarer than the female, in the proportion of about 1 in 10. They were most abundant at the end of July.

Some other rare bugs occurred at Achilty. Among them were *Sigara minutissima* and *Hydrometra odontogaster*, &c.

As I am collecting materials for a list of Scottish Hemiptera-Heteroptera, I would be greatly obliged for any (even the shortest) notices of the bugs of any

place in Scotland. Coleopterists probably often come across these insects; so if they could find room for them in their laurel-bottles, and, at the end of the season, send them to me, I should be very grateful.—F. BUCHANAN WHITE, Perth, May 10th, 1869.

Abundance in 1868 of the winged form of Velia currens.—Of this insect, so common on running water, I had for many years sought in vain for a winged individual; the hundreds I had taken for examination were all apterous, and I had known only of two or three winged examples being found over a wide area within the period. I was therefore greatly pleased when, in April last year, one of my boys caught, on one of our streams, a fully developed example, and, I having incited him to further search, he soon brought 20 or 30, and above 100 were taken in April and May by others. What was the cause of the acquisition of wings by so many individuals? There was nothing exceptional in the weather of 1867 to favour development—the insects appeared *before* the heat of 1868—and there have been no winged ones since, as might have been expected if heat influences full development; so I apprehend the cause must be sought in other than external circumstances. At present, and perhaps for ever, if this be true, the cause of such irregular development must be hypothetical. In Nature there is always a reserve of power—a capability of replenishing exhausted force and renewing action in one way or another. In insects we see this, for instance, in undeveloped bees and ants, the stage to which the ordinary workers attain being sufficient for the race; but if occasion arrive which requires a different condition of life, development is not arrested in so many individuals as usual—the reserve is brought forward. So it may be as to the development of wings in *Velia*—and doubtless in other insects—that the law of Infinite Wisdom, under which the creatures ordinarily exist without wings, has latent power for the production of these members when they are to become necessary for the welfare of the race, either in removing the individuals to better localities, or in taking them to mingle with other stocks and so prevent deterioration. I say when the wings *are to become* necessary, for they must be prepared in the penultimate state, and the creatures can have no prescience or will of their own in providing for their unknown future.—J. W. DOUGLAS, Lee: 14th April, 1869.

Hints for finding eggs and larvæ of Lycæna Arion.—My observations on the habits of the larvæ of *Chrosis euphorbiana* seem to have contributed to finding that species in England. Perhaps a suggestion with reference to *Lycæna Arion* may enable English entomologists to be the first to unravel the Natural History of the “Large Blue,” rare as it is with them.

I may mention, in the first place, that I was astonished to find that in the mountainous parts of Silesia this species had different haunts from those which I hitherto observed it to frequent in the plains; for, when at Salzbrunn, in 1838, I saw it plentifully in the moist open meadows at the foot of Mount Hochwald, whereas near Glogau, as well as at Frankfort and Meseritz, it frequents dry fir-forests, on the most barren and sandy ground. My astonishment would probably have been less had I been then acquainted with the food-plant of *Lycæna Arion*, for I well recollect that in those moist meadows *Thymus serpyllum* was very abundant.

With us this butterfly haunts the lofty fir-forests, where the ground is clothed with bilberry (*Vaccinium myrtillus*), mosses, and straggling plants of wild thyme (*Thymus serpyllum*). It is to be met with throughout the month of July. In order to obtain food, it generally resorts to the open places where *T. serpyllum* grows more freely, and displays plenty of blossoms. There we may often meet with this butterfly in company with hosts of *Hipparchia Semele* and *Alcyone*, *Epinephele Lycæon* (*Eudora*), *Cænonympha Arcania*, all quenching their thirst in the nectar of the flowers of large patches of thyme. At night it reposes between the needle-leaves of some fir-bush, where it may be rather easily seen.

Spending a day (July 28th, 1857) in the Glogau Stadtforst (a locality visited by Mr. Stainton two years previously, as recorded in the Entomologist's Annual for 1856, p. 128), I took the opportunity in the morning, before the heat of the day, to watch closely the females of *Arion*, which were flying slowly, and to observe their doings.

I saw them sit down on the stems of *Thymus serpyllum*, and, after sipping from a few flowers, bend their abdomens between the flower-stalks, on which they deposited a pale green egg, sometimes not without some apparent pains. I gathered a score or so of twigs, each with a single egg. In the afternoon I noticed them proceeding in the same manner, but as it was then too hot in the sunshine, the oviposition was only performed under the shade of the trees.

Now what became of these eggs? I totally neglected them! Having found it so easy to obtain them, I postponed breeding the larvæ for some other year when I should be less busy! But from that day to this I have never obtained any more eggs, and here at Meseritz the species is so scarce that I have had no opportunity of observing the interesting history of our largest Blue.

I may mention, in conclusion, that, as the larvæ appear to pass the winter when about half-grown, it will probably be no easy work to rear them to maturity.—
P. C. ZELLER, Meseritz, March 29th, 1869.

Notes on the food-plant of Lycæna Corydon and Cænonympha Davus.—With respect to the notices given in this periodical (vol. iii., p. 70 and 91) on this subject, I beg to make the following remarks.—

In the Stettiner Entomologische Zeitung for 1852, p. 125, I published a detailed natural history of *L. Corydon*, and stated that its food-plant is *Coronilla varia*. This is most certainly the case in the neighbourhood of Frankfort-on-the-Oder, Glogau, and Meseritz, where there is neither chalk nor *Hippocrepis comosa*. In the higher parts of Carinthia the latter plant is likely to be fed upon by *L. Corydon*, for there the *Hippocrepis* grows in the greatest profusion in all the meadows where the butterfly occurs, and no *Coronilla* (excepting, I believe, *C. Emerus*). During the first years of my residence at Meseritz I saw no *Corydon*, and few plants of *C. varia*; but as the northern roadway became older, the plant became more frequent, thus last year, not far from the town, I was gladdened with the sight of a few *Corydon*, which no doubt had followed the spread of its food-plant.

I add a few words on the food-plant of *C. Davus*. In England it is stated to be *Rhynchospora alba*; I indicated a *Carex* with long and narrow leaves. It is possible that with us the larva may feed on the *Rhynchospora*, but this plant I have not as yet found only on one peat-swamp, which I have never visited in summer,

when the true *C. Davus* occurs in all our peaty moors and meadows. I imagine that in Britain the larva will feed freely on *Carex*, and it certainly will not die of hunger when supplied with any of the sharp grasses that grow on moors.—ID.

Observations on Plusia Ni (by Professor Zeller), translated from the Isis, 1847, p. 449.—As Treitschke correctly observes, *Plusia Ni*, when on the wing, has a great resemblance to *P. Gamma*, and it requires very sharp powers of observation to recognise the buzzing *Noctua*, by its grey colour, as *Plusia Ni*. Near Syracuse, on the 30th May, I took a wasted male in a fallow-field, where, when started up, it settled again to sleep on a vine-leaf, instead of buzzing at flowers, as is usual. *Gamma* sometimes settles again in the same way, and, indeed, I had almost passed this specimen for *Gamma*. In the neighbourhood of Catania I found specimens of the second brood, on the 3rd of July, in a moist meadow overgrown with rushes; they flew in the forenoon, and when I revisited the meadow a second time, I found them flying readily towards evening, and settling deep in the tufts of rushes, with the head downwards. At Messina I again observed this species, in the second half of August, where they were flying in the dry grass, and amongst *Nepeta calaminta*, on the heights of Castellaccio. One beautiful specimen I took from a small *Asilus*, which had already killed it.

Plusia Ni was, however, most plentiful on the border of a road near Naples, on the 20th of August; they were on this day particularly shy, more like *Gamma*, and whenever I approached them they went over a wall into a vineyard. I also noticed this species in the Campagna to the South of Rome, on the 28th August. This species, at any rate, seems no rarity in the southern part of Italy.

Its most characteristic markings are furnished by the sub-terminal line of the anterior wings and the central markings: the former shows between the 2nd and 3rd branches of the median vein, and between the last branches of the sub-dorsal vein two acute angles, which are open towards the base, and filled with black-brown, and it always bears on its anterior edge, in the interval between the branches of the sub-costal vein and between the 1st and 2nd branches of the median vein, short black-brown longitudinal streaks. The central marking is not silvery, but simply white with a faint gloss, and at the part which hangs on to the median nervure it is filled up with pale grey; the free part is oval, and more or less distinctly separated.

It is very remarkable, but in three male specimens this part is quite distinctly separated on the left wing, but not on the right: on the other hand, in one female the contrary takes place, and in no one specimen is there this separation on both wings.

The male is distinguished from every other species of *Plusia*, except *circumscripta*, by the abdomen. On each side of the 5th segment is a long, almost straight, pale reddish tuft of hairs, which projects but little from the abdomen, but strikes the eye very readily, so that one cannot help wondering how it was not mentioned by Treitschke: below this tuft on the 6th segment is a longer and thinner tuft, of which the tips of the hairs are black; usually these black tips are concealed in the anal tuft, but may be easily fished out with the setting-needle. As I had not observed these appendages, the object of which I am at a loss to conceive, in the fresh specimens, I am not confident that they are really attached

the above-named segments. Probably other species possess this character in the male sex, and it might furnish a clue to a more natural grouping of the species.

Plusia Daubei, with which I am not personally acquainted, comes very near to *Ni* according to Freyer's figure (N. Beit. iii, p. 90, Tab. 256, fig. 1); on the anterior wings it shows the same markings of the sub-terminal line, but it wants the lower oval part of the *Plusia*-mark, and, on the other hand, has the peculiar uniform stigma as in *P. Gamma*. Boisduval says of *P. Daubei* (Index p. 159), that it is smaller than *Ni*; but according to Freyer, it is almost larger than *Gamma*.

Description of the larva of Aporophila australis.—On October 5th, 1867, Mr. Thomas Terry, of Babbicombe, gave Mr. Hellins some eggs of this species, laid by a captured ♀ about three weeks previously.

On Oct. 16th larvæ began hatching; they fed on *Poa annua* and other smooth grasses, and chickweed, and, being kept in a warm place (out of doors), did not seem to hibernate, but fed slowly through the winter, and by the end of January, 1868, were half-an-inch in length: from this time they fed and grew more rapidly till April, and all of them had gone to earth by the middle of that month. The moths appeared September 22nd to October 10th.

The egg is full and round in shape, with about 20 ribs, of which a third meet at the top, and the rest stop short in the angles formed by their junction, all connected by transverse reticulations; the ground-colour pale yellow, but splashed with purplish-pink.

The larvæ, when hatched, are greenish, with a blackish tinge on the back of the front segments, the head brown, the under-side paler than the back, the usual dots distinct, each furnished with a stiff bristle.

After a moult they become smooth, of a full green colour, with a darker dorsal line and a whitish sub-spiracular stripe, the folds showing yellow, and so they continue to near half-an-inch in length.

When this size has been attained varieties begin to develop themselves, some remaining wholly green with double purplish-red dorsal lines, while in others the sub-spiracular stripe becomes edged above with a spiracular line of purplish-pink.

At the next change the dorsal purplish-red lines open on the centre of each segment, disclosing a pale pinkish diamond, and the sub-dorsal faintly appears now as a fine double pinkish line.

The next moult produces a further development quite characteristic of the adult; the larva is now an inch long; in some the green of the back is of a yellower tint, and the sides a bright rose-pink; in others a brilliant grass-green, and sides purplish-pink; at this stage the dorsal line is flesh colour edged with pink or red, and on the front of each segment is a pair of short black marks placed obliquely, so that but for the dorsal line they would form a Λ with its apex pointing forwards: the sub-dorsal line is also marked with black at beginning of each segment; the sub-spiracular stripe yellowish.

The full-grown larva is one of the handsomest and most gaily coloured of the *Noctuae*, is one inch five-eighths in length, rather stout and cylindrical, slightly tapered towards the anal tip.

The ground colour is now a very brilliant yellow-green, or in some individuals greenish-yellow; the head green freckled with reddish, a red, unpolished semi-

circular plate on the back of the second segment; on the back of each of the other segments is a red diamond, the front part of which for about a third of its length is black, through which runs the flesh-coloured or pale pinkish dorsal line edged with red, thus cutting what would be a black triangle into two black wedges pointing forwards; in the centre and sometimes hinder portions of the red diamond the dorsal line becomes often suffused with their colour. The sub-dorsal line is black, but only at the beginning of each segment. The spiracles white placed in semicircles of black; and the space between them and the sub-dorsal line thickly freckled and streaked with deep red, appearing like a broad band of red along the side; the sub-spiracular stripe very pale primrose-yellow, its lower edge softened a little into the ground colour, and followed below by a blotch of red or pinkish on each segment; the prolegs tipped with the same colour; the ventral surface pale yellowish-green.

Var. 1. The ground colour a rather deep reddish-pink on the back and sides. The freckled side band and dorsal diamonds of darker purplish-red, with all the other details as in the preceding.

Var. 2. Ground colour of the whole surface olive-green, but appearing on the back only at the beginning of each segment as a transverse narrow band, in which can be seen the pinkish-white dorsal line and the black wedges, though much shortened; the rest of each segment is covered by a broad, transverse, dark purplish-brown band extending to the spiracular region and hiding all other marks; each white spiracle in a large black blotch connected with a narrower blackish-brown transverse band on the ventral surface of each segment; the head, entire second and half the third segment, anal tip, and legs, also a faint spiracular line visible only on the anterior segments, are all of the olive-green ground colour.

The pupa is subterranean (but not enclosed in a hard cocoon), its shape is very cylindrical, tolerably even in bulk throughout, very smooth, but rather thicker in the middle, the tail ending with a small spike. Its colour a rich brown, and polished.—WM. BUCKLER, Emsworth.

Occurrence of Acidalia herbariata in London.—Three or four specimens of *A. herbariata* were taken last June, in the shop of a herbalist, in Holborn; two specimens, both males, are now in Mr. Bond's collection. One of the examples taken was a very worn female—on examining his stock, the only plant the herbalist could discover had been eaten was tansy.—E. G. MEEK, Old Ford, May 1869.

Scoparia Zelleri in South Devon.—I have taken this insect in S. Devon for more than a quarter of a century; we used, when boys, to beat it occasionally out of hedges near Teignmouth, and then placed it next to *Botys fuscalis*. Growing wiser as we grew older, we called it *Eudorea cembra*, and as the female of this insect I always regarded it until the appearance of Dr. Knaggs' monograph of the genus *Scoparia*. Any visitor to Teignmouth may capture *Scoparia cembra* commonly on the beach beyond the Ness Rock, sheltering amid the *Eupatorium*, which there grows abundantly, but *Zelleri* is only caught occasionally, either at light or by beating hedges.—R. C. R. JORDAN, 35, Harborne Road, Edgbaston, Birmingham: May 14th, 1869.

Pterophorus hieracii.—The readers of the Entomologist's Monthly Magazine will remember the discovery made of the larva of a species of *Pterophorus* on *Teucrium*

corodonia by Mr. Greening, of Warrington. On examining this with genuine specimens of *Pterophorus hieracii*, sent by Professor Zeller to Mr. Doubleday, and by Herr Mühlig to Mr. Stainton, it is evidently a quite different species; and next month, I hope to describe it under the name of *Pterophorus teucris* (Greening), taking advantage of the opportunity to give a short monograph on the nearly allied European species. I should feel very much indebted to any one who would in the mean time collect evidence as to the existence of the true *hieracii* in England, as also to those who have an opportunity of examining exotic collections, if they would kindly compare the *Pterophorus teucris* with the *P. marginellus* of Zeller; this species I have never seen, and the description in Linnæa Entomologica, it must be confessed, agrees in many respects very closely with the proposed *P. teucris*, especially in the ground colour of the wings "*brunneo fuscus*," and in its having the "*linea in ciliis costæ ante apicem tenuis nivea*." Any Entomologist clearing up these two points would confer an obligation on me.—ID.

New locality for Argyrolepis æneana.—On the 1st June, 1868, I took a specimen of this *Tortrix* in a wood between Herne and Canterbury, about two miles from the former place.—J. W. DOWNING, Vauxhall Bridge Road: April 25th, 1869.

Worcestershire captures of Lepidoptera in 1868.—This account of my doings in the past season may perhaps interest some of your readers.

March 2nd, *A. prodromaria*, 3 bred; *T. populeti*, 3 bred; *T. munda*, 4 bred. April 4th, *X. conspicillaris*, already recorded, 1 bred. April 19th to May 10th, *T. extersaria*, 15 bred. April 19th, *P. palpina*, 4 bred; 27th, *A. berberata*, 6 bred. May 8th to 20th, *C. ocellaris*, 12 bred; 19th, *E. heparata*, 2 bred; *E. plumbeola*, 2 bred; 20th, *H. genistæ*, at sugar, 6; *H. suasa*, at sugar, 1; *A. megacephala*, 2 bred; 28th, *T. extersaria*, 2, beating; *L. hexapterata*, 6, beating; *C. mesomella*, 1, beating; *M. Artemis*, several; *L. sinapis*, several. June 1st, *E. decolorata*, 2, beating; *E. heparata*, 2, beating; *C. propugnata*, 4, beating; *B. pandalis*, 1, beating; *A. plagiata*, 2, beating; 2nd, *C. bifida*, 1 bred; 10th, *S. undulata*, 1, beating; *S. apiformis*, 27 bred; *A. luteata*, 2, beating; *E. lariceata*, 4, beating at the Trench Woods, and 2 in my garden, where larches are growing; *E. porata*, 2, beating; 15th, *A. advena*, at sugar, 4; 15th to 25th, *C. porcellus*, at flowers, 9; 16th, *A. corticea*, at sugar, 1; 18th, *A. rubidata*, 1, beating. July 2nd, *C. quercana*, 1 very fine, stamped it out of an oak; *M. miniata*, 4, beating; *A. tumidella*, 3, beating; *N. roborella*, 1, beating; 7th, *C. affinis*, at sugar, 1; 11th to 27th, *T. betulæ*, 22 bred from 25 larvæ taken off *Prunus spinosa*; 3 of the number having been stung. Seven males appeared before any female ventured out of the pupa. Every season for the last ten years I have bred this species, and have always found the males first to emerge. August 3rd, *C. nupta*, 5 at rest; 8th, *H. sylvinus*, 1 at rest; she laid some white eggs, which upon the following day became perfectly black; 13th, *C. cytherea*, at sugar, 3. September 5th, *A. lunosa*, 6, at sugar; 19th, *X. aurago*, 1, at sugar; *C. miata*, 3, at rest; 22nd, larvæ of *C. furcula*. October 9th, larva of *E. orbicularia*. The last four seasons I have searched carefully for larvæ of this insect, but I have only succeeded in taking one each season; 15th, *V. Atalanta*, a singular variety of this species I captured in my garden. The margins of the under-wings are bright yellow instead of scarlet, and there is a profusion of hair around the body near the inner margins, light brown and white.—ABRAHAM EDMUNDS, Cemetery House, Astwood Road, Worcester, May, 1869.

Do birds eat the larvæ of Cucullia?—A paper was read on the 1st March, at the Meeting of the Entomological Society of London, "on the relations between Insects and Insectivorous birds," by Mr. J. Jenner Weir.

This paper broaches a theory founded on certain experiments by Mr. Weir, which theory is so opposed to what I have observed to take place in Nature that I must suppose either that the birds upon which he made his experiments reject, in confinement, food which they would partake of if at liberty, or that some birds will eat certain larvæ which may be distasteful to others.

I will simply refer to his theory of coloured larvæ, as instanced by the genus *Cucullia*, being rejected by birds.

I have for many years grown *Verbascum thapsus*, the food-plant of *Cucullia verbasci*, as well as several other food-plants of the genus, in my garden, to attract the moths.

I have some years had hundreds of larvæ of *C. verbasci* which fed up to a certain size, but as soon as they begin to show colour and size, and appear on the upper side of the leaves and on the stems to partake of the flowers, down come the birds and off go the larvæ.

The same thing has happened with *Cucullia absinthii*, much to my annoyance.

I therefore cannot feel so satisfied as Mr. Weir expresses himself to be, that "as a general rule birds refuse to eat gaily coloured larvæ."—H. D'ORVILLE, Alphington, May 4th, 1869.

Capture of Deilephila lineata at Folkestone.—A good specimen of *D. lineata* was brought to me on the 7th inst. A boy found it at rest on the grass in "the Warren."—HENRY ULLYETT, Folkestone, May 10th, 1869.

Deilephila lineata in Gloucestershire.—The other day the remains of a large moth were brought to me, which I had not much difficulty in determining as *D. lineata*. It was taken last autumn at Great Risington, about four miles from this place, and when caught was in first-rate condition. It was in the school-room window of the clergyman's house, and a bird was pecking at it from the outside. When brought to me, the remains consisted of a portion of the body, and one hind-wing and a half!—E. HALLET TODD, Aldsworth, Gloucestershire, April, 1869.

Note on Eriogaster lanestris.—In the summer of 1866 I had larvæ of this insect, about 100 of which went to pupæ. The dates at which they have emerged are worth noting:—1867, first moth on February 2nd; 1868, February 20th; 1869, April 6th! There are some yet in pupa; when may they be expected next year?—ID.

Sericoris euphorbiana bred.—This morning, on looking into my breeding-cage, I was pleased to find that a fine specimen of this species had emerged from a pupa obtained from larvæ collected by me at Folkestone, in September last.—HOWARD VAUGHAN, Kentish Town, 3rd April, 1869.

Nyssia hispidaria at Hampstead.—A few weeks ago I captured a large male of *N. hispidaria* on a fence at Hampstead, where I have often searched for that species without success.—ID.

Eupithecia consignata bred.—I have bred six fine specimens of *E. consignata* in the last few days, from eggs kindly sent to me last spring by Mrs. Hutchinson, Grantsfield. I have entirely failed in getting them to pair.—H. HARPUR CREWE, Ayrton Beauchamp, May, 1869.

The late Dr. L. Imhoff's Works, Manuscripts and Collections.—The November number of this Magazine contained an obituary notice of Dr. L. Imhoff, and there will shortly appear in Switzerland a "Necrolog" of the same naturalist from the pen of Professor C. L. Rütimeyer.

In connection therewith the following memoranda may be of some interest, and, in publishing them, I hope to meet with the approval, not only of the respected author of the "Bibliotheca Entomologica," but of all those who are agreed that in the interest of science it is the duty of the survivors to preserve an exact record of the work done by those who have died at their post.

PUBLISHED WORKS.—To the almost complete list up to 1862, in Dr. Hagen's work, there are to be added—

"Catalogus Piezatorum (Hymenopterorum) circa Basileam nec non in aliis Helvetiæ regionibus repertorum." Basilea, 1 fol. (1838?).

"Sammlung ausländischer Käfer und Schmetterlinge in naturgetreuen Abbildungen von T. D. Labram. Mit Text von Dr. L. Imhoff." 1838. Basel, 8vo; 2 numbers, each with 4 pages text and 4 plates, some of which are coloured (*Papilio Doreus*, *Eriippus*, *Bolina*, et *Diaphanus*; *Syntomis Lethe*, *Procris Lichas*; *Leræa Horta*; *Passaius Heros*; *Catoxantha angusta*; *Chrysochroa wanthotenia*).

Lacordaire's notice of a "Heft" No. 19 of the "Singulorum generum Curculionidum," is correct (compare Hagen, *Bibl. Ent.* I, p. 401). The aforesaid publications are in my possession. Labram's original pencil drawings to Dr. Imhoff's work about the *Curculionidæ* are also in my hands, as well as many of those of the "Insecten der Schweiz;" but what has become of the remainder of the matter, particularly of the finely executed drawings of the Diurnal *Lepidoptera*, I am not able to state at present.

MANUSCRIPTS.—Of these I have secured—

"Ludovici Imhoff Dissertatio, in qua insecta nonnulla succino inclusa describuntur et figuris illustrantur," etc. 4to; ann. 1 tab. (8 *Diptera*, 1 *Phryganea*, 1 *Termes*, and 1 *Chrysomela*, from the Public and Bernoullian Collections at Basle). No date.

"Kirby's Arten des Genus *Bombus*" (a critical comparison of Kirby's with continental species). No date.

"Europæische Arten des Genus *Bombus* in der Hellwig-Hoffmanseggischen Sammlung." No date.

COLLECTIONS.—Dr. Imhoff's first and most complete one, combining all orders of Swiss insects, with the types of the species described by him as new, was bought, many years ago, by Professor L. Agassiz, for the Museum of Comparative Zoology in Cambridge, Mass. (see Hagen, *Stettin. Ent. Zeitung*, 1868, p. 115).

Swiss entomologists will not fail to appreciate the fact that this collection (together with other European ones) is now under the care of Dr. Hagen himself; and it is to be hoped that this coincidence will be in due time made use of to settle the many open questions, particularly in the order of the *Neuroptera* taken in the Linnæan sense.

A very large assemblage of (mostly exotic) beetles, including the majority of the *Curculionidæ* described by Dr. Imhoff, has been acquired by Andreas Bischoff-Ehinger, of Basle, to whose liberality and studiously neat collection the former, on more than one occasion, owed the means of continuing his works.

A second general collection has been deposited in the Public Museum at Basle, and I would here express my hope that every Swiss specimen belonging to it may be carefully preserved, if possible, with Dr. Imhoff's own labels, to enable workers to use the insects as types, as it would be rather a round-about way to have to get information on that head from America.

The library of Dr. Imhoff has been dispersed.—ALBERT MÜLLER, Penge, S.E., April, 1869.

The late Mr. Edward William John Hopley.—This gentleman, whose name will be familiar to our readers, died at his residence, No. 14, South Bank, Regent's Park, London, on the 30th April, at the age of 53. Intended by his friends to follow the profession of medicine, Mr. Hopley was, in early life, articled to a surgeon at Brighton; but he soon relinquished that profession for the, to him, more congenial one of an artist, in the exercise of which he had attained no small degree of celebrity, and he was always ready to acknowledge the assistance to his art-career which his early anatomical studies had afforded him. For many years he had been an assiduous collector of British *Lepidoptera*, and turned his attention especially to the subject of variation, on which he largely experimented, by subjecting certain larvæ to forced diet and unusual conditions. As our pages will show, he was a genial writer and minute observer. And he will long be remembered by a large circle of friends for his unvarying courtesy; an evening spent with him in his studio, surrounded by a combination of the beautiful works of art and nature, was an event not likely to be soon forgotten by the numerous entomologists who enjoyed that privilege. About two years since, Mr. Hopley was attacked by an insidious renal disease, of a kind that has hitherto baffled all medical skill, and though he retained his habitual happiness of disposition up to the last, he knew that, sooner or later, he must succumb to its ravages; yet only a short time before his death he had occupied himself with a re-arrangement of his collection in a new cabinet, scarcely anticipating apparently that the end was so near. One or two of his most beautiful pictures received the artist's finishing touches only a few days previously to his demise.

Review.

THE INSECT WORLD, being a popular account of the Orders of Insects; by LOUIS FIGUIER; second edition, revised and corrected by E. W. JANSON. London: CHAPMAN & HALL, 1869.

Those who desire a popular treatise on general Entomology, profusely illustrated, cannot do better than supply themselves with this English translation of Figuiér's "*L'Insecte*." The writer belongs to the class of "book-makers" with whom we have little sympathy, yet a careful compilation from trustworthy sources is often better than original works by superficial observers, such as we too frequently see; and M. Figuiér appears to have had good advisers as to the books he should consult. One portion, at least, of the English translation is likely to be free from striking errors, as the second edition has been entrusted to a gentleman

the extensive knowledge of *Coleoptera* is indisputable; and the rest seems tolerably correct. The illustrations are, as a rule, well engraved; yet many are very bad, being of the well-known unnatural French type, and the worst are those taken from older authors, which seem to be pressed into their service by all French popular writers on insects with such accurate copying, that one is almost induced to believe that the same wood-blocks do duty in rival publications. The work is handsomely got up, and will no doubt form an attractive ornament on many drawing-tables.

We cannot refrain from remarking on the low price at which these French works are published, as compared with similar English ones, though the demand on the other side of the Channel can scarcely be greater than here. The secret lies in the cost of production, and it is a humiliating fact that the artistic work of the same kind like this can probably be done on the Continent for almost a tithe of what it would cost in England. Even printing in the English language can be executed in some of the large German towns at a far lower rate than at home, and on equally good paper. We say this in no disparagement of an enterprising class of artisans: the difficulty remains to be solved by the political economist.

ENTOMOLOGICAL SOCIETY OF LONDON, 3rd May, 1869. H. W. BATES, Esq., F.R.S., President, in the Chair.

C. O. Waterhouse, Esq., Assistant in the Zoological Department of the British Museum, was elected a Member.

Mr. Stevens exhibited a large collection of Chinese *Coleoptera*.

Mr. Butler mentioned that the West African *Conocephalus*, exhibited by him at the Meeting on the 15th February last, was still alive, though it had eaten nothing.

Professor Westwood exhibited, and remarked upon, several species of *Ephyris* and other *Hymenoptera* of doubtful position, including an example of *Calyzoa ephyrinoides*, Hope, taken at large at Natal, the species having been originally described and figured (Trans. Ent. Soc. 1st series, vol. ii, p. 56, pl. 7, fig. 11), from an example enclosed in Gum Animé.

Mr. Horne read some observations on the habits of various Indian insects.

Mr. F. Smith exhibited both sexes of a *Cynips* sent to Mr. Darwin by Mr. Walsh, as recorded in the last number of this Magazine (vol. v, p. 298). Concerning this most interesting discovery we give the following extract from Mr. Walsh's paper in the "American Entomologist" for February, 1869:—

"The true 'Oak-apple,' as it is popularly called, occurs exclusively upon the Black Oak (*Quercus tinctoria*). It commences its growth in May, or as soon as the young leaves put forth, and reaches its full size in a few weeks. The central cell, in which the larva resides, becomes eventually hard and woody, but the space between that cell and the external skin or rind of the gall is always completely filled by soft, drab, spongy matter. By the fore-part, or middle, of June, both male and female gall-flies (*Cynips Q.-spongifica*, O.S.) eat their way out of a certain number—say about a fourth part—of these galls. The remaining larvæ lie dormant for more than two months, when they change into the pupa-state, and subsequently, about October, eat their way out in the form of gall-flies (*Cynips Q.-aciculata*, O.S.),

closely allied to, and yet quite distinct from, those produced in June. Out of thousands of these autumnal flies examined by us, all were females, with not a single male among them; and we have experimentally ascertained, by colonizing a number of these females upon isolated black-oaks known to be not previously infested with oak-apples, that they cause apples to be generated in the following spring upon such isolated oaks. From oak-apples produced in this manner we have bred two specimens of the spring form (*Q.-spongifica*) of gall-fly which exists in both sexes, and five specimens of the autumnal form (*Q.-aciculata*) which exists exclusively in the female form. Finally, treating these five autumnal specimens in the same manner, *i. e.*, placing them upon another isolated black-oak, we obtained galls in the following spring which produced two specimens of the spring form (*Q.-spongifica*), thus showing that the autumnal form sooner or later reverts to the spring form. Hence, as well as from other considerations, we may infer that the former is not a distinct species, but a mere dimorphous female of the latter; for otherwise one form could not generate the other. The bastard oak-apple matures like the preceding in June, but is found exclusively upon the red-oak (*Quercus rubra*). It differs from the preceding in never reaching so large a size, the central cell not being woody, but consisting of a mere shell which can be readily broken with the thumb-nail, and in its being only connected with the external rind by slender radiating filaments. Males and females (*C. Q.-inanis*) absolutely indistinguishable from the spring form of the preceding species, are obtainable from this gall in June; but after repeated trials we have never succeeded in breeding from it a single autumnal female, and we do not believe that any such form exists. Hence, and also in consequence of the very great dissimilarity of the galls, and their always growing upon distinct species of oak, we are compelled to consider these two gall-flies as distinct species, although when placed side by side the forms generated in the spring are always exactly like each other."

Mr. McLachlan exhibited all the forms of a small species of *Termes* brought from St. Helena by Mr. Melliss, and being the same to the ravages of which, in that island, Mr. Layard called the attention of the Society in 1866 (Trans. Ent. Soc. 3rd series, vol. v, Proc. p. xii). Mr. Layard stated that the insect had been introduced in timber from the Coast of Africa, but Mr. McLachlan could not identify it with any described African species, and was inclined to consider it the *T. tenuis* of Hagen, which inhabits the West Indies and Brazil. Considering that St. Helena is a place of call for vessels from all quarters, there is no reason why it should not have originated from the West; though one would naturally look to Africa as its home, and from this cause he was inclined to think that the idea of its coming from thence had originated. It is an anomalous species in its structure in which it agrees with *T. tenuis*. Mr. McLachlan also exhibited a large number of small black *Podura* placed in his hands by Mr. Henry Lee, and concerning which it was stated that they had been found at Hungerford, on the 10th April, on the surface of a duck-pond, which they covered to such an extent as to give the idea that a bag of soot had been emptied over it.

Mr. A. R. Wallace read "Notes on eastern Butterflies (*Diadema*)."

Mr. Butler read "Descriptions of a new or little known forms of Diurnal *Lepidoptera*."

NEW SPECIES, &c., OF HEMEROBIINA; WITH SYNONYMIC NOTES
(FIRST SERIES.)

BY R. M'LACHLAN, F.L.S.

FAMILY OSMYLIDÆ.

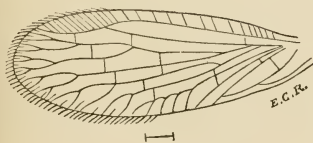
CLIMACIA, n. g.

Antennæ moniliformes, alis paulo breviores; articulo basali bulboso. Ocelli nulli, occiput fornicatum; frons triangularis; labrum excisum; maxillæ (?) setis duabus elongatis rectis instructæ; palporum maxillarum articulus ultimus quarto paulo longior, subulatus. Prothorax elongatus, anteapicem angustior. Abdomen vix robustum, ad apicem attenuatum; sternina terebrâ rectâ, sursum directâ, instructum. Pedes graciles; tarsorum articulo 1° elongato, 2° et 5° brevioribus, æqualibus, 3° et 4° brevissimis; ungues parvi, simplices; plantula parva. Alæ ovatæ, ad apicem obtusæ; nervi costarum subcosta et radius sub-parallelæ, distantes, ante apicem conjuncti, nervus costæ postica dilatato; area sub-costalis venulâ transversali singulâ basali instructa; furculæ marginales apicales duplices, dorsales simplices; venule posticae paucae, seriebus duabus gradatim dispositæ, cum venis robustæ, ciliatæ; nervi posticae breves: posticæ fere anticas simulantes.

Type: *Micromus areolaris*, Hagen, North Amer. Neurop., p. 199.

This curious little insect evidently belongs to the *Osmylidæ* in the sense defined by Brauer; and Hagen, in his "*Synopsis synonymica*," had already placed it doubtfully in the genus *Sisyra*, at the same time indicating that a new genus should be formed for its reception. From

Sisyra it differs in the presence of a veinlet at the base of the sub-costal area, and of two well-defined series of gradate veinlets; also in the elongated prothorax, and long triangular face. I have indicated the



Anterior wing of *Climacia areolaris*.

presence of two curious setiform organs, apparently connected with the maxillæ, but am by no means sure of their actual position and relationship.

Hagen received the insect from Florida (March); I possess a pair from Bosque County, Texas, taken by Mr. Belfrage (in August). It is probably aquatic in its earlier stages.

FAMILY HEMEROBIIDÆ.

DREPANEPTERYX BERTHOIDES, *n. sp.*

♀. *D. griseo-flavescens*. Caput thoraxque utrinque fusco-nigri: antennæ flavæ, nigro-annulatæ. Pedes flavo-albidi, fusco-signati. Alæ augustæ: anticæ margine costali prope basin valde elevato, in medio latè exciso; apice longè falcato; margine apicali sub apicem latè exciso griseo-fuscæ, marginibus venisque longitudinalibus nigro-punctatis; sectores sex: posticæ albido-hyalinæ, latè fusco-limbatae.

Long. corp. 3^{'''}; exp. alar. 10^{'''}.

Hab. Australia.

Head and thorax dull greyish-yellow, the sides above blackish; face shining yellowish, suffused with blackish; antennæ yellow, narrowly annulated with black; palpi blackish. Legs whitish-yellow; anterior and intermediate femora and tibiæ strongly spotted with black; posterior femora internally with a long fuscous cloud; apical joint of all the tarsi blackish. Abdomen fuscous, pale beneath.

Wings long and narrow: anterior pair with the costal margin very narrow at base, then, near the base, strongly and roundly elevated, afterwards very longly and shallowly excised; apex produced into a long curved hook, the margin below the apex deeply excised; colour greyish-fuscous, with a darker transverse cloud before the apex; costal margin regularly dotted with black and yellowish; apical margin (excision) narrowly blackish, with pale whitish-yellow space between costal veinlets, radius, and sectors yellow, strongly dotted with black; sectors; two series of gradate veinlets, of about six each, placed very obliquely and parallel; cellule at base of costal area long, occupying nearly the whole of the very narrow base of the area: posterior wings with the apical margin longly excised; whitish hyaline, apical and dorsal margins with a very broad smoky fuscous border, extending nearly to the base, hence the hyaline ground is reduced to an oval basal space; veins pale yellowish in the hyaline portion and blackish in the rest.

A very peculiar species, with the facies of the Indian and American forms of *Bertha*; differing widely on the one hand from the European *D. phalænoides* and the Indian *D. falculoides*, and on the other hand from the Australian and New Zealand group represented by *D. binoculus* and its allies, yet agreeing structurally sufficiently well to admit of its being considered generically identical. Lent to me by Mr. Walker.

HEMEROBIUS PERPARVUS, *n. sp.*

H. rufo-fulvus, fusco-nigroque varius. Antennæ flavæ, ad basin fusco-annulatæ, ad apicem nigricantes. Pedes flavi, tarsi anticis intermediisque nigro-annulatis. Alæ albido-hyalinæ: anticæ griseo-guttatæ; venæ vena læque albidæ, fusco-punctatæ, pilis longis, erectis, nigris, ciliatæ; sectores duo.

Long. corp. 1 $\frac{1}{4}$ ^{'''}; exp. alar. 3 $\frac{1}{4}$ ^{'''}.

Hab. Texas. In coll. auct.

and thorax reddish-fulvous, the latter varied with black above. *Antennæ* yellow, obscurely annulated with fuscous, the apical portion totally blackish: *palpi* piceous. *Abdomen* yellowish, clothed with concolorous hairs; in the male the last ventral segment is produced into a short, triangular, yellow, ciliated borer-like appendages. *Legs* whitish; anterior and intermediate tarsi annulated with blackish.

gs whitish hyaline: anterior pair with numerous small rounded grey spots, which are very conspicuous along the inner margin; veins whitish, with minute fuscous dots, from each of which arises a long erect blackish hair; margins longly ciliated; two sectors; five veinlets in the inner gradate series, four in the outer.

I received three examples of this very minute and delicate species from Mr. G. W. Belfrage, by whom they were taken in Bosque County, Texas, in September.

FAMILY CHRYSOPIDÆ.

CHRYSOPA EXUL, n. sp.

C. flavo-viridis. *Caput* punctis quinque rufescentibus (quorum duo ad verticem, unum inter antennas, unum ad genam utramque) signatum. *Prothorax* supernè punctis quatuor, utrinque lineâ his paullo inferâ, nigris, *trinaque mediâ transversali, utrinque rufescenti, instructus.* *Ungues ad basin valde dilatati, apicibus valde incurvatis.* *Alæ latæ, venis venulisque omnino pallidè viridibus; anticarum cellula tertia cubitalis ut in C. vulgari.*

Long. corp. 5^{'''}; *exp. alar.* 13^{'''}.

Hab. in insula Sanctæ Helenæ. In coll. auct.

Yellowish-green. *Head* with five small reddish dots, whereof one is placed on each side of the vertex, one between the antennæ, and one on each cheek. *Palpi* fuscous. *Antennæ* yellowish at the base, afterwards brownish, the basal joint very strongly inflated. *Prothorax* with a strongly raised median transverse ridge, on each side of which is a small reddish dot; the sides oblique in front; a black spot at each angle above, and a black longitudinal line on each side a little inferiorly. *Meso- and meta-thorax* unspotted. *Abdomen* greenish, with a fuscous dot on each side of the base above. *Legs* whitish, the tarsi reddish-brown; *claws* strongly dilated at the base, afterwards with the apices greatly incurved.

Wings broad, scarcely acute at the tips, hyaline and iridescent, veins and veinlets all greenish, ciliated: the third cubital cellule in the anterior wings as in *C. vulgari*.

I possess one example, brought from St. Helena by Mr. Melliss, who also collected two specimens of another *Chrysopa* in the same island, which do not seem sufficiently distinct from the abundant European *C. vulgari*, already reported from Madeira and Mauritius.

CHRYSOPIA PUNCTINERVIS, n. sp.

C. flava, brunneo-varia. Caput vittis quatuor, longitudinalibus, binis, apud verticem signatum; fronte brunneo-vario, genis maculâ elongâ nigrâ utrinque ornatis. Palpi flavi, lætè nigro-annulati. Antennæ brunneæ, basin versus flavidæ, articulo basali supernè lineâ brunneâ signatâ. Thoracis vitta lata utrinque, lineaque mediana angusta, necnon abdominis maculæ dorsales plurimæ, brunneæ. Pedes albidî, femoribus ad apicem brunneo-semi-annulatis: ungues simplices. Alæ vix latæ, ad apicem emarginatæ, hyalinæ; venæ venulæque albidæ, regulariter nigro-punctatæ, anticarum cellula cubitalis tertiâ ut in *C. septempunctatâ*.

Long. corp. 3-4''; exp. alar. 9-10''.

Hab. in Texas. In coll. auct.

Pale yellow. Head: vertex with four longitudinal brown lines, the two middle ones longer than the outer, and slightly interrupted; a small brown V-shaped spot between the antennæ, and a brown line on the basal joint of the latter: front varied with brown, and with an elongate black spot on each cheek. Palpi yellow, broadly annulated with black. Antennæ brownish, the basal portion yellow. Thorax yellow, with a very broad brown stripe along each side and a narrow median line, which is most evident on the prothorax. Abdomen yellow (that of the female much dilated), with numerous, more or less confluent, brown spots along the back. Legs whitish, with short black hairs; femora with a black spot internally at the apex; claws simple.

Wings rather narrow, the apex rounded, hyaline; veins and veinlets whitish, (excepting the radius, which is wholly pale) with regular tuberculated black dots, from each of which springs a short blackish hair; pterostigma rather long, dirty yellowish: third cubital cellule of the anterior wings as in *C. septempunctata*.

I have two ♂ and one ♀ of this, collected in Bosque County, Texas, in summer, by Mr. G. W. Belfrage. It is remarkable for the regular punctuation of the neurulation, as ordinarily in *Chrysopa* this is entirely pale or dark, or with black spaces only at the two ends of each nervule.

CHRYSOPIA NIGRA, n. sp.

C. albida, nigro-varia. Caput maculis duabus magnis verticalibus, lineâ supernè ad basin antennarum, lineisque tribus in fronte, nigris signatum. Antennæ nigro-fuscæ, pallido-annulatæ; palpi fuscæ. Prothorax albicus, nigro-ciliatus, margine antico punctisque lateralibus nigris. Mesothorax albidus, nigro-varius. Pedes albidî, femora maculâ extûs ad apicem nigrâ signata; tibiæ nigro-bi-annulatæ: ungues breves, curvati simplices. Alæ hyalinæ, angustæ, venis venulisque (præter nonnullas medio albidas) nigris: anticarum cellula cubitalis tertiæ venula separata venulæ transversali superpositæ æqualis. Long. corp. 3½''; exp. alar. 9''.

Hab. in insula Antonio (Cape de Verdes). In coll. auct.

whitish, the vertex flattened, and almost entirely occupied by the large black spots which are scarcely separated by a narrow median line; a black one at the base of the antennæ; front with three transverse black lines, one broad and angulated in the middle, below the antennæ, a second on the clypeus, and the third occupying the labrum. *Palpi* slightly fuscous. *Antennæ* black, narrowly annulated with whitish; the basal joint short, blackish above, whitish beneath. *Prothorax* broader than the head, whitish with black hairs, the anterior margin narrowly black, and with irregular black spots on the sides. *Meso- and meta-thorax* strongly suffused with blackish, the scutellum of each pale. *Abdomen* blackish (colours probably changed in drying). *Legs* whitish, longly ciliated; a blackish spot externally near the apex of the femora; *tibiæ* with two blackish rings, one near the base, the other near the apex; *claws* very short, simple, curved.

Wings narrow, hyaline; sub-costa and radius whitish with black lines, the rest of the veins and veinlets black, with occasionally a pale median space: anterior wings with eight transverse veinlets between the radius and its sector; four areoles between the two gradate series; the dividing veinlet of the third cubital cellule equal with, or scarcely exceeding, the transverse veinlet above it.

I have one example of this peculiar species collected by Mr. V. Wollaston in Antonio, one of the Cape Verde Islands.

NOTHOCHRYSA EVANESCENS, n. sp.

N. pallide albida. *Antennæ* griseæ, articulis duobus basalibus pallidis. *Pronotum* utrinque linea irregulari fusca signatum. *Alæ* hyaline, latæ; pterostigmate elongato, pallide flavescente: anticæ venis longitudinalibus pallidis; venulis costalibus fere totis, venulis gradatis, necnon venulis intersectorialibus et sectorem, furcularum marginalium axillis sectorisque dimidio apicali, nigris: posticæ venulis gradatis, furculis marginalibus, sectorisque dimidio apicali, nigris.

Long corp. 6''; *exp. alar* 23½''.

Hab. Sarawak in insula Borneo. In Mus. Brit.

Generally very pale whitish with a tinge of yellow. *Antennæ* grey, except the two basal joints. *Pronotum* with an irregular fuscous line on each side. *Claws* slightly dilated at the base.

Wings broad, hyaline, iridescent; pterostigma elongate, very pale yellowish, with a small blackish dot at the inner end: anterior wings with the longitudinal veins pale yellowish; costal veinlets (except in the pterostigmatal region) black with a pale space in their lower half; the apical half of the sector, the gradate veinlets, those between the sector and radius, and the basal portion of the marginal forks, also black; sector emitting 22 branches; dorsal marginal veins simple up to between the gradate series, afterwards simply farcate: posterior wings with all the veins and veinlets pale, excepting the apical half of the sector, the gradate veinlets, and the marginal forks, which are black.

One example in the collection of the British Museum, presented by Mr. Saunders; collected by Mr. A. R. Wallace, at Sarawak.

NOTHOCHRYSA FERRUGINEA, n. sp.

N. rufescens. Caput nitidum, rufo-aurantiacum; antennæ nigro-fuscis articulis duobus basalibus rufescentibus. Pronotum rufo-aurantiacum, angulis quatuor nigris signatum. Pedes flavescens, geniculis nigro-punctatis. Abdomen ochraceum, suprâ nigro-maculatum. Alæ hyalinæ; pterostigma elongato, rufo-ochraceo: anticæ venis longitudinalibus pallide flavis; venis costalibus plerumque, gradatis, cubitalibus, nonnullisque inter radium, sectorem, nigris; posticæ venulis costalibus venulisque inter sectorem et radium in parte, gradatisque omnino, nigris. Long. corp. 5''; exp. alar 18''.

Hab. Sarawak in insula Borneo. In Mus. Brit.

Reddish. Head reddish-orange, polished; eyes bluish-grey; antennæ black, fuscous, the two basal joints reddish-orange. Prothorax transverse, abaxially with a longitudinal impressed line in the middle, anterior angles oblique with four large black spots, one at each angle. Mesothorax above with a narrow black line on each side in the front, above, following the course of the anterior sutures. Legs pale yellowish with a black mark at the knees; claws dilated at the base. Abdomen ochreous, spotted with black above.

Wings hyaline, highly iridescent; pterostigma elongate, slightly reddish: anterior wings with all the longitudinal veins pale yellow; costal veinlets (except those near the pterostigma), gradate veinlets, inter-cubital veinlets, entirely, and those between the radius and sector at the two ends, black; sector emitting 18 branches; dorsal marginal veinlets simple as far as the inner gradate series, afterwards simply furcate; a black dot at the extreme base of the radius in each wing: posterior wings with the costal veinlets at the base gradate veinlets wholly, and those between the sector and radius at the base black.

One example in the collection of the British Museum, presented by Mr. Saunders; taken by Mr. A. R. Wallace, at Sarawak.

Notes on species described by Mr. F. Walker in the Trans. Entom. Soc., Lond., vol. v. (new series), part 5, p. 182-186.

Genus VARNIA, Walker = ITHONE, Newman. *V. perloides* is an interesting second species of this curious genus.

Osmylus punctipennis, Walker, may be retained in the genus at the present, but is aberrant; *area costali seriebus 5—2 areolarum*.

Chrysopa ignobilis, Walker—a true *Chrysopa*.

C. pubicosta, Walker, belongs to *Osmylus* as a slightly aberrant form.

C. mozambica, Walker = *Nothochrysa variegata*, Burm., with which *N. rufostigma*, McLach. (Journ. Linn. Soc. Zool. vol. ix, p. 253), is almost identical. The native country of the allied *N. æqualis*, Walker, is India and Malacca.

Apochrysa beata, Walker, is allied to *A. marionella*, Guérin, but smaller, and without the dark cloud in the fore-wings.

Drepanopteryx falcuoides, Walker, is closely allied to *D. phalæ-*
es, but distinct.

Hemerobius decisus, Walker, might be placed provisionally in *Mega-*
mus; but it will form a distinct genus, which I propose to call
URONEMA, of which I will say more hereafter, giving here the
following preliminary diagnosis:—*Alæ anticæ sectoribus (in N. deciso)*
plecim, quorum sex e radio emittuntur, reliqui ex uno illo parallelo.

H. setulosus, Walker, is a true *Megalomus*.

H. tasmaniæ, Walker, is a *Micromus*; I have seen it from several
parts of New Holland, and possess two individuals from New Zealand,
which differ only in the rather greater amount of spotting on the
wings, and with these more strongly ciliated; a comparison of an ex-
tensive series from both quarters will be requisite to prove the identity
or distinctness of the two forms.

Lewisham, May, 1869.

DIAGNOSES OF THREE NEW SPECIES OF CALOPTERYGINA.

BY R. McLACHLAN, F.L.S.

As Baron de Selys-Longchamps is about to publish a second
Additional Synopsis of the Dragon-flies belonging to this family, I take
the opportunity of diagnosing three beautiful undescribed species from
my own collection, as under:—

SAPHO ORICHALCEA, n. sp.

S. viridis, metallica, infra (cum pedibus) nigra. Alæ latæ, ad apicem
rotundatæ; posticæ (præcipue in maris) valde dilatatæ: in ♂ adulto nigræ,
apicæ, orichalceo-micantes, nigro-venosæ, venâ costali viridi, metallicâ;
pterostigmate nigro: in ♂ immaturo fuliginoso-sub-hyalinæ, orichalceo-
micantes; pterostigmate flavo: ♀, sub-hyalinæ, flavo-brunneo-tinctæ;
fasciâ medianâ, cuneiformi, paullo curvatâ, flavescenti, vel (immaturâ)
albida; pterostigmate flavo, nigro-circumcincto.

Long. abdom. ♂ 24". ♀ 22"; exp. alar. ♂ 41", ♀ 37",

Hab. Africa occidentali (et Madagascar?).

Remarkable for the very broad wings, and for the transverse fascia
of all the wings in the ♀, which is placed immediately after the nodus,
and is broadest on the costa. I have not seen an example with the
abdomen in good condition. In my own collection from Fernand Vas,
West Africa, almost on the equator; in De Selys' collection from Old
Calabar; and in that of the British Museum (a pair from Mr. Saunders)
labelled "Madagascar," but this locality seems very doubtful. The

wings of the adult male show traces of small, irregular, whitish dots, is frequently the case in black species of this family, and which seem to result from non-development of the black pigment.

THORE VICTORIA, n. sp.

T. nigra, thorace utrinque flavo-quinquelineato. Alæ flavo-albæ ad apicem late (intus concaviter) chalybeo-nigræ, anticæ strigâ obliquâ medianâ brunneâ; posticæ fasciâ medianâ brunneâ: pterostigmate dilatato nigricante (♂). Long. abdom. 25"; exp. alar. 46".

Hab. Bolivia.

Differs from all other species in its great size, by the black apical third of the wings being regularly concave internally, and by the broad transverse median fascia of the hind-wings. I possess one male of this magnificent species.

THORE BEATA, n. sp.

T. nigra, thorace flavo-quinquelineato, infra griseo-albido. Cap. flavo-maculatum. Pedes nigri; femoribus intus ad basin brunneis. Alæ utrinque ad basin flavo-lineatum. Alæ hyalinæ, vix (adulti) fuscæ, nigro-venosæ: posticæ maris (adulti) fasciâ latâ ante medianâ opacâ, lacteo-flavâ, vel (immaturi) lacteâ; foeminæ (adultæ) fasciâ medianâ angustâ, flavâ, opacâ, extus fusco-limbatâ, vel (immaturæ) lacteâ pterostigmate nigro vel nigro-fusco.

Long. abdom. ♂ 17-18", ♀ 15-16"; exp. alar. ♂ 29-31", ♀ 29-32".

Hab. Pebas.

Remarkable for its small size, and for its hyaline anterior wings and the opaque transverse whitish fascia of the inferior wings. I have seen many examples, collected by Mr. J. Hauxwell, at Pebas, on the Upper Amazons.

Lewisham, London, 13th June, 1869.

DESCRIPTION OF A FINE NEW CHARAXES FROM AFRICA.

BY ARTHUR GARDINER BUTLER, F.L.S.

The following species is from the collection of T. P. Dossetor, Esq., and forms part of a set of West African insects which the late Mr. Edward Doubleday, some years since, was very anxious to procure for the National Collection.

CHARAXES ZELICA, n. sp.

♂ Wings above blue-black with the fringe orange, the basal area shot with dark blue-green.

Front-wings traversed beyond the middle by a series of six small spots, the third to fifth lunular, the others sub-ovate; a sub-costal of the same colour between them and the apex.

Hind-wings with an oblique discal series of seven blue spots, spring from the apex to the anal angle; eight sub-marginal white spots delicately encircled by blue scales and seven linear marginal spots; abdominal margin and body brown, coarsely clothed with hair.

Wings below silky olivaceous, the apical area inclining to ochraceous, sharply defined by a curved line running from the anal angle of hind- to the apex of the front-wings; the basal area crossed by two angular silvery bands, terminating in the front-wings in two ochraceous spots; the interior band limited outwardly, and the exterior one inwardly, by a black and white line.

Front-wings with a pale undulated line upon apical area, two black pupillate spots with white irides near the base, and a black stria at the base of the cell.

Hind-wings with a large sub-anal silver patch and eight white sub-marginal spots, the three nearest the anal angle pupillated with black; body brown, the centre of the thorax, palpi, tibiæ, and tarsi ochraceous. Span of wings $3\frac{1}{4}$ inches.

Inhabits West Africa (Ashanti?).

This beautiful species, which I hope shortly to be able to figure, is allied to *Tiridates* and *Mycerina*, the coloration of the upper surface being somewhat similar to the former, the shape of the wings and underside colouring more nearly approaching the latter species.

British Museum: 5th May, 1869.

NOTE ON THE ECONOMY OF *NEMATUS SALICETI*, FALLÉN.

BY ALBERT MÜLLER.

In the beginning of August, 1868, I collected in this neighbourhood a quantity of the common elongated spongy galls, belonging to this species. They occurred on a willow (*Salix fragilis*?), on which it would have been difficult to point out a leaf not beset with two or more specimens; in fact, many leaves were crowded to excess, and presented the appearance of two rows of red rugose beans, but the midrib of the leaves was free throughout.

The larvæ were full-fed about the 8th of August. Unlike other gall-feeders of the genus, they had not eaten the galls to a clean thin shell, but left a rather thick fleshy covering intact, through which they gnawed a round hole and dropped to the ground, leaving their late

tenements full of "frass." I handled sundry specimens of this larvæ before they were full-fed, and noticed no particular odour; but when I happened to take up with my finger a full-fed larva, which I had watched tumbling down, I immediately dropped it in disgust, as a most unpleasant odour, similar to that of *Acanthia lectularia*, struck my olfactory nerves.*

The larvæ now bury about an inch under ground, and pass their metamorphosis there in a spun stout cocoon of brown silk (not mixed with any earthy particles), and of about the size of a grain of wheat. Many of the cocoons having been attached to small pebbles, presented, after removal, one or more flattened sides. When the cocoon is finished the larvæ have completely lost the offensive odour they previously possessed; I repeatedly made sure of this by turning larvæ out of their cocoons and purposely irritating them; and at the risk of being denounced as "dealing with hypotheses," I am tempted to conclude that this odour is given to them as a safeguard during that short but most critical moment of their lives, when neither the shell of the gall nor mother Earth can protect them against their enemies.

The imagos made their appearance between the 13th and 15th October of the same year. On the evening of the last-named day, at a quarter-past six, I began to watch one of the cocoons, which, by sundry slight movements, had given me warning of some impending change. I had previously taken the precaution of placing several cocoons upon a highly-polished glass. A few minutes afterwards the antennæ of the insect were gently pushed through a very narrow slit at the upper end of the cocoon, and, with a tremulous motion, they seemed to explore the surrounding spot; five minutes later a part of the forehead made its appearance, and I could now see how the little busy jaws worked their way along the slit mentioned, gradually widening it, until the top of the cocoon, shaped like a skull-cap, was nearly detached. The insect directly pushed this easily aside, rapidly walking out of the cocoon, and now busily cleaning its antennæ by moving the fore-feet over them, and subjecting the wings to the same process with the hind legs. It took to flight immediately afterwards, and must have attained to full ma-

* Other accounts of this faculty being possessed by larvæ of saw-flies are on record: see, for instance, Westwood, Introduction to Mod. Class. of Insects, vol. ii, p. 104. Some species, as is well known, have the power of discharging an oily liquid, others are covered with a slimy substance, &c. These various protective properties may possibly, to some extent, account for the *Tenthredinidæ* being almost the only group amongst Hymenopterous larvæ, of which many species parade with ornamented skins in various lively colours, for it seems evident that a group thus rendered distasteful by various attributes has a far greater chance of holding its own in Nature than others. This "survival of the fittest" seems to have been conducive to two distinct results: a strong increase of numbers, both of species and individuals, and an assuming of a more or less gay livery in that stage of development which generally lasts the longest—i.e., the larval state. The internal feeders of the group have only had the advantage of numerical increase, whilst the species living exposed on various plants have profited by the influence of light besides; hence the former all show dull colours, and present a marked contrast in this respect to the external feeders.—A. M.

y within the cocoon, as I could perceive no change whatever in
ue from the time of extrusion until its death, which took place on
21st of October. None of its companions lived longer than eight
after leaving the cocoon, but, as I did not know what to feed them
a, it is possible that, in their free state, these insects may have a
ger existence.

Penge, S.E., 30th May, 1869.

[I am rather inclined to think that the appearance of the perfect
-flies in October was exœptional, and that their development was
elerated by the great heat of last season. This seems the more
bable because the willow being deciduous, any eggs laid in the leaves
e in the autumn would perish with them, before allowing time for
eir hatching, or for the larvæ becoming full-fed.

I have come across a curious mistake in one of the old authors,
inding one of the frequency with which the parasitic *Callimome*
s, of late, been mistaken for the long desiderated male of *Cynips*.
Frisch's "Insecten Teutschlands" (1721), Theil 2, p. 22, is a chapter
a this *Nematus*—"Von der Schlupf-wespe in der Weiden-Knoten"—
which the gall and habits of the larvæ are correctly described, but
e notice of the perfect insect refers to a parasitic ichneumon; and on
ab. iv, the gall is figured with male and female parasites instead of
aw-flies. Nearly a century and a-half has elapsed since Frisch wrote,
nd still we find similar mistakes in vogue.—R. McLACHLAN.]

Note on *Tipula flavolineata* and *Ctenophora atrata*.—I found the larvæ of *Tipula*
flavolineata, Mg., last winter abundantly in rotten birch stumps, and more sparingly
n rotten beech and furze; with them were several of *Ctenophora atrata*, L., which
did not, however, distinguish at the time, this species has since occurred abun-
dantly at rotten alder stumps. I am indebted to Mr. Verrall for the names of these
insects, and for the information that a light variety of the male of *atrata* equally
common with the black form appears to be the insect described as *Ctenophora*
fuciformis, M. The *Ctenophoræ* emerge from the pupæ in the burrows in the wood
in which the pupæ lie, the perfect insect afterwards making their way out. The
Tipulæ pupæ, which can run rapidly up and down their burrows, on the other hand,
come out of the wood as the *Sesiidæ* do, or as the ground-living *Tipulæ* come out
of the earth, retaining a support by two or three terminal segments. With only
one or two exceptions, they emerged between 7 and 9 p.m., and on several occa-
sions I had the pleasure of observing the process. The pupa-case bursts over the
back of the thorax and the thorax of the imago rapidly emerges. The head with
the antennæ and palpi are folded down in front, but rapidly assume their natural
position. The basal portions of the legs and wings soon appear. The expansion
of the wings looks as if it resulted from their being dragged out between the insect's

body and the margin of the pupa-case, between which they seem tightly held. The legs are placed side by side in front, the anterior pair occupying the central position, and the intermediate pair the external. As the insect continues to emerge by the vermicular movement of the abdomen, the legs, alternately, are drawn out in short portions at a time by contractions at the trochanteric joints, and resemble alternately moving rods of some complex pumping apparatus. Their length seems to be gained by expansion during emergence, similarly to the wings. In about twelve minutes the tips of the wings are drawn free of the pupa-case and lie flat, one over the other behind the insect, a position they never afterwards assume; they are a little limp, but fully expanded. The legs are still tightly stretched downwards in front of the abdomen, and have only emerged for about half their length. The abdomen is distended into a wide, uniformly cylindrical tube, as large and nearly as colourless as the larva, and decidedly larger than the whole pupa; its first three segments are inflated with air, their walls are such delicate membranes as to make one doubt their capacity organically to connect the extremities of the insect; in the transparent posterior of the wall, however, the dorsal vessel can, with a lens, be seen actively pulsating. The next three segments seem equally filmy as regards their walls, but contain a straw-colored fluid, which is in the same cavity with the air above it. The posterior segments are still in the pupa-case. The legs continue to be alternately pulled by their trochanteric joints and seem to be freed by the continuance of the vermicular movement of the abdomen, which does not, however, progress any further out of the pupa-case. As the legs slowly come out, the knee joints now bend and leave their position close to the body, the anterior legs bend forward, the posterior at first laterally, and finally almost directly backwards, the others occupying an intermediate position; the femora being already sufficiently firm to communicate the extracting force to the lower part of the leg in a direction transverse to their length. As they rise simultaneously and are always at a uniform level, the creature presents a curious umbrella-like aspect, the femora projecting like the spokes of a wheel, and the long tibiæ and tarsi bend downwards and converging to the front of the pupa-case. At the end of twenty minutes from the bursting of the pupa, the legs become free, all nearly at the same time, each as it does so, rising into a somewhat natural position. In a few seconds more, the animal regards its legs as perfect, and lays hold of the nearest object; the fluid mentioned above is discharged into the pupa-case, the air above occupying its place, the abdomen partially collapses and easily leaves the pupa, the insect crawls to a convenient place of rest, and is able, if disturbed, to buzz along the ground. More fluid is afterwards discharged, and the air must be rapidly absorbed. As, at the end of an hour, the abdomen has nearly its mature colour and form, and the *Tipula* is ready for flight.—T. ALGERNON CHAPMAN, M.D., Abergavenny, June, 1869.

Notes on Curculionidæ—Pöophagus nasturtii.—This species, though so rare near London, is not likely to be scarce where its food-plant is allowed to grow undisturbed. Besides two places within a few miles of my residence in East Kent, I have met with it lately near New Quay, on the north coast of Cornwall, where the water-cress grows luxuriantly in the streams near the sea. Collectors should treat the cress with some degree of tenderness, for, if injured, it does not always recover.

, and is apt to be overrun and destroyed by its stronger neighbours, such as celery, or even stinging-nettles. One locality in this neighbourhood has quite destroyed in this way: and in another the cress, for want of care in sowing, is likely to be exterminated. *P. sisymbrii*, which usually accompanies its parent here, did not occur to me in Cornwall.

Gymnetron beccabungæ.—The typical form of this insect, with the elytra red (except the sutural region), also appears, but sparingly, near New Quay. The few specimens I could obtain are considerably smaller than the black examples met with in the East of England. They were swept off warm banks in meadows. *Pythodes sulcifrons* also occurred sparingly from nettles in the same locality.

Tropiphorus carinatus.—I succeeded, in April last, in finding as many as six examples of this scarce species within a few feet of each other. They were in excellent condition, having been bred in thick moss round the roots of the common cress, in company with *Barynotus*, *Alophus*, *Cneorhinus*, *Cænopsis Waltoni*, and other common species. The rare *Pachyrhinus denticollis* occurs also in similar situations.

Ceuthorhynchus suturellus (?).—There can be no reasonable doubt that *Cardamine pratensis* is the food-plant of this species; as I have taken several examples during May last, all from that plant. The beetle appears to be generally but sparingly distributed in this neighbourhood, and is likely to have been taken in other parts of the country. It should be sought for while the *Cardamine* is in blossom, as the plant is apt to be choked and disappear amidst the after-growth of the surrounding herbage, and the insect is then very difficult to procure.—W. WILKINSON, Stanford, Hythe, Kent, June 7th, 1869.

Food-plant of Ceuthorhynchus viduatus.—It may not be uninteresting to British coleopterists to know where to look for *Ceuthorhynchus viduatus*. I was aware that it had been found in sandy places, and once on a wall top; but did not, until August last, know what plant it frequented. While the *Cruciferae* furnish pabulum to many species of the genus, I found that, in Berwickshire at least, the insect in question is attached to a member of the *Labiatae*, viz., *Stachys arvensis*, or "Corn Pouncewort."

Not having access to "The Entomologist" of 1841, or "The Zoologist" of 1844-5, in which the species is recorded as British, I do not know whether its English food-plant has been noted.

In a neighbouring bog I found at the same time one or two worn specimens of *Hydrochus brevis*, along with *Hygronoma dimidiata*, which latter has not, I think, been yet recorded as Scotch.—R. HISLOP, Blair Bank, Falkirk, 14th May, 1869.

Note on Saperda scalaris.—I have just bred two specimens of *Saperda scalaris* from pupæ found beneath the bark of Alder (*Alnus glutinosa*).—J. CHAPPELL, Boundary Lane, Greenheys, Manchester, 27th May, 1869.

Chrysopa vulgaris hibernating in a hornet's nest.—Last autumn Mr. Evans of Lesness Heath, Kent, obtained a very fine hornet's nest, out of which, this spring, emerged a number of living specimens of *Chrysopa vulgaris*, which had evidently chosen it as a comfortable hybernaculum. This nest was exhibited at a recent soirée of the West Kent Natural History Society, and some of its admirers, in the innocence of their hearts, imagined the *Chrysopæ* to be the architects!—R. McLACHLAN, Lewisham, 4th June, 1869.

Thripticus bellus; correction of an error.—In my notes on this species in number (p. 2), an important omission occurred. Instead of “third and fourth longitudinal veins totally obliterated,” should be “third and fourth longitudinal veins almost perfectly parallel, sixth totally obliterated.”—G. H. VERRALL, Denmark Hill, London, 6th June, 1869.

On the Noctua extrema of Hübner.—Last summer when I met Dr. Staudinger in Vienna, he was on his way to Pesth, a locality I had some thoughts of visiting myself, but my friend, Dr. C. A. Dohrn, of Stettin, dissuaded me. Unfortunately a Coleopterist is not a good guide for a Lepidopterist, and I found out afterward I had made a great mistake in not going to Pesth, and have resolved to be wiser next time.

After Dr. Staudinger had been to Pesth, I saw him both at Prague on his way home and again at Dresden after he had reached home, and he was very full of what he had seen at Pesth—the National Museum there containing the original collection of Ochsenheimer and Treitschke. The former had been at first placed on the ground floor, with this unfortunate result that in 1838, on the occasion of an unusual flood, it was for nearly two days under water! However, Dr. Staudinger assured me there were many interesting things to be seen in both collections, and that he had made several notes with reference to the synonymy of some obscure species, and that he would shortly publish an article on the *extrema* of Hübner. This article, which I have been anxiously expecting for nearly a twelvemonth, has appeared in the first portion of the Stettin. Entomologische Zeitung for 1869, at p. 85 (though omitted in the list of contents of that number). As I apprehend it may interest many English readers, I append a translation of the article.

“*Tapinostola extrema*, Hb., fig 412.

“That we have had this somewhat puzzling species standing in our collection under another name had long been tolerably evident to me. Hübner’s figure 412 must, at any rate, have been made from an abnormal specimen, since a perfect white *Noctua* with black cilia to the anterior wings has probably never been found. It was just possible that the English *Noctua Bondii* might be the true *extrema* of Hübner; since that species in the coloration and spots of the anterior wings agrees very fairly with Hübner’s figure, and sometimes shows even a dark shade before the cilia, which the colourer might by mistake have transferred to the pale cilia themselves. But since, according to Treitschke, v. ii., p. 315, Hübner’s *extrema* has lately been added to nearly all the larger collections from the neighbourhood of the Rhine and the Main, and *Bondii* has hitherto only been taken in the South of England and on Mount Parnassus, it became highly improbable, independently of its slighter form, that it could be the *extrema* of Hübner. According to this statement made by Treitschke it was evident that this *extrema* must be a species occurring with us in Germany, and probably existing in our larger collections.

Now Guenée has in the 1st volume of his *Noctuae* at p. 103, described a new species from England, which in my catalogue of 1861, at p. 46, I referred to *extrema* of Hübner, but without assigning any reason for this step, nor at that time indeed could I have done so, so that the union of the two, especially considering Hübner’s figure 412, must have appeared very venturesome. Guenée, in good truth, looking at Hübner’s figure, could not suspect in it his English species, and therefore describe

new under the name "*concolor*." This English species, which, since the drying of the fens, where it formerly occurred, has not now for many years been found in England, has now been found, as I learn on good authority, near Vienna, in Silesia, near Vienna, and in Hungary. There seems, therefore, no doubt that it frequents all similar marshy localities, consequently would be found at the Main, whence Treitschke obtained it, unless there also the marshy ground has been drained.

Now what did I find in Treitschke's collection with the name *extrema*? Two notable specimens of *concolor*. In Ochsenheimer's collection were two old specimens, the upper one being a ♂ *fulva*, Hb., the lower one, in very bad condition, seemed tolerably surely to be Guenée's *concolor*; the label written by Ochsenheimer himself, stands thus—

"*Fulva*, Hb. ♂
Extrema, Hb. ♀"

This agrees precisely with what Ochsenheimer says in his vol. iv., p. 82, and Treitschke vol. v., p. 313, takes for an error.

Treitschke hardly appears to have known the red form of *Tap. fluxa*, the *fulva* of Hübner, and it is quite a matter of indifference whether in Hübner's fig. 413 he has a ♂ or a ♀, since to my fancy this figure is incorrect, and does not suit either *fluxa* or *fulva*, of which last name Hübner has given an excellent representation fig. 496.

Since amongst hundreds of *fluxa* and *fulva*, I never saw a specimen with a perceptible reniform stigma, such as Hübner's fig. 413 decidedly shews, I would rather consider it as a variety of a red *Hellmanni*, which always shews the reniform stigma, and which species is now found not uncommonly near Berlin, Brunswick, Silesia, &c. Yet Hübner's figure is too bad to allow of our imposing his name *fluxa* on our present *Hellmanni*. But at all events, we may now without hesitation understand by the *extrema* of Hübner, the *concolor* of Guenée, a species which appears to vary very much, and probably only when worn or faded occurs as white, as in Hübner's figure or Herrich-Schäffer's fig. 337, of which colour I have a wasted ♂. On the other hand, my ♀ which is quite fine is yellowish (bone-coloured) somewhat powdered with grey, just as Guenée describes it. As through the kindness of Mr. Henry Doubleday, I have also had typical specimens of *concolor* here for comparison, there can be no doubt about the identities of my species.

After I had written the above, my friend A. Rogenhofer, Custos of the Imperial Museum at Vienna, on the occasion of the Naturforscher Versammlung here, brought me the *extrema* from the Museum collection. This specimen came out of Mazzola's collection, and there seems no reason to doubt that it is the original specimen figured by Hübner (fig. 412). It is nearest to a whitish female *concolor*, Gn., but certainly with blackish cilia, almost precisely like Hübner's figure. My friend Rogenhofer had the notion that the creature whilst drying its wings, &c., came against some sooty object, and if I am not mistaken, Professor Zeller, who had previously examined the insect at Vienna, was of the same opinion. But under the microscope I could find no dark extraneous atoms (only dust) on the scales; indeed it rather appeared to me that a great many of the scales in the cilia and near the hind margin had naturally a dark edging.

Quite recently I obtained a ♂ *Notodonta bicolora*, of which the white of the

anterior wings was almost unclouded, but the posterior wings had the cilia on the hind margin coloured blackish, which shows indubitably that this, though very rarely, may sometimes occur naturally in pale coloured insects. At any rate, the Hübnerian *extrema* should induce all young Lepidopterists to write in their books — IN CLOSELY ALLIED SPECIES, DON'T DESCRIBE OR FIGURE FROM A SOLID SPECIMEN."

With reference to the occasional blackening of white insects, I may mention that I have a fine male *Stilpnotia salicis* with the apical third of the costa of both anterior wings conspicuously black.—H. T. STANTON, Mountsfield, Lewisham, June 15th, 1869.

Strange pupation of a larva of Pterophorus.—On the 6th of May Monsieur Millière sent me from Cannes a larva on *Andryala sinuata*; this is a composite plant, with the underside of the leaf clothed with fluffy down; the larva, which was that of a Plume, already noticed by M. Millière in his *Iconographie*, vol. i., p. 331, pl. 39, under the name of *Oxyptilus letus*, had already assumed the pupal state before it reached me. But it had almost completely buried itself in the fluff down on the underside of one or the leaves, and hence, instead of the pupa being fully exposed, as is usual with the Plume pupæ, whether they are naked like *fuscus* or hairy like *pentadactylus*, this was almost as well concealed as if it had been in a cocoon, only a portion of the head end and a little piece of one side being left exposed to view.—ID.

Strange pupation of the larva of Gelechia atrella, Haw.—In the *Entomologist's Annual* 1867, pp. 21—23, I gave a notice of the larva of this species which had been discovered by Mr. Jeffrey burrowing down the stems of *Hypericum*, causing the tops of the plants to droop.

In August, 1867, the Hon. Mr. De Grey sent me a box of insects to determine amongst which I found a fine specimen of *Gelechia atrella*, so fine that I suspected that it must have been bred, and enquired the history of it.

The reply was, "*Gelechia atrella* I bred from a brown cocoon obtained by sweeping, in June, amongst grass in Buckinghamshire. There was much *Hypericum* in the place, and it may have been attached either to this or to the long grass. The cocoon was flexible and rather flat, and I much doubted if it were occupied until the insect emerged in a glass pill-box, where I had put it."

In May, this year, Mr. De Grey kindly gave me several stems of *Hypericum* tenanted by this singular larva, and as the plants began to wither before the larvae were fed up, I had to supply them with fresh food, and to extract them from the old stems, a work attended with no little danger to the larvæ, as I believe I squashed three of them in the process; but I had at least three or four others alive and healthy, which I turned on to the fresh plants, into the stems of which they eventually bored, ejecting their "frass" either at the summit of the stem (where I had cut off the tops, thinking thereby to facilitate their entrance) or at the sides.

At the end of May I thought it time to examine these *Hypericum* stems, to see how the larvæ were getting on, and to my surprise I found two brown, flat cases nearly half-an-inch long, evidently formed of a piece of *Hypericum* stem cut off by the larva, and no doubt intended as a puparium. It is difficult to give a good idea

m: perhaps the best simile would be to say that they are not unlike the fashioned spectacle-cases, which are rather limp and open at both ends. Certainly, if I had found one of these cases at large, I should have taken it for use of an *Adela* or *Nemotois* larva. On writing to Mr. De Grey, to inform him of the singular product from his *Hypericum* larvæ, he reminded me of his own previous experience with the insect, intimating that the surprise I had then expressed—savouring, perhaps, a little of incredulity—had induced him to search for the larvæ this year in the same locality, and to hand them over to me. I had entirely forgotten the circumstance till he thus recalled it to my memory, on referring to his letter of October 2nd, 1867, I found the passage I have already quoted.

I hope my incredulity may always lead to such satisfactory results.—Id.

Notes on the earlier stages of Thecla rubi.—On June 25th, 1868, having business with a farmer at Haslemere, and not finding him at the house, I followed him to a shaded corner of his farm, to a piece of rough pasture sloping down to a little stream. While talking with him, I swept the net across some plants of *Genista tinctoria* which grew there in abundance, and to my great surprise found in it a green onisciform larva, which I at once concluded to be that of *Thecla rubi*. By diligent sweeping on that and subsequent days, my brother and I obtained some dozens of these larvæ, some nearly full grown, others quite small. In order to keep their food fresh as long as possible, I passed the ends of the stems of a bunch of *Genista* through the hole in the bottom of a large flower pot, and stood it over a vessel of water, covering the top with gauze, and here the larvæ fed up rapidly in the blossoms. After some days, the bunch of food being nearly stripped, I took it to supply fresh, and then found that those larvæ which were full fed had nearly forced their way into the thickest part of the bunch of stems and there lay without web or attachment of any kind; others had hidden at the bottom of the bunch and were also perfectly loose. The next bunch of stems was used in the same way by the younger larvæ as they fed up, simply forcing themselves into the densest part.

They seemed very hardy, one or two when shrivelled and almost ready to become pupæ were accidentally dropped on the floor in removing their food, a mode of treatment that would be certain death to most larvæ, but they cast their skins though nothing had happened, and became as perfect pupæ as the rest, and in that state appeared to be equally tough.

By July 10th, three dozen had assumed the pupa state, and I confidently expected an August brood, but to my great disappointment, not one appeared till the following spring. Being kept indoors, however, they have been emerging almost daily since April 20th.

They emerge about 9 o'clock a.m., and when just out, before the wings spread, show no trace of the lovely green colour of the under-side, that part being golden brown like the upper-side; as the wings spread, the green appears. Probably this arises from the green scales being all edged with brown, and in the unexpanded state the edges alone being visible. This will account for the golden brown shade being visible over the green in some positions.

The fact that the pupa is not attached or suspended in any way, either by anal extremity or by a silken band round the middle like the other *Thecla* is remarkable.

Probably its habit is to lie near or on the ground among the thickest grass and herbage.

I leave the description of the larvæ and green stumpy pupa to the practical pen of my friend, Mr. Buckler, to whom I had the pleasure of sending specimens.—CHARLES G. BARRETT, Norwich, 17th May, 1869.

Notes on the earlier stages of Thecla rubi.—The larva of this species had long been a desideratum to me, even after all the other British species of the genus, some of which are very much scarcer in the perfect state, had been duly figured. Perhaps the reason was that myself and friends tried to take it from the bramble only; but although diligent search was made for it on that plant in localities where the butterflies absolutely swarm, no one could find it for me; nor would butterflies shut up in a glass cylinder, with bramble buds and flowers, deposit their eggs on them. Doubtless the larva has been found on bramble buds, as Albin's account of it fully testifies, still I can now give two other food plants for it, which I can help fancying are more to its taste.

On 25th June, 1868, Mr. W. H. Harwood, of Colchester, who had my acquaintance with the larva during the previous year, kindly sent me some full-grown examples, beaten from broom. I lost not a moment in depicting them, and no sooner were they done, than on the following day I received others from Mr. C. G. Barrett, then at Haselmere, he having, quite by accident, discovered them on *Genista tinctoria*, and most fortunately he was able to send me four in different stages of growth. These from the *Genista* were not so brilliant in markings as those from broom, but otherwise identical; and from both sets of larvæ perfect insects came forth from the 25th of April to 9th of May, 1869, very low specimens.

The full-grown larva is about $\frac{3}{8}$ -inch in length, and gains nearly $\frac{1}{8}$ -inch when stretched out in walking; thick in proportion and somewhat onisciform in shape, flattened beneath, the head very small and retractile, the second and third segments rounded above, the others to the tenth inclusive have a dorsal hollow with an eminence on each side of it, which slopes thence to the lateral ridge; the last three segments are rather flattened above.

The ground colour is a bright yellowish olive-green, the hollow of the back a darker, full green, and down its centre runs the pale olive-green dorsal line which gradually widens and suddenly contracts on each segment throughout its course, and becomes darker on the last three segments, and bordered there by a yellowish stripe on each side; from each eminence on the other segments a thin bright yellow streak slants backwards and downwards, bounded beneath by an equally thick streak of deep full green, most intense at its beginning on each segment; the lateral ridge has a stripe of yellow beginning at the third segment and running continuously round the anal extremity; parallel to this and above the spiracles is a faint indication of a stripe a little yellower than the ground color; the head is pale brown with darker brown round the mouth; the appearance of the larva is velvety, caused by minute raised points bearing fine short bristles.

The larva when younger has the yellow markings less distinct, and in two of the samples found on the *Genista*, they scarcely appeared even to the last. The larva enters the earth, but only just beneath the surface, to undergo its pupation.

The pupa is very short and thick, especially about the middle of the abdomen, rounded, and blunt at the anal tip; the wing-cases nowhere projecting, but smooth and large in proportion, and like the rest of the surface, unpolished; in colour, it is dark, dull, purplish-brown, and it is thick set with short dark brown bristles, excepting only the wing-covers which are blackish-brown and have no bristles. Its appearance would assimilate very well to pellets of earth.—WM. BUCKLER, Esq. of Northampton.

Irish Lepidoptera in April, 1869.—I spent the latter half of April with some friends at Castle-Connell, near Limerick, when, although I had many other matters to occupy my time besides Entomology, I managed to spare a few days in the pursuit of my hobby. During the greater portion of my stay the weather was fine, but with cold or high winds, and every night, except two, when it rained heavily, the brilliancy of the moonlight precluded even the hope of successful night-moth catching, so that I did not even attempt this method of collecting. Larva hunting, however, was almost a total failure, and after the first two or three unsuccessful attempts at night-moth catching, I gave up the search in utter disgust. The 25th and 26th I devoted to the exploration of Cratloe Woods, net and beating stick in hand. These woods are about 400 acres or more in extent, lying nearly parallel to the Limerick and Ennis railway, and are 10 miles by line from the former town, although not more than 2 miles as the crow flies. They are on the side and foot of a moderately steep and high hill, one of the lower range of the Clare mountains. The lower part, which is a level plain, is mostly Scotch fir and larch with a thick undergrowth of bramble, holly, hawthorn, &c.; higher up the hill side the fir gives place to oak, beech, birch, sallow, hornbeam, spruce, fir, &c., all becoming very stunted towards the top; the highest point being again larch. Above the wood for miles stretches the heath-lad mountain side, the highest points running into huge mounds of loose shingle and moss. All through the wood the whortleberry was in profuse blossom, and this and holly were the most noticeable features of the undergrowth, which, however, comprises a great number of other plants. It was terrible windy each day I went, and to which, partially at least, may be ascribed my want of greater success, for looking at the great variety of vegetation, I cannot but think these woods only require systematic "working," to yield a much richer insect-fauna than the few common species named below would indicate.

On "taking stock" on my return to Limerick, I found I had captured or seen four species, viz.—*P. napi*, *A. cardamines*—common; *V. urticae*, *V. Io*.—both very abundant in all stages of disrepair; *S. Egeria*—common; *S. Mægera*—only just coming out; *P. Argiolus*, during the two days I saw between 30 and 40, which, looking at the immense quantity of holly, I thought few, but doubtless many escaped my notice, owing to the height of the bushes, and density of the wood.

F. atomaria—on the heath the commonest species seen, except *A. cardamines* a few days later at Glenenomeragh; *P. petraria*—3, one being crippled and turned

loose again. I see Mr. Birchall only records this species as Irish from Wicklow. *L. marginata*, *C. ferrugata*, *C. suffumata*, *P. gamma*—1 each.

The only other species seen during my stay at Castle Connell were, *S. subtristata*, at Glenenomeragh; *S. populi*, in pupa; *O. bidentata*, one pupa, since emerged; *B. quercus* or *callunæ*, still in pupa, and two other pupæ I do not recognise, and from which the imagos have not yet emerged. In the woods, too, I saw a few micros, but my indifferent eyesight quite precludes my attempting the capture of these beautiful atoms.—HERBERT MARSDEN, Secretary, Lepidopterist Exchange Club, Gloucester, May 11th, 1869.

Great abundance of Vanessa cardui in 1868, &c.—Observing Mr. Bax's note on this subject, it occurs to me that some of your readers may be interested in one or two jottings of a similar kind.

I spent the month of August last at the delightful little watering-place of Bournemouth, Hants. Rambling one morning along the beach westward toward Poole, I was astonished to find *V. cardui*, in abundance, flying about in the hot sunshine, over a district covered with hills of blown sand, just adjoining Poole harbour. It would have been a comparatively easy task to capture fifty of these insects, most of them in fine condition; but being merely a collector and not a slaughterer, I took only the few that I required. I saw scarcely any other species of *Lepidoptera* at the same place and time; but *Megæra*, *Tithonus*, and *Semele* were very abundant in the neighbourhood of Bournemouth.

The locality is also rich in *Libellulidæ*.—W. H. GROSER, Vernon Cottage Thornhill Road, N.

Note on the paucity of insects.—I am afraid we are to have a poor season; we have as yet found everything very scarce; even the commoner species have not "put in" at all in many cases. A friend and I were out last night for a walk in the rain, and found two dead swallows on the road. I opened one, and found scarcely a trace of food in it; shewing how scarce insects must be. I have no doubt many birds which depend upon them are dead.—T. J. CARRINGTON, Melbourne Terrace, York.

Deilephila lineata at Lewes—Yesterday morning I saw on the setting-board of a friend of mine in this town, two *D. lineata* (*livornica*), which had been brought to him within the last few days. One was caught in a greenhouse, and the other I believe, among trefoil or lucerne which was being thrown into a hay-loft. Their condition is fair, but not first-rate, and I think they are evidently hibernated.

Not having heard of this rare species being taken so early in the year before, I thought perhaps it might be worthy of a note in the Ent. Mo. Magazine.—J. H. A. JENNER, Lewes, May 27th, 1869.

Note on the black variety of Amphidasis betularia.—Last autumn, at the usual time, I found a very pale larva of *A. betularia*; it was almost fawn-coloured. On the 25th inst. it produced a fine female of the dark variety, known as *carbonaria*. This is passing strange—the larva wanting pigment, the moth having more than enough.—R. C. R. JORDAN, Edgbaston, Birmingham, 28th May, 1869.

Capture of Catoptria aspidiscana.—On the 15th inst., I took (in company with Ferguson) a few fine specimens of *C. aspidiscana* flying in the hot sunshine. I had only one day fit for collecting, and am not likely to have more chances of capturing the species this season, the weather having been too cold ever since.—HODGKINSON, Preston, May 29th, 1869.

Note on Scoparia ulmella.—Some years since, I took some *Eudoreæ* on elm-trees in Rockholes Wood, near here, and they agree with the figure of *ulmella* in the catalogue number. Some I sent for names were returned as varieties of *delunella*. I do not know what became of them; however, I am now satisfied they were not *ulmella* (*resinalis*), as that species has never been taken here. It is quite possible that some of them may exist in some cabinets. It is fifteen years since I took them, and the trees have been cut down, but in July I intend to look again for the same.—ID.

Xylomyges conspicularis at Worcester.—I met with a very fine female of this species on the 27th of last month. It was lying down upon the stone pavement at the back door. The cold weather no doubt retarded the appearance of this insect. There is no appearance of its having flown.—ABRAHAM EDMUNDS, Cemetery House, Wood Road, Worcester, May 21st, 1869.

Captures of Xylomyges conspicularis.—On April 26th I went, with two of my children, to a neighbouring wood, and in the course of an hour we took three *Xylomyges conspicularis*—one a-piece, at rest on the trunks of young oaks. Went again the next day, but found nothing.—E. HORTON, Worcester, May, 1869.

New locality for Eupithecia lariciata.—A few days since I had the pleasure of capturing a few good specimens of *E. lariciata* at Breadsall, near Derby.—GEO. BAKER, Kedleston Street, Derby, 16th, June, 1869.

On the habits of the larva of Hepialus velleda.—This insect has been taken for several years in the neighbourhood of Congleton, and as very little, if anything, appears to be known about the larva (Mr. Buckler wanting it to figure), for some time past I have been on the look-out for it. I am now happy to say these efforts have been attended with success. On Monday last, June 7th, two fine ♂ specimens emerged from the pupæ. It continues two years in the larva state, feeds on the roots of the common fern (*Pteris aquilina*), and also on other roots, ceases feeding at the end of the second summer or the latter end of the year, hibernates without spinning a cocoon to remain during winter (like *hectus*); it does not feed again in the spring before changing, nor does it, as a rule (as far as experience goes), spin a cocoon; it continues in the pupa state about twenty-one days, when the moth appears.—JOSEPH STEELE, High Street, Congleton, June 9th, 1869.

Tinea pellionella feeding on cobwebs.—I forward specimens of what I take to be *Tinea pellionella*, which were fed on cobwebs. I used to see the larvæ crawling on the pantry ceiling last autumn, and took several: they appeared to be eating cobwebs when I first saw them, so I gave them nothing else. Poor Mr. Hopley felt much interest about them, hoping that they might prove to be *Kindermannilla*.—N. J. DAVIDS, 14, South Bank, Regent's Park, June 15th, 1869.

Review.

"THE LEPIDOPTERIST'S REGISTER," by T. J. CARRINGTON. London: John Van Voorst.

This volume will be welcomed by all Lepidopterists who like to keep methodical memoranda of the histories connected with each species in their cabinets. It is compiled on the principle of "a place for everything, and everything in its place."

Obituary.

MR. ABRAHAM EDMUNDS died at the Cemetery House, Astwood Road, Worcester on the 3rd inst., at the age of 65. He was so well and so long known to all lovers of *Lepidoptera*, that his death will be felt by very many of the brotherhood as a blow and a warning. A man of a very strong constitution, he perhaps tried too severely in the enthusiastic and unremitting pursuit of his favourite science. He leaves a widow, but no children. Fond as he was of Entomology, he never allowed his pleasure to interfere with his duty, for the conscientious discharge of which he was always much respected among his fellow citizens.

ENTOMOLOGICAL SOCIETY OF LONDON, 7th June, 1869. H. W. BATES, Esq. F.Z.S., President, in the Chair.

Mr. Stainton exhibited a Micro-Lepidopteron, the larva of which had been discovered by M. Millière, feeding upon *Osyris alba* at Cannes. For this insect, Millière proposed the name of *Paradoxus osyridellus*; it bore some resemblance to *Zelleria*, but with long tufted palpi, and, in repose, rested with its head applied to the surface, with the body elevated somewhat as in *Argyresthia*. He also exhibited drawings of the larva of *Gelechia atrella*, which inhabits the stems of *Hypericum*, and uses a piece of the stem as a case wherein to change to pupa.

Mr. Druce exhibited a collection of butterflies from Borneo, in which there was a fine new *Ornithoptera*, &c.

Mr. Smith exhibited a luminous larva, which he supposed to be that of *Pyrophila*, from Uruguay; it exhibited ten bright green spots, and the head was intensely red, so that the luminous properties of the creature might be compared to railway signals. Also living examples of a brilliant species of *Cassida* (*Physonota gigantea*), brought to Liverpool in log-wood from Central America.

Mr. Pascoe exhibited a remarkable beetle from Champion Bay, intermediate between *Hister* and *Claviger*.

Professor Westwood exhibited drawings of two new species of *Ectrephes*, which genus he referred to the *Ptinidæ*; and also new forms of *Paussus*, *Articerus*, &c.

Mr. Smith exhibited a bee (*Melecta*) captured the day previously at Southampton, completely covered with the larvæ of *Meloe*, so that probably 300 or more of the parasites existed upon it.

Mr. Wallace read "Notes on Eastern Butterflies" (continuation).

Major Parry communicated "Observations on Lucanoid *Coleoptera* with revised catalogue of the species."

Mr. Walker communicated "Notes on *Chalcididæ*, with description of a new species of *Megastigmus*."

Mr. Smith read "Descriptions of new species of the genus *Pison*, with a list of those previously described;" and "Descriptions of new genera and species of exotic *Hymenoptera*."

THREE LEPIDOPTEROLOGICAL EXCURSIONS NEAR MESERITZ, IN
THE PRUSSIAN PROVINCE POSEN.

BY PROFESSOR P. C. ZELLER.

There are plenty of notices of excursions, but these generally refer to localities which were quite new to the relater, and therefore furnished him with extraordinary productions. If they relate to the neighbourhood of his own dwelling place they then record only that which is striking, and omit that which is usual. In neither case do such notices furnish a complete picture of the Lepidopterological fauna. In a perfectly strange neighbourhood one certainly sees some species peculiar to it; but, as is well known, an investigation of a few days will not suffice to discover those which are most concealed and are often the most interesting. If one hesitates to introduce the products of one's own neighbourhood except in a systematic arrangement, the reason seems very natural that one fears otherwise to furnish notices which are uninteresting. It is certain, that complete notices on the appearances at particular periods of the year, if they come frequently from localities situated near one another, and differing little in their character, would show great agreement, and would, therefore, be of little interest to the contributors. But it would be quite otherwise if the dwellers in localities of a different nature. For example, that which is the case around Meseritz and in a great part of Northern Germany, will scarcely be met with anywhere in England; it will, therefore, for an Englishman, have plenty of interest, to learn something more precise, and to be able to make comparisons with his own country, provided that he does not shut himself up too exclusively and persist on being blind to the products which do not occur in his own country! I give, therefore, in the following pages the results of a few excursions in former years, which I made to a precise locality, because I believe that a foreigner can thereby best make a conception of the nature of a part of this neighbourhood. Should these communications meet with approval, I will in future notice such parts of the neighbourhood of Meseritz as have different peculiarities.

I must, however, in the first place remark as follows:—the town of Meseritz lies in a fruitful, nearly elliptical valley, not quite in the middle. The river Obra intersects this valley in a very tortuous course, and passes northwards by the town; immediately below the town there runs into it an equally serpentine stream, the Packlitz.* This valley

* It was from this position between the two rivers that Meseritz received its Polish name, which, I have been informed, signifies Mesopotamia.

is encompassed with gently rising, low, sandy hills, generally clothed with firs (*Pinus sylvestris*). Four roads go from the town nearly to the four points of the compass.

That which goes towards the North passes first through a small suburb, then, for about ten minutes, through a fruitful tract producing wheat and other field-crops; then this begins to change for sand, and after ten minutes, whilst ascending very gently, one is in the pure sand of this chain of little hills, the fir woods of which are, however, constantly being cut down to give place to rye, potato, and lupine fields. The hollows are all peaty and filled with marshes and lakes.

To the left of the road there rises first a gentle elevation of about thirty feet, which is used as a Jewish burying-place. This Judenberga is clothed with fir trees is encompassed with a wall of sand at its base. Within the boundary on the east and south side are some aspens, the only leaf-trees occurring on the hill, here, however, they are mingled with the fir trees. As no sheep may be pastured here (sheep are the veritable pests for the insects on sandy soils), the sand can much better develop its vegetation here than elsewhere, although it is indeed scanty enough. It consists of *Galium verum*, *Festuca ovina*, *Corynephorus canescens*, *Calamagrostis epigejos* (here and there plentiful, hence frequented by *Pamphila Actæon*), *Gnaphalium arenarium* (in profusion), *Potentilla incana*, *Artemisia campestris*, *Centaurea paniculata*, *Silebrotites*, and, though rarely, *S. chlorantha*, a little *Astragalus arenarius*, *Thymus serpyllum*, and *Hieracium pilosella* in plenty, *Sedum acre*, a few plants of *Scabiosa columbaria*, a little *Saxifraga granulata*, and *Arunca phragmites* in the hollow, which contains a tank, and everywhere especially in the driest places, lichens and mosses.

On the sunny slopes of the hills grows *Calluna vulgaris*, and between the ditches much *Calamagrostis epigejos* (the only locality for the larvæ of *Pamphila Actæon* and *Gelechia lutatella*), *Galium verum* (hence here *Botys flavalis* is very abundant), and *Veronica spicata*, and in the shade of the fir trees and the numerous juniper bushes *Anthriscum ramosum*, *Scorzonera purpurea*, *Potentilla alba*, *Fragaria collina*, *Spiræa filipendula*, and *Trifolium montanum*. To the right of the road behind some sand-fields, is a marshy meadow, plentifully grown over with species of *Carex* and *Salix repens*, the haunt of *Cænonympha Davus*. Beyond it, on the sands, are some young plantations of fir trees with similar vegetation as at the foot of the "Judenberg," and some lofty firs; then follows a great peat-moss, which has been principally obtained by means of a canal through which the water of one lake is

ected into the Obra. The occasionally high banks of the canal are
ed on their slopes with an abundant grass-flora, but higher up are
the fir woods with their scanty vegetation.

THE 29TH OF MAY.

After a long period of very cold weather, which had totally
oyed the orchard crops and partially injured the rye, at last for a
days milder weather had set in. It had rained in the forenoon of
day and was warm; the sun, however, shone out before evening.

In order to collect *Gelechia superbella*, and the larvæ of *Setina
kühlweinii*, and to see the oviposition of the *Lycæna Hylas* and *Medon
testis*), which I wished to rear, I went at 3 p.m. to the Judenberg.
I did not stop on my way, I only saw, not far from the suburb, a
Prostege farinata (niveata) on the wing coming from the fields, and
furtherwards, on a field, another.

From the aspens of the Jews' burying-ground I beat a beautiful
male *Cymatophora or*, and not unfrequently *Phoxopteryx harpana*, and
in the aspen bushes a beautiful *Acidalia immutata* ♂.

In the open places which were more grown over with *Festuca* and
Cynephorus, *Crambus chrysonuchellus* occurred in tolerable plenty,
these were already accompanied by a few *C. pratellus*. Whilst I was
working amongst the lichen (which covers the ground here and there
with a grey efflorescence) for the larvæ of *Kühlweinii*, there flew up at
intervals a few bad *Gelechia psilella*, two *G. desertella*,* and a quite
fresh *G. umbrosella*, Z.† I found by degrees 4 larvæ of *Kühlweinii*,
which sat partly concealed under a clod, and 4 larvæ of *Lithosia
pideola* of medium size. To my surprise, 2 *Kühlweinii* ♂ flew off
from grass stems, certainly quite fresh out, but after such a long period
of cold weather I had not expected them.

Whilst poking amongst *Thymus serpyllum*, I turned up by degrees
a *Gelechia superbella*, their white heads at once striking the eye, with
their antennæ obliquely directed upwards, they flew rapidly for a short
distance and then settled again on the ground to take another hiding-

* By *desertella*, I understand those specimens which are so similar to *terrella* that they might
readily pass for that species, but which are smaller, paler, and generally more sharply marked, and with
the first make their appearance as early as the last third of May. The characters given by Stainton
Insecta Britannica, p. 113) are not always suitable; even the size is no constant character, and there
remains hardly any other of tolerable certainty, except the earlier periods of appearance.—P. C. Z.

† This species, which is very abundant in June on sandy plains, and can be beaten out of juniper
and other bushes, is not Frey's *Gelechia affinis (teguella)*, but has the opposite spots almost pure
white; they vary in size and distinctness, and in many specimens, which I cannot separate as a distinct
species, they are quite faint. My remark on *umbrosella* in the *Isis*, 1839, p. 201, that it differs from
psilella by its smallness, and by the shortness of the last joint of the palpi, is not sufficient to dis-
tinguish it. Stainton gives July as the period of appearance of the wings of *G. affinis*. The specimens
taken at that time we cannot for the most part refer with complete certainty to *umbrosella*, because
they are wasted. In no *umbrosella* do I see the pale yellow linear connection between the two black
discoidal spots which the uninjured *teguella* shows, but at most some whitish scales on the exterior
side of the first spot.—P. C. Z.

place. As I had already, some years previously, found them at the same place, I had concluded that the larva must feed on *Thymus serpyllum*, but this very day this conjecture was to be annulled.

One *Æchmia equitella*, and one *Elachista Bedellella* also turned up in this place. On the slopes of the enclosure wall I collected a few larvæ of *Acidalia decorata* on *Thymus serpyllum* (which I succeeded in raising to the perfect state). On the wall there sat on a dry plant a creature which looked to me like a small wasp; as I wished to examine it more closely it flew off, but on account of the dull close weather, it flew badly and I easily caught it; it was a very beautiful ♂ *Sesia empiformis* (*tenthrediniformis*, Ochs.), which had evidently not long emerged from the *Euphorbia cyparissias*, which grows here rather freely. On *Silene otites* and *chlorantha* I found the cases of *Coleophora otitidis* of different sizes tolerably common (yet none were coloured like the figure in Stainton's Nat. Hist. Tineina IV. Pl. 2, f. 3,* but all like Herrich-Schäffer's figure 911), exclusively under the lowermost leaves of the plants, lying in the sand, many indeed a foot removed from the *Silene*, so that they appeared in their wanderings to have attacked other plants. The pale blotches with their round holes, on the lowermost leaves betrayed the plants on which I had to seek for them. It is probably only in captivity and when pinched for food that they climb higher up the plant. I found one case of *Coleophora vibicigerella* on the stem of *Artemisia campestris*. Here also flew two specimens of *Pterophorus serotinus*, thus at a time in striking contradiction to its name.

Thence I went over the height; without pausing there I saw *Phoxopterya unguicella* abundantly on *Calluna*, and a few *Cidaria ocellata* and *biriviata*, Borkh. (*alchemillata*, Tr.) From the twigs of the firs males of *Bupalus piniarius* were easily induced to fly.

Then I went to the right of the road towards the drainage canal where I knew of a spot frequented by *Lycæna Medon*. There were certainly a few specimens of this butterfly, but on account of the cloudy sky they did not fly readily, but sat on the dry last year's stem of *Artemisia*, so that I failed in my object in respect to the ovipositing.

Of *Hylas* in this locality, I saw to-day no single specimen. One male of *Medon* was distinguished by its small size and by its underside. The transverse row of ocellated spots is placed so near the red fasci that on the anterior wings the innermost, and on the posterior wings

* Only when I have had to feed the larvæ for a long while, before they were full fed, and gave them no sand, their cases obtain from the pieces of plant attached a rather greenish appearance; if large they are never like this.—P. C. Z.

1, 4th, and 6th, were quite confluent with the black bordering of this specimen consequently comes near to many specimens of var. *Salmacis* ♂, only, that on the upper side it has more red and no white scales at all in the black transverse streak, the side shews the pale grey ground colour of our spring generation. In company with this species occurred a few specimens of *Polyomm. Dorilis* (*Circe* St.), so common with us. From the last year's brood of *Gnaphalium arenarium*, which grows here everywhere in plenty, I reared up *Conchylis zebrana* not unfrequently; yet it was already late in the season, and hence, most of the specimens were females and few of them in good order. On the this-year's leaves I observed the larvæ of *Cuculatrix gnaphaliella* plentifully; but I did not pause either for the purpose of rearing them, or to seek for the cases of *Coleophora gnaphalii* which are deeply concealed in the terminal shoots.*

Of *Clisiocampa castrensis* I still found everywhere nests on the ground at different low plants; in many the larvæ had already separated. *Lythris sticticalis* was not scarce; one specimen I saw sucking from the blossom of *Senecio vernalis*, a plant which a few years ago had wandered here from the East. *Ino Statices* was already on the wing, thus at an unusually early period for our neighbourhood, and especially considering the recent inclement weather. *Gelechia diffinis* (*scabidella*, Z.) was already sparingly present, its food-plant growing abundantly on the margin of the canal. From the dry last-year's stems of *Artemisia campestris*, which here and there in the looser sand grows to very old plants, I started a female of *Grapholita incana*, a scarce species near Meseritz; I also obtained one ♀ of *Conchylis Richterana*. I also saw three *Fidonia fasciolaria* (*zebraria*, Tr.), (only one specimen of which was very fine), sitting on the upper part of the *Artemisia* stems, with their peculiar posture of the wings. On the margins of the ditches I took two specimens of the spring brood of *Lythria purpuraria*, one, however, already in very bad condition; besides these, one specimen of *Conchylis straminea* (*Tischerana*), and several *Elachista cygnipennella*.

Towards seven o'clock I lay down for a quarter of an hour at a spot where there was no *Thymus*, and found whilst poking amongst the grass and other plants, three specimens of *Gelechia superbella*, which renders my conjecture as to its food-plant one which is scarcely probable.

On an open place abundantly grown over with *Thymus*, in the fir-

* One obtains the imago of both species most easily by collecting the plant in quantitles and placing it in a rooiny box; there then appear also various other species, viz., *Panc. pomposella*, *Sophronia humerella*, *Botys arealis*, *Thalpocharis paula*.—P. C. Z.

plantation along the above mentioned *Carex*-marsh, *Pyrausta purpuralis* was not at all scarce, but it could hardly fly on account of the deficiency of sunshine. Only one bad female of *Ancylosis cinnamomella* occurred and *Lycæna Hylas*, which probably sat concealed amongst the 'needles' of the fir-bushes, did not allow itself to be seen, as already mentioned. From a few old juniper bushes I beat out some *Argyresthia arceuthina*. From the tufts of *Festuca ovina* I started not unfrequently *Elachista dispiella*, and thereby became perplexed as to my previous suspicion that *Corynephorus* might be the food of its larva.

On a narrow fallow-field, between the plantation and the marshy meadow, I obtained towards sunset a beautiful male of *Homæosoma nimbella*, and an equally beautiful ♂ *Conchylis posterana*, which, in its style of flight and its whitish appearance whilst on the wing, shews the greatest resemblance to *Conchylis zebrana*, and amongst several *Oxyptilus tristis*, which had evidently flown over from the adjoining spot carpeted with *Hieracium pilosella*, was a single *O. distans*, which was instantly recognisable by its size and dark colouring. I afterwards started from the edge of the ditch a *Platyptilus*, which appears very like *gonodactylus*, but is strikingly smaller, and therefore deserves a close examination, especially since I have found specimens precisely similar in other places.* I immediately suspected that there must be *Tussilago* in the neighbourhood, and truly found, on making a more accurate investigation, that a short distance from the spot were a few plants of *Tussilago farfara*, which had established itself here, and which had previously escaped my notice. From one bush of *Salix repens* I beat out after sunset several bad specimens of *Phoxopteryx inornatana*, H.S. As I returned along the side of the canal, I observed a male of *Hydrocampa lemnalis* flying briskly amongst the rushes.

THE 19TH OF JUNE.

The weather being dull and windy, but warm, I set off about 3 p.m. to collect more specimens of *Setina Kuhlweini* and *Coleophora gnaphalii*. Along the road, and afterwards on a grassy place near the canal, rather shaded with aspen bushes, the males of *Epiniphela Janira* were flying tolerably common, this species was now just making its appearance. Further towards the "Judenberg," I found on a weedy border of the road some *Lycæna Icarus (Alexis)* and *Adonis* together, and at the edge of a lupine-field the *Lycæna Argus* ♂. On the eastern wall of the "Judenberg" (which to-day I did not visit) an *Agrotis subsequa*, S.V.

* In writing a notice, for the *Entomologische Zeitung*, of Wallengren's Treatise on the Swedish Pterophoridae and Alucitæ, I felt myself necessitated to treat of this doubtful new species in some detail under the name of *Platyptilus farfarelius*.—P. C. Z.

na, H.) buzzed from a tuft of grass and escaped me. From r tufts I also started several *Gelechia terrella* and *psilella*. *Cœnoia Pamphilus* was everywhere in numbers, but was only to be d from its repose; only during a short gleam of sunshine was it tarily on the wing.

Behind the "Judenberg" I started from the sheltered, dry, weedy of the road four *Penthina rufana* (*rosetana*), and *Crambus pas-* and *dumetellus* in plenty; *Cr. cerussellus* seemed to be just ag its appearance, and was therefore scarce; of *Crambus perlellus* k here one male with the anterior wings quite unicolorous white. nd the larvæ of *Simyra nervosa* of various sizes, not uncommonly on favourite food, *Chondrilla juncea*, also on *Rumex acetosella*, and on *Euphorbia cyparissias*; the smallest ones turned out afterwards, out exception, to be ichneumoned. Here I started one ♂ *Erastria idula*. On the green stems of *Artemisia campestris*, and also on adjoining grass-stems, I found a few cases of *Coleophora vibicigerella*, h were probably mostly empty, as, whilst smoking amongst the es of the *Artemisia*, I started up several of the imago, of which, the females were still in good condition. Of *Fidonia fasciolaria* (aria) I met with several specimens both good and bad.

In the fir plantation near the peat-marsh the collecting was bad, i was too much exposed to the west wind, which rapidly carried y from me everything on the wing. On the bushes I took only one *pholita cosmophorana*. From *Thymus serpyllum* I started by degrees eral specimens of *Pyrausta sanguinalis*, which, with the exception of ew specimens, were still fine. Under the juniper bushes and the nches of the fir bushes which rested on the ground, started out *echia umbrosella* and *terrella*, probably mixed with other species; as was still broad day-light, and I use no net for catching insects, the d carried nearly all of them away from me, *Setina Kuhlweini* ♂, erally in good condition, flew from the grass stems in open places, only ♀ which I found on a small fir-bush was bad and good for hing. On a similar small bush I found a pupa between the eedles," and on a grass stem I found a larva of this species. On , isolated juniper bushes I obtained one *Hypsolophus marginellus*, and w many of the webs of *Conchylis rutilana*. Here I also took a worn ecimen of *Steganoptycha neglectana** of Duponchel, which had no

* This *neglectana* till quite lately, when in arranging my collection, I examined Heinemann's ements of the differences between *neglectana* and *deubana*, passed with me for one species with last-named, and was called by me, and by Fischer von Röslerstam, *dealbana*, Frölich. I find that lich's description causes some difficulties, which may perhaps have some influence on the name. "fascia lata nivea, quam sequitur fascia tenuis media subinterrupta fusca, pars postica iterum

doubt been blown by the wind from the aspens of the "Judenber" probably at five minutes' distance: there it may be freely beaten from the aspen leaves, from which I have also bred it.

On the leaves of a willow bush, near the canal, I took a beautiful ♂ of the rather scarce *Acidalia deversaria*, H. S., fig 305—308. On a grassy place, I started some *Anerastia lotella*, mostly already worked. I also saw a ♂ *Crambus lutællus* and took a *Sophronia parentheses*. On dry sandy places, where *Hieracium pilosella* grows very abundantly, *Pterophorus tristis* was already mostly in bad condition, showing that the first brood was nearly at an end; the *Pterophorus obscurus*, which occurred singly amongst them, showed by their freshness that they certainly came out later than *P. tristis*.

I then went to the other side of the canal, which has quite the same soil and vegetation, in order to obtain some shelter from the wind behind the embankment of sand at the side. On this embankment *Gnaphalium arenarium* and *Artemisia campestris* grow very plentifully. On the former plant flew *Botys cerealis* and *Thalpochares paula*. By the aid of my cigar smoke, I induced *Bucculatrix gnaphaliella* to come out in numbers; *Gelechia inopella* also flew out not unfrequently, yet already the specimens were mostly very bad, it was much more agile than the *Bucculatrix*, and was generally carried away by the wind. Some *Gelechia pictella* also turned up here, though there does not appear to be any *Cerastium* round about for the larvæ to feed on. Of *Stigmatopoma pomposella*, which, viewed superficially, seems so similar to it, and which probably came from the *Gnaphalium*, I took one specimen. *Sophronia*

nirea," and "palpi albi," appear to me truly to refer to *neglectana* (Wilkinson, Heinemann). The "alæ basis" and the "fascia" designated as "fusca," which seems more applicable to Wilkinson's *dealbana*, may be of less importance; since Wilkinson also speaks only of "fascia basimædiaque cinereo-obscuris." Of much greater importance is Frölich's notice, "caput cinereum," since he describes much too inaccurately, and may by the "palpis albis" also have intended to designate the white colouring of the face. Probably he had confounded the two species, as so many Lepidopterists have since done!

The observations of Wilkinson and von Heinemann do not agree with my experience. *Neglectana*, according to Heinemann should appear in July, *dealbana* from June to August. Of my 14 specimens of *neglectana*, 7 have the date attached, according to which I took them at the end of May and beginning of June; one ♀ from Reinerz, thus at a considerable height above the sea level. I took June 29. Of 30 specimens of *dealbana*, Wilkinson, unfortunately only 4 have labels; these, however, are all in the first ten days of July.

I have both species from Livonia; the two specimens in my collection from Tuscany are *neglectana* (Ent. Zeitung, 1849, S. 239, *dealbana* "at the beginning of May not scarce," which also agrees with my own experience).

I have reared the larva of this *neglectana*. I found it on aspen-twigs, which I had placed in water in the room, in March, when the leaves were coming out; it was in a bud, which was already drooping from the effects of the larva feeding. It was about six lines long, rather thick, flesh-coloured, rather inclining to dirty-yellowish. The head small, rather heart-shaped, with a faint depression above shining black, thoracic shield transverse, broad in the middle, attenuated at the sides, shining black-brown with a fine pale longitudinal line in the middle. The spots are pale-brownish, two on each abdominal segment, near the dorsal vessel, the hinder one farther from it than the anterior one; above the similarly coloured spiracles are two perpendicularly one above the other, the upper one larger on the middle segments; beneath the spiracles is the "Wulstrand;" below which, perpendicularly beneath the spiracles, is another spot. The anal plate is shining brownish. The pectoral legs blackish. The hind legs on the spots, which are imperceptible to the naked eye, are almost colourless. It crawled rather quickly along a smooth surface. When I had placed it again on a bud, it soon bored in between the leaf-scale and closed up the place with a slight white web. The imago appeared in the room in April.—P. C. Z.

la was not scarce. Of *Coleophora gnaphalii* I obtained to my only a few specimens, and those generally bad, although their ment takes place very irregularly. Here were also some *Gelechia ella* and beautiful specimens of *Gelechia distinctella*. I also saw *thorus pilosellæ* for the first time this year. Fresh specimens of *thorus pterodactylus* also occurred. The small plants of *Artemisia* much injured by the larvæ of *Gelechia psilella*, which was now on the wing, but they all appear to recover afterwards. In the places where *Thymus serpyllum* grows very abundantly and quite found only a few of *Gelechia artemisiella*, but more frequently *ia decorata* and *Pempelia subornatella*. Of *Ocnerostoma piniariella* white specimens of the second brood already occurred amongst the and I took a beautiful *Crambus pinetellus*. *Silene chlorantha* was full of bloom. On many plants the radical leaves showed traces of *leophora otitæ*, which were, however, no longer there. Probably *Coleophoræ* which were much worn, came from the same plant. e them for *C. silenella*. As at seven o'clock the wind abated, were plenty of insects to be caught; amongst them were females *palus piniarius*. Of the very beautiful *Coccyx pinicolana*, Dbd., I ned only one specimen. *Batrachedra pinicolella*, *Cedestis farinatella*, *lysselinella*, and *Gelechia dodecella*, were plentiful. Of *Blastobasis della*, I only took a single bad specimen. *Sciaphila Wahlbomiana* abundant. Very annoying was the small white *Coniopteryx*, which by hundreds from the fir needles, and by its numbers prevented bservation of the Micro-Lepidoptera which flew out at the same . On a mossy place, I took one *Butalis siccella*. The larvæ of *ocampa castrensis* occurred everywhere; they were all full grown sat on the weeds; most of them had probably spun up, and I found cocoon amongst the leaves of an *Artemisia*. Where there was h *Rumex acetosella*, good and bad specimens of *Lythria purpuraria* e not scarce; one ♂ had even the dark coloration of the spring ety on the anterior wings. I found one full fed larva on the blossom he *acetosella*.

About eight o'clock, when the best time for collecting had arrived, began to rain heavily, and as the wind again rose, I was obliged to e off my chase. Returning homewards, I saw in the canal many *drocampa lemnales*, which did not trouble themselves about the rain.

THE 11TH OF JULY.

It was rather a windy day, the sky was overcast, with occasional

gleams of sunshine. At half-past three p.m., I started for the "Judberg." On my way thither, I saw only *Vanessa urticae* and *Pieris* on the wing. From the stems of the aspens I beat a worn *Gelechia nigra* (*cautella*, Z.), and not uncommonly *G. populella*; there were many other *Microptera* which flew off, but they soon got away from me, as I had merely the forceps, and it was such broad day-light. *Cænonympha Pamphilus* now showed itself everywhere, here in the dry places, where the larva feeds on *Corynephorus*, later in the peat meadows, and in other places richly decked with vegetation. *Pterophorus pilosellæ* was scarce. I also took a bad specimen of *Pterophorus serotinus*, whence it would appear that the first brood was nearly ended. Among the aspen shrubs, a male of *Epinephile Tithonus* was flying, the first specimen of this species which I ever saw near Meseritz, and which must have come from a considerable distance, or I should certainly have discovered this species here before. *Nemotois minimellus*, which in former years I found gregariously on the hill between the ditches amongst *Veronica spicata*,* had descended from the heights, and a few specimens were flying over the ground principally clothed with *Galium verum*. *Epinephile Lycaon* (*Eudora*), the larva of which feeds in the fir woods amongst the tufts of *Corynephorus* (from which I have bred it), flew in plenty along with *Hipparchia Semele*, and a few *Hipparchia Alcyone*. *Pamphilus Actæon* flew quite with the style of *P. Thaumasia (linea)* and *P. lineator* amongst *Calamagrostis*, and was not scarce. I also took a specimen already wasted of *Pamphila lineola* which had flown out from the corn fields, and a beautiful male of *Syrichthus carthami*.† A beautiful *Emydia cribrum* sat on a grass stem; the eggs which she laid before dying, fastened together as in *Setina Kuhlweini*, I immediately turned out here to keep up the brood of this species, which, however, is not scarce with us. *Acidalia decorata*, when I came near it, flew singly from the sand, when there was much *Thymus serpyllum*. *Setina Kuhlweini* was easily induced to fly from the grass stems and other plants, but generally soon sought another place of repose; some specimens were good and others bad. The females were, as usual, very difficult to find, as they sit near the ground and will not fly. From the fir bushes I still beat the form of *Sciaphila Wahlbomiana* which begins to fly early as the middle of May. Around the branches buzzed a *Grapholita*

* Hence here on quite a dry place, whereas at Glogau I only found it on moist peat-meadows especially amongst *Scabiosa succisa*.—P. C. Z.

† Of our white spotted *Syrichthi* with the margins entire, only *matææ*, L. (*alveolus*, O.), appears in May; after it is over *carthami* comes out; and finally in August appears *Alveus*, H. (*frutillum*), and each of these species is only single brooded.—P. C. Z.

ana. Amongst the *Gnaphalium*, *Sophronia humerella* was scarce
 orn. *Thalpochares paula*, which readily flies and then settles
 on a stem, was abundant.

then went up under the tall fir trees in order to seek for the
 of *Gelechia lutatella* in the tubularly rolled leaves of *Calama-
 epigejos*; as I however devoted little time to the search, it was
 cessful. But many of the leaves showed unevenly eaten margins,
 lication that they had been visited by the larvæ of *Pamphila*
n. From the fir trees I beat out a bad male of *Ellopiæ fasciaria*.
 solitary old stunted bush of *Sorbus aucuparia* were many leaves
 together in balls which were now empty, but which according to
 previous experience had been tenanted by the larvæ of *Gelechia*
ella. From the juniper bushes, *Cidaria bilineata* flew out singly.
 few plants of *Agrimonia Eupatoria*, I saw on many of the leaves
 swellings; they were empty, probably they had been the dwell-
 of some beetle-larva.

I now went to a sandy field by the road-side, which had not been
 for several years, and was well clothed with *Astragalus arenarius*
Gnaphalium arenarium. Here I hoped to find *Gelechia inustella*,
 the hope proved vain, but from a few isolated small fir trees, which
 been left in the middle of the field, I beat out a whole swarm of
chia psilella, many worn specimens of *G. umbrosella*, and a pale
 ty of *G. distinctella*. On the dry turfed margin of the road, where
 larvæ of *Simyra nervosa* were now past, I found some *Lythria*
uraria on the wing, and *Crambus alpinellus* was very abundant.

Whilst crossing the peat-meadow, I saw several *Cænonympha*
us and *Crambus pascuellus* in multitudes. As the force of the wind
 ented both collecting and observation, I sought the more sheltered
 s of the fir plantation; but here it was so crowded with *Crambus*
nellus that the observation of other species was rendered extremely
 cult. Together with several ♂ of *Setina Kuhlweini* I at last also
 ad a female, but the margins of its wings were so tattered that I
 it; it had probably been blown by the wind against the fir needles.
 eat *Gelechia dodecella* out of the fir bushes. *Pterophorus pilosellæ*
 s not scarce, and on the old juniper bushes I took a few *Conchylis*
ilana (it occurs in great plenty amongst them).

Whilst resting on a dry sheltered slope, I observed on the sand
 amongst *Hieracium pilosella* several specimens of a delicate bug with
 lated hoods (genus *Derephysia*), some of them *in copulâ*, and one
 ecimen of the beetle *Sarrotrium muticum*. Two *Butalis siccella* hopped

out from the dry moss. I also found here the curious case-bearing whose case consists of an old hollow piece of stem, in which it can move round with the greatest ease, and use the hind end of its case as a front. As no *Calluna* grows here, the larva, if that be its principal food, must also eat other plants. In order to see to what kind of plant it would betake itself, I watched it whilst it was crawling about on the ground amongst the plants and their fragments; it moved with a hurried, tremulous, almost nervous motion of the thin anterior portion of the body. But it did not appear to be seeking any nourishment, so I could form no conclusion as to its food plant, and I allowed it to retain its liberty.

Before sunset it became calm, but cold; hence the *Lepidoptera* came out now readily, but flew dull and heavily. Not unfrequently *Nyctegretis achatinella* got up from amongst *Artemisia campestris*, but the specimens were bad; also from the same plant, beautiful specimens of *Conchylis Kindermanniana*, the ♀ of which flies as readily as the ♂. Amongst these were two beautiful males of the second brood of *Conchylis Richterana*. Specimens of *Coleophora vibicigerella* were wasp-like. Three plumes occurred here; *pilosellæ*—not uncommon; *tristis*—not frequently; and of *obscurus* only one specimen; they were easy to take and to catch in the twilight. Amongst several *Anerastia lotella* wasp-like started from the grass stems, one ♂ was still in good condition. I also found one worn female of *Melissoblaptus bipunctatus* low down amongst the *Artemisia*. Amongst the abundant *Gelechia terrella* on the side of the canal, I took two *Gelechia lutatella*, which I recognised immediately by their whitish anterior legs. I sought for them here, as I knew the species occurred here, having previously observed the rolled leaves of the *Agropyrum repens* which grows in plenty at the spot. I also took here a good specimen of *Botys frumentalis*.

After the sun was gone down, the insect world appeared as though dead, and I had to beat about a good deal in order to induce anything to fly. *Crambus alpinellus*, however, along with two specimens of *Homæosoma nimbella*, without heeding the cold air, visited the blossoms of *Jasione montana*.

As I returned homewards along the dry grassy border of the river where there were much *Achillea millefolium* and only a little *Artemisia* there flew up in the dark two *Conchylis dipoltella*, which I had before found near Meseritz; they had quite the flight and the appearance of *Conchylis Kindermanniana*, for which indeed I took the first specimen when on the wing.

DESCRIPTIONS OF NEW SPECIES OF DIURNAL LEPIDOPTERA.

BY ARTHUR GARDINER BUTLER, F.L.S.

GENUS AMATHUSIA.

AMATHUSIA OTTOMANA, *sp. nov.*

Alæ suprâ fuscæ, anticæ fasciâ disco-costali violacêd; posticæ caudâ atâ: subtus roseo-fuscæ, striis septem anticis, sexque posticis divergens, brunneis, ocellis duobus posticis permagnis, fusco-ochraceis.

Allied to *Amythaon*, but differs entirely in regard to the shape and position of the violet band of the front-wings, which begins on the base, close to the base, continues beyond the end of the cell, then runs obliquely towards but not reaching the outer margin, from which it turns off, tapering to just below the first median nervule; the hind-wing being thus ornamented with a large violet crescent. The hind-wings are shot with violet. The under-surface of the wings is nearly the same as in *A. Amythaon*, but of a more pinky hue and with larger ocelli.

Inhabits Borneo (Sarawak, *Lowe*).

In the collection of Herbert Druce, Esq.

This does not agree with the descriptions of Felder's *A. Pylaon* or *Porthaon* from Java, his Indian species being probably the true ♂ *Amythaon* of Doubleday (but not of Westwood.) The figure in the "Oriental Entomology," represents a species with a much narrower and duller violet band on the front-wings, leaving a large brown space at the apex; the brushes on either side of the body seem also to be unusually developed. There can be little doubt that this is a distinct species, for which I propose the name of *A. Westwoodii*.

The type of the figure is said to be in the collection of H. G. Harrington, Esq.

I hope soon to be able to figure *A. Ottomana*, and the other species here described.

GENUS PAPILIO.

—PAPILIO KEROSA, *sp. nov.*

♂ *P. Paradoxæ affinis, Euplœam Amymonem simulat. Alæ suprâ fuscæ, anticæ obscuriores, purpurascetes, punctis aræ apicalis pallidioribus: subtus fuscæ, punctis septem anticis, sex posticis, sub-marginalibus, ocellis: corpus nigro-fuscum, albo-punctatum.*

Wings above: brown, darker towards the base, the front-wings

beautifully shot with bright purple; a spot near the end of the cell and five ill-defined streaks terminating in whitish points upon the apical area, violet; body blackish-brown, the head and thorax speckled with black.

Wings below: paler brown, darker towards the base, with a series of seven white sub-marginal points in the front and six in the hind-wings; body black-brown, spotted with white; expanse of wings 3" 8"

Inhabits Sarawak, *Lowe*. Coll. Druce.

P. Kerosa closely resembles *Euplœa Amynone*, of which it probably an imitation.

2.—PAPILIO ZANOA, *sp. nov.*

♂. *Præcedenti affinis, Euplœam Callithœem simulat. Alæ supra fuscæ, areâ basali obscuriori; anticæ nitidè cærulescentes, puncto singulo discoideo punctisque discalibus quinque pallidè cæruleis, sub-marginalibus octo albis: posticæ punctis sex sub-marginalibus albis. Subtus pallidiores, punctis anticis octo, posticis septem (septimo punctulo minutissimo adjuncto) albis: corpus nigro-fuscum, albo-punctatum.*

Wings above: brown, darker towards the base, the front-wings brilliantly shot with blue, the front-wings with a spot near the end of the cell and five just beyond, pale blue; a series of eight sub-marginal spots decreasing in size towards the anal angle; the hind-wings with six white spots; the body blackish-brown, the head and thorax spotted with white.

Wings below: paler brown, the front-wings with eight and the hind-wings with seven sub-marginal white spots, a minute white point touching the seventh spot; the body blackish-brown, spotted with white; expanse of wings, 4" 2"

Inhabits Sarawak, *Lowe*. Coll. Druce.

We do not possess an *Euplœa* corresponding to this from Borneo; it is, however, exceedingly like *Euplœa Callithœe* from Northern India and probably is an imitation of a Bornean form of that species.

3.—PAPILIO JUDA, *sp. nov.*

♂ ♀. *P. Paradoxæ Telesicloque affinis, Telearcho persimili minor autem, maculisque sex tantum in serie alarum anticarum discoideis cærulescentibus. Alæ posticæ maris punctis quinque sub-marginalibus albis, striis cæruleis inclusis,—fæminæ striis sex septemve nigris, maculis albis hastatis terminatis, subtus punctis minimè violascentibus, ornata. Corpus nigrum, albo-punctatum.*

Wings: brown, darker at base, the apical area in the male shot with blue; in the female with purple.

Male: front-wings with a large spot near end of cell, and series of six basal and eight sub-marginal spots, all, excepting the three nearest the apex, pale blue; hind-wings with five white points enclosed in blue state dashes near the apical margin. Wings below: brown, with eight white sub-marginal points in the front and seven in the hind-wings.

Female: basal area streaked with dusky whitish; front-wings with a sub-costal blue and a sub-terminal white spot within the cell, and six hastate spots on the disc, blue, irrorated with white, and eight sub-marginal white spots; hind-wings with six to seven black streaks, terminating in arrow-headed white spots upon the inter-nervular folds; the fringe of all the wings varied with white. Wings below: brown, the blue spots replaced by whitish ones, the basal streaks more evident, otherwise as above; body blackish-brown, spotted with white; expanse wings, ♂ 3" 11"; ♀ 4" 5"

Inhabits Sarawak, *Lowe*. Coll. *Druce*.

This species appears to be a local representative of *P. Telearchus* Hewitson; like which, *Telesiclus* and *Paradoxa*, it closely resembles the sexes of *Euplœa Midamus*, Linn.

Zoological Department, British Museum,
July, 1869.

Capture in Devonshire of Hydroporus minutissimus, Germ., Aubé.—To reproduce into the British list a species which has already been expunged is at all times a pleasure, but in the case of *Hydroporus minutissimus* it is peculiarly so to myself, since I was the person on whose authority it was originally admitted. Three examples, which were given to me many years ago by the late Mr. W. Clear, of Cork, and which he believed were taken by himself near that city, formed the basis for a short notice in the "Annals of Nat. Hist." (vol. xviii, p. 453, 1846), where I described them as the exponents of what I inadvertently conceived to be a new species, under the trivial name of *trifasciatus*. But subsequent enquiries left little doubt on my own mind that Mr. Clear's specimens were in reality Continental ones; and so, after remaining for some years in the catalogue amongst uncertain natives of Britain," the species was altogether struck out, as having been admitted upon evidence which was manifestly insufficient. During a late excursion, however, to Slapton (about seven miles to the westward of Dartmouth), a single example of it was discovered by my wife, amongst the small submerged shingle at the edges of the Ley; and, being thus warned of its presence, we continued to search patiently until a tolerable series had been obtained. Its habits are precisely similar to what I have observed in the Canary Islands, and elsewhere,—the species delighting in shallow, clear water, amongst the shingle of which it principally resides.

I may add that the same locality produced many *Coleoptera* of tolerable rarity amongst which *Homalota longula*, Heer (= *thinobioides*, Kraatz), was perhaps the most important. We likewise took sparingly *Scopæus Erichsoni* (= *lævigatus*, W. Cat.), *Apion confluens*, Kirby, and *Amalus scortillum*; as also, more plentifully *Lionychus quadrillum* and *Dermestes undulatus*.—T. V. WOLLASTON, Teignmouth June 30th, 1869.

Notes on Coleoptera at Folkestone.—Having spent the greater part of last June at Folkestone, a place so productive of good species to the Lepidopterist and Hymenopterist, I come to the conclusion, in spite of cold, windy, and rainy weather prevailing during the greater part of my stay, that it, and the district round it, is equally good for the Coleopterist. Had it not been for the bad weather I expect that many species then only occurring to me by single examples would have been more plentiful. Never having been to Folkestone before, and having no one to guide me, I unfortunately did not investigate the best part of the far-famed "Warren;" upon which (under stones) I could find nothing better than *Plinthus* which was anything but plentiful, and very often broken. With it were *Myrmedonia limbata*, *Pterostichus ruficollis*, *Lebia chlorocephala*, *Xantholinus tricolor* and such moderate things. The only other beetle worth naming was *Phytonomus trilineatus*, common on *Lotus*. Thanks to the kindness of the Rev. Mr. Tylden I was enabled to find, near Westenhanger, *Bembidium Sturmii*, *Anchomenus livens* and *Poöphagus nasturtii*, three species not falling to the lot of every one. *Ceuthorhynchus tarsalis* appeared to be as hard to get as ever. Walking many miles to find its favourite *Sisymbrium* (on which the to me hitherto rare var. *dispar* of *Telephorus lividus* was very abundant), and beating many pecks of that ungainly plant, I managed to secure a short row of the beetle for my cabinet, though it took eleven days hard work before I got the first specimen. It occurs in the immediate neighbourhood of Folkestone, and at Hythe, and I found one specimen at Saltwood Castle, on *Alliaria*, in company with *alliariæ*, Bris. (*inornatus*, Wat.). On the *Sisymbrium*, *C. cyanipennis* was very plentiful, *C. constrictus* very rare, and *C. sulcicollis* and *quadridens* abundant. Of many other species of the genus, *chrysanthemii*, *melanostictus*, and *cochleariæ* only are noteworthy. Of the allied *Ceuthorhynchideus*, *melanarius* (common on *Nasturtium*), *terminatus* and *frontalis* occurred and I would here note my conviction that *Chevolatii*—in vain sought by me though I obtained *troglydytes* in every possible size, variety, and splendid condition—is a good species. Remembering a former capture of *Ceuth. marginatus* with six-jointed funiculus, I took a large number of that somewhat abundant species and had the satisfaction of finding four similar examples. There seemed to be no *punctiger* among them. I look upon these as monstrosities only, among which class must certainly be placed a *Rhynchites germanicus* which I took here, with each antenna bi-clavate.

In a pond at Hythe, I was fortunate enough to obtain a small row of *Telmatorphilus sparganii*, certainly one of our rarest beetles; it was accompanied by *caricis* and *typhæ*, and by two specimens of *brevicollis*, Aubé, a species new to me and most distinct. A similar pond, near "Cæsar's Camp," at the base of the hills covered with flags, reeds, water lilies, and other flowering aquatic plants, much

orted to by *L. Adonis* at its shallow edges, and abounding with dragon-flies, duced (besides swarms of common *Telmatophili* and *Cercus rufilabris*), the magnificent *Chrysomela menthastris* in some numbers.

It was, however, by sweeping the boundary line between the waste and cultivated lands, on the slopes of the inland row of cliffs running from Folkestone rnpike to Westenhanger, that I made most of my good captures. Here I once twice found the giant *Molytes germanus* (also near Saltwood), and *Otiorynchus ebricosus*, the males of which much simulate the hitherto non-Britannic *cipes*; and here ♂ *Drilus* absolutely swarmed, exhibiting the greatest conceivable discrepancy in point of size. Of some hundreds that I saw, all were males; and the closest and most constant work (among snails, at evening and by day, by sweeping and other examination of the banks and plants whereon the male occurred), never produced a female. I imagine, however, that I was too soon; for, after my departure, Mr. Purday, of Folkestone, found a female, not accompanied by a male ♂, in the middle of a path. This ♀ is now in my collection. General sweeping along these ridges produced many good things, amongst them being *Malota notha* (a very *Encephalus* in its carriage), *H. scapularis* (not very uncommon), *Hypocyptus seminulum*; *Hydnobius punctatissimus* (three of the very small testaceous but quite mature form), *Anisotoma litura* (pale form), rather commonly, and *calcarata* rarely; *Choleva anisotomoides*, *Saprinus virescens*, lurking under *Helianthemum*-flower, like *Cryptocephalus hypoæridis*, and evidently under that disguise voraciously intent; *Cryptophagus badius* and *setulosus*, *Antherophagus lens* and *nigricornis*, *Malthodes atomus*, *Trachys troglodytes* (a very large dull-colored specimen), *Mordellistena pumila* (extremely common, of all sizes), *M. pusilla* usually excessively rare,—to be known from small *pumila* by its brown pubescence and longer antennal joints), and *M. abdominalis*; *Celiodes exiguus* on *Geranium*, uncommon, and generally distributed over the district; four species of *Bruchus*, of these the best, *seminarius*, was very abundant; *Apion filirostre* (as usual, singly), *lidum*, *Waltoni*, *punctigerum*, *pomonæ*, and many others, common; *Baridius picicornis*, a few, on *Reseda lutea*; *Gymnetron pascurorum* (absolutely swarming on ridge road cliffs), *G. melanarium* and *labile*, *Orchestes pratensis* and *Amalus orthillum*, common; *Rhamphus*, *Phytonomus pollux* and *suspiciosus*, and *Hylastes curus*; *Cryptocephalus lineola* and *bilineatus* rather rare; *labiatus*, *aureolus*, and *hypoæridis* most abundant (the latter easily to be known from equally small *aureolus* by its proportionately much shorter scutellum); *Cassida sanguinolenta* (rare), and *nobilis* (plentiful); *Platynaspis villosa* (rare), *Oömorphus*, *Scymnus* sp.—? (like all *Mulsanti*, with red bands almost making four spots); *Mantura Matthewsii*, generally distributed, *Aphthona hilaris*, green var., *Bryaxis Helferii*, and many other commoners.

I was much struck by the prevalence of dark forms; the black *Telephorus par* above alluded to and black *Isomira murina* being far commoner than the red; I also found one or two *Lema cyanella* nearly dull black, a black ♀ of *Baridius picicornis* in cop. with blue ♂, and three black *Rhyzobius litura*.

The above general notes (which do not by any means exhaust my captures), now, I think, that under better auspices, Folkestone is a good Coleopterous locality.—E. C. RYE, 7, Park Field, Putney, S.W., July, 1869.

Eros affinis bred.—After considerable trouble, I have succeeded in breeding *Eros affinis*, from small larvæ obtained at Killarney in 1866; and I have also bred it from Sherwood Forest larvæ, found last year. The larva resembles that of *Aurora*. I have also bred *Tiresias serra* from Sherwood.—J. KAY HARDY, 11, Embden Street, Hulme, Manchester, July, 1869.

Notes on Saperda scalaris and other Coleoptera at Sherwood Forest.—In June last I spent a fortnight at Sherwood, where, amongst other things, I found a single ♂ example of *Saperda scalaris* by beating an oak. I also brought home six pupæ found in company under oak bark, one of which did not come to maturity, two turned out a fine pair of *S. scalaris*, and the remaining three were *Phymatodes variabilis*. From another pupa, found under rotten birch, I bred *Phloxotrypa Stephensii*. In the Forest, at large, I found a few *Conopalpus testaceus* and var. *Vigorsii*; also *Cistela ceramoides*, *Eryx atra*, *Leptura scutellata*, &c. As far as I know, the oak is an unrecorded pabulum for *S. scalaris*.—J. KIDSON TAYLOR, Thorpe Cottage, Longsight, Lime Grove, Manchester, July, 1868.

“Fireflies in Kent.”—Under this heading, in “The Times,” of 17th inst. “A.A.” records the capture, at Ashford, of a luminous specimen of *Lampyrus italica*, and particularly calls attention to its soft yellow light, so different to the cold blue gleam of the English Glow-worm. It is to be hoped that some further evidence will be forthcoming as to the identity of the species in question; though after the occurrence of *Phosphæus* at Lewes, it will not be safe to treat the above record as a light matter.—EDS.*

Trichius fasciatus in South Wales.—It may be of interest to some of your readers to know that I have turned up this species in considerable numbers. I shall be glad to return specimens to anyone sending a box with return postage. It flies rapidly and deftly in the sunshine, hawking from flower to flower with considerable power of wing, and reminding one somewhat of *Sesia bombylififormis*, though without the wild “abandon” in its flight which characterizes that captain of rovers.

My gardener, Robert Stafford, found it very locally confined to some marshy glades in a wood near my house, where the trees have been cut, and the undergrowth is some two years old, and where thistle-blossom and *Veronica* offer it a profusion of flowery attractions. Once settled on a blossom, it may be taken easily with the fingers, but has the power, when annoyed, of emitting a pungent though inoffensive smell.

Two examples, out of 150 recently taken, have the shoulder spot stopping short of the suture, thereby simulating the rarer *T. abdominalis*; and it is to such a variety of *fasciatus* that the single specimen mentioned by me years ago in the “Intelligencer” must be referred.—JOHN T. D. LLEWELYN, Ynisyerw, Neath; June 21st, 1869.

* Since the above was in type, we observe in the same Journal, 20th inst., a record of the capture of tropical fire-flies at Caterham; ♂ *L. noctiluca* is probably the cause of both these notices, though a third writer suggests that the Ashford fire-flies may be some he brought from Coblenz and turned out at Dover!—EDS.

New localities for Bagöus inceratus.—In the beginning of last June, I took several examples of this species (recorded as British by Mr. Rye, in the June No. of Magazine), in a brackish water ditch in the Isle of Sheppey, about two miles from Sheerness. It was very local, only occurring in one little spot.

I have since taken a single specimen of it at Southend, in decaying sea-weed, on the shore.—G. C. CHAMPION, 274, Walworth Road, S., July, 1869.

Note on Anax formosus, &c., at Lee.—A few days since, I discovered that the clay-pits, by the side of Burnt Ash Lane, were frequented by a host of dragon-flies, of which *Anax formosus*, not generally a common insect, was the most conspicuous, mixed with *Lib. depressa* and *4-maculata* in about equal numbers, and an occasional *L. cancellata*, &c. I had never before seen *A. formosus* on the wing, and a more magnificent sight than that of a score of the males hawking over two small ponds, could scarcely be imagined. The females were mostly engaged in oviposition, and for this purpose they thrust the abdomen into the water to the extent of about half-an-inch.—R. McLACHLAN, Lewisham, 13th July, 1869.

Note on Enoicyla pusilla.—I have two mutilated males of this species (put aside with other odd insects and neglected) which I remember to have captured in the autumn, some eleven years ago, several miles from Worcester. I can now reckon four localities in this county where I have found the species.—J. E. FLETCHER, Worcester, 2nd July, 1869.

Observation on Cecidomyia taxi, Inchbald.—Since Bremi (Beitrag zu einer Monographie der Gallmücken, 1847, p. 25) surmised that the artichoke galls so often met with on the branches of *Taxus baccata* belonged to a *Cecidomyia*, Mr. Peter Inchbald has given in the "Ent. Weekly Intelligencer" for 1861, pp. 76—77, an account of the Economy of the Gall-midge, and a description of both sexes of the Imago."

Having just bred the insect from specimens sent to me by my kind friend Mr. I. W. Kidd, of Godalming, I beg to offer the following memoranda concerning its metamorphosis, &c., leaving out all points which by Mr. Inchbald's paper have been satisfactorily settled.

No cocoon is spun within the closely-fitting nest of whitish leaves composing the interior of the gall. The pupa lies bent on the back, with the head directed upwards.

An immature pupa examined on the 31st of May, was about a line long, deeply notched between thorax and abdomen, the back of the latter very rough, and of a dull tile-red colour, the strongly arched thorax polished, red; the eyes black and shining; the wing-, leg- and feeler-cases entirely and closely pressed against the body, and all these parts deep red; forehead obtuse, notched in the middle vertically; the basis of the feeler-cases quite smooth; the outer leg-cases reaching as far as the penultimate segment, wing-cases only half so far; the outer (fore-) leg-cases the longest, the middle ones shorter, the inner (hind-) leg-cases the shortest; border of the nine abdominal segments flattened, and, if viewed from above, somewhat darker than the body itself.

On the 2nd of June this pupa had attained the following mature state:—The

whole upper part of the body and appendages had turned very dark brown, while the abdomen retained its dull tile-red hue; the tips of the leg-sheaths were standing clear of the body, which latter had become somewhat contracted, the wing and feeler-cases were still lying closely along the body.

The mature pupa forces its way straight up the bract of the leaves, and when the imago has escaped, the white transparent pupal skin is left protruding from the gall. The empty pupa displays the feeler-sheaths detached from the head, and unlike a pair of curved horns.

The imago seems to belong to the sub-genus *Cecidomyia* of Loew, and the venation of its wings would place it between *Cec. rosaria*, Loew, and *C. riparia* Schrank, according to Winnertz's figures (Linnæa, vol. viii, tab. 2, fig. 1 and 2).

Specimens bred in captivity and kept on yew branches lived only two or three days.

On the 6th instant I observed the larvæ of an ichneumonideous insect encased within a full-grown larva of this *Cecidomyia*, leaving only the last three segments of the latter free. Notwithstanding the presence of this parasite, the *Cecidomyia* larva had strength enough to assume the outward guise of the pupa; but scarcely had this been accomplished, when the full-fed inmate made its exit through an opening between the thorax and abdomen, leaving its victim to perish.—ALBERT MÜLLER, South Norwood, S.E., June 16th, 1869.

Note on the larva of Lycæna Arion.—I have this year succeeded in rearing the larva of *Lycæna Arion*, which I think is as yet undescribed. I watched the butterfly at last, and saw it depositing ova with a business-like sort of flight, one at a time on the blossoms of the wild thyme. Seizing upon the plants, I soon discovered what the ova were like, and within a few hours collected about 100 of them. The ovum is like that of all butterfly ova, of an oblong shape, but not always deposited in a standing position. It has no ribs, and is either yellow-orange or white (similar to those producing *Cardamines*). The larva emerged within a week, to the hour, and fed up pretty rapidly.

It is onisciform, and slightly flattened on the sides, the back being rather convex. Head very small, black or blackish-brown. Body greenish, the dorsal and sub-dorsal lines represented by a row of three black spots on the middle of each segment. Legs almost imperceptible. Feeds exposed on flowers of *Thymus serpyllum*. Having taken all possible precaution towards the rearing of the insect I shall be most happy to give any further particulars.—E. DEMBSKI, Cheltenham College, July 11th, 1869.

Are Lycæna Medon and Artaxerxes distinct species?—The question as to the relationship between *Lyc. Medon* and *Artaxerxes*, which Professor Zeller is endeavouring to solve, opens up the larger one—What evidence ought to be taken as proving two or more forms to be varieties of one species? Can there be any but that of the one having been reared from the eggs of the other? Of course eggs of a variety might produce other forms not obtainable direct from the type. Intermediate forms, and even similarity of larvæ, are not conclusive, and only justify us in saying "probable varieties." I use the term varieties in the restricted meaning

reared by Standinger in his Catalogue—i. e., local races or forms, which in some districts (more or less extensive) displace the type. Now there must be some one or places where these originated, and where, in all probability, both forms co-exist; and there only could we with any certainty expect to obtain the one or the eggs of the other.

I believe the form *Medon* is never seen in Scotland, nor that of *Artaxerxes* on the Continent; but there are certain districts in England where both (as also intermediate) forms are said to be taken. Could not entomologists in these localities obtain the eggs of both forms, and see whether both can be obtained from the same spot? This will involve a little more trouble than coolly assuming their identity. The fact of *Artaxerxes* never having been met with in any locality in either Northern or Alpine Continental Europe, goes far, I think, to prove its being distinct. In this respect it is unique among our *Rhopalocera*, all our others, whether species or varieties, being met with on the Continent. I intend, if possible, to send eggs of *Artaxerxes* to Professor Zeller, but I do not expect they will produce any other than, even with the change of food-plant.—A. WILSON, Young Street, Edinburgh, 1st July, 1869.

On Lycæna Artaxerxes.—I received on 8th May of this year, by my friend, Professor Hering, of Stettin, four larvæ of *Lyc. Artaxerxes*, sent from Edinburgh expressly for me. Three were full grown, so that one was a pupa already on the 8th. The fourth was much smaller, more yellowish, and with a sickly aspect. As the *Helianth. vulgare* does not grow in the vicinity of Stettin, in order to do something towards saving it from perishing by starvation, I offered it some young plants of the *Erodium cicutarium*, and lo, it bored directly into a flower bud, which on the following day, I found eaten out. In the sequel I saw it really consuming, with good appetite, the unopened blossoms of that plant. While it was thus feeding and growing, its colour gradually changed to a healthy green one. As late as the 22nd May, it changed to a good pupa, though it had before fallen down from the place where it had attached itself. On the 9th June, a small *Artaxerxes*, ♀, made its appearance.

Now I had expected that the different food which it had eaten for more than eight days would have exercised some influence and a little altered its markings, so as to become more like *Medon (Agestis)*. But no, it is the completest possible *Artaxerxes*, having a considerable pure white spot in the middle of the fore-wings, and the white spots of the under-side, with no trace of a black centre; even on the upper-side of the hind-wings a faint white dot is to be seen.

As the larva of *Artaxerxes*, in the case of necessity, feeds on *Erodium*, I suppose that that of *Medon (Agestis)* will do so with the leaves of *Helianthemum*, and I think it worth while to try; but to obtain a more satisfactory result than I obtained on account of so short a time of feeding one *Artaxerxes* larva, one should give them that unusual food from the earliest time possible. On such grounds as *Medon* inhabits, the plants of *Erodium*, at the end of June, or rather in the beginning of spring, must be cautiously cut next to the root, and shaken on a white sheet, by which means the larvæ will easily be obtained; and the younger they are, the better they will be for the experiment. The reward, perhaps, may be that the

Medon of South England, by changing its food for some weeks, may change to *Artaxerxes*, and the specific identity of the two forms will then be for ever irrefutably demonstrated.—P. C. ZELLER, Stettin, 24th June, 1869.

Life history of Polia nigrocincta, and description of its larva.—Eggs laid in July and August, on the sea-pink, *Statice armeria*; first larvæ hatched September 25th; fed on sea-pink in preference to several plants offered (there can, indeed, be no doubt that sea-pink is its proper food-plant), and continued to feed upon it at intervals throughout winter, growing but very little after October, when they were about three-tenths of an inch long. Color: clear, slightly pellucid, emerald green, with a light spiracular line. Shape: long in proportion to their breadth, the dorsal lines scarcely perceptible. About May, the colour changes to a somewhat more pellucid light mineral-green, with the head, face, and trophi glass-like, and the shape is slightly flattened to the spiracular line, then becoming more cylindrical with dorsal lines double, but only faintly indicated; between the dorsal and the sub-dorsal line (which is also double, but still more faintly traced than the dorsal marks) there are three minute light dots, one above and two below upon each segment. The spiracular line is whitish-green, well-defined upon the upper edge and toned off into the light pea-green of the under-part of the larva; feet light green, claspers slightly tinged with olive. At this stage, the larva is fond of stretching itself out upon a stem of the sea-pink or grass during the night-tide, and at such times the divisions of the first eight segments appear as yellowish rings. Gradually the larva changes colour; first a dark tinge of ochreous olive-pink creeps over it, and it begins to show its preference for the flowers of the sea-pink, which is just coming into bloom. Resting on the stems with its claspers turned over the top of the flowers, it fairly devours them; commencing with the petals and stamens, it will, in a very short time, eat an entire flower-head, and then gnaw the stem down, after the manner of *Leucania littoralis* on star-grass, until it has to move lower down the stem itself as it feeds. Growing rapidly now, it soon becomes less flattened, stouter, with the segmental divisions more constricted and slightly pellucid, and changes to a smooth light pinkish or rich fawn colour, tinged with olivaceous (an indescribable color); the head hairy, browner than before, but still glass-like; the dorsal line a little better defined, still double on the centre of the segments, but joined together at each of the constrictions, forming a faintly defined chain-like mark down the back; the sub-dorsal line can only be seen now with a good glass, under which the coloring of the space between these lines may be seen as marmorate brownish markings or atomic suffusion, and the three segmental spots before named are now light, with a dark upper edge; the spiracular line is light, but less pronounced than before, the spiracles being composed of a dark ring with an ochreous inside. Beneath, the larva is light greenish, with horn-like feet. One peculiarity of this larva is a singular violet-peach-bloom appearance which often passes over it, especially over some of the first and last segments, as it moves. To sum up, it is one of those larvæ which have no salient points to rely upon, and this want adds to the difficulty of description; it certainly has no resemblance to the larva of any other *Polia* which has ever been in the British List, but rather approaches some of the true *Hades* larvæ, especially, when mature, resembling in general appearance certain larvæ

gracea, being, however, of a more highly finished appearance; or perhaps it is more of the larvæ of the *Heliothidæ*. When full fed, the larva measures nearly two inches in length, rolls in a ring when disturbed, is a true nocturnal insect, and subterraneous in its habits, burying in the light vegetable soil or within the close tufts of the sea-pink. During the day time, it spins a slight silken web to the earth or amongst dead plants as a puparium, and changes immediately to a brown, smooth, stout pupa, ovoid to the end of the wing-covers, then sharply conical to the anal segment, out of which spring two rather large hooks. It only remains a few weeks in the pupa state, the perfect insect appearing in July and August, frequenting the rocky shores of the Isle of Man, near Douglas and Peel. On the continent, this species varies very much, some specimens being difficult to separate from *P. flavocincta*, whilst others want the yellowish tones which enrich that species; but I have not yet seen or heard of a single specimen of our dark form occurring anywhere except in the Isle of Man, and I think that, if the Manx specimens are all of one type, I shall call them "*Var. stacies*."—
J. GREGSON, Rose Bank, Stanley, Liverpool, 10th July, 1869.

Description of the larva of Plusia interrogationis.—On June 9th, 1869, I had the pleasure to receive the larva, nearly full fed, of this pretty species, from Dr. F. Buchanan White, who had taken several in Inverness-shire, and who during the previous autumn had swept up a few young examples from heather in Ross-shire, one of which he kindly sent to me in October. These were barely one-third of an inch long, and presented the same pattern as the mature larva, being of a full green colour with the sub-spiracular stripe of sulphur-yellow very conspicuous. They were fed occasionally on heather till the end of November, and rested on the stems in a curved posture. Only one, however, lived on to nearly the end of March, when it was then half-an-inch long, and, no young shoots appearing on the heather, it fed a little on a blade of grass and sallow catkin; but one morning I had the mortification of seeing it hang lifeless from a stem.

The full grown larva of *interrogationis* measured nearly one inch and a quarter in length when stretched out, though it generally had the anterior half of its body curved upwards, being thick in proportion to its length, tapering gradually from the sixth segment to the head which is smallest, the hinder segment tapering but not so much. Viewed sideways, the back of the twelfth segment rises a little to the middle, and slopes rapidly downwards from thence to the anal extremity, the two pairs of ventral prolegs being equally developed.

The ground colour is a bright and deep full green, but paler on the back, though the dorsal stripe is as dark as the sides, and begins wide, narrows, then widens wider to an angle in the middle, decreases similarly, and widens towards the end, and is finally edged throughout with greenish-white. This is its course through all the segments, except the thoracic, where it is more simple and linear.

The sub-dorsal line is greenish-white, finely edged with darker green; and midway between the dorsal and sub-dorsal is a tortuous line of greenish-white on which are the usual tubercular warts of the same colour, each bearing a fine brown hair. The sub-spiracular stripe is sulphur-yellow, and the belly and legs are not quite so green as the space between the sub-spiracular and sub-dorsal.

The head is green, finely freckled with greenish-white, and having a black

streak round the sides to the mouth. Some very small yellow scattered tubercles on the ventral surface.

On the 11th June, it began to spin its pale grey silken oval cocoon among the stems of heather, and a few days later the pupa became dimly visible through it, lying in the middle, in a nearly horizontal position, the head being lowest. Length about half-an-inch, the wing cases nearly as long, their tips uppermost and projecting in a blunt point; from them the abdomen is bent downward at a right angle, having a blunt anal point attached to the shrivelled coat skin of the larva. Its general appearance rounded, obtuse, and thick, of a blackish-brown colour, and with scarcely any polish.

The perfect insect emerged on July 8th.—WM. BUCKLER, Emsworth.

Capture of Hadena assimilis.—On the 30th June last, I took a specimen of the above insect, on the 10th inst. another, and on the 11th inst. a third, all at sugar in Inverness-shire.—NICHOLAS COOKE, Spring View, Liscard, 16th July, 1869.

Occurrence of a Dicrorampha new to Britain; D. plumbana, Sc.—Some time since Mr. Hodgkinson, of Preston, kindly sent me examples of a *Dicrorampha* evidently new to our lists. One of the specimens (a ♀) I forwarded to Professor Zeller, who has most obligingly furnished me with its name. He writes as follows concerning it:—"The *Dicrorampha* ♀ I can by no means separate from what I consider to be *D. plumbana*, Sc. (*Zachana*, H., *Blepharana*, H.-S.): identical specimens were abundant in Upper Carinthia, before and after the beginning of June." Mr. Hodgkinson on capturing the insect at once saw that it was something new to us. He again met with the species at Witherslack, in the beginning of the present month. Dr. Staudinger gives *ulicana*, Gn., as a synonym of *plumbana*, but Mr. Hodgkinson's insect is certainly not the *ulicana* of our lists.—H. G. KNAG, Kentish Town, July, 1868.

Addition to the list of Irish Lepidoptera.—*Coccyx Splendidulana*, quite new to the Irish fauna, has been, by some error, omitted in my list.—HERBERT MARSDEN, Gloucester.

Dianthæcia compta & *D. Barrettii* at Howth.—I have lately been successful in capturing a few examples of *D. compta*, and several of *D. Barrettii*. Thinking that the occurrence of the former especially will interest your readers, I send you the following note.—E. G. MEEK, 4, Old Ford Road, E., July 11th, 1869.

Notes on the occurrence of Dianthæcia Barrettii.—In June, 1868, I visited the Hill of Howth, in Ireland, for the purpose of taking *D. Barrettii* in its original locality, and succeeded in securing a good series of specimens, varying much in size. On reflection, it struck me that "Port-Jack," in the Isle of Man, resembled the best locality I had found for it at Howth so nearly in its Flora and Fauna (as far as I had then ascertained), that I determined to try there for *D. Barrettii* on my next visit to the Island. A few days afterwards, I went to the little kingdom and proceeded direct to "Port-Jack," and, before I slept, had secured and set a fair specimen of *Barrettii*. This year I have again taken it there, so that we may now hope that this hitherto exclusively Irish species will be obtained in the Isle of Man, by all who work for it, at less cost in money and time than it can be hoped for in the Irish localities.—C. S. GREGSON, Stanley, Liverpool, July 12th, 1869.

Notes on Lepidoptera at Howth and Wicklow.—Having a few days holiday, I thought that I could not do better than spend them in the "Emerald Isle." I started in Dublin on June 19th last. After breakfast, I walked down to the Sandymount Dallymount. I worked them during the whole afternoon, but took nothing, in consequence of the rain which came down steadily all the time. On Monday, June 21st, I went to Howth, after receiving instructions from Mr. More (of the Royal Dublin Society), to whose disinterested kindness in pointing out localities I am indebted for a comparatively successful campaign in a bad season. I tried the Bailey Hotel, but found I could not be "taken in," so made the most comfortable and reasonable lodging at a house just above the hotel, where I would advise any entomologist to stay, as it is close—for Howth—to the best hunting ground. Ask for "Cabena's," at the top of the hill. In due course, I started to work, and got a few *Eupæcilia albicapitana* and *Sericoris littorana* in the forenoon. In the evening there was more rain. As I took up my position for the night on the side of the cliff, I had the pleasure of meeting Messrs. Meek and Barrett, of London. We watched the *Silene maritima* flowers most of the night, amidst the teeming rain. When we gave up, I found I had taken one *Dianthæcia barrettii* amongst a few other things. We spent our days in setting our insects, and in hunting the cliffs and searching for pupæ of *Sesia philanthiformis*; of which, although Mr. Meek and I worked hard for many hours, we found none. The nights were devoted to the *Silene* flowers from "dusk to dawn." Without further comment on Howth, I give a list of species caught during the short time I was there. Mr. Meek will send you an account of his usual good luck, so I will not refer to his capture.

M. bombyliiformis (fine series), *Hepialus vellela*, *V. maculata*. *Eurymene abarbaria* in a wood adjoining the Old Bridge near Lough Dan. *Melanippe tristis*, *E. palumbaria* (highly coloured), *Thyatira batis*, *A. rumicis* (fine var.), *M. aeneus*, *P. anea*, *Argyrolepis Baumanniana*, and several common species.

On June 24th. This afternoon, Mr. More and I set off for that lovely county Wicklow. After some three hours ride on an outside car, we arrived at Murphey's Hotel, Roundwood, which we made head quarters. During the next four days we hunted and collected in or near to Roundwood, Lough Dan, Lough Luggala (L. Tay), several woods and bogs on the banks of the River Armamoe (which river and the lakes afforded us some nice trout fishing), Glendalough, Seven Churches, &c. I hunted each evening, but with poor success. The locality is a very likely one, and if worked well, would, I am sure, repay; it is easy of access, and not expensive. Considering this is the worst season I have known, I think I did pretty well there, and it follows: *Aridalia subsericeata*, *Larentia salicata*, *Eup. venosata* (very large), *Eup. venosata*, and an *Eupithecia* I do not know, (perhaps *Eup. distinctata*), *M. galiata*, *capsophila*, *D. Barrettii*, *P. subornatella*, *Eupæcilia albicapitana*, &c.

After our return to Dublin, we spent one evening in the Botanical Gardens, Glasneven, which are a great feature of the Royal Dublin Society. I got little from them, but the night was very cold.—T. J. CARRINGTON, York, July, 1869.

Note on Lithosia caniola.—On the 1st March Mr. Stainton kindly sent me, from Milan, five larvæ of *Lithosia caniola*, about one-third grown. They did not reach me for a week, and having been without food, air, or light during the interval, were in a sickly condition, and all except one shortly died.

The remaining larva went to pupa May 5th, and has this day (June 18) produced ♀ moth in all respects identical with specimens from Howth, but perhaps a little above the average in size.

Mr. Stainton informs me that his attention was drawn to some dark objects on the white wall of one of the interior passages of the hotel at Florence, which on first sight he had passed, thinking they might be *Julidæ*, but on examination they proved to be larvæ of *caniola*: there were more than a hundred on one wall, but there was no visible food. On sending them to me he suggested that, from the position in which found, they ought to feed up if simply "placed on the door step" and that real green vegetable food would probably be too strong for their digestion as they could have had no experience of such rich diet. However, considering the cooler climate of England, I ventured to supply the gentle stimulant of a step covered with a minute lichen, and also an occasional leaf of clover. I was not able to observe that the clover was eaten, nor the lichen diminished in quantity, but still the larva thrived on its meagre diet.

The moth has emerged a month earlier than it does at Howth, although it remained in the pupa state six weeks, or more than double the period usually occupied by the Irish insect. The greater heat of the weather at the period of the year (July) in which the Irish *caniola* undergoes pupation possibly explains this discrepancy.—EDWIN BIRCHALL, Newlay, Leeds, June 18th, 1869.

DESCRIPTION OF A NEW SPECIES OF *LEPTALIS* (*LEPIDOPTERA RHOPALOCERA*).

BY W. C. HEWITSON.

LEPTALIS DESINE, *nov. sp.*

♂ Upper-side, dark brown. Anterior wing with four white spots, the first and largest divided by the nervures into five parts, one of which is within the cell, the second between this and the anal angle, the third (which is trifid) and fourth a sub-apical; a small linear spot of orange near the middle of the inner margin. Posterior wing, where it meets the upper wing, broadly lilac-white, polished, and below this a large oblong spot of brilliant orange.

Under-side, paler brown. Anterior wing with the spots as above, the lower half pale lilac polished white, marked by a large spot of opaque white. Posterior wing crossed (parallel to the outer margin) by a central band of yellow spots.

Alar exp., $2\frac{4}{10}$ inch.

I am indebted to Mr. Belt for this beautiful species, from Chontales, in Nicaragua. It is of the form of *L. Critomedia*.

Oaklands, Weybridge.

July, 1869.

ENTOMOLOGICAL SOCIETY OF LONDON, 5th July, 1869. F. SMITH, Esq., Vice President, in the Chair.

Albert Müller, Esq., of South Norwood, was elected a Member.

Mr. Jenner Weir exhibited an enormous tick taken off a Greek Tortoise.

Mr. Colville Barclay related his experiences concerning the damage done to the sugar-crop in Mauritius by the "Pou à poche blanche."

Mr. Smith exhibited a coloured drawing of the luminous larva shown by him at last meeting, which Dr. Candèze and Professor Schiödte (present as visitor) seemed to belong to the *Elateridæ*. He also exhibited a living field-cricket, found at Farnham; and a series of *Pissodes notatus* from Bournemouth.

The Hon. T. De Grey exhibited three examples of *Cosmopteryx orichalcea* from Fen Fen; and a series of a *Tortrix* which Professor Zeller held to be a dark form of *Decapsa juliana*; it had been bred in April, from pupæ in moss on beech-trunks. Mr. De Grey expressed himself rather uncertain as to its identity with *juliana*. The Secretary read a long and interesting letter from Mr. C. A. Wilson, of Adelaide, with notices of various South Australian insects.

Mr. C. M. Wakefield (present as a visitor) gave some account of the insect-geography of New Zealand, and remarked that its prevailing feature was the paucity of species, as in Mammals and Birds. Mr. Fereday had only obtained about 14 or 15 species of Diurnal *Lepidoptera* and 250 of moths. He himself had only noticed about 120 species of *Coleoptera*. *Trochilium tipuliforme* had been introduced into New Zealand with its food-plant. Mr. Wakefield had lost all his collections of New Zealand insects through the burning of the ship "Blue Jacket."

Mr. A. R. Wallace read a Continuation of his "Notes on Eastern Butterflies." Mr. Edwin Brown communicated a paper "On the Australian species of *Leptocrypta*." This was the last meeting before the autumn recess.

ON COPTODERA AND THE ALLIED GENERA.

BY H. W. BATES, F.Z.S.

In examining the species of *Coptodera* in my collection, I have observed some features in their structure which seem to have escaped the attention of all authors who have written upon that genus. These I now propose to make known, together with the descriptions of many new species.

The genus belongs to the *Truncatipennes* division of the *Geodephaga* sub-group *Pericalinæ*, distinguished from the *Lebianæ* by the length of the labrum, which covers in great part the mandibles, and is often longer than broad, and by the simple penultimate joint of the tarsi. The species of *Coptodera* all live on and under the rotten bark of trees, moving with great rapidity; their surface is free from pubescence and is generally metallic in colours, and ornamented with flexuous bands of pallid hue. Their habit of searching for prey under close-fitting bark is associated with a flattened form of body and especially flattened and lengthened mouth; the mandibles being long, depressed, very acute and scarcely curving towards the apex, and the ligula and paraglossæ, together with the labrum, lengthened and flattened in the same proportion. The two terminal joints of the maxillary palpi form together an

elongated fusiform figure, the penultimate joint being much shorter than the terminal one, and the latter narrowing to the apex; the terminal joint of the labial palpi is also fusiform and slightly truncated at the apex. The elytra are truncated, as in all the allied genera.

Dejean, and after him Lacordaire, has stated that the mentum of *Coptodera* is provided with a large central tooth; this is an error which was avoided by Schmidt-Göbel, who characterized the genus anew before the appearance of Lacordaire's first volume of "Genera." In fact, the emargination of the mentum in the genus is simple, as I have convinced myself by the dissection of seven species. An error of this kind throws an unpleasant uncertainty on all characters drawn from hidden parts of the mouth of the smaller genera. *Geodephaga*, as given in the chief works on this great group. A character, which has been overlooked by all authors, is the structure of the anterior tarsi in the males; these are slightly dilated and furnish beneath with double rows of scales, precisely as in the great groups *Anchomeninæ* and *Feronianæ*. This character is interesting, as it aids us, in conjunction with others, in judging of the true affinities of the group. In fact, I think there can be no doubt that the *Pericaliniæ* (together with the greater part of the *Lebianæ*) are closely allied to the *Anchomeninæ*; the discovery of genera exactly intermediate between the two groups, one of which is described in this paper, completing the evidence. The form of the ligula and its paraglossæ, given as one of the principal characters of the *Pericaliniæ*, varies a good deal in allied species; but all agree in possessing broad, thin, and elongated paraglossæ and a narrow ligula; the paraglossæ attached to the apex of the ligula and surpassing it in length. The variations consist in the extent to which they surpass the ligula; in one species, *C. polygona*, they are, as in the genus *Eurycoleus*, but very little longer; in others, they are much longer, and tend more or less to curve inwards, and embrace the tip of the ligula. I do not think that these modifications are at all of generic value, as hastily assumed by some authors. Before they are claimed as generic characters, the mouth of every species in a genus should be examined; and this being practically almost impossible, such characters should be used with great caution.

The following genera form part of the group *Pericaliniæ*; in all as far as I know, the males have squamous soles to the anterior tarsi and in *Catascopus* the first joint of the middle tarsi is also sometimes squamous. The male of the fine *Catascopus cupripennis* has the breasts in the middle, and anterior thighs, densely hairy, as in many male *Agræ*

A. Mentum not toothed.

1. Claws denticulated.

YCOLEUS. Mandibles short and strongly curved; paraglossæ scarcely longer than the ligula; body very broad and depressed; elytra minutely punctured, not distinctly striated; colours yellowish with distinct black spots; thorax obliquely truncated on each side of the base. Tropical America.

TODERA. Paraglossæ more or less surpassing the ligula; body oblong, distinctly striated; base of thorax straight, or nearly so.

Tropical and sub-tropical America, Africa, Asia.

NOGLOSSA. Paraglossæ greatly elongated and converging at the tips; thorax distinctly lobed in the middle of the base.

Tropical America.

STEIS. }
 LONGNATHA. } Doubtful if distinct from *Coptodera*.

Madagascar.

CHTHERUS. Paraglossæ of the same length as ligula; surface alutaceous, not metallic; thorax heart-shaped with projecting hind angles. Tropical Asia.

2. Claws simple.

RICALUS. Eyes very large. Tropical Asia.

B. Mentum toothed.

1. Claws denticulated.

LEOTHERATES. Facies of *Anchomenus*; black, glabrous.

Tropical America.

ILLOPHLEUS. Claws with two or three very small, indistinct teeth; body flat, clothed above with short pubescence. Australia.

2. Claws simple.

BODONTUS. Tooth of mentum very large; colours blackish with red spots. Africa.

HYREOPTERUS. Tooth of mentum moderate; body broad and greatly depressed; colours not metallic.

Tropical Asia, Madagascar, Africa.

SINÖE. Tooth of mentum very short and broad; labrum much broader than long; surface coarsely punctured, not metallic. Africa.

CATASCOPIUS. Colours metallic, brilliant, without pale markings.
Tropical Asia, Australia, Africa, America.

MISCELUS. Body elongate, colours black; facies of *Feronia*.

Tropical A

I doubt whether *Eucheila*, *Rhombodera*, and *Scopodes* can be included in the group, owing to the widely different form of the labrum and in *Eucheila*, the very large, horny ligula; but other genera some of them apparently undescribed, will have to be incorporated. *Mormolyce*, included by Lacordaire in the *Pericalinæ*, constitutes a distinct sub-family.

COPTODERA POLYGONA, *n. sp.* *Testaceo-rufa, elytris nigris, margine laterali fasciisque duabus angulatis, apud suturam haud interrupta margine lineâ nigra separatis, flavo-testaceis: thorace parvo, labris late marginatis, utrinque bi-angulatis; elytris latis, convexis, profunde striatis, striis vix punctatis. Long. 8-9 millim. Lat. elytr. 4 $\frac{1}{4}$ millim. ♀.*

A species resembling *Eurycoleus* in the shape of its thorax and the large size of its elytra; the latter, however, are deeply striate like the majority of *Coptodera*. Bright testaceous-red, with the sole exception of the elytra, which are black with the lateral margins and two irregular belts of a yellower-testaceous hue, one one-third and the other at three-fourths their length; these belts are not interrupted at the suture, but do not reach the pale lateral margin, being terminated by the ninth interstice, which is black. The head with the eyes is rather narrower than the thorax; the labrum is not much elongated, but about as long as broad. The antennal joints are cylindrical, and the surface of the head is polished; the vertex is impunctate, with a distinct curved fovea in the middle of the forehead. The thorax is very small in proportion to the elytra; it is widened from the apex nearly the middle, then narrowed in an incurved line to the hind angles, where the legs are situated at a distance from the actual base, the latter being straight or even a little emarginate in front of the yellow scutellum. The elytra are wide and somewhat convex, the shoulders broadly rounded and advanced, the sides with a broad flat margin, and the apex obtusely truncated; the surface is deeply sub-punctate, with convex and very finely alutaceous interstices; the two pale dental belts leave three black belts of the ground colour, the basal and middle one being of about the same width as the pale fasciæ, and the apical one forming a large black spot on each side the suture.

Taken at Ega, Upper Amazons, running amongst fungi on the bark of a dead tree in company with *Eurycolei* and *Stenognathus melanarius*.

COPTODERA LATIPENNIS, *n. sp.* *Testaceo-rufa, elytris flavis, fasciis duabus dentatis nigris, altera basali, altera pone medium; thorace parvo, ut in C. polygona, parvo, utrinque bi-angulato, elytris profunde striatis, striis minute punctatis. Long. 8 millim. Lat. elytr. 4 millim. ♀.*

agrees precisely in form and sculpture with *C. polygona*, differing only in the size of the large black spot or fascia at the apex of the elytra. The whole body and limbs are of a testaceous-red hue, glossy on the impunctate head and thorax, and the elytra are deeply striated, with fine punctures in the striae and interstices, alutaceous, but shining interstices; the flattened lateral margins are testaceous-yellow, and the ninth interstice, as in *C. polygona*, is black from the shoulder to the apex; the second yellow belt occupies the apical fourth of the elytra, the broadest on the 3rd and 5th interstices; the belt nearer the base is broadest on the 3rd, 4th, and 7th interstices.

St. Paulo, Upper Amazons.

COPTODERA CUPREOTINCTA, *n. sp.* *Depressa, testacea, æneo cupreoque tincta, vertice thoracisque disco cupreo-fuscis, nitidis; elytris fusco-cupreis, fascia altera lata prope basin, apud suturam interrupta, altera angustiori prope apicem, flavo-testaceis, fasciis e lineis elongatis formatis; capite (thorace angustiori) supra subtilissime alutacco et punctato, thorace transverso, quadrato, lateribus antice extus rotundatis; elytris profunde striatis, striis subtiliter punctatis, apice sinuato-truncatis. Long. 7½ millim. Lat. elytr. 3½. ♂ ♀.*

Allied to *Copt. bifasciata*, Putzeys, but differs apparently in the much deeper colour of the elytra, on which the punctures are only perceptible by the aid of a powerful lens. The general colour is testaceous-yellow, brown on the flanks of the thorax, and glossed with metallic lustre on the upper-surface, the metallic colour being more vivid on brown patches on the crown and on the disc of the thorax. The thorax is quadrate, much broader than long, and moderately rounded on the sides anteriorly, with the hind angles not prominent, and the base line nearly straight. Scutellum yellow. The elytra have three coppery- or brassy-brown belts, the two pale ones, and the flattened lateral margins are also pale: the pale belts are divided into elongate lines by the brown colour of the striae, the first belt being interrupted at the sutural interstice has only seven of these lines, and the sub-apical belt has eight, the ninth interstice being brown throughout; the lines on the interstices 6—8 of the first belt are nearly half the length of elytra. The truncature of the elytra is strongly sinuated. The antennal joints are long and cylindrical.

Common at Ega, under the bark of dead trees.

COPTODERA RELUCENS, *n. sp.* *Brevior, depressa, testacea, supra lævissima, æneo-micans; capite vitta thoracæque vittis duabus cupreo-fuscis; elytris ovatis, striato-punctatis, striis vix impressis, interstitiis latis, planis, cupreo-fuscis, nitidis, fasciis duabus, e lineolis brevibus formatis, pallidis. Long. 6 millim. Lat. elytr. 3 millim. ♂ ♀.*

Apparently still more closely allied to *C. bifasciata*, Putz., than the preceding. It is distinguished from *C. cupreotincta* by the scarcely impressed elytral striae and the broad flat interstices. The whole upper-surface is highly polished, and has a brilliant metallic tinge, varying from glossy-green to coppery-red; the vittæ along

the middle of the head from the epistoma to the occiput, and on each side of central line of the thorax, are nearly black, with a brassy-green tinge. The is strongly transverse, quadrate, with the sides rounded anteriorly. The basal and lateral margins of the elytra are testaceous; the pale belts are composed of very short lines forming together strongly zig-zag fasciæ.

Ega; rare.

COPTODERA LEBIOIDES, *n. sp.* *Pallidè testacea, capite obscuriore, elytris viridi-æneis, fasciis duabus flexuosis, pallidis, profunde punctato-striatis: thorace basi medio late producto; antennis articulis brevibus crassis, sub-moniliformibus. Long. 4 millim. Lat. elytr. 2 millim.*

Closely allied to the preceding, but smaller, the middle part of the base of the thorax distinctly produced and rounded, and the joints of the antennæ much thicker and shorter. The general colour is pale testaceous, with the elytra brassy-green; the pale belts are narrower than in *C. cupreotincta*, the first belt interrupted by the green sutural interstice, and both separated from the pale lateral margin, as usual, by the dark ninth interstice.

Ega. In my own and the Baron Chaudoir's collection.

COPTODERA LINEOLATA, *n. sp.* *Piceo-brunnea, labro, palpis, antennarum pedibusque testaceis; supra vix nitida; thorace transverso, quadrate lateribus modicè rotundatis, angulis posticis haud prominentibus, elytris profundè punctato-striatis, fasciis macularibus duabus, è lineolis parvis, discretis, formatis.*

Long. 5—6 millim. Lat. elytr. 2 $\frac{3}{4}$ -millim. ♂ ♀

Destitute of metallic lustre; head (with the eyes) narrower than the thorax, the latter scarcely narrowed behind, and but little rounded on the sides anteriorly; the posterior angles not prominent, and the base line nearly straight. The pale fasciæ on the elytra are formed of remarkably distinct and pale lineoles; five forming the first belt (2 short ones on the 2nd and 3rd, a much longer one on the 4th, and two shorter ones again on the 5th and 6th interstices), and 6 or 7 forming the second, all of which are short and separated from each other. The labrum is much elongated and the antennæ are formed of slender cylindrical joints.

New Guinea. Collected in numbers by Mr. Wallace.

COPTODERA CYANELLA, *n. sp.* *Suprà lætè cyaneo-viridis, thoracis elytrorumque marginibus lateralibus rufis, his maculâ utrinque discoidiâ prope basin, fasciâque postica abbreviata communi valde curvata testaceo-rufis; corpore infrâ piceo-nigro, oris partibus, antennarum pedibusque testaceo-rufis. Long. 7 millim. Lat. elytr. 3 $\frac{1}{2}$ millim. ♂ ♀*

A handsome species allied to others described by Schmidt Göbel from Burma. The head with the eyes is narrower than the thorax; the latter is transverse, quadrate, rounded outwards in the middle, and with strongly projecting hind angle

labrum is much elongated and sulcate in front as in the *Stenoglossæ*. The elytra deeply striated, without perceptible punctures and with convex interstices, they ovate in shape, widely margined in the middle of the sides, and there tinged with rufous: the colour above is dark brassy-blue or greenish; the body beneath is black, and the legs and antennæ are clear reddish-testaceous.

New Guinea; collected by Mr. Wallace; I have specimens also collected as from Batchian.

PTODERA SPINIPENNIS, n. sp. *Magna, supra unicolor, cupreo-ænea; corpore subtus femoribusque æneo-piceis, antennis, oris partibus, tibiis tarsisque rufo-testaceis; capite thorace multo angustiori; hoc transverso, quadrato, lateribus antice angulatim dilatatis, angulis posticis distinctis, basi recto; elytris oblongo-elongatis, lateribus marginatis, obliquè sinuato-truncatis, utroque angulo spinoso; suprâ profunde sub-punctato-striatis, interstitio septimo basin versus sub-carinato.*
Long. 10—11½ millim. *Lat. elytr.* 3¼—5 millim.

This fine species is distinguished by the long spine into which each angle of the truncature of the elytra is prolonged in both sexes. The colour varies from piceous with a brassy-lustre, to brilliant coppery with brassy reflections, and sometimes the head and thorax are glittering brassy-green whilst the elytra are cupreous.

Upper and Lower Amazons.

PTODERA CHALCITES, n. sp. *Oblonga, suprâ cuprea, capite thoraceque parvis, æneis; hoc transversim quadrato, lateribus rotundatis, angulis posticis distinctis, basi fere recto; elytris oblongo-ovatis, profunde punctato-striatis, valde sinuato-truncatis, angulis haud productis: corpore infra nigro-piceo, antennis, oris partibus pedibusque rufo-piceis.*

Long. 8—10 millim. *Lat. elytr.* 3¼—4 millim. ♂ ♀.

Scarcely differs from *C. spinipennis*, except in the absence of spines from the angles of the truncature of the elytra; in general appearance it much resembles the coppery species of *Anchomenus* and *Colpodes*. The head is small, triangular, and narrower than the thorax, which again is much narrower than the elytra. The general colour above is shining coppery, with the head and thorax generally of a green æneous tint.

Common at Ega.

PTODERA RUTILA, n. sp. *Latiior, flavo-testacea, elytris (margine laterali excepto) læte viridi-æneis, tenuiter punctato-striatis.*

Long. 9 millim. *Lat. elytr.* 4½ millim. ♂ ♀.

A very handsome species, distinguished by the smooth surface and brilliant green hue of the elytra. The head is rather large, but not quite so wide as the thorax; the labrum is not much elongated but nearly square, notched in the middle of its front edge; the antennæ are robust, but the joints remain cylindrical. The

elytra are broad, considerably dilated at three-fourths the length, sinuate-truncate at the apex and margined on the sides, the dilated margins are yellow like those of the body, the surface (including the basal margin) is brilliant unicolorous brass-green, slightly sericeous, owing to the fine transverse-striation of the surface; the striæ are very feebly impressed and punctate. The teeth of the claws are remarkably long; but leave a long apical portion of the claw, as usual, simple.

Ega; coursing amongst Boleti, on dead trunks.

COPTODERA ÆNEORUFA, *n. sp.* *Rufo-testacea, elytris æneo-micantibus profunde sub-punctato-striatis, capite thorace angustiori, labro elongato apice sulcato, thorace transversim quadrato, lateribus rotundatis, angulis posticis haud prominulis, basi recto.*

Long. 7 millim. Lat. elytr. 3 millim. ♂ ♀.

The colour of the body and limbs is entirely testaceous-red, with the exception of the elytra, which are bright æneous, in most examples with the reddish ground colour shining through; the colour sometimes passes to golden, but never cupreous. The thorax has two indistinct brassy-brown spots on the disc. The antennæ are rather stout, with the joints oblong.

Ega; also at Pará.

COPTODERA DEBILIS, *n. sp.* *Parva, rufo-testacea, pectore abdominisque lateribus fuscis, elytris sub-punctato-striatis, fuscis, disco (striis fuscis exceptis) testaceo.* *Long. 5 millim. Lat. elytr. 2½ millim.*

Testaceous-red, sides of the sterna and abdomen dark brown, elytra also dark brown, with the disc paler, the striæ of a dusker hue. Head nearly as wide as the thorax, the latter broader than long, sides rounded, base arched, the sides being oblique. The elytra are deeply striate and the striæ faintly punctured.

St. Paulo, Upper Amazons.

COPTODERA VERSICOLOR, *n. sp.* *Lata, suprâ cuprea, viridi et aurumicans; capite magno, sed thorace paulo angustiori; hoc valde transverso, lateribus rotundatis, angulis posticis haud prominulis, basi recto, elytris brevibus, sinuato-truncatis, profunde punctato-striatis, fuscis valde flexuosis macularibus duabus, prima (utrinque interrupta) maculis quinque, secunda (interdum apud suturam interrupta) e maculis septem, formata; corpore infrâ piceo-rufo, lateribus nigricantibus, antennis, labro, palpis pedibusque piceo-rufis; labro antice, ut in CATASCOPO, acute inciso.* *Long. 9 millim. Lat. elytr. 5 millim.*

Very similar to *C. depressa*, Dej., of southern Brazil; but much shorter and the thorax in proportion much broader and less narrowed behind, with the posterior angles not prominent. The macular fasciæ are very similar; the sutural interstices are narrow, and in the hinder belt sometimes free from yellow spots, and all the spots are short except that on the fourth interstice in the anterior belt.

Not uncommon at Ega; also Pará.

COADERA MEGALOPS, n. sp. *Elongata, capite magno, cum oculis thorace latiori; hoc quadrato, lateribus antice angulatis, dein sinuato-angustatis, angulis posticis rectis; corpore subtus, pedibus, capite thoraceque viridi-æneis, elytris violaceo-cupreis, oblongis, sinuato-truncatis, angulis externis dentiformibus, suturalibus spinosis, suprâ profunde punctato-striatis, fasciis duabus macularibus testaceis; antennis obscurè piceis, articulis basalibus æneis.*

Long. $7\frac{1}{2}$ —11 millim. *Lat. elytr.* $2\frac{1}{2}$ — $3\frac{1}{2}$ millim. ♀.

Distinguished by the very prominent eyes, which make the head wider than broadest part of the thorax, in this respect resembling *C. Schaumii* (Chand.) Costa Rica. The under-surface of the body, femora, parts of the mouth and 1 joints of the antennæ are dark brassy-green; the head and thorax of a more brilliant green, the head with five or six sharp furrows on each side near the eyes; thorax is nearly as long as broad, and is remarkable in not having the sides rounded, but produced into a distinct angle, not far from the front margin, and somewhat sinuated both before and after the angle. The labrum is sharply notched on its front edge and is of a brassy-black hue. The elytra are sinuate-truncate, with the lateral angles of the truncature produced into a broad sharp tooth, and the sutural angles into a narrow spine; the pale belts are formed of linear spots; anterior belt of six, all short, except that on the 4th interstice, which is four-fifths the length of any of the others, and the posterior belt of seven (not including an indistinct spot on the sutural interstice), all of moderate length.

Found in the Upper and Lower Amazons; in the rotting and broken bark of the trunks and boughs of large trees, especially in places where these lie across each other, where the species sometimes occurs in plenty. *C. megalops* differs from *C. Schaumii* (*bifasciata*, Schaum, Berl. Ent. Zeits., 1860, vol. iii, p. 4), in the richer violaceous-copper hue of the elytra, the absence of green tinge towards the base, and of the additional yellow spot near the base on the 5th interstice, besides other characters.

Besides the numerous species above recorded, the following undescribed species occur in the Amazon region:—

C. luculenta, Erichs., Consp. Ins. Peru, p. 69. Common at Egen.

C. picea, Dej., ii, p. 458. Generally distributed throughout the country, but rare.

GENUS STENOGLOSSA, Chaudoir.

This genus was founded by Baron Chaudoir on certain very small *Coleoptera* forms, chiefly on account of their having a very long and narrow ligula, with elongate paraglossæ convergent at their extremities. In dissecting *St. dromioides*, I find his description accurate, but do not see that these organs differ essentially from those of several true *Coleoptera*. The mentum, however, differs from them, in being much

narrowed anteriorly, with narrow and short side-lobes closely embracing the base of the ligula or labium. A better character still is the form of the thorax, which has a decided basal lobe, the base on each side being obliquely sinuate-truncate. The form of thorax, however, differs much from that of the true *Lebia*, in which the sides are widely dilated and flattened out. Several *Coptoderæ* show a trace of the basal lobe, and it is doubtful if the present genus can be maintained. The species have precisely the same habits as the *Coptoderæ*.

Baron Chaudoir himself pointed out the species in my collection belonging to his genus *Stenoglossa*, none of which agree with the one he described, viz., *C. variegata*.

STENOGLOSSA PALLIDA, n. sp. *Flavo-testacea, elytrorum basi fasciâ tenui maculari valdè flexuosa pone medium, nigris, striis fuscis.*
Long. 3½ millim. Lat. elytr. 1½ millim.

Wholly of a testaceous-yellow hue, with the exception of a few slender dusky marks and spots on the elytra; these consist of a dark border along the base including the shoulders and irregularly limited posteriorly, a few blackish spots covering the large marginal punctures, and a very flexuous narrow macular belt little behind the middle; the striæ are all dusky, the colour deepening near the apex; they are deeply impressed and punctate, with the interstices convex. Thorax transverse quadrate, sides moderately rounded anteriorly, posterior angles prominent, base obliquely sinuate-truncate on each side, leaving a broad median lobe.

Eggs, many examples.

STENOGLOSSA FULMINANS, n. sp. *Flavo-testacea, capite obscurioribus elytrorum fascia maculari, valdè flexuosa, maculisque apicalibus nigris, striis fuscis.* *Long. 3½ millim. Lat. elytr. 1½ millim.*

Very closely allied to *C. pallida*, differs in no respects except in the position of the black marks of the elytra; the base is not black, whilst, on the other hand, there are two black patches at the apex which nearly touch the lowest angle of the flexuous fascia. The head, in the only example I have, is darker than the ground colour of the body; in five examples of *C. pallida*, it is of the same clear testaceous yellow as the rest of the body.

Bahia; collected by Mr. Reade.

STENOGLOSSA ATRICEPS, n. sp. *Minima, suprâ flavo-testacea, capite maculis elytrorum prope basin et apicem, fasciâque flexuosa medianâ obscure fuscis; corpore subtùs antennisque, basi excepto, fuscis; pedibus fusco-nebulosis; elytris medio valde dilatatis.*
Long. 2½—3½ millim. Lat. elytr. 1½—1¾ millim.

A minute species, distinguished by its dark brown or black head, and by the flattened margins of the elytra being remarkably dilated about the middle. T

surface of the thorax and elytra, the femora and base of antennæ are paleous; the thorax is transverse quadrate, not much rounded on the sides, but rounded behind, with the hind angles projecting and the middle of the base slightly produced. The blackish markings of the elytra consist of three spots on the base arranged in a triangle, three or four oblong spots on the interstices towards the apex, and a middle strongly flexuous narrow band extending without interruption across both elytra.

Paraga; I have a specimen also from Rio Janerio and have seen others in Mr. F. Grut's collection.

PROGLOSSA DROMIOIDES, *n. sp.* *Oblonga, piceo-brunnea, labro, palpis, antennis basi pedibusque pallidis; elytris fasciis duabus flavis, altera latissima, sub-basalis, scutellum attingens, altera angusta, valde flexuosa, postica; thoracis marginibus anticis et posticis medio flavis.*

Long. 4 millim. Lat. elytr. 1 $\frac{3}{4}$ millim. ♂ ♀.

A small oblong flat pitchy-brown species resembling many *Dromii*. The parts of the mouth, base of antennæ, the legs and middle of the under-surface of the body are pallid; the middle of the fore and hind margins of the thorax are reddish-piceous; the thorax is small, very little wider than the head, rounded on the sides and narrowed posteriorly, with the hind angles distinct but not produced; the surface both of head and thorax is opaque, owing to the fine sculpture. The elytra have a large pale sub-basal band or patch, widest along the suture, along which it generally extends to the scutellum (also pale), and deeply sinuated on each side towards the base behind; the belt is lined by the dark brown striæ, and has on the 3rd interstice two dark spots covering the ordinary large punctures; near the apex is a customary narrow flexuous band, which is divided into spots by the brown striæ.

A common species under bark in the Amazons; also found at Rio Janerio by Mr. Reade.

PHLEOTHERATES, *nov. gen.*

Very different from the *Facies* of *Anchomenus*, but of shorter figure than is usual in that genus; body depressed, surface naked, shining. Labrum quadrate, a little broader than long; mandibles thick, trigonal; apex very little rounded; mentum semi-circular, with deep emargination and large notch in the centre, angles of the lateral pieces spinose; ligula elongate, narrow, horny; paraglossæ connate, much broader and surpassing it somewhat in length; palpi moderately short, apical joints cylindrical, truncate, penultimate joint of maxillaries about one-half the length of the apical one and continuous in outline with it. Antennæ short, robust, form, pubescence commencing at the tip of the 4th joint. Thorax quadrate, basal line nearly straight, elytra more than twice the width of the thorax, narrowly margined, sinuate-truncate. Legs moderately stout; tarsi filiform, claws strongly curved and denticulated for half

their length; three joints of the anterior tarsi slightly dilated, fringed beneath with long hairs and furnished with a double row of squamulae. This genus belongs to the *Pericalinæ* in the length of the labrum and the length and width of the paraglossæ, attached to the ligula as far as its anterior angles, and in the simplicity of the 4th tarsal joint. It is closely allied to *Stenognathus*, a genus hitherto considered undoubtedly an *Anchomenus* form, and which also has connate paraglossæ, broader and longer than the ligula; but in *Stenognathus* the tarsal claws are quite simple. The two genera bridge over completely the interval which separates the two sub-families.

PHLEOTHERATES NIGROPICEUS, n. sp. *Oblongus, postice latior, depressus; piceo-niger, nitidus, corpore subtùs cum palpis pedibus pallidioribus; elytris profundè striatis.*

Long. 9 millim. Lat. elytr. 4¼ millim. ♂ ♀

Black or piceous, with the lateral margins of the thorax and elytra reddish-piceous; the labrum, palpi and antennæ also dull reddish, with the 3rd and 4th joints of the latter darker; the legs are reddish, with apex of femora and tibiae sometimes black; the whole median portion of the under-surface reddish. Forehead has two large distinct punctures on each side near the eye placed transversely; the thorax is finely strigose, and the elytra have the usual three punctures on the 3rd interstice.

Found coursing amongst *Boleti* on dead tree-trunks, in company with *Stenognathus* and *Coptodera*, but much rarer; Ega and the Tapir

SYNONYMICAL NOTES.

Coptodera antipodum, Bates, Ent. M. Mag., 1867, p. 78, is a *Philophlæus*.

Coptodera guttata, Chaud. (*Agonocheila id.*, Chaud.), Von Harold & Gemminger's Cat., is not a *Coptodera*, but most probably distinct from *Philophlæus*.

Coptodera viridis, Solier, has no resemblance to *Coptodera*; it is recorded twice in V. Harold & Gemminger's Cat., under *Drosophila* and *Coptodera*; it belongs to the genus *Lobius*, Motschulsky.

Stenoglossa corticalis, Chaud., V. Harold & Gemminger's Cat., is nowhere described, and should be erased.

Thyreopterus lutosus, Newm., V. Harold & Gemminger's Cat., is a *Philophlæus*, and occurs at Melbourne and Adelaide.

NOTES ON BRITISH HYDRADEPHAGA; WITH DESCRIPTIONS OF
NEW SPECIES OF HALIPLUS AND HYDROPORUS.

BY DAVID SHARP, M.B.

Having recently made a careful examination of the British *Hydraephaga*, I publish the following descriptions and notes in order to assist the Coleopterists of this country in giving names to certain species hitherto undetermined in their collections.

HALIPLUS STRIATUS, n. s.

Rufo-ferrugineus; *prothorace vagè punctato, basi utrinque impresso*; *elytris subtiliter striato-punctatis, striis æqualiter fusco-lineatis*.

Long. $1\frac{1}{3}$ -line.

Equal in size to the small varieties of *H. ruficollis*, which it resembles in general appearance, but from which it may be distinguished by being much narrower at the base of the elytra, and by the black lines on the elytra showing no tendency to being interrupted at any places into spots: also closely allied to *H. fluviatilis*, but to be distinguished from that species by its smaller size and darker colour, and by the black lines on the elytra being throughout of even width, whereas in *fluviatilis* the black lines are sub-interrupted at places.

Found in great numbers in a pond a few miles from Dumfries, in company with *H. ruficollis*, and also in other localities near that town.

OBS.—I take this opportunity to remark that, in my opinion, *fluviatilis* and *ruficollis* are but races of one species, and that, if this view be adopted, *H. striatus* may be considered as a third race. However, if *H. fluviatilis* be considered as a distinct species from *H. ruficollis*, it will be necessary also to keep *H. striatus* separate. Indeed, although *H. fluviatilis* and *ruficollis* are so variable that I have some specimens which appear to me completely intermediate, *H. striatus* appears to be very constant, and I have no difficulty in distinguishing it from any of my vars. of either of the two other insects.

HYDROPORUS OBSOLETUS, Aubé (Icon., &c., v. 298).

This rare and distinct *Hydroporus* can be only compared with *H. ferrugineus*, *Hydroporus victor*, Aubé.; it is readily distinguished from that species by its narrower elytra, less variegated elytra, the quite impunctate disc of its prothorax, and its elytra more sparingly but more distinctly punctured elytra; on each side of the thorax at the base is an impression in which the punctuation is coarse, and close.

Single specimens have occurred in several parts of the North of England, and South of Scotland, to different Entomologists; Mr. Bold, Mr. Crotch, Mr. Lennon, and myself. It was distinguished from *H. ferrugineus* some years ago by Mr. Rye, to whom a specimen taken

by the late Mr. Ashworth in North Wales was sent, amongst other insects, for names, by Mr. Edleston; and Dr. Power has proposed for it the name of *Ashworthi*, in case of its proving an undescribed species. There is, I think, no doubt it is the *H. obsoletus* of Aubé. Its occurrence in this country is remarkable and unexpected; for it is a native of Syria, and Southern (more especially South-eastern,) Europe. The geographical distribution in Europe, however, of several species of *Hydroporus* is most eccentric. Thus, *H. 5-lineatus* has been found on in Lapland and on the borders of England and Scotland, and *H. xanthopus*, Steph., only in Southern Europe and Britain, and yet I have taken these two species near Dumfries on the same day, and in the same pond.

H. NIGRITA.

Under this name we have mixed in our collections two species the synonymy of which is very complicated. In my references given below, I have omitted to quote the earlier authors, as the descriptions of Fabricius, and even of Gyllenhal, are altogether uncertain; with respect to the latter author it is however necessary to remark that, in the 9th vol. of Sk. Col., Thomson has reversed the interpretations generally given to Gyllenhal's descriptions of *H. pubescens* and *nigrita*, because Gyllenhal says that *pubescens* is shorter and broader than *nigrita*. In direct opposition to this change is, however, the colour given by Gyllenhal; for he says of *pubescens* that the elytra are testaceous, a term which might be correctly applied (at least to some of its vars.) to the species generally called *H. pubescens*, Gyll., but which is totally inapplicable to the species which Thomson now proposes to so designate. Nevertheless, Thomson's remark is in itself perfectly correct, and it must be understood that the assignment of the description of *H. pubescens*, Gyll., to the insect we know by that name is conventional, and traditional, rather than evident from the description itself.

The two species we have mixed as *H. nigrita* are—

1. A black *Hydroporus* very like *H. pubescens*, Gyll., but shorter, darker in colour, and with rather denser punctuation: this species is clothed above with distinct pubescence, the removal of which leaves the upper surface of the insect shining. The synonymy appears to be,—*H. discretus*, Fair., Ann. Fr., 1859, p. 28 Sch., Ins. Deutsch., i, 2nd pt., p. 64; *H. nigrita*, Sturm. Ins. Deutsch., ix. 56 Th., Sk. Col., ii, 24; *H. pubescens*, Th., Sk. Col., ix, 79.

2. A black *Hydroporus* in which the punctuation and pubescence is very much more sparing than in the preceding species, and whose upper surface is dull, owing

ng finely and densely coriaceous between the punctures. This species I to be,—*H. nigrita*, Fab., Aubé, Icon. and Spec. gen.; Er. Käf. Mark.; Deutsch.; Wat. Cat.; *H. glabellus*, Th., Sk. Col., ix, 80.

The descriptions above alluded to present considerable discrepancy especially as to the punctuation of the disc of the thorax; this cannot be described correctly as altogether impunctate, but the punctures are very sparing, as is especially to be noted when the species is compared with *H. discretus*. I have examined a specimen of *H. glabellus*, Th., sent by Herr Thomson to Mr. Crotch, and find it to agree with our common British species.

MELANARIUS.

As this species and its ally *H. celatus* have given me some trouble, and as we have apparently a third closely allied species, I give some descriptions for the assistance of others.

H. celatus, dark. Black or pitchy-black, with the antennæ, legs, and palpi red. Head is broad, pitchy-red, finely and rather sparingly punctured. The thorax viewed towards the front, its margins are reddish, it is distinctly punctured throughout, but the punctures on the disc are very much finer than at the base and sides. Viewed sideways, the angle formed by the junction of the thorax and elytra is distinct but extremely obtuse. The elytra are a little rounded at the sides, and pointed behind, moderately closely and finely punctured, and down the sides are distinctly to be seen the rudiments of two lines of another sort of punctures.

This species, compared with *H. memnonius*, is smaller, and less angular, but the angle formed by the junction of the thorax and elytra is about the same as in that species. It is in some respects allied to the species I have above alluded to as *H. nigrita*; but, independently of other characters, it may be distinguished from that species, as well as from all others resembling it, by its short, and at the apex very slender, anterior tibiæ. Under a powerful glass, the elytra are seen to possess an extremely fine and scanty pubescence. Long $1\frac{1}{2}$ -line.

Widely distributed in Britain, but scarce. Malvern, Snowdon, Brecon, Edinburgh, Cheviot, and the Metropolitan district. A duller variety was found by Mr. Crotch and myself on Mamsoul.

H. melanarius, Sturm. Black, or pitchy-black, antennæ and legs red, head and margins of thorax, more or less pitchy-red. The head finely and sparingly punctured. The middle parts of the thorax are impunctate (or very finely and sparingly punctured), but towards its posterior angles it is closely and densely punctured. Viewed sideways, the thorax is seen to continue the outline with the elytra, with but little interruption. The elytra are rather coarsely and somewhat irregularly, evenly, punctured. The upper surface as nearly as possible destitute of pubescence. The elytra without, or with only indistinct traces of, two lines of punctures. Long $1\frac{1}{2}$ — $1\frac{2}{3}$ -lin.

The only specimens I possess of this fine species were found
Dr. Power in Surrey.

H. MONTICOLA, n. s.

Sub-ovalis, lateribus parallelis, sub-depressus, niger, marginibus minusve rufescentibus, antennis pedibusque rufis; haud nitidus, post subtiliter punctulatus, elytris vix pubescentibus. Long $1\frac{1}{3}$ — $1\frac{1}{2}$ -lin

This insect is very closely allied to *H. melanarius*, but is much narrower, and more depressed, with the elytra much duller, more sparingly and finely punctured, and not quite so destitute of pubescence. The outline of the elytra is continued by the thorax almost without interruption. The elytra have only indistinct traces of two lines of other punctures. The greater dullness of the upper surface arises from its being more finely and more densely coriaceous. The female is rather duller than the male.

Found only on the mountains and exposed moors of Scotland and Wales, Snowdon, Mamsoul, Rannoch, Thornhill.

Intermediate between *H. monticola* and *H. melanocephalus*, ♂ the following:—

H. PARALLELUS, n. s.

Oblongo-ovalis, angustus, parallelus, vix nitidus, niger, antennis elongatis, piceo-rufis, pedibus rufis; thoracis disco impunctato, elytris crebre, satque evidenter punctatis, pubescentia fere nulla, utrinque linearum punctorum majorum duabus. Long. fere $1\frac{2}{3}$ -lin

Antennæ rather long, the two or three basal joints reddish, the others more or less pitchy. Head pitchy-black, almost impunctate. The thorax black, with extreme sides reddish, the sides but little narrowed towards the front, coriaceous, the middle parts impunctate, the punctures towards the sides not fine, but deep. The angle formed by the junction of the thorax and elytra about as in *melanocephalus*. The elytra are narrow and elongate, almost without pubescence, distinctly, moderately closely punctured, the punctures at margins and apex distinct; each of them with two longitudinal rows of points; the anterior four reddish, the posterior pitchy-red.

A single specimen found by me at Rannoch, in Perthshire.

Distinct from the preceding by its narrower and more elongate form, longer and darker antennæ, as well as by the punctured lines on the elytra and other characters. Somewhat resembling in form and colour *H. melanocephalus*, ♂, but more parallel, less distinctly punctured, with the thorax strongly margined, &c.

II. INCOGNITUS, n. s.

Ovalis, niger, thorace elytrisque fuscis, antennarum basi, cap

lateribus pedibusque, rufis; elytris punctatis, parce pilosis, macula lineae laterali punctoque apicali pallidis. Long $1\frac{3}{4}$ -lin.

resembling *H. palustris*, but larger, especially broader, with the pale markings developed and not so distinct from the ground colour; moreover, the whole a different form, and in this respect approaches *H. erythrocephalus*. Antennæ reddish at the base, the external joints more or less marked with pitchy. Elytra pitchy with the sides paler, somewhat shining, scarcely pubescent, the sides gradually narrowed from the anterior to the posterior angles, the base, especially the sides, closely and distinctly punctured, the disc more finely and sparsely. The elytra are of an obscure brownish colour with a blotch on each side, the scutellum pale, the lateral margins are yellowish at the shoulders, but towards the middle, dark, near the sides a little beyond the middle is to be seen a pale line, and just before the apex is another indistinct pale mark. The punctation on the elytra is rather more distinct than in *H. palustris*, the pubescence is finer and more sparing. The legs are reddish-yellow.

I have found this species in several parts of Scotland, and also in Cambridge, and it has also been found and distinguished as a new species by Mr. Rye.

This species is undoubtedly closely allied to *H. palustris*, but owing to a fine series of varieties of that variable species, I find nothing to connect the two. It may perhaps prove to be *H. vagepictus*, Fair., but I cannot reconcile it satisfactorily with the description of that species.

REMARKS.—It may not be out of place to remark here that I agree with the opinion expressed by the late Dr. Schaum as to *H. tinctus*, *H. vagepictus*, and *H. derelictus*, Clark, viz., that they are respectively varieties of *H. palustris* and *H. erythrocephalus*.

H. UNISTRIATUS, Schrank. This little species has before been in British lists, but has been removed as having been incorrectly introduced. It must, however, be restored, as Mr. Crotch has recently discovered a pair in Norfolk.

H. TARSATUS, Zett.

• *melanarius*, Aubé.

This fine and distinct species is to be placed near *striolatus* and *melanarius*, the upper surface being covered with fine irregularly transverse striæ. It is not likely to be confounded with any of the other species. About the size and colour of *A. guttatus*, rather broader, with a pale dash at the side of each elytron, and with an obscure paler dash at the side of each elytron near the apex.

A single specimen is in Dr. Power's collection, taken, I believe, by Mr. Syme in the Orkneys. The species is widely distributed over the British Isles, but is everywhere scarce.

Thornhill, Dumfries,
July, 1869.

DESCRIPTION OF A NEW SPECIES OF *EPITOLA* (*LYCÆNIDÆ*)

BY W. C. HEWITSON, F.L.S.

EPITOLA TERESA, *n. sp.*

Upper-side (♂): Brilliant ultramarine blue. Anterior wings with the costal margin and apex broadly dark brown, and a large spot of rufous-brown (bordered above with blue) at the end of the wing. Posterior wings with the apex dark brown.

Under-side: Anterior wings from the base to beyond the middle dark brown, marked between the discoidal nervures by some irrregular spots of blue; crossed beyond this by a band of six white spots: base of the costal margins and apex rufous. Posterior wings rufous with the base orange, marked, as in *Acræa*, by several round black spots: crossed by a band of white, which commences on the costal margin below its middle, and, crossing the third median nervule, is parallel to the second nervule to the outer margin, forming an obtuse triangle; the nervules and lines between them dark brown.

Alar. exp. 2 inches.

Hab. Africa (Cameroons)

In my own collection.

This species is especially interesting, as the imitator in its form of (*Lycænidæ*) of the great African group of the *Acræidæ*.

Oatlands, Weybridge,

August, 1869.

[The species of *Leptalis* described by me at page 68 of the present volume was misprinted *Desine*: it should have been *Deione*.—W. C. H.]

Occurrence in Britain of Lepyrus binotatus, a genus and species new to British lists.—A single specimen of a Rhynchophorous beetle, which has been identified by Messrs. Smith and C. O. Waterhouse of the British Museum as *Lepyrus binotatus*, was taken in June last by a friend of mine at Minley, in Hampshire. It was found on a dusty road, the adjoining plants being silvery birch and broom.—F. ALFRED BLACK, Greenhill, Harrow, July, 1869.

Occurrence of Mordellistena brevicauda, Boh., in Britain.—On examining certain *Mordellidæ* taken in June last by me at Folkestone, I find that the insect I at first *primo visû* considered to be *Mordellistena pumila* is apparently *M. brevicauda* Bohem.; in fact, I can detect only a single specimen of the common *pumila* out of a considerable number of specimens. *M. brevicauda*, compared with *M. pumila*, appears to be larger, especially broader and not so shining; its thorax is not so long, with the base less strongly sinuate on each side and the hinder-angles rather obtuse and not acutely produced, and its pygidium is not very much longer than the apex of the abdomen, whereas in *pumila* it is very conspicuously attenuated.

ongated. Thomson (Sk. Col., vi, 297), besides these characters, states *pumila* has 3 striæ on the tibiæ and first joints of the tarsi of the posterior whilst *brevicauda* has 4 striæ on the same relative members. These striæ obliquely from the upper ridge and cross the outer side of the tibiæ and tarsi, are not very easy of definition in all lights; on careful examination, indeed, in various positions, more than the specified number can be seen in each case,—but I think that in the insect I suppose to be *brevicauda* there are more than in *pumila*, there should be.—E. C. RYE, 7, Park Field, Putney, S.W.

Capture in Britain of Hydroporus discretus.—At the joint excursion of the Berkshire Naturalists' Club and the Dumfries and Galloway Natural History Antiquarian Society to Newcastleton, in Roxburghshire, on the 29th of July I took *Hydroporus discretus*, Fairm. Dr. Sharp informs me that it agrees with the specimens already captured by him, and brought forward among other *Hydroporus depfaga* in an earlier part of the present number.—W. R. McNAB, Southern Counties Asylum, Dumfries, August 1869.

Note on new British species of Anthonomus.—In the 2nd part of M. J. Desbrochers Loges' Monograph of the European *Balaninidæ* and *Anthonomidæ* (Ann. de la Ent. de France, 1868, p. 411 *et seq.*) are descriptions of certain species interesting to English Coleopterists, and to which I will now briefly call attention. *Anthonomus pubescens*, Payk., Gyll. No reference is made to Britain as a locality for this species, which appears in Waterhouse's Catalogue with a query; there seems to be no doubt that the insect taken at Rannoch by the late James Turner, and represented by Mr. Waterhouse's queried species, is *pubescens*,

Anthonomus britannus, des L., l.c., 429. This species, attributed solely to France, and appears to have been described from an insect communicated by Mr. Waterhouse, under the name of *pubescens*, Walton. M. des Loges remarks, however, that it has only very slight resemblance to *pubescens*, Payk., being more like *Anthonomus nœvus*, sibi; and that the shortness of its rostrum (which is almost dull), its small size, the form of its striæ and its feeble femoral teeth easily distinguish it from its allies. The insect is shortest-ovate, convex, almost glabrous, entirely blackish-ferruginous, and smaller than any of our species. An English description will be found in the late Mr. Walton's Notes on *Curculionidæ* (Ann. and Mag. Nat. Hist., 1844); from which it appears that three specimens of it were taken in Herefordshire by Mr. Doubleday.

Anthonomus Chevrolati, l.c., 430. This is described from specimens from France, Lyons, the Pyrenees, England, and elsewhere. Its short convex form, and shape of its thorax (described as very transverse, slightly narrowed at the sides and very much so at the apex, with the sides conspicuously rounded before and middle), the curving of the anterior fascia of its elytra towards the scutellum, and its smooth interstices, are stated to distinguish it easily from all other species resembling it in color, none of which, however, are specifically compared with it by M. des Loges.

Anthonomus ulmi and *pedicularius*. M. des Loges is anticipated by 24 years

in his remarks on the Schönherrian confusion as to these species, and in his re-examination of Linnæan type of *pedicularius*, by Mr. Walton's Notes (p.) above alluded to.

Anthonomus rufus, Schön. ; des L., l.c., 436. This species, found in the greater part of Europe (England being specified), is stated to be often confounded with *ulmi* and *pedicularius* in collections, but to be easily distinguishable by its cylindrical and smooth rostrum.

Anthonomus conspersus, (Rey) l.c., 445. Occurs in England, amongst other localities, and appears to be closely allied to *pedicularius*, from which it is stated to differ in being always smaller, of a very dark tone, and narrower and more parallel form. Numerous other minute differences will be found in M. des L. Monograph.

Anthonomus incurvus, Panz., des L., l.c., 451. Also referred to England amongst other localities. It appears to be very closely allied to *pomorum* (especially the var. of the latter, in which the fascia of the elytra is not well defined), but is shorter than that species, more obtuse behind, less parallel, more convex and more abruptly sloped behind; its rostrum is less elongate, its legs lighter and more slender, and its posterior and middle femora have the notches and teeth more pronounced.

This species did not escape Mr. Walton's observations. He notes its peculiarities and the general opinion as to its not being specifically distinct from *pomorum*; also that it occurs in Sweden on *Prunus padus* (Bird cherry), and may be expected to be found here on that plant.

Anthonomus sp.—? I see no particular reference to any species or variety satisfactorily agreeing with the very small *Anthonomus* allied to *rubi*, but a lurid elytra, taken by Dr. Sharp and myself in damp parts of small glens in Camachgouran, Perthshire, and afterwards found to inhabit *Comarum palustre*. This insect has been supposed to be *brunnipennis*, Curtis (*obscurus*, Steph.), which, according to Walton, is nothing but an immature var. of *rubi*. He does not, however, specify any peculiarity of small size for that var., merely stating in a general way, that *rubi* varies greatly. The smallest of my Scotch specimens is, with the rostrum, under an English line in length; and there is not the least doubt that all of them are quite mature.—E. C. RYE, 7, Park Field, Putney, S.W. August, 1869.

Note on Psylliodes nigricollis.—Herr von Rottenberg, Berlin. Ent. Zeit., 1868, p. 411, records the capture of this insect, often in company with *P. chrysocephala* and notes his inability to perceive any points of separation between them except the colour of the elytra; remarking, moreover, that specimens of *nigricollis* occur in which the *thorax* is brownish; so that even the color test is not constant. I am glad to find so entire a corroboration of my recorded views on this point.—Id.

Note on Bledius fuscipes, Rye.—Dr. Kraatz, Berl. Ent. Zeit., 1868, p. 2 records two specimens taken by the late Herr Pfeil at Stettin, agreeing with examples of *B. fuscipes* from Edinburgh. He gives superficial characters to distinguish it from *B. subterraneus* and *pallipes*, and considers it a good species. Curious

he refers to *B. fuscipes* as either very recently published or as about to be published: it appears in the Catalogues of De Marscul, and Gemminger and v. ...; in the latter with date and place of publication, E. M. M., 1865.—ID.

Leptinus in bees-nests.—I am able to corroborate Herr Eichhoff's observations on the habits of *Leptinus testaceus*, quoted at p. 139 of the 3rd vol. of this magazine. On 29th June last, having found a nest of *Bombus pratorum* at Needwood, Wiltshire, the entrance of which I was searching, in the hope of seeing *Antherophagus*, or other parasites, to my surprise, I saw *Leptinus*, and was soon frustrated with its extreme activity in my endeavours to secure it. The following day I obtained a second specimen, while a third retreated into the hole. A third day I had set on the look-out, brought me one more, and two from a nest of the same bee a mile from the first locality.

On the 5th of July, being about to leave home, I dug out the nest first above mentioned. It was in a cavity about a foot deep, and perhaps nine inches in diameter; and in the rubbish collected by the bees surrounding the cells were found between 40 and 50 of this strange little rarity. In the midst of the cells themselves were two *Antherophagus pallens*, together with some *Cryptophagi*. I may remark that a nest of *B. hortorum*, which was a few yards from the other, did not appear to contain *Leptinus*; this nest, however, was not disturbed.—HENRY S. GORHAM, Needwood, July, 1869.

A new locality for *Astinomus ædilis*.—Mr. John Young, of the Hunterian Museum, showed me a fine live ♂ of the above Longicorn to-day, which he had received from a surgeon at Coatbridge, with the following words written in the margin: "Found embedded in a seam of coal in No. 9, Rosehall pit, 147 fathoms from surface."

I suppose it had emerged from some of the timber used in the mine, as I do not know of any wood near Coatbridge in which this insect is likely to occur.—S. CHAPMAN, Glasgow, August 13th, 1869.

Henestaris laticeps, Curt.—I have just taken this species here among Thrift (*Armeria armeria*). The locality is not new, as Mr. Rye once took many specimens of it, but I am not aware that the insect has been identified with the plant. This I think I have now done, for not only can I not find the imago away from the plant, but I find the larvæ and pupæ in it.—J. W. DOUGLAS, Seaford, 7th August, 1869.

Discovery of the larva of *Sesia ichneumoniformis*.—During three weeks' stay in the Isle of Wight, I was fortunate enough to secure a fine series of this local species, for which I set to work to discover, if possible, its pupa, by splitting open stems and grubbing up roots of all plants, in the neighbourhood in which my captures were made, that were capable of containing such a larva, but without success.

Finding myself thus foiled, I watched the females in the hope of detecting them in the act of ovipositing, but in this, again, I failed, for their colours being so conspicuous they were soon lost to sight.

The third chance was to search for the ova (with the appearance of which I was already acquainted, thanks to my fair captives), and a few hours' search re-

sulted in my finding an egg deposited on the narrow leaved plantain; in this case there was, however, no trace of any larva having fed; and its occurrence on the plant must have been accidental, for I afterwards found several eggs on the under side of the leaves of *Lotus corniculatus* and also larvæ and pupæ in the roots of the same. I have forwarded the larva to Mr. Buckler to figure and he will send a description of it to the Magazine.—E. G. MEEK, 4, Old Ford Road, E., July 30th 1869.

Note on the earlier stages of Sesia ichneumoniformis.—The larva of this species has, until recently, baffled the researches of entomologists, both British and foreign; and has been reserved for the indefatigable Mr. Meek to make known to us. This is the second clear-wing larva he has discovered.

On July 26th, 1869, Mr. Meek sent me a larva of *S. ichneumoniformis*, and subsequently a pupa, with the mines of both in the main roots of *Lotus corniculatus*.

Its habit is to scoop out a groove or hollow channel along the side of the root, covering its back evenly with the gnawings or *débris* of frass, spun together with silk, not projecting as an excrescence, but with the outline of the root preserved; it is however, if present, readily seen where sought for, as the external covering of its mine is of a pale brownish-yellow saw-dust tint and texture, in strong contrast to the dark grey-brown colour of the rind of the root.

The larva is about half-an-inch long, rather thick in proportion to its length; the head is less flattened than usual in this genus, and the body rounded, plump and full; the second segment is the longest, and the third and fourth are rather thicker than the others, with puffed or swollen sub-divisions; the rest of the segments have rather an over-lapping tendency, and the three hinder ones taper gradually.

The head is pale brownish flesh colour, with three broad stripes of brown down each lobe, and a triangular brown patch between them; the mouth is blackish brown.

The second segment has a semi-transparent polished plate of flesh colour through which can be faintly seen the back parts of the head slightly tinged with brown.

All the other segments are of an uniform pale yellowish flesh colour, rather opaque, with a slight trace, here and there visible, of a darker dorsal vessel.

The tubercles are not raised, but the situation of each of them is indicated by a very fine pale brown hair. The spiracles are flesh-coloured, outlined with brown; the pro-legs same as the body; the anterior legs pale brown.

The pupa is about three-eighths of an inch long and rather flattened beneath, arched upwards rather suddenly from the sharp beaked point at the head, and rounded on the back. The abdomen at its junction with the thorax is depressed at the sides, widens gradually for about half its length, and from thence tapers towards the anal extremity, which is rather truncated. The abdominal rings bear a series of minute covered hooks at their edges. The wing and antennæ cases are remarkably long, extending nearly to the end of the abdomen. The eyes appear large and projecting and are black, all the other parts being of a shining brownish brown.—WM. BUCKLER, Emsworth, 12th August, 1869.

Note on period of appearance of larva of Polia nigrocincta.—Mr. Gregson has certainly made a mistake in his accounts of the larva of this species, when he states

the eggs hatch in the autumn. Having reared broods of *P. flavocincta* several months, the eggs of which always hatched in April, I thought it very improbable that the eggs of such a closely allied species as *nigrocincta* should hatch in September. I therefore wrote to Mr. Stainton, asking him to refer to Freyer's account of the life of this species and he most kindly sent me a translation of it, from which I learned that the eggs hatch in April like those of all the other species of *Polia*. This was confirmed by my friend M. Millière.

Freyer found the larvæ rather difficult to rear, many of them dying when full-grown. —HENRY DOUBLEDAY, Epping, August 14th, 1869.

Note on eggs of Lycæna Arion.—I think Mr. Dembski has mistaken the eggs of another insect for those of *L. Arion*: he says they are oblong and either white or yellow like those of *Anthocaris cardamines*. The eggs of the *Lycænidæ* are generally round, and very closely resemble those of the *Notodontidæ*. I have never seen the eggs of *L. Arion*, but my friend Mr. Buckler informs me that they are round, rather flattened on the top and pale blue, the colour of a hedge-sparrow's egg. I believe the larvæ of all the single-brooded species of *Lycæna* hibernate, and feed in the open air till the end of May, when they assume the pupa state.—ID.

Note on eggs of Lycæna Arion.—On the 15th June, 1869, I had the great pleasure to receive from Mr. Herbert Marsden, a ♂ and ♀ *Lycæna Arion*, alive, captured by me together, and accompanied by two small plants of *Thymus serpyllum* in flower.

These plants were potted separately, and the insects put on one of them under a glass cylinder. During a gleam of sunshine, the ♀ certainly appeared to me to visit an egg amongst the flowers, but the weather being cold and cloudy, I deferred further observation till the following day, when I again saw her deposit an egg, as before.

After dark I removed the butterflies to the second plant in order that I might more easily inspect the first on which they had been for two days; nor was I disappointed, for, on the morning of the 17th, on looking over the blossoms with a magnifying lens, I detected six eggs, all laid on the calyces between the heads of flowers, and not one on either stalk, stem, or leaf.

The egg of *Arion* is round, smooth, and depressed on the top; pale greenish-yellow in colour.

Although the eggs hatched both with Mr. Merrin and myself, yet we have not been able to detect the young larvæ on the plants at present; but we believe they must be very small, hiding away somewhere, and that they will most likely hibernate.

I have wished to state what I have noted so far, hoping to resume my observations of this very interesting species on a future occasion.—WM. BUCKLER, Epping, August 13th, 1869.

Notes on Solenobia pomonæ and Xysmatodoma melanella.—It is now some ten or twelve years since I met with a large number of cases, which apparently belonged to a species of *Solenobia*, on fruit and other trees in this neighbourhood. When I first discovered the cases, I supposed them to be *inconspicuella*, which I have since seen newly occurred round Bristol; but, upon comparing cases of my insect with cases of

inconspicuellæ, I found a decided difference in form; the cases of *inconspicuellæ* I think invariably three-sided, straight, and grey in colour, while those I took were round, slightly curved, and generally green.

When I first discovered them, I forwarded a supply to Mr. Stainton, who, however, thought they would prove Dipterous, and informed me that he had once found a case of apparently the same species on a plum tree.

Towards the end of June, however, moths began to appear (all apterous females something like, but easily separable from, females of *inconspicuellæ*, being much yellower in colour, and with the ovipositor very much longer.

I continued every season to breed the insect in large numbers with the hope of discovering the male, but nothing appeared but females; these would lay eggs in great abundance, and the glass cylinders in which I kept them would be soon swarming with the young larvæ.

I sent liberal supplies of cases to Mr. Doubleday, Mr. Stainton, Mr. Edleston, and other of our leading entomologists, with the same result I believe in every case, viz., nothing but females appearing.

The late Mr. Weaver appears to have met with this or a similar species in North Wales, as he says in a communication to the Zoologist of 1856, "Last summer, when collecting in North Wales, I found several small cases on the rocks at Conway that were entirely new to me; they were covered with the lichen upon which the larvæ were feeding, the cases were round, and a little curved. These when bred, produced all females, bearing a very close resemblance to *inconspicuellæ*."

It is, I believe, now generally understood among entomologists that there is no doubt that the economy of the genus *Solenobia* and others resembles in some measure that of *Aphis*, viz., a series of generations without sexual intercourse, the great point of difference being that the *Aphides*, being viviparous, produce the young at once; while with the *Solenobia*, eggs are laid, and the usual course of larva, pupa, and imago appears.

It has often puzzled me as to how the different species of *Solenobia* become distributed; only this day I discovered a case on a small tree not thicker than my wrist, and I know of several young trees growing quite detached from others upon which the cases abound.

I do not believe that the larva ever travels many inches from the spot upon which the eggs are laid, and the females appear quite incapable of locomotion.

Altogether the species has been a problem to me ever since I began to take some interest in it, but I am glad to say I have at last in some measure been enabled to understand a little more of its habits and economy than I used to do.

On some pear trees here I have always been able to get a supply of cases when wanted; and, upon an examination of these trees the other day by myself and my friend Mr. A. E. Hudd, we discovered that a large number of the cases were empty, the moths having emerged. A search for the imago was rewarded by the discovery of a couple of little moths we did not recognise, and therefore hoped would prove male *Solenobia pomonæ*; we, however, much to our chagrin, failed to capture either.

Next morning I renewed the search, and captured six fine specimens. I then collected a lot of the cases in a glass, and soon had the satisfaction of seeing a male emerge. Altogether, I have bred about two dozen specimens, eight of which are apterous females, but the rest all winged; but judge of my utter astonishment when

ting the specimens I had bred and captured, I found that about half my
 and males were females. Mr. Hudd has also bred all three forms.
 on a close examination of my specimens, I was much struck by their resem-
 to the description of *Xysmatodoma melanella* in Mr. Stainton's Manual, and
 arding specimens to Mr. Doubleday I drew his attention to the resemblance,
 I did not previously possess examples of *melanella*, I could not say positively
 specimens would be found to differ when placed side by side.
 a communication since received from Mr. Doubleday I find that my surmise
 correct one, and that *S. pomonæ*, Stainton, and *X. melanella*, Haworth, are
 me, so that I presume Mr. Stainton's name will have to drop, at least as far
pomonæ is concerned.

will be interesting to observe in the future whether we shall at once lose
 winged form or whether we shall reach the state of all wingless females by
 es; I incline to the latter opinion, as a few years hence we could be able to
 certain of rearing a considerable per-centago of winged forms of the other
 es, *inconspicuella*, but of late years only apterous females appear. May we not
 t that with this species also a brood of winged males and females will appear,
 y have not already done so?

do not possess a single winged example of *inconspicuella*; but perhaps gentle-
 possessing winged specimens will carefully examine them, in order to find, if
 ble, winged female forms of that insect as well as of *melanella*.—GEO. HARDING,
 Stapleton, Bristol, July 13th, 1869.

[The above communication appeared to us so extraordinary, that, before putting
 type, we communicated with the writer, who says in reply that the cases from
 h he has bred both forms occur on some pear trees within ten yards of his
 e; and adds, "Strange as my communication might appear to you, I am still
 opinion that my deduction is correct; at any rate it is sent in good faith, and
 an honest desire to elucidate the truth on the subject."—EDS.]

Procris globulariæ, &c., at Folkestone.—I have found this tolerably abundant in
 particular spot near Folkestone, from which place I think it has not yet been
 rded. On the sunny slope of a hill rising from one of the numerous hollows
 he neighbourhood, it was possible to take any number of them; though, from
 nature of my engagements, I could never get to the spot till about six in the
 ning, and was then obliged to be content to take whatever specimens lingered
 ut in the last rays of the sun. Flying with it, there was also a plentiful supply
statices, and a few, if I am not greatly mistaken, of *Geryon*; but of this latter
 cies I will not be certain until I have shown it to a better authority than myself.
 aught the first specimen on the 25th of June, and at the present date they are
 ll about. This is later than they are usually said to appear; but this must be
 ributed to the season, which is certainly adverse to entomologists.

T. chrysidiforme was a long time putting in an appearance, and has only been
 t during the past ten days, and that very sparingly, one specimen in a couple of
 urs being my reward in the same spot, where, last year, in the middle of June,
 could take ten or a dozen in the same time. *T. Bondii* has come out during the
 st week or so, but, I fancy, is not so abundant as formerly.—HENRY ULLYETT,
 olkestone, July 6th, 1869.

[Since I sent the above note my specimens of *P. Geryon* have been verified by Dr. Knaggs. I forgot also to state that *Nemecophila plantaginis* has turned up here. I caught several specimens in a wood in June.—H. U., 13th August, 1869.]

Captures at Folkestone.—Two days collecting at Folkestone, at the beginning of this month, resulted in my having captured the following:—In the Warren obtained *Sesia chrysidiformis*, *S. ingrattella*, a probably new *Ephippiphora*, and a full fed larva of *S. euphorbiana*; and, along the Sandgate Road, *T. Bondii*, *D. flavo dorsana*, *C. conterminana*, and *C. citrana*. *L. Adonis* swarmed everywhere on the chalk, and *S. irrorella* was sufficiently common in the Warren. Mr. Ullyett has discovered a locality there for *P. globulariæ* and *Geryon*, which both he and Mr. Purday have taken. Mr. Purday kindly took me to the spot, and I had the pleasure of seeing both species alive for the first time.—HOWARD VAUGHAN, 12th July, 1869.

Sesia chrysidiformis bred.—This species made its first appearance in my breeding cages yesterday, from larvæ I found at Folkestone last autumn. They are a remarkably large specimens.—ID.

Notes on some of the British species of Psychidæ.—I have lately bred about a dozen specimens, ♂ ♀, of *Psyche anicanella*, Bruand. It feeds on the green lichen on buckthorn stems at Hampstead. Some years since Mr. Tompkins found a larva, or rather a case, and bred from it what I believe was understood to be *salicicolella* of Bruand. I have hunted for this species ever since without success till last year, when I first bred a ♂, and then a ♀, which latter at once overthrew the *salicicolella* theory, as Bruand's species of that name has the anal tuft of the female brown, whereas this was white.* These two species—*salicicolella* and *anicanella*—are very distinct, and different from all others save *P. fusca*, their cases being made with the materials placed crosswise, and no lengthy straws or grass are used. I send a list of the different species of these very interesting little insects that I possess, either as imagos or case. I have most of the females in alcohol.

- | | | |
|---|---|---|
| 1. <i>fusca</i> | } | Case made of short materials,
placed crosswise, or
irregularly. |
| 2. <i>salicicolella</i> ? | | |
| 3. <i>anicanella</i> | | |
| 4. <i>pullella</i> | } | Case made of long materials
placed invariably
lengthwise. |
| 5. <i>sp.</i> ? Larger than the last; taken
in July. | | |
| 6. <i>intermediella</i> | | |
| 7. <i>crassiorella</i> | | |
| 8. <i>roborella</i> | | |
| 9. <i>sp.</i> ? Near the last, but with the wings
much more rounded. | | |
| 10 & 11. Cases only; undetermined. | | |

ROBERT MITFORD, Hampstead, July 22nd, 1869.

[In Staudinger & Wocke's Catalogue, *anicanella*, printed in error *anicalella* is given as a synonym of *betulina*, Zeller (1839) in the genus *Epichnopteryx*.—EDS.]

* Bruand says of *anicanella*, "the anal tuft of the female is snowy-white."—EDS.

pinostola elymi at Cleethorpes.—Having a few days to spare in July last, I was very anxious to take *T. elymi*, I wandered to Cleethorpes (a distance of more than a hundred miles); and, although the weather was not very favourable, for the pleasure of turning up that rare insect. I commenced beating on the hills, but what few I got by this method were very poor ones; I sugared with success; neither could I take any flying at dusk as they appear to be very little winged. What good specimens I captured were found with a lantern, at rest on sand-reed, *Elymus arenarius*, a plant upon which the larva feeds, and which our Botanists tell us none of our domestic animals will eat.

I have also turned up during the same month, *O. suspecta*, *A. velligera* and *D. conspersa*, *H. dentina* and *glauca*, *M. arcuosa*, and a very striking female of *S. lubricipeda*.—JOHN THORPE, Church Street, Middleton, near Manchester, August, 1869.

Captures of Lepidoptera at Witherslack.—On the 4th and 13th to 15th of this month I captured the following species; those marked thus * are new to the collection.—*L. mesomella* 3, *L. complanata* 6, *E. porata* 1*, *Acid. inornata* 4, *L. alata* 2, *E. alchemillata* 6, *Eup. pulchellata* 1, *E. constrictata* 12, *E. pumilata* 12, *And. dulata* 2, *C. fluctuosa* 1, *M. arcuosa* 2, *H. contigua* 1, *Botys terrealis* 1, *S. metellus* 2, *E. cingulalis* 2, *E. 8-maculalis* 6, *Eud. truncicolella* 16, *C. falsellus* 6, *Metellus* 1*, *H. eluviella* 1, *E. semirufa* 1, *R. marmorata* 40, *P. piceana* 1, *P. angana* 1, *P. carbonana* 1, *Sericoris* sp.? (like *bifasciana*) 1, *E. rufana* 20, *O. ruana* 6, *C. perterana* 2, *A. biarcuana* 2, *A. subarcuana* 1, *A. siculana* 6, *E. stana* 1, *S. puncticostana* 1*, *D. consortana* 20, *D. n. sp.?* 8, *C. juliana*, 1*, *Polioptilia* 6, *Argyrolep. enicana* 1, *A.*—fine new species 4, *P. roboricolella* 6, *G. bistrigella* 12, *Dep. carduella*, several larvæ, *Gelechia cinerella* 3, *G. ligulella* 2, *G. dodecella* 20, *G. senectella* 20, *Par. lappella* 2, *Tinag. resplendellum* 2, *Ornix cella* 2, *Coleoph. Fabriciella* 6, *C. pyrrhulipennella* 6, *Elach. Gleichenella* 8, *Coleoph. parvidactylus* 2, *P. osteodactylus* 12, *P. plagiodactylus* 12, *P. tephrodactylus* 12. J. B. HODGKINSON, Preston, 15th July, 1869.

Unnatural union.—On 15th July last, I found *Satyrus Janira*, ♂, in copula with *Vanessa urticae*, ♀. The eggs of the latter, on dissection, were distinct, and viable, but small and not well developed.—T. ALGERNON CHAPMAN, Abergavenny, August, 1869.

Remarkable variety of *Argynnis Selene*.—An extraordinary var. of this species was captured by a friend of mine, Mr. H. Reynolds, at Leith Hill, Surrey, during the month of July. The wings on the upper-side are nearly all black, but there is a spot of the usual ground colour (about the size of a pea) in the centre of the hind-wings.—E. G. MEEK, 4, Old Ford Road, E.

Curious habit in a *Noctua*-larva.—Yesterday, when examining a stunted willow in this neighbourhood, for galls, I was a little surprised to find a larva of one of the *Actinotoidæ* greedily imbibing the frothy liquid, by which the young larva of an *Aphrodisia* or a *Ptyelus* is wont to protect itself.—ALBERT MÜLLER, May 24th, 1869.

Cossus ligniperda at sugar.—At Vol. i, p. 264, of the E. M. M., Mr. Barrett mentions the fact of *Cossus ligniperda* settling upon a sugared tree. I do not think that this can be a common occurrence, and like Mr. Barrett, I am unable to suggest the cause which prompted the visit. However, on the 9th of this month

while examining my trees, I captured a fine male of this species, settled on sugar, and apparently busily engaged with it.—R. P. MURRAY, Plymstock, Plymouth July 13th, 1868.

[Similar instances have been recorded in the "Intelligencer," and elsewhere. The *Lithosidæ*, another family with poorly developed haustellum, are also well known to frequent "sugared" trees.—Eds.]

Curious occurrence of the Wood-Leopard.—A fortnight ago twelve *Zenzeræ* came down my drawing-room chimney. They were all males. What business they had there, I cannot say. I looked in vain for a female.—W. C. HEWITSON, Otland Weybridge, August, 1869.

New Rhopalocera from South America.—Mr. Buckley, who went out to South America for me, a little more than a year ago, has returned to England, after a most successful journey. He crossed the Andes from Guayaquil to Canelos; and though very much hindered by almost constant rain, has brought home with him a very fine collection, containing, as he promised it should, 5000 butterflies in most beautiful condition, and abounding in new and rare species. I have not yet had time to examine the whole (they are in papers), but have been delighted with the following things:—a new *Agrias*, 2 new species of *Callithea*, two or a dozen new species of *Leptalis*, a dozen and a half new species of *Heliconidæ*, many new *Erycinidæ*, *Batesia hypochlora*, *Siderone Archidona*, *Agrias Sardanplus*, &c.—ID.

Sphingidæ in Japan.—In Japan, I have found two species of the genus *Ino*, one blue, but otherwise similar to *I. statice*; the other smaller, and having the upper wings 5 spotted, as in *Anthrocera*. The latter appears in July, on elevated hills of 1200 feet; the former is common now, on hedge flowers. A *Sesia* has not been uncommon on warm days during the last fortnight, but I imagine the specimens have hibernated. On first emerging from the pupa, this species has dense scaled wings, which become transparent at the first flight; it is doubtless the same in the British species.—G. LEWIS, Nagasaki, 29th April, 1869.

Corrections in notes on Irish Lepidoptera.—In my notes on a visit to Ireland the last No. of this Magazine, the species mentioned as captured at Wicklow should properly be referred to Howth; "Dallymount" is erroneously printed for "Dollmount;" and "River Armamoo" should be "River Annamoo."—T. J. CARRINGTON, York, August, 1869.

Review.

"PETITES NOUVELLES ENTOMOLOGIQUES." 1869. Paris: E. DEYROLLE, fils.

Under this title it is proposed to publish, twice each month, a sheet "Petites Nouvelles" respecting Entomologists and their doings; *i.e.*, captures of rare species and exchange notices; movements of Entomologists; announcements of monographs in progress and books to appear; notices of collections to be sold and general information. If it can be sustained, this will be of great service to those who wish to keep themselves *au courant* with all entomological news. The numbers already published give a variety of useful notes, and those whom it may concern will probably find it to their advantage to communicate intelligence to M. E. Deyrolle, Rue de la Monnaie, 19, Paris, for insertion in succeeding numbers.

DESCRIPTIONS OF NEW SPECIES OF LEPIDOPTERA RHOPALOCERA,
FROM OLD CALABAR AND ECUADOR.

BY W. C. HEWITSON, F.L.S., &c.

EURYPHENE ELPINICE.

Upper-side. Female, orange. Anterior wing with two outline spots in the cell (one minute) and one at the end of the cell. Apical spot black, marked by white spots; one large, irregular, trifid: a small spot below this: a sub-marginal band of eight: the first two of which are on the costal margin and the fourth are small, the fifth marked by a large spot, the eighth large with the centre black. Posterior wing with a bifid nervure, an apical spot, a sub-marginal band of spots, and the outer margin brown.

Under-side, pale rufous-white. Anterior wing with the spots in the cell more distinct, the larger spot bifid: an outline spot and a large white spot below the cell: the apical half pale brown with the same spots as above, the sub-marginal spots each marked by a spot of brown. Posterior wing with a bifid spot within the cell, an irregular spot of brown before the middle, one or two triangular spots at the angle, some indistinct spots on the costal margin, and a sub-marginal linear band, which is bordered on both sides with white, brown.

Exp. $2\frac{2}{10}$ inch. Hab. Old Calabar.

In the collection of W. C. Hewitson.

MECHANITIS MAMERCUS.

Upper-side. Male, rufous-orange. Anterior wing crossed beyond the middle by a broad band of yellow, sinuated on its inner border, and straight on its outer border: the base of the costal and inner margins, and a large triangular spot between them, four spots near the middle, the outer and a spot on the outer margin below the middle, dark brown. Posterior wing with the costal margin, and a large space which occupies nearly half the wing, and is bounded by the inner margin, dark brown: the outer margin black, narrow.

Exp. $2\frac{7}{10}$ inch. Hab. Ecuador.

In the collection of W. C. Hewitson.

Near to *M. Mansuetus* of Hewitson; very like *M. Menophilus*, but with a different neuration.

ITHOMIA VARINA.

Upper-side. Male, semi-transparent, rufous-orange: the outer margins brown. Anterior wing unusually long. The base rufous,

marked by an oblong brown spot; crossed before the middle by a broad palmate band of pale yellow, marked by two brown spots, and divided into six parts by the nervures; the apical half brown, with the nervures black; the inner margin black.

Under-side as above, except that there are two minute white spots at the apex of each wing.

Exp. $2\frac{8}{10}$ inch. Hab. Ecuador.

Neuration and colour of *I. Tutia* of Hewitson.

ERESIA NERIA.

Upper-side. Male, dark brown. Anterior wing with a large triangular space of orange divided by the nervures; the nervure which closes the cell broad and black.

Under-side, rufous-brown, with the nervures and lines between them black. Anterior wing with the basal spot as above. Posterior wing irrorated with yellow: the base yellow, and marked by two spots.

Exp. $1\frac{8}{10}$ inch. Hab. Ecuador.

In the collection of W. C. Hewitson.

Nearest to *A. Acræina* of Hewitson.

PRONOPHILA ALUSANA.

Upper-side, dark brown, the outer margins dentated. Anterior wing crossed at the middle by a broad irregular band of orange. Posterior wing crossed beyond the middle by a similar band of orange broken near the apex, where a portion of it forms a triangular spot.

Under-side as above, except that the anterior wing is ochreous near the apex, which is crossed by a band of four minute white spots; that the posterior wing is crossed before the middle by an angular ochreous band; that the apical spot (which is much larger) is united with the band (which is slightly undulated with brown); and that the space between the band and the outer margin is undulated with ochreous-yellow, and has three triangular spots of lilac-white, each marked by a white spot, bordered with black.

Exp. 2 inches. Hab. Ecuador.

Nearly allied to *P. Philotera* of Hewitson.

PRONOPHILA TENA.

Upper-side. Female, dark rufous-brown. Anterior wing crossed

and the middle by a band of five white spots: two minute white spots near the apex. Posterior wing crossed beyond the middle by a band of four minute white spots.

Under-side as above, except that the spots of the anterior wing are smaller.

Exp. 2 inches. Hab. Ecuador.

Unlike any other species, but nearest to *P. Perita* of Hewitson.

The males of this species have the white spots much smaller, and the female specimens scarcely visible on either side.

This and the four preceding species are from the very rich collection of Mr. Buckley.

Watlands, Weybridge: September, 1869.

SOME NEW AUSTRALIAN GENERA AND SPECIES OF *CURCULIONIDÆ*
BELONGING TO THE *OTIORHYNCHINÆ*.

BY FRANCIS P. PASCOE, F.L.S., &c.

In Lacordaire's system, the *Otiorrhynchinæ* form one of the sub-families, or as they are there called "tribes," of that portion of the *Curculionidæ* in which the mentum occupies the whole area of the prothorax, and the sides of the prothorax behind the eyes are not produced to what is called the ocular lobe. The Australian beetle-fauna contains a number of genera and species almost entirely unknown, or undescribed, belonging to this sub-family, and those in my collection having the corbels of the posterior tibiæ open, and the claws free,* form the subject of the following notes. Some, in habit and colour, resemble species of *Peritelus*; others, belonging to the genus *Mylolocerus*, might be easily mistaken for *Phyllobii*. Few of these insects exceed half an inch in length; the scape of the antennæ is very much curved inwards, and the elytra are always striate-punctate, with the interstices reddish, and often furnished with a row of more or less erect stoutish hairs; the eyes are black, and contrast strongly with the pale coloration of the scales with which these insects are covered. From their general appearance and the quiet coloration of most of them they are probably frequently confounded together and are therefore neglected; probably not a tithe of them is known. I have found it necessary to divide these insects into four genera, (exclusive of *Mylolocerus*, Schön.), which may be tubulated thus:—

* The first of these characters excludes *Isomerinthus*, and the second *Merimnetes*, both genera being Australian species of very similar habit to those treated of in this paper.—F. P. P.

1. Prothorax nearly straight at the base.
 - A. Funicle of antennæ 6-jointed *PHLYDA*, n. g.
 - B. Funicle of antennæ 7-jointed.
 - b. Scrobe extending to the eye *EPHERINA*, n. g.
 - b*. Scrobe strictly limited behind.
 - Club of the antennæ pedunculate... *TITINIA*, n. g.
 - Club sessile *IDASPORA*, n. g.
2. Prothorax bisinuate at the base *MYLLOCERUS*, Schön

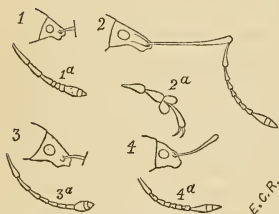
PHLYDA.

Rostrum shorter than, and nearly as broad as, the head; scrobes very short and distinctly limited behind, placed nearly at apex and visible from above. Eyes small, round. Scape of the anten-
 curved, extending to the middle of the prothorax; funicle (fig. 6-jointed, 1-2-3-joints gradually shorter, obconic, the last three tr-
 verse; club small, narrowly ovate, sessile. Prothorax cylindr
 Elytra obovate. Legs moderate; femora thickened in the mic
 unarmed; anterior tibiæ bisinuate on the inner edge, posterior v
 their corbels open; tarsi with the third joint broadly bilobed; cl
 free. Metasternum rather short. First two abdominal segments la
 the first suture arched.

This genus will be readily distinguished by the six-jointed funicle.
 The species described below has exactly the habit of *Periteloides*
Schönherri.*

Phlyda periteloides. (fig. 1.)

Closely covered with small round scales, of a whitish colour clouded



1. *Phlyda*.
- 1a. funicle of antenna of ditto.
2. *Epherina*.
- 2a. tarsus of ditto.
3. *Idaspora*.
- 3a. funicle of antenna of ditto.
4. *Titinia*.
- 4a. funicle of antenna of ditto.

with pale brown, and with the
 tolerably distinct brownish stri-
 on the prothorax; elytra show
 ovate, with well marked striæ
 most obsoletely punctured, e
 apex rounded, and very feebly p
 duced; body beneath and legs w
 greyish, somewhat silvery sca
 the corbels of the tibiæ edged w
 black setiform scales.

Length, $2\frac{1}{4}$ lin

Hab. Adelaide.

* This species, on account of its claws which are not united, should be separated from *Periteloides*. See Lacord., vi, p. 184, note.—F. P. P.

TITINIA.

Rostrum very short, gradually narrower above, deep at the sides; eyes oblique, approximating, distinctly limited behind. Eyes nearly round. Scape of the antennæ nearly reaching to the base of the prothorax; funicle (fig. 4a) 7-jointed, the first joint longest the rest gradually shorter; club elongate, pedunculate at the base. Prothorax cylindrical. Elytra ovate. Metasternum moderately long. Legs and abdomen as in *Phlyda*.

The head in this genus presents a remarkable profile, owing to the great depth of the rostrum and the dorso-apical position of the scrobes. I have a very much worn specimen of a second species from Sydney.

Titinia ignara. (fig. 4.)*

Narrowly ovate, closely covered with grey scales, very indistinctly marked with darker grey; head without any traces of lines or excavations, entirely scaly; antennæ extending to the middle of the elytra, black, clothed with sparse silvery hairs; prothorax a little longer than broad, the sides slightly rounded; scutellum distinct, rather narrow; elytra with the interstices of the striæ broad, each with a row of sparse, semi-erect bristles; body beneath with sparsely set white scales, black on the legs greyish. Length, 2 lines.

Hab. Melbourne.

IDASPORA.

Rostrum longer than the head, moderately stout; scrobes oblique, approximating above, distinctly limited behind. Eyes nearly round. Scape of the antennæ not extending to the base of the prothorax; funicle (fig. 3a) linear, 7-jointed, the first two joints longest, the rest unequal, club shortly ovate, sessile. Prothorax cylindrical, the base 3-lobed. Elytra narrowly ovate, a little broader than the prothorax at the base, shoulders scarcely prominent. Metasternum short. Legs and abdomen as in *Phlyda*.

The rostrum is longer than in either of the preceding, and the scrobes are lateral, the lower portion only of each being visible from above.

Idaspora terrea. (fig. 3.)

Narrowly ovate, blackish, clothed above and beneath with dull greyish scales; head and rostrum slightly concave in front, the latter marked with four indistinct raised lines; antennæ with sparse greyish hairs, the first joint of the funicle longer than the second, which is as long as the third and fourth together, club brownish; prothorax a little longer

* In the cut, the head is scarcely deep enough, and the little prominence in front is a drawback.—F. P. P.

than broad; scutellum punctiform; elytra without bristles, the surface uniform throughout; legs reddish ferruginous with grey scales.

Hab. Gawler.

Length, 2 lines.

EPHERINA.

Rostrum longer than the head, and nearly as broad, increasing little towards the apex, which is emarginate, three raised lines above each of the two lateral lines terminating in the raised edge round the scrobe, the middle line extending to the apex; scrobes commencing at the apex, extending backwards and gradually disappearing near the eyes. Antennæ very long, scape clavate, extending to the elytra, funicle 7-jointed, the first joint longest, the second twice as long as the third, the latter equal with the remainder; club ovate, pedunculate. Prothorax equal in length and breadth, the sides rounded. Elytra narrowly ovate. Legs moderately long; femora thickened in the middle, anterior tibiæ straight, with the inner edge sinuate; tarsi rather long, the penultimate joint (fig. 2a) broadly lobed. Metasternum long. Abdomen as in the preceding.

The above definition will probably require some modification in the event of other species being discovered; but the general character of the rostrum and scrobes show that the genus is very distinct.

Epherina longicornis. (fig. 2.)

Elongate, black, covered with dull greyish scales; antennæ extending to the end of the elytra; prothorax apparently constricted at the base and apex, which are of equal breadth; scutellum nearly semi-circular, elytra nearly twice the breadth of the prothorax at the base, the anterior two-thirds of the sides nearly parallel, then gradually rounded but a little produced at the apices, the interstices of the striæ with a line of whitish bristles; legs dark ferruginous, with greyish scales.

Hab. Champion Bay.

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

MYLLOCERUS.

Schönherr, Disp., Curc. Meth., p. 178; Lacordaire, Gen., vi, p. 213.

Schönherr gives as one of the essential characters of this genus the prothorax "*postice bisinuatus*," but a few species have been admitted in it having the base of the prothorax truncate. The character is, however, so persistent in a large number of species, that it appears to me to be desirable to exclude all those in which it does not exist. The species of this genus are numerous; three are found on the border

Black Sea, and, therefore, European, but the majority are from
 rn India; I do not recollect seeing any in Mr. Wallace's collec-
 from the Malayan Archipelago, and hitherto but one has been
 ed from Australia—*M. australis*, Bois.*

The following table will assist in the recognition of the species:—

Head narrowed below the eyes.

Scrobes approximate above.

Prothorax as broad at the apex as at the base*M. herbaceus*.

Prothorax much broader at the base.

Eyes round.

Form robust*M. aurifex*.

Form more slender.

Pale green*M. glaucinus*.

Ashy*M. pudicus*.

Eyes oblong.....*M. cinerascens*.

Scrobes not approximate.

Head broad between the eyes*M. decretus*.

Head narrower.

Elytra narrowly ovate*M. aphthosus*.

Elytra broadly ovate*M. rusticus*.

Head not narrowed below the eyes.....*M. nasutus*.

Myllocerus herbaceus.

Moderately ovate, covered with pale golden-green scales with a
 tly opalescent tint; head and rostrum finely punctured, the latter
 ish above, with a decided angle as it descends towards the side;
 ennæ testaceous, clothed with fine whitish hairs, scape slender; pro-
 thorax transverse, with a slender impressed line in the middle, scarcely
 racted at the apex, the base narrow; scutellum punctiform, distinct;
 e of the elytra with sharply defined, oblong, approximated punctures;
 eath and legs testaceous-yellow closely covered with bright golden-
 en scales. Length, 2—2½ lines.

Hab. Champion Bay.

Myllocerus aurifex.

Robust, broadly ovate, pale green or yellowish with a slight golden
 t, more or less mixed with patches or spots of fawn; head small,
 rostrum rather short and narrow, no median impressed line; scrobes
 proximating above and nearly reaching the eye; prothorax much
 rrowed anteriorly, the sides moderately rounded; scutellum com-
 ratively large, sub-cordiform; elytra very much broader than the
 rothorax at its base, strongly convex; body beneath golden-green,

* From the author's short description, this insect would appear to differ from the species described
 beneath in having its under-surface of a silver-green.—F. P. P.

second abdominal segment as long as the first ; legs ferruginous, covered with pale greenish scales.

Length, 4 lines.

Hab. Western Australia.

Myllocerus glaucinus.

Moderately ovate, covered with pale glaucous green scales above and beneath ; head small, rostrum short and comparatively narrow with a narrow median impressed line commencing between the scrobes approximate above, nearly reaching to the eyes ; prothorax smaller, nearly round ; elytra with narrower intervals between the striae ; antennae and legs dull copper brown, with greyish scales and hairs.

Length, $3\frac{1}{4}$ lines.

Hab. Champion Bay.

Myllocerus pudicus.

Moderately ovate, covered with pale ashy scales ; in other respects resembles the last, except that the funicle has all its joints thick and shorter, the first only excepted—the prothorax more transverse, the under parts are brownish-testaceous with white pearly scales.

Length, $3\frac{1}{2}$ lines.

Hab. Nicol Bay.

Myllocerus cinerascens.

Slightly oblong ovate, covered with very pale ashy scales, distinctly mottled with brownish spots ; head and rostrum narrowish, the latter little concave above, especially towards the apex, the scrobes slightly approximate ; eyes slightly oblong ; antennae closely covered with pale ashy hairs, the scape stoutish, the two basal joints of the funicle rather elongate ; prothorax moderately transverse, the sides slightly rounded ; scutellum prominent, rounded ; elytra about a third broader than the prothorax at the base, the intervals of the striae with a row of distinct stiffish hairs ; beneath and legs covered with pale, slightly silvery scales.

Length, $3\frac{1}{4}$ lines.

Hab. West Australia.

Myllocerus decretus.

Rather broadly ovate, covered with pale greyish scales ; head somewhat broad in front ; rostrum robust ; scrobes not approximate, nearly approaching the eye ; antennae slender, first joint of the funicle only little longer than the second ; prothorax moderately transverse, rounded at its sides anteriorly, parallel towards the base ; scutellum small, pointed behind ; elytra nearly parallel at the sides, the intervals of the

with a row of bristles, each bristle arising from a well-marked are; beneath and legs covered with greyish scales mixed with hairs.
Length, $3\frac{1}{2}$ lines.

Hab. Champion Bay.

Myllocerus aphthosus.

Narrowly ovate, covered with pale yellowish-green scales having a tinge, and distinctly mottled with small opaque black spots; pronotum rather broad, concave for its whole length above, the scrobes approximate; antennæ ferruginous, covered with greyish scales and the first and second joints of the funicle of nearly equal length; prothorax more transverse, the sides well-rounded; scutellum broader than long; elytra parallel at the sides, the apex of each a little produced and rounded; beneath greenish-grey; legs pale ferruginous with whitish scales.
Length, $3\frac{1}{2}$ lines.

Hab. Cape York.

Myllocerus rusticus.

Robust, broadly ovate, covered greyish-yellow scales mixed on the sides with sparse recurved hairs; head small, rostrum short and broad, rather deeply excavated above; scrobes oval, not approximate; antennæ brown, first joint of the funicle much longer than the second; prothorax well-rounded at the sides, much narrowed at the apex; scutellum small, round; elytra shortly ovate, intervals of the striæ broad, with a line of sparse short recurved hairs, a large round spot of orange-brown on the declivity and above the apex, the latter not produced; body beneath and legs brown, clothed with greyish scales.
Length, $4\frac{1}{4}$ lines.

Hab. Champion Bay.

Myllocerus nasutus.

Narrowly ovate, everywhere covered with dull whitish scales; rostrum with a square outline above, and as broad as the head, excavated towards the apex; scrobes oblique, not approximated, having entirely a dorsal aspect; eyes rather prominent; antennæ slender, the first joint of the funicle a little longer than the second; prothorax scarcely rounded at the sides, its base not much broader than the apex; scutellum slightly elongate; elytra but slightly rounded at the sides, the declivity in some specimens with a brownish tint, the intervals of the striæ having each a decumbent row of narrower scales.
Length, $3\frac{3}{4}$ lines.

Hab. West Australia.

Burlington Road, Westbourne Park, W. August, 1869.

Occurrence in Britain of Epuræa silacea, Hbst.—I have in my collection an example of this fine species, the largest of the European *Epurææ*, which was sent to me by the Rev. Thomas Blackburn, who captured a few specimens in agar on a rotten birch stump, at the foot of Cross Craig, near Camachgouran, Rannoch, July, 1866 (see Ent. M. Mag., Vol. iii, p. 94), and appears at the time to have suspected their difference from large examples of *E. deleta* (a species varying from 1 line to 1½ lines), to which *E. silacea* is very closely allied, and from which it differs as follows: it is considerably larger (my specimen being rather over 2 lines in length), proportionably broader, entirely yellow in color (*i. e.*, there are no infusate varieties of it), rather duller, on account of its closer punctation, and its thorax is more rounded towards the front from the lower third. In the female moreover (to which sex my specimen belongs), the middle tibiæ are slightly widened and bent inwardly just before the apex; the corresponding member of the same sex of *deleta* being quite straight inwardly, and only exhibiting a small rectangular point at the outer apex, which is obtuse in *silacea*. The apical point of the club of its antennæ, moreover, is (though not wider) relatively more broad than in *deleta*, therein approaching *E. æstiva*, from which its broader and flatter build, sexual character, less dull appearance, and the broader lateral margins of its thorax abundantly distinguish it.

Erichson (Ins. Deutschl., iii, p. 152) says *E. silacea* is moderately thickly punctured, and uses a corresponding phrase for *E. deleta*; but the terms “*creberrime*” and “*subtilissime*” of Gyllenhal and Thomson appear to me the more correct expressions.

Of the 24 recorded European species of this difficult genus (*terminalis*, Marshall, from Russia, and *rubiginosa*, Heer, from Switzerland, not practically entering into the account, as they appear to be unknown, except as descriptions) we now possess 18, I think correctly named and distinct, the only one at all likely to sink eventually being *diffusa*, Bris., as possibly a depauperized form of *10-guttata*; and most, if not all, of the remaining six may be expected to occur in this country. One of these is indeed, viz., *E. pygmæa*, Gyll., has already been reputed as British in the 2nd edition of De Marseul's Catalogue, probably from that species being included in Stephens's works; the exponents, however, of it in that author's collection appear to be of the size of *E. æstiva*. But there is another and more credible British reference in Hardy's Catalogue of the Col. of North. and Durham, where (p. 46) it is stated to occur under bark of Scotch pine, and also (App. p. 247) to be common. Mr. B. has kindly sent me examples of this insect, which must be referred to *E. obsoleta*.

E. pygmæa, according to Erichson, is the same size as *E. florea*, oblong, flattened (ovate and sub-depressed, according to Gyll.), brown, with ferruginous margins, and with the middle tibiæ of the male slightly bowed at the middle of their inner side and somewhat widened internally at the apex. He assimilates it to *angustula*, which, however, is more linear and has a longer thorax, and simple middle tibiæ like the male.

The 17 species of *Epuræa* proper contained in Stephens are in Mr. Waterhouse's Catalogue sifted down to 8, two of which are doubtfully identified, and one, *fuscicollis*, (Wat.) Steph., is identical with the above mentioned *diffusa*, Br., subsequently described and brought forward as a good species. Mr. Waterhouse's Catalogue contains 12 species, one of which, *E. longula*, Er., was erroneously

, being only a disguised *E. obsoleta*: the true *longula*, has, however, been recently taken by Drs. Sharp and Power and myself at Esher. It is allied to *longula*, *obsoleta*, and *florea*; from the first of which its darker antennal club, narrower and less flat form and stronger punctuation,—from (immaculate vars.) from the second its lighter colour, more linear and parallel form, and the much greater degree of emargination, and, consequently, less prominent angles of the front of the thorax,—and from the third its darker antennal club, narrower form, and the greater anterior emargination of its thorax (which is not, as in *florea*, truncate), will distinguish it.—E. C. RYE, 7, Park Field, Putney, S.W., Sept. 1869.

Prevalence in Britain of Mycetophagus fulvicollis, Fab.—Among some British *Mycetophaga* recently sent to me for names by Mr. J. R. Hardy, of Hulme, is a good example of this rare and very interesting species. Its *facies* is much more that of one of the *Heteromera* (such as *Mycetochoares*) than of a *Mycetophagus*; and it was placed by Fabricius in his genus *Dirceæ*. Having the *five* apical segments of the antennæ thickened, and the lateral margins of the thorax finely serrated, it is most closely allied to *M. multipunctatus*, but is utterly unlike that species. In color it slightly resembles certain varieties of *M. piceus* (which insect, I judge, about equals in length), having a black head, with reddish mouth; reddish elytra; pitchy elytra, on which are two yellowish-white bands (the upper one extending obliquely backwards and not reaching the suture, and the lower one transverse, but slightly curved) with a minute light spot between them, situated on the narrow reddish-yellow margin; and reddish-yellow legs and antennæ, of which the club is darker. But its elongate, narrow shape, long pubescence, coarsely punctate-striate elytra, and thorax rather narrowest behind, at once separate *fulvicollis* from all its allies.

Mr. Hardy informs me that he captured the specimen above mentioned in June, 1865, in a fungus near the saw-mill at Dall, Rannoch.—ID.

Note on Otiorhynchus fuscipes, Walton.—It will no doubt be in the recollection of the readers of this periodical, that Mr. Rye, some two or three years back (vol. ii, p. 181), raised in its pages the question as to the correctness of an elaborate description of the late Mr. Walton's on *Otiorhynchus tenebricosus* and *fuscipes*, Olivier. Mr. Rye's opinion was, however, immediately challenged by Mr. Smith (p. 232), who supported Mr. Walton's verdict, and made at the same time some very judicious remarks as to the discrepancy existing between Mr. Walton's description of *O. fuscipes*, Ol., and a specimen of Dr. Stierlin's standing under that name in the British Museum Collection. Mr. Crotch at the same time expressed an opinion confirmative of Mr. Walton's, and it is with pleasure that I now add my testimony to the correctness of Mr. Walton's remarks. I have recently made a careful examination of some specimens, and have no hesitation in saying that there are two distinct species corresponding most accurately with the characters laid down by Mr. Walton as distinguishing *O. fuscipes*, and *tenebricosus*. Indeed, to render Mr. Walton's remarks as to the specific characters of the two insects correct, it is only necessary to add to them that in the male of *O. fuscipes* the longitudinal striæ of the last abdominal segment are considerably finer and more closely packed than is the case in *O. tenebricosus*. The question as to whether

O. fuscipes of Mr. Walton is Olivier's species of the same name is, however, another thing; this appears to have been doubted by Mr. Rye on account of the idea that *O. tenebricosus* and *fuscipes*, Walton, were but one species, while *tenebricosus* and *fuscipes*, Ol., are generally admitted abroad as distinct species, and also because a specimen of *O. fuscipes* sent to the Brit. Mus. by Dr. Stierlin is a distinct species from *fuscipes*, Walton. The first of Mr. Rye's reasons is, however, erroneous; and as regards the second, without expressing any very positive opinion, I will remark that it appears to me by no means improbable that *O. fuscipes* of Olivier, Walton and Stierlin will prove to be one species, and the specimen (in the Museum collection) referred to, has probably been hastily and erroneously determined by Dr. Stierlin.—D. SHARP, Thornhill, Dumfries, August, 1869.

[Dr. Sharp, in his discovery of British males of "*O. fuscipes*" exhibiting the correct sexual character, has evidently been more fortunate than I. I have examined many specimens, including those in the British Museum, and all others that I could get to see that have passed through the late Mr. Walton's hands, and have never been able to find any males except those exhibiting the sexual character of *tenebricosus*. Mr. Waterhouse informs me that Mr. Walton, when engaged with those two species, separated the specimens in his collection which he supposed to represent them, and that these specimens have so remained until the present time. These also, I have recently examined, and find the males of the so-called "*fuscipes*" to be males of *tenebricosus*, with wide and coarse striations in the middle of the abdominal segment. Dr. Sharp's idea, that the *fuscipes* in the Brit. Mus., sent by Dr. Stierlin, was hastily or erroneously determined, is negated by that author's published description of the species in question in his monograph, with which my exponent agrees: moreover, I possess, and have seen other examples of *fuscipes* from different parts of the continent, all of which agree with Dr. Stierlin's insect. I cannot believe that so able an Entomologist, monographing the genus, could have taken so common and apparently well known a species. My idea that *Waltoni tenebricosus* and *fuscipes* are but one species may, as Dr. Sharp observes, be erroneous, but it was arrived at after examining specimens named by that author himself—who, though noting the correct sexual character for ♂ of the former, on reference to it in describing the latter insect. If Walton's *fuscipes* be, contrary to my opinion, rightly so named, his detection of an additional character in the relative length of the joints of its antennæ may be added to Stierlin's diagnosis. E. C. R.]

Autalia puncticollis taken in Northumberland.—Amongst a few insects taken on Cheviot, by my friend, Mr. James Hardy, in the last week of July, are two specimens of *Autalia puncticollis*, Sharp, a beetle not hitherto recorded as found in England, I believe.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, September 19th, 1869.

Capture of *Monohammus sutor*, Linn., in Scotland.—On the 25th ulto., a specimen of this fine longicorn was captured by a workman on the timber at the mouth of one of the coal pits in this neighbourhood. It was brought to me alive th

ing, and in perfect condition. I have not previously heard of the occurrence of *M. sutor* in the northern division of the island; though, some five-and-twenty years ago, I saw a live specimen of *M. dentator*, Fab., in Glasgow. North of a timber stored at Port Dundas sufficiently accounted for its appearance. In the meantime, I presume *M. sutor* is entitled to all the immunities of a free-born subject.—ROBERT HISLOP, Blair Bank, Falkirk, 4th September, 1869.

Evidence as to the British origin of this specimen would be afforded by proof that the timber used at the coal-pit mouth was grown in this country, and not elsewhere.—Eds.]

ture of Iassus cruentatus.—This rare Homopterous insect has occurred to me during the present month at Witherslack, about four miles from Grange, where I have previously met with it, also a mile or two further on towards Milnthorpe. It is found on *Teucrium scorodonia* in the pupal as well as the perfect state. The places where I have seen the insect have one feature in common, namely, the presence of the yew-tree; this I mention on account of a question that was asked respecting its habitat, and I cannot but think there is something in it, although I have been vain to beat the yews.—BENJAMIN COOKE, 119, Stockport Road, Manchester, 30th August, 1869.

the habits of Cecidomyia salicina, Schrk., marginemtorquens, Bremi, and Brevipalpus.—The reddish-yellow larvæ of *Cecidomyia salicina*, Schrank, are now doing sad havoc in the tops of the leading shoots of *Salix alba* in the hedge rows in the neighbourhood.

Their attacks cause the young terminal leaflets of the shoots to wither and to form a small bud-shaped nidus, within which the larvæ, to the number of three to five, pass their metamorphoses. The pupal state lasts from ten to fourteen days. When the perfect insects have left the shoots, the nidi rapidly wither away, becoming brown, and at last drop at the slightest movement of the branch. Their presence must exercise a check of considerable influence upon the growth of the shoots of the year, but probably a beneficial result accrues to the plant as well, inasmuch as the sap which would have served to push the young shoots on, will help to push the old wood instead.

Just as in the plantation of hedges an equal growth is generally aimed at, the great mischief done by these midges cannot but annoy the proprietor, as it gives to the hedges a straggling look, caused by the remaining behind of so many shoots and their unsightly appearance.

. marginemtorquens.—The close dependence of many insects upon vegetation, and the nicety and care displayed by the laying females, in the selection of certain particular plants in preference to others of the same species have, at all times, afforded to naturalists an inexhaustible field of observation.

With gall-makers of various orders, I have hitherto found it to be a prevailing principle that so far as ligneous plants are concerned, stunted shrubs or trees, or else plants which are impoverished by the effects of external injuries or old age, are chosen for the deposition of eggs in preference to sound healthy ones. Plants growing in hedges are also more liable to be attacked than isolated ones.

That the former is done in compliance with a general law can hardly be doubted, when we consider how effectually and persistently this singling out of weak specimens is carried out, for the evident purpose of their ultimate destruction and replacement of healthier individuals.

As a case in point, I offer in this paper an account specifying the long continued attacks of *Cecidomyia marginemtorquens*, Bremi, on a plant of *Salix viminalis*.

My diary records that—

1866, August 3.—I found the marginal rolls of this *Cecidomyia*, colored alternately red and yellow, in great numbers on the leaves of a straggling bush of *Salix viminalis*, in the hedge-row of a garden at Penge. The willow had a ragged appearance, branches have been violently torn off, the bark removed in parts and the leading shoot is destroyed. The bush looks as if it had suffered repeatedly by the ruthless passage of man and beast, it being situated in the weakest part of the hedge.

1866, August 17.—Still abundance of tenanted rolls.

1867, May 22.—Same willow in the hedge nearly trodden down by cattle. Fresh rolls on many leaves of the intact shoots.

1868, June 5.—Plenty of rolls on the willow in the hedge on the few branches remaining; many shoots are clipped off.

1868, June 7.—Bred from such rolls both sexes of *Cecidomyia marginemtorquens*, Bremi, in numbers.

1868, September 27.—Noticed chains of fresh rolls on the same bush in abundance.

1869, May 23.—Found first leaf this year bordered with several rolls on the side.

1869, July 25.—Rolls in excessive numbers; majority of leaves thus infested. Scarcely any young shoots of the year growing healthily.

During all these years I have diligently searched the other bushes of willow in the same hedge for these galls, but can find none. In one of the neighbouring gardens there grows a fine tall tree of the same *Salix*; thinking that the straggling bush in the hedge might annually receive its settlers from there, I have repeatedly, and at various times of the year, examined it, but always with a negative result. Hence I am driven to the conclusion, that having accidentally been peopled with this gall-midge from a distance, this straggling bush, although plenty more grow near, is annually fixed upon by the laying females as the most suitable for their purpose, and will eventually succumb to the ravages of their progeny as one brood of larvæ succeeds the other, at intervals of about four weeks from May to October, the last brood hibernating in their cocoons in the fallen leaves till spring.

C. salicis.—From galls, encompassing some twigs of the preceding year's growth of a plant of *Salix cinerea*, collected near Penge, on the 11th October, 1868, I bred a few specimens of this midge on the 26th June, 1869. In this particular instance each gall harboured but one larva, and all I met with were full fed or nearly so. They remained in their larva state until the middle

the present year, when, *without spinning a cocoon*,* they turned to pupæ in the galls. The mature pupa (examined 15th June) was $1\frac{1}{2}$ -lin. long, its thorax, and all appendages pitchy-black, shining; abdomen dull tile-red, its surface rough. The basis of each feeler-case is provided with a sharp pointed tip. Two slender, tapering respiratory tubes stand behind the feeler-cases on the

When emerging, the pupa forces its way out of the gall by a series of wriggling, jerking movements, until about half of its length is disengaged; the usual process being the pushing of the back of the thorax in a horizontal and afterwards vertical direction, as the gradual freeing of the head and limbs follow; and, when quite freed, the imago discharges a drop of milky liquid. The silken white pupa-case is left protruding from the gall.—ALBERT MÜLLER, Norwood, S.E., 16th August, 1869.

Yellow female of Colias Hyale.—In a letter which I received a short time since from Colonel H. Macchio, of Vienna, he says,—“I have reserved a yellow female *Hyale* for you.” I believe many of these yellow females have been passed off in this country for males, as, among the small number of specimens of this species which I saw last year (not more than thirty or forty), I found four of them. The ordinary female of *Colias Palæno* is white; but I have three of the yellowish-greenish-yellow colour as the males.—H. DOUBLEDAY, Epping, August, 1869.

On the larva of Pyralis glaucinalis.—To the Hon. T. de Grey I am indebted for the opportunity of figuring and describing the larva of this species, he having sent it in the manner he has detailed in the following note:—

“Thinking that the nest-like bunches of twigs, which may often be observed at the ends of branches on birch trees, might perhaps be tenanted by the larvæ or pupæ, I obtained one of these knots in April, 1867, and placed it in a large breeding cage, where I soon observed a few black active-looking larvæ, and some old cocoons containing empty pupa skins.

“Having no conjecture as to what species these belonged to, I was much interested by observing on the 10th of June, a specimen of *Pyralis glaucinalis* at the side of the breeding cage; others continued to appear, and on June the 13th, I made a note in my diary, ‘Larvæ, pupæ, and imago of *glaucinalis* all alive at the same time.’

“On the 24th of June, I took out the knot, and by shaking and beating it I obtained from it twelve specimens which were by no means easily dislodged.

“The species continued to appear throughout June and part of July, till about the end of the month, when all were bred from this one large birch knot.

“This year (1869) I again obtained knots from the same locality as before, and found them to contain old cocoons, and larvæ of the same species in various stages of growth; from these I bred a few specimens of the perfect insect about the middle of July.

* Winnertz (Linnaea Ent., vol. 8, p. 216), records, that this *Cecidomyia* turns to pupa in a web in the gall. I could not detect the slightest trace of any web or threads whatever. The pupæ were simply in a cavity of the gall.—A. M.

"The clean white silken cocoon is semi-transparent, and of a texture which strongly reminds one of the skin immediately beneath the shell of an egg, but that the silk is less opaque: it is placed *among* the twigs towards the centre of the branch, but *not attached* to them, although the webs of the larvæ and the frass, and also of the numerous spiders which it contains, prevent the possibility of shaking it out: in spite of this, however, it is always quite clean."

On the 18th of April, 1869, Mr. de Grey kindly sent me several larvæ with their food—that is to say, a mixed mass of birch twigs, decomposed leaves and earthy matter containing many old cocoons and pupa cases, some small tufts of sheep wool, and an old gun wad.

I separated this mass to look for the larvæ, but found that they immediately began again to construct loose silken galleries and thus re-united the various materials of which it was composed.

At this date the youngest larva was about half-an-inch long, of a dull brownish olive-green; others were larger and darker, the colour darkening with the growth, until the full grown larva was almost black.

When full grown, the length is from $1\frac{1}{4}$ to $1\frac{1}{2}$ inch; the form moderately slender, cylindrical, nearly uniform in bulk throughout, the hinder segments tapering a little at the sides; the region of the spiracles puffed and wrinkled; the segmental divisions deeply cut.

The colour of the back is a blackish, bronzy-green, becoming paler, of an ochreous-green tint along the spiracles, and on the belly and legs, the head, the 2nd and 13th segments; the plate on the second segment is margined in front with blackish olive: a fine blackish undulating line, apparently caused by a deep wrinkle, runs along below the spiracles, which are inconspicuous, being of the surrounding colour, and merely outlined with blackish; the tubercular dots are little raised, each bearing a fine hair; the whole surface is shining and bronzy looking.

The first mature larva spun its cocoon on the 23rd of April, 1869; the cocoon at first was soft and very flexible, of a brilliant silvery whiteness, its yielding surface readily betraying the movements of the larva within, but after a day or two enough silk had been spun to make it firm and unyielding; its length is about $\frac{3}{4}$ -inch, its breadth $\frac{2}{8}$; in shape it is rounded at either end, very convex on both upper and under surfaces, these curves not being continued round the sides, but meeting there in an acute ridge.

The imago makes its exit at one end, but the edges of the orifice close together again, and the pupa skin remains in the cocoon, which shows no change whatever in appearance.

The pupa is brown in colour, nearly half-an-inch long, stoutest at the thorax and diminishing in the ordinary way to the anal point, which ended in a sharp spike. The old larva skin, though much shrivelled, showed it had been separated on the crown of the head and down the back, and was left in contact with the spike of the pupa.

The moths appeared on the 6th and 11th of July.—WM. BUCKLER, Emsworth

es on the earlier stages of *Eupœcilia ambiguana*.—While collecting *Eupœcilia* *na* at Haslemere, at the end of May, 1868, I noticed that about sunset the were to be seen flying about the flowers at the tops of the bushes of *as frangula*, apparently depositing eggs. On July 27th of the same year, on these identical bushes, berries fastened together with silk, and partially ut, and in them larvæ of which the following is a description:—

ad and back of 2nd segment blackish, anal segment brown, rest of body ak or reddish, but so transparent that the dark contents of the intestinal give it a greyish tinge.

Each larva fastened several berries together, feeding only on their interior, some instances the silken tube was continued to a neighbouring leaf, which dled at the side, apparently as a shelter.

I found about a dozen of these larvæ, and confined them in a jar with plenty d. When full fed, each cut an oval piece out of a leaf of the *Rhamnus* and it into a case, like that of a *Coleophora*, which it attached, by the end, to a gauze which covered the jar, and to do this some of the larvæ must have ed it several inches. One larva, however, fastened his case to a twig of *anus*, boring a little hole in the wood to fit its mouth, and this I judge to be normal habit.

These cases I brought with me to Norwich, and watched eagerly in May for appearance of the perfect insects, but to my great disappointment not one egged, and on examination they were all found to have died in the larva state.

Although I feel certain that this is the larva of *E. ambiguana*, its case-making t is so extraordinary that I cannot expect others fully to accept my conclusion, therefore give these details in the hope that some one more fortunate may be sted to work it out.—CHAS. G. BARRETT, Norwich.

Hydrilla palustris near Norwich.—On June 5th last, I had the good fortune to e, by means of light, a male of *Hydrilla palustris*, at a very short distance from city. This was on one of the few favourable nights for collecting that occurred he early part of this summer, and the succeeding and many following nights re so cold that not an insect was to be seen, and consequently the search for e of this species was fruitless, but I see no reason whatever to suppose that s individual was *accidentally* introduced, or that it will not be found to be a gular inhabitant of this neighbourhood, and therefore think that it may safely be introduced into our lists.

Although it bears a considerable resemblance to some of the *Caradrinæ*, particu- ly *C. Morpheus*, its peculiarly thin abdomen forms a striking distinction from all them.—ID.

Acronycta alni, *Cymatophora ridens*, and *Ecophora Lambdella* near Plymouth.— Yesterday I took a larva of *alni* on dogwood in a lane near here. It was reposing n the upper surface of the leaf, as seems to be the habit of this species. In April st I took a specimen of *ridens* in my garden, and last month *Ecophora Lambdella* ll to my lot. It was flying in the sunshine on the Revelstoke cliffs, about six iles east of Plymouth. This last was kindly determined for me by Mr. Stainton. —RICH. P. MURRAY, Plymstock, Plymouth, August 19th, 1869.

Occurrence of Agrotis saucia at Edgware.—On the 8th instant, I took a of *Agrotis saucia* at sugar in my garden here. I fancy this insect is not often to be found in the neighbourhood of London.—ARTHUR COTTAM, Stone Grove Cottage, Edgware, September 15th, 1869.

Capture of Aplecta occulta at Lee.—I have to record the capture of a single specimen of the above-mentioned insect, which I took at sugar, at the end of August. There were two other specimens of the same insect on the tree, before I could box them, they escaped.—JOHN T. SCOTT, 37, Manor Park, September 7th, 1869.

Notes on Clisiocampa castrensis, Mamestra abjecta, &c., at Gravesend.—On the 10th of July last we paid a visit to the banks of the Thames below Gravesend for the purpose of collecting the larvæ of *C. castrensis*. To the fact of the weather being one of unclouded sunshine, we are disposed to attribute the success which attended our search.

At 10 a.m. we commenced operations among a clump of their favourite food, the *Artemisia maritima*. At this time the larvæ occurred only sparingly, but, as we approached, they became much more abundant, crawling up from their retreats to sun themselves on the branches of their food. After one o'clock they became much scarcer, probably owing to the number of our captures, but also in some measure to the circumstance of their retiring again to the root of the plant.

We found them in several stages of their growth, some quite small and others about to assume the pupa state, several spinning their cocoons on the journey home.

By searching among the long grass growing near the top of the sea wall, we found the cocoons not uncommon; many of these, however, especially in more exposed situations, were empty, the pupæ having been extracted by birds.

As none of the larvæ captured were ichneumonized, we presume that birds are the agents by which the excessive increase of this species is prevented.

Having the reputation of being difficult to rear, and not being able to supply the larvæ with their natural food, we adopted two modes of treatment towards them; some we enclosed with muslin on a growing plant of the garden *Chrysanthemum*, the remainder we supplied with *Polygonum aviculare*. They did equally well in both cases, and have now all assumed the pupa state.

Feeding them on the latter plant, however, involves a greater amount of trouble, as they must be supplied with fresh food daily, for if at all faded, they refuse to eat it. It is also necessary that they should be placed in a sunny situation, as they appear only to consume that part of the food to which the sun's rays have free access. The duration of the pupa state is about three weeks, the first perfect insect from the larvæ collected appearing on the 4th of this month.

At sugar at the same locality, and on the same occasion, we took several beautiful examples of *Mamestra abjecta*: also a few of *Senta ulvæ*, *Leucania obsoleta*, and a number of *Agrotis corticea*; and, by mothing, *Acidalia emutaria*, *Leucania phragmitidis*, and *L. straminea*.—C. MILLER and ALBERT H. JONES, Eltham, August 18th, 1869.

Captures of Lepidoptera at Witherslack.—On the 13th and 14th August

d the following species at Witherslack, viz.:—*Stilbia anomala*, *Penthina Orthotænia ericetana*, *Tinea albipunctella*, *Hyponomeuta plumbella* (which I took near Gravesend 20 years ago), *Depressaria carduella*, *granulosella*, *punctella*, *Zelleria hepariella* (amongst yew), *Asychna profugella* (also on) and *Bucculatrix aurimaculella*.—J. B. HODGKINSON, 15, Spring Bank, Preston, October 6th, 1869.

Stilbia Edusa in Lancashire.—On the 27th of August I saw *Edusa* a few miles from Lancaster on the railway bank.—Id.

Captures of Lepidoptera in Westmoreland.—On 16th July last, I met Mr. J. B. Hodgkinson at Preston, and with him proceeded north to Grange for Witherslack, where, by sweeping amongst *Trifolium filiforme*, we took *Coleophora Fabriciella* and *Stilbia ligulella*, and, among wild thyme, *Gelechia Sircomella* and *senectella* and *Hebeconia constrictata*. Amongst mixed plants, where *Conyza squarrosa* grew, we found *Sciaphila perterana* and *octomaculana*, *Euchromia rufana*? and *Phyllorhiza rampha consortana*; by beating sloe-bushes, *Pædisca bilunana*, *Ephippiphora rufana*, *Argyresthia albistriella* and *Olinidia ulmana*; by beating yews, hollies and ferns, *Lithosia complanula*, *Eupithecia pumilata*, *Crambus pinetellus*, *falsellus geniculellus*, *Scoparia cratogello*, *cembraella*, *muralis* and *atomalis*, *Dichelia hepariella*, *Tinea semifulvella*, *Phlæodes immundana*, *Hypsolophus marginellus* and *Stilbia semirufa*; by sweeping flowery banks, a new species of *Argyrolepis*, of which I have more hereafter, and *Chrosis tesserana*: where *Conyza squarrosa* grew on the banks, we took *Pterophorus acanthodactylus*; amongst wild sage, *Pterophorus anniodactylus* (Gregs., n. s.); amongst *Scabiosa columbaria*, *Pterophorus scabioides* (Gregs., n. s.); amongst golden rod, *Pterophorus tephrodactylus*; and, where *Knautia arvensis* grew freely, *Pterophorus plagiodactylus*, and *P. fuscus* amongst *Veronica chamædrys*, whilst *Argyresthia præcocella* was beaten from junipers, and *A. Andereggiella* from apple-trees. On the moss, we got *Sericoris politana*, *Nemoria viridata*, amongst *Myrica gale*; *Gelechia ericinella* on heather; *Elachista scabrella* amongst *Dactylis glomerata*; *Elachista cerussella*, *rhynchosporella* and *sericornis* (not least noteworthy) *sericornis* flying over or swept from cotton-grass (*Triphorum*). This last species alone led us out to the moss, after a warning from the farmer at the "Far-a-way Farm," that "them cleggs fair druv him off t' moss-edge i' t' morning, when he wer maaing; an' nae man cud stan' um at nete:" and that Mr. Hodgkinson had once taken *E. sericornis* on Witherslack moss, so away we went. The cleggs and midges *did* bite, nay, fairly covered us; and, after about two hours' suffering, both of us having taken the long desiderated species, we were treated in good order, and, by dashing into the long grass and reeds growing in the ditches of the drained land, obtained relief from our tormentors. Soon we turned our attention to the Valerian plants growing on the banks of the ditches, and on them found the larvæ of *Eupithecia valerianata* from just hatched to full grown; these we secured in plenty, and slept that night the sleep of the tired-out but contented naturalists.

NOTE: there are two or three critical species amongst our captures that may form the subject of another note when they come off the setting boards.—C. S. GREGSON, Rose Bank, Fletcher Grove, Stanley, Liverpool, 20th July, 1869.

Note on names and food of some species of Plicatæ.—*Scoparia cratægalis* (*gella*, Hub.)—This name implies that the larva of this species feeds upon haw-thorn (*Cratægus oxyacantha*). Nothing can be more injurious to entomology or to our progress than to give an insect a name from a plant it does not feed upon; a recent instance of this is afforded by *Scoparia ulmella*, the species the name of which appears to have misled one of our most acute practical friends (Ent. M. Mag., Vol. 6, p. 41). Having bred most of the genus *Scoparia*, as it is now present constituted, I may say that so far as I know they feed exclusively upon hepatics, mosses, lichens, and algæ (*Confervæ*). Thus, *Scoparia cratægalis* feeds upon *Hypnum elegans* and *Jungermannia dilatata*; as do also *S. cembrella* (*cembra*, Haw.) and the old *mercurella* (*mercurialis*); *muralis* (*murana*, Curtis) feeds upon *Grimmea pulvinata* (the cushion-moss), in company with *Crambus falsellus*; *lineolalis* (*lineola*, Curtis) feeds upon and lives under *Parmelia parietana* and *olivacea*, lichens which grow upon rocks and old thorns, &c.; and *S. resinosa* (*resinea*, Haw.) feeds upon *Stigoneura mammillosa* and *Oscillatoria autumnalis*, living in galleries under the *Conferva*, and also on *Bryum cespitosum*, when grown as this moss frequently does here, amongst the above *Algæ* at the bases of dry walls, &c., on road sides. That some of these species eat other allied plants I do not know, but I am not aware of any *Scoparia* or *Crambus* which finds sustenance upon trees or shrubs, except that the mosses and lichens they eat sometimes grow upon them and that the perfect insect often shelter upon or amongst their foliage: they have no connection with any arboraceous plants as food; and, thinking that these hints may be useful to any young friend who may venture into the little known question of the food of our *Plicatæ* or *Crambidæ*, or both, I may say, “do not look for larvæ of *Scoparia cratægalis* on hawthorn hedges, or for those of *Crambus pinetellus* upon fir-trees, but rather upon the lowest order of plants.”—ID.

[We cordially agree with Mr. Gregson, that it is most undesirable to fix specific names of insects from those of plants, on the bare supposition that the larvæ feed on such plants, and that few things are “more injurious to science.” But why, does he, with so keen an appreciation of purity in nomenclature, ask us to print such names as “*Britanniodactylus*” and “*scabiodactylus*” (see his former communication)? On the continent, hybrid names (half Latin, half Greek), such as *punctidactylus* and *parvidactylus* are universally ignored in the published Lists, and Mr. Gregson must be prepared to see his species above quoted share the same oblivion as “*Millieridactylus*,” “*Schmidtiformis*,” &c.—EDS.]

Note on period of appearance of larva of Polia nigrocincta.—Mr. Doubleday says I have made a mistake in my “accounts” of the larva of this species. I can only repeat my statement, that with me the eggs obtained at the Isle of Man hatch as reported at p. 64, vol. vi, Ent. M. Mag.; that the larva is there described, as accurately as I can “word-paint,” in its various stages, and in every way correctly, and that from it was produced the insect known to us as *Polia nigrocincta*.

By a mistake in punctuation, in line 5 of p. 65 of the above-mentioned volume, it appears to state that this larva makes its puparium “during the day-time;” the expression was intended by me to refer to the preceding sentence, in which the habit of concealing itself is referred to. At line 11 of the same page, also, “*Duchan*” should be “*Onchan*.”—ID.

scarcity of insects in 1869.—From letters I have received from my correspondents, and from notices which have appeared in various Natural History journals insects (at any rate so far as *Lepidoptera* are concerned) appear to have been unusually scarce this season. If this be the rule, I think this neighbourhood is decidedly an exception, as, although insects cannot be said to have been unusually abundant, I consider we have had a fair average season. Several species have appeared in the "Entomologist" on the great scarcity of the *Pieridæ* in the south, and the Editor of that periodical seems to think this to be the case generally throughout the country. *Rapæ* we have had in plenty, though I do not recollect noticing so many of *brassicæ* as usual. Larvæ of *Dicranura vinula* have been more numerous this season than I ever noticed before; I have repeatedly sent them brought to me as "remarkable creatures" from widely separated parts of the district. Spring insects were rather scarce, probably owing to the winter having destroyed the pupæ, but taking the season as a whole, I think entomologists here will agree with me that they have no cause for complaint.

D. T. PORRITT, Clare Hill, Huddersfield, 4th September, 1869.

White Butterflies (especially *brassicæ*) have certainly been unusually scarce in most parts of the country; and notably so, as compared with their usual abundance in 1868, when our cabbage-gardens, from their ravages, made a striking exhibition of skeletonized leaves.—Eds.]

The larva of Bombyx quercûs will eat heather.—I have once or twice been asked by correspondents "Will the larva of *quercus eat heather?*" and this season, having collected on the Lancashire coast a few larvæ of that species, have had an opportunity of satisfying myself on the point.

On supplying them with heather (*Calluna vulgaris*), they immediately began feeding with apparent relish, although an abundance of fresh hawthorn (on which they had previously fed) had just been taken out of the cage. Of course it is well known that *callunæ* will eat almost anything that *quercûs* will.—Id.

Variation in Zygæna filipendulæ.—Out of some fifty specimens of this insect reared from pupæ, I have three varieties. The most extraordinary is of a splendid orange-colour instead of red. Two others had one under-wing red and the other orange.—W. JAGGER, St. Ives, Hunts, 20th July, 1869.

The Entomological Society of London.—The first meeting of the next session of this Society will be held in the rooms of the Linnean Society, in Burlington House, on Monday, the 1st of November. Instituted in 1834, the Society has, by its publications, obtained a standing second to no kindred association in Europe; and it scarcely receives the support from active entomologists which it deserves, especially when the advantages connected with it are duly considered. The present year affords a favourable opportunity to gentlemen wishing to enter its ranks. Any information respecting the Society will be readily afforded on application to either of the two Secretaries (Mr. J. W. Dunning, of 24, Old Buildings, Lincoln's Inn, W.C.; or Mr. R. McLachlan, of 20, Limes Grove North, Lewisham, S.E.) The Anniversary Meeting will take place towards the end of January, 1870; but members or subscribers joining before that time, will not be called upon for any subscription for the remainder of the present year.

NOTICE OF A NEW ORDER OF HEXAPOD INSECTS.

BY PROFESSOR J. O. WESTWOOD, M.A., F.L.S.

In the course of last year, Mr. H. Denny placed in my hands for examination a parasitic insect, found upon the beaver, which seemed at first sight half-way between a flattened flea and a diminutive cockroach, and which has proved to belong to none of the recognized Orders of hexapod *Annulosa*. I read a description of this insect, under the name of *Platypsyllus castorinus*, before the Ashmolean Society of Oxford during Michaelmas Term, 1868; but, as that Society is very dilatory in publishing its Proceedings, I send a short notice of the character of the insect for publication in 'The Entomologist's Monthly Magazine.'

Order, ACHREIOPTERA, Westwood.

*Corpus ovale, valde depressum, coriaceum, setigerum.**Os (mandibulis?) maxillis, labio palpisque quatuor instructum.**Antennæ laterales, postice reflexæ, tri-articulatæ, articulo ultimo (ut in Pulice) annulato.**Prothorax magnus, scutiformis, margine postico sinuato.**Mesothoracis scutellum triangulare.**Alæ anticæ coriaccæ, planæ, venis carentes, brevæ, coalitæ, basin abdominis attingentes; sutura recta.**Alæ posticæ obsoletæ.**Pedes cursorii (saltatorii?), tibiis calcaratis, tarsis quinque-articulatis, bi-unguiculatis.**Metamorphoses ignotæ.**Victus parasiticus in Castorem, more Pulicis.*

PLATYPSYLLUS, nov. gen.

*Caput horizontale, semi-circulare, angulis posticis sub-truncatis, antennarum truncaturâ insertis.**Antennæ longitudine dimidium prothoracis æquantes, articulo basali elongato, cylindrico, secundo cyathiformi, extus longe setato, tertio ovali, ex annulis octo (ut in Pulice) formato.**Maxillæ motû transverso, lobis duobus apicalibus instructæ, exteriori majori, semi-ovali, plano, apice spinuloso, extusque densè setigerâ, interno tenuissimo, membranaceo, margine sub-spinuloso. Palpi maxillares quadri-articulati, articulo ultimo conico.**Mentum oblongum, corneum, jugulo transverso antice insidens.**Labium transversum, lateribus in angulum productis, margine anteriori*

marginato. Lingua e lobis duobus tenuissimis rotundatis formata. Alpi labiales breves, tri-articulati, conici, scapo parvo basali transverso insidentes.

Antennarum transversum, antice emarginatum, postice sensim dilatatum, lateribus curvatis, versus angulos anticos incisus (pro receptione antennarum), angulis posticis rotundatis, setis longis instructis.

Ala tria elevata, plana, cornea, sensim magnitudine decrescentia, (haustellum magnum tri-articulatum simulantia), lateribus setis longis instructa.

Crura robusti, compressi, cursorii, spinosi (an saltatorii?), coxis magnis; tarsi quinque-articulati, unguibus duobus robustis terminati.

Alae anticae elytriformes, coalitae, angulis posticis rotundis, suturâ rectâ. Alae posticae obsoletae.

Ovipositor semi-ovale, planum, sex-articulatum.

PLATYPSYLLUS CASTORINUS, nov. sp.

Luteo-fulvus, nitidus; capite utrinque punctis duobus (loco oculorum, margine lateralium medium versus), sulco profundo utrinque cum margine laterali allelo, margine postico pectinato; pronoto utrinque serie punctorum ex angulis allela; abdominis segmentis dorsalibus linea spinarum plurimarum, marginem vicinum versus, ut in Pulice, armatis.

Long. corp. lin. $1\frac{1}{2}$ = 4 mill.

Habitat parasitice in Castorem canadensem.

London, September, 1869.

A NOTICE OF THE SKANDINAVIENS FJÄDERMOTT OF
H. D. J. WALLENGREN.

BY R. C. R. JORDAN, M.D.

Through the kindness of Herr Pastor Wallengren, I have received a copy of his monograph on the Swedish plume-moths, and the diagnoses of the different genera there given have seemed to me of sufficient interest to make a notice of them worthy a place in this magazine. Unfortunately, I can only guess at the Swedish part of the monograph in a very imperfect manner, but the Latin diagnoses give details of generic characters, which, in the case of the present group, have been very imperfectly studied by English Entomologists, and therefore cannot fail to be extremely useful.

The Swedish plume-moths consist then of the following genera and species:—

1. CNÆMIDOPHORUS (Wallengren).

Antennæ of both sexes with very short cilia. Forehead without any only a few slightly prominent hairs between the antennæ. Palpi not longer the head, the intermediate joint thickened with down, the last joint short pointed. Legs short, all the tibiæ thickened towards the apex by a tuft of setæ the posterior tibiæ thickened in the middle. First pair of spines in the posterior tibiæ slender and very unequal, second pair nearly equal. Anterior wings divided to a third part of their length, the segments broad, the posterior segment almost hatchet-shaped, the posterior angle of both segments well marked. The divisions of the inferior wings wide, the third segment with the anal angle distinct. The anterior wings flat, covering the inferior, the inner margin not toothed.

This genus contains only one Swedish species, found also rarely in the south eastern part of our island, viz., *Cnæmidophorus rhododactylus*. That this insect is rightly separated from the genus *Platyptilus* of Zeller there can be no doubt; the difference in the thickened tibiæ alone would be sufficient for this. The name seems taken from the thickened tibiæ; but why the diphthong should be used and the word written *Cnæmidophorus* is to me unintelligible.

2. PLATYPTILUS (Hübner) (Zeller).

Antennæ of both sexes with very short cilia. Forehead adorned with a more or less elongated tuft. Palpi longer than the head, rather rounded, slightly ascending, with the last joint more or less elongated, sometimes a little drooping. First pair longer, slender, the tibiæ sometimes slightly thickened towards the apex. First pair of spines in the posterior tibiæ slightly unequal, second pair almost equal shorter than the shortest spine of the first pair. Anterior wings not divided to the third part of their length, the segments broad, the posterior segment almost hatchet-shaped, the posterior angle of both segments well marked. The segments of the inferior wings more slender, the third division with the anal angle sufficiently marked, but nearer to the base. The anterior wings flat, covering the inferior when at rest. The veins of the anterior wings ten in number; 1st and 2nd separate, coming from the base, the 3rd from the posterior margin of the cell, the 4th and 5th from the posterior angle of the cell, all running into the posterior segment, the 6th coming out near the anterior angle of the cell, and running into the posterior angle of the anterior segment, the 7th two-branched, coming out from the anterior angle of the cell, and running into the apex of the anterior segment, the 8th and 9th coming out from the anterior side of the cell and running into the anterior margin of the wing, the 10th coming from the base and ending almost in the middle of the anterior margin. The cell well marked, with a very slender little transverse vein, almost straight, closed. Veins of the posterior wings three in number; 1st coming from the base, two-branched running into the anterior segment, the 2nd three-branched, running into the second division, and the 3rd simple, running into the third division. No cell.

The species described as Swedish are *Platyptilus ochrodactylus*, *Zetterstedtii*, *P. nemoralis*, *P. gonodactylus*, and *P. tessaradactylus*; latter species, which is known on the continent as *P. Fischeri*, being supposed by our author to be the *tessaradactylus* of Linné. It is probable that under *ochrodactylus* the two species *dichrodactylus* and *Bertrami* are both included, since the monograph bears date 1859, and the larva is recorded as unknown. This would make six Swedish species of this group. We have only five in Great Britain, viz., *P. gonodactylus*, *P. Bertrami*, *P. isodactylus*, *P. Zetterstedtii*, and *P. ochrodactylus*. Of these, *P. isodactylus* is apparently unknown in Great Britain, and, on the other hand, *P. nemoralis* and *P. Fischeri* are not known in Britain. The larvæ of this group are feeders in the leaves of composite plants. *P. Zetterstedtii* is one of the rarest of our species, and seems, as far as we at present know, to be confined to the south-western sea-board. Owing to the kindness of Mr. Bond, I have at present two fine specimens lent me for examination, taken by Mr. Bond on the Cornish coast; and Lynmouth is given as another locality. The Isle of Man and Ireland should be examined for this species. The larva, according to Wallengren, feeds on *Senecio vulgaris*. It must in England, of course, choose some other composite—probably also a *Senecio*.

PLATYPTILUS (Hübner).

Antennæ of both sexes with very short cilia. The forehead ornamented with a small pyramid of scales. Palpi longer than the head, thick, laterally compressed, ending, with the last joint short, slender, and pointed. Legs slender, long, the femora only in the least degree thickened towards the apex. First pair of spines in the posterior tibiæ nearly equal, longer than the second pair. The anterior wings furnished with a tooth of scales on their inner margin, not cleft to the third part of their length. The segments broad, the posterior segment almost hatchet-shaped, the posterior angle of the segments well marked. The segments of the inferior wings slender, the third segment with the anal angle sufficiently distinct, nearer the apex, furnished with a tuft of scales. The anterior wings flat, covering the posterior when at rest.

This group contains the same species in Sweden as with us, namely, *acanthodactylus* and *cosmodactylus*. Our author regards them as varieties only, a conclusion with which British entomologists will hardly agree.

OXYPTILUS (Zell.).

Antennæ of both sexes with very short cilia. The forehead obtuse, wanting the apex or cone entirely.* The palpi longer than the head, thick, laterally compressed,

* Except in *Bohemani*?—R. O. R. J.

ascending, the middle joint tufted at its apex, the last joint longer than the slender, pointed. Legs long and slender, the posterior tibiæ thickened with a line at the middle, and at the apex. The first pair of spines in the posterior wings almost equal, the second pair shorter than the shortest spine of the first pair. The anterior wings cleft more than the third part of their length. The segments slender, the anterior segment with no posterior angle, the posterior segment with the angle distinct. The segments of the posterior wings slender, the third segment linear, and with no anal angle. The anterior wings flat, when at rest covering the posterior; the inner margin of the anterior wings not toothed, the fringe of the third segment in the posterior wings with some black scales near the apex. The veins of the anterior wings eight in number; the 1st and 2nd separate, springing from the base, the 3rd from the posterior margin of the cell, the 4th dividing into two branches, running from the posterior angle of the cell to the posterior segment, the 5th coming out near the anterior angle of the cell, and running to the posterior margin of the anterior segment, the 6th either two or three-branched, running from the anterior angle of the cell to the apex of the anterior segment, the 7th from the anterior side of the cell, and the 8th from the base. The cell distinct, closed, the transverse vein very slender, somewhat arched. The veins of the posterior wings three; the 1st two-branched, running to the first segment, the 2nd also two-branched, running into the second segment, the 3rd simply running into the third segment. No cell.

The Swedish species of this genus are six, viz.:—1, *O. pilosella*, 2, *O. hieracii*, 3, *O. ericetorum*, 4, *O. obscurus*, 5, *O. didactylus*, and 6, *O. Bohemani*. Of these, two only have been as yet proved to be British, namely, *O. pilosella* and *O. obscurus*, although it is probable that *O. hieracii*, if not *O. ericetorum* and *O. didactylus*, will, if carefully sought for, be added to our lists. None of the lighter coloured species are met with in this list. In England we have four species of the genus, *O. pilosella*, *O. teucrii*, *O. obscurus*, and *O. lætus*.

This last was added to our lists last year by the Hon. Mr. Grey, who caught it at Thetford, a locality already celebrated for its southern types. One specimen I have (thanks to the kindness of the captor) had the privilege of examining; it certainly differs in several particulars from any specimen of *lætus* which I have seen before, as it is certainly most closely allied to, if not identical with, that species, it seems most desirable to call it *lætus* for the present, awaiting the decision of Professor Zeller, to whom it is referred for examination. The addition of one of the lighter coloured forms of the genus to our British lists is, however, full of interest. On the continent, the larva feeds on the flowers of *Andryala sinuata*; it is probable that here some species of *Hieracium* would be chosen.

MÆSEOPTILUS (Wallengren).

antennæ of the male fringed with very short hairs. The frontal tuft into a blunt cone. Palpi longer than the head, compressed laterally, middle joint thickened above with hairs, the last joint short, blunt, scarcely distinguished from the preceding. The posterior tibiæ slender, not thickened. The first pair of spines in the posterior tibiæ equal, the second pair slightly unequal.

The anterior wings cleft to a third part of their length, the segments more unequal, the upper one with a distinct posterior angle. The posterior lanceolate wing, the posterior angle not well defined. The segments of the posterior wings unequal, the middle segment dilated so as to be somewhat spoon-shaped, the third segment the posterior division without any black scales in its short fringe. The anterior wing not perfectly flat, their anterior margin being very slightly deflexed, their posterior margin without a tooth, and, when at rest, slightly deflexed, so as to embrace the posterior wings. The veins of the anterior wings ten in number; the 1st and 2nd separate from the base, the 3rd from the posterior margin of the cell, and the 4th and 5th together from the posterior angle of the cell, all running into the anterior segment; the 6th rises from the little transverse vein near the anterior angle of the cell, and the 7th, which is two-branched, rises from the angle itself, and runs into the anterior segment; the 8th and 9th arise from the anterior margin of the cell, and run into the anterior margin of the wing; the 10th arises from the posterior margin of the wing and runs also into its anterior margin. The cell is distinct, closed, and contains a very slender, spurious, transverse veinlet, moderately curved, with the concavity turning towards the base of the wing. The veins of the inferior wings are ten in number; the 1st two-branched ending in the first segment, the 2nd two-branched, ending as well as the simple 3rd vein in the second segment (this 3rd vein generally joins with the 2nd at the base), and the 4th vein simple ending in the third segment. No cell.

There are four Scandinavian species of this genus, namely, *M. mictodactylus*, *M. serotinus* (*bipunctidactylus*), *M. pterodactylus*, Linné or Herr Wallengren believes our *fuscus* to be the *pterodactylus* of Linné, and *M. paludicola*, Wallengren. Our British species are more numerous, viz., *M. plagiodyctylus*, *M. serotinus*, *M. Hodgkinsoni*, *M. Loewii*, and *M. fuscus*, five in number; it is probable, however, that much confusion exists in collections, with regard to this group. *Serotinus* and *Loewii* from different localities need special examination, and it would be conferring a great favour on me if entomologists who take any species of this genus would lend me specimens for comparison. *M. mictodactylus* should be carefully looked for in England; the larva feeds on *Saxifraga granulata*, a plant which in many localities is common in our island; and the moth flies in May and June. This plume would make a splendid addition to our lists; it is a large insect, nearly the size of *fuscus*, and more resembling *plagiodyctylus* than any other of

our native species, but the ground colour of the wings is a pale ash brown, dark brown along the outer margin, a dark brown dash at the anterior superior angle, a brown spot or rather a dash at the fissure and a brown dot about half-way between this and the base of wing. No one could confuse this with any known British Plume. The larvæ of *serotinus* are stated by Wallengren to feed on *Galium* (sp. n. noted) and *Scabiosa arvensis*. It is stated to have two broods, one appearing in June and the other in September and October, and the larva to be met with in May. In the south of England this species has occurred to me in May and August. The *M. paludicola* Wallengren is thus described:—

Anterior wings above greyish-brown, darker towards the costa, the back widely bordered with ochreous. A twin brown spot at the fissure, the external border the whole costa lined very narrowly with white, with one or two indistinct brown spots at the inner angle of the cilia of the anterior segment, and with a broad indistinct streak at the apex of the posterior segment.

As in Zeller's *Isis*, this Plume stands as *Pterophorus fuscus*, var. it must resemble that species very closely, but to none of a large and varied series of *fuscus* in my own collection does the description apply. Several are greyish-brown instead of cinnamon-brown, and many have also a twin spot at the fissure, but none have the *whole* costa edged with white. The most remarkable specimen of *fuscus* which has fallen under my own observations was sent me from the Lake district, by the kindness of Mr. Hodgkinson. Of this specimen, the following brief description may not be out of place, as it certainly has quite the appearance of a distinct species:—

Size of a very large "*fuscus*:"—Anterior wings cinnamon-brown, outer border rather more dusky than the inner portion which has an ochreous tinge, spot at the fissure replaced by a very narrow black streak beginning at the fissure and extending more than half-way towards the base of the wing, below this is another faint black streak along the fold; in the upper segment, parallel with the fissure near the apex of the wing, is another well marked black streak, fringes dusky brown almost unicolorous, though there is rather a fainter line marking the border of the wing. At the extreme apex of the superior angle of the lower segment is a minute black dot. Posterior wings dusky brown, with fringes of the same colour.

A few words more on our British *Mimæseoptili*. *Phæodactylus* certainly does not belong to this group, nor to any of the Swedish genera, but perhaps some continental entomologist has, unknown to me, already characterised the genus. Its position is well indicated

nger's list between the *Oxyptili* and *Mimæseoptili*; it there follows *bergianus*, a doubtful European species which I have never seen. The true *Mimæseoptili*, *plagiodactylus* is undoubtedly British, and first discovered in Wales by Mr. Greening; the larva feeds on *Asa columbaria*. Some specimens from the Lake district have led me to resemble *M. graphodactylus* most closely.* *M. Hodgkin-* discovered by Mr. Gregson, and first described in the pages of *Magazine*, does not resemble any European species seen by me, and *fuscus* seems its closest ally; its food plant is unknown to me. *ii* is widely distributed, occurring in South Devon, in the eastern counties, and in the Lake district; it is, however, nowhere common. The larva feeds on the seeds of the pretty *Erythræa centaurium*. This, *fuscus*, well known to haunt *Veronica chamædrys*, complete our own native species of this group. They probably want more revision than any other section of the plumes.

ODIDEMATOPHORUS (Wallengren).

Antennæ of both sexes ciliated, with the basal joint very much thickened. Head obtuse, with the scales not forming a cone. Palpi longer than the head, ascending, slender, somewhat rounded, the joints distinct, the last short, the first long. The tibiæ of all the legs thickened at the apex, and those of the second pair even thickened in the middle. The spines of the posterior tibiæ short, of the second pair unequal, of the second pair almost equal. The anterior wing cleft to the middle part of their length, the segments somewhat slender, no posterior angle to the anterior segment, that of the posterior segment not well marked. Segments of the inferior wings slender, the middle segment dilated like a spoon, the fringe of the posterior segment, without black scales. The anterior margin of the upper wings flexed, the posterior margin toothless, with the whole of the lower segment both flexed and turned in so as to form a channel in which the inferior wings lie when the insect is at rest. Veins of the anterior wings nine in number, all simple; the 1st from the base, the 2nd and 3rd from the posterior side, and the 4th from the posterior angle of the cell, all running into the posterior segment, the 5th from the anterior angle, and the 6th and 7th closely approximated, and the 8th all from the anterior side of the cell, these run into the anterior segment, the 9th rises alone from the base. The 1st, 6th, 7th, and 8th veins are very slender. The cell distinct, closed. The transverse veinlet very narrow, arched, with its convexity turned towards the base of the wing.

The only Swedish, and the only British, species of this genus is *O. lithodactylus*. In Sweden, the larva feeds on *Inula salicifolia*; in England, on the well-known *Inula conyza* (or, as it is sometimes termed, *Conyza squarrosa*) and *I. dysenterica*.

(To be concluded in our next.)

* The larva of *graphodactylus* should be looked for on the seeds of *Gentiana*. — R. C. R. J.

OBSERVATIONS ON THE ECONOMY OF THE BRITISH SPECIES
OF *SCOLYTUS*.

BY T. ALGERNON CHAPMAN, M.D.

1. *SCOLYTUS RATZEBURGII*, *Janson*. It is somewhat unfortunate that I should at the commencement of my observations be compelled (after the manner of a certain chapter "On the Snakes of Iceland") to omit any remarks upon the very first species: Coleopterists, however, are well away that *S. Ratzburgii* has hitherto occurred with only at Rannoch, in birch trees; and further particulars of it will, of course, be found in the "Entomologists' Annual" for 1856, p. 86, which Mr. E. W. Janson introduced the species. All our remaining *Scolyti* I have found in this district.

2. *SCOLYTUS DESTRUCTOR*, *Ol.* This, the next largest in size after *S. Ratzburgii*, and the commonest of our species, may be found early in June making its galleries of oviposition in any elm trees felled during the previous winter, and usually in such numbers as to ensure the destruction of the bark. I do not recollect to have seen it on timber smaller than 8-in. in diameter. The female makes her way along the bottom of some crack in the bark, often by widening it for some distance, before commencing to burrow, so that the real opening of the gallery is some distance from where the little heap of out-turned frass lies which marks its orifice.

The male is present for only a brief interval, viz., after the burrow is well commenced, but before any eggs are laid, and I once found a pair *in cop.* at this period. The burrow is usually about three inches long (very rarely five inches), almost always close to the wood and slightly encroaching on it. Its construction occupies about three weeks. The eggs are laid along either side close to the bark, the cavities in which they lie being somewhat irregular, not nicely fitting the egg as with *Hylesinus*. The eggs in a burrow number about 100, but I have met with more than 160 in one. They are covered by a rather thick continuous layer of frass, which also lines the floor of the burrow, and extends partially into the roof.

The young larvæ, starting at right angles to the parent gallery which is parallel with the axis of the tree, form a very regular "typograph," at least in those somewhat rare instances, in which contiguous broods do not interfere with each other. Most of the larvæ are full fed towards the latter part of July, and I daresay that, in favourable seasons, there are sometimes two broods in a year. A certain propor-

sume the pupal state at the end of the larval burrows, become and emerge during August; but what becomes of these beetles I do not know. I find no trace either of their ovipositing during the autumn, or of their hyberuating; for, though *S. destructor* begins its operations earlier than the other *Scolyti*, it is several weeks later than *Hylesini* and other bark beetles that pass the winter in the perfect state. The greater number of the larvæ when full fed burrow about an inch into the wood, where they form a little longitudinal tunnel, the entrance of which is tightly filled with frass, and in this they pass the winter in the larval state, completing their transformations in the spring, and emerging about the end of May. In woods with tolerably thick bark, they sometimes form their hybernacula in the latter.

The object, though not the cause, of this difference in instinct between the beetles emerging in autumn, and those remaining as larvæ in the spring, is obvious.

The bark, especially when riddled by *Scolytus*, soon becomes loose from the action of the weather during the winter, and, when it falls, the birds and numerous enemies quickly remove all exposed larvæ; but those buried in the wood are quite safe, the little circles of frass marking their openings, when the wood has lost the slight staining it receives from the decomposing bark, being hardly visible, though the little circles of white wood frass in the removed bark, are very conspicuous. I do not remember having seen a *felled* elm trunk that *S. destructor* had not attacked, frequently whilst still trying to throw out shoots; I have never seen a trace of it in healthy growing trees; these are supposed to resent and repel the attacks of the *Hylesinidæ* by pouring sap into their burrows; and, in the case of *S. pruni*, I have observed burrows less than an inch long, some of which, containing a few eggs already laid, had been abandoned uncompleted by the beetles, apparently on account of the presence of a fluid which must have been exuded, as no rain had fallen to account for it: these burrows had been formed in bark that was still nearly healthy, though near some dying wood which had doubtless attracted the beetles.

3. *SCOLYTUS MULTISTRIATUS*, Marsh. This also lives in elm, and is usually found in the same logs as *S. destructor*, though also occurring in smaller ones down to four inches in diameter. It is much more scarce than *S. destructor*, one of its burrows being found for fifty feet of the latter insect. The burrows, similarly to those of *S. destructor*, start from the bottom of a crevice in the bark; they take a longer

diagonal course in entering the bark, before assuming the typical longitudinal direction, and though usually, do not always, lie close to the wood. Though much smaller in diameter than those of *S. destructor*, they are nearly as long, and I have seen one four inches in length. The number of eggs laid in a burrow is about a hundred; they are deposited behind a continuous layer of frass, which does not encroach on either the floor or roof. The period of oviposition is about a week later than that of *S. destructor*. I have several times found a male and a female beetle in the burrow when it was less than half-an-inch long, and before any eggs had been laid, but never after that period. The larvæ form their hybernacula in the thickness of the bark, hardly ever in the wood. *S. multistriatus* is a much less hardy insect than *S. destructor*, and of the species of *Scolytus* I had in captivity last winter, *multistriatus* is the only species of which I failed to rear even a single specimen. Moreover, I have observed that in a state of nature, but a comparatively small proportion arrive at maturity, which to some extent accounts for its rarity. I have never observed any indication of autumnal specimens.

4. *SCOLYTUS PRUNI*, Ratz. I have met with this species (usually considered a rare one) in apple and pear trees, and have found its abandoned burrows in apricot. It is said to affect various fruit trees. In an apple tree in which I have found it had been slowly dying, successive strips of the bark from top to bottom of the tree had died year after year, and it was in the last strip that *S. pruni* had burrowed and completed the death of the tree; I have met with traces of its having sparingly attacked the previous strips.

Unlike the other species of the genus which make nearly uniform cylindrical burrows (there is often a trace of a diverticulum near the entrance of *S. destructor's* burrow), the first part of the burrow of *pruni* is a nearly square chamber, as if two burrows had for so far been placed side by side. I have found the male beetle in this cavity in burrows little more than begun, and in others nearly two inches long, and have no doubt that it is formed by the male beetle, who eats the reserved material as food: in none of the other species have I found the male residing in the burrow for more than a very brief period.

The remainder of the burrow is from two to four inches long, and slightly encroaches on the wood. The eggs are covered by a layer of fine frass, which usually forms merely a series of detached patches filling up the egg cavities to the level of the wall of the gallery. The larvæ almost invariably bury themselves in the wood for hibernation, and the

do not emerge till spring. They are the last of the genus to emerge, coming out towards the end of June, whilst *S. destructor* has been out for several weeks. This species is by no means hardy, for a large proportion of the broods die; but it is not so delicate as *S. multistriatus*.

5. *SCOLYTUS RUGULOSUS*, Ratz. Though hitherto accounted very rare, this species must always be, however, more common than *S. pruni*, because it is much hardier; whilst *S. pruni* prefers large trees, not entering wood smaller than three inches in diameter, *S. rugulosus* burrows in all, even in branches which are mere twigs, and finds abundant pabulum, where the other insect would starve. I have never detected *S. rugulosus* in the living tree, and do not believe either it or *S. pruni* is injurious to orchards. It comes out about a week before *S. pruni*, but is later than the other species of the genus. This insect is notable amongst the *Hylesinidæ* for not hiding the entrance of the gallery of oviposition; in a stick infested by it the openings of these may be readily seen, whereas usually they are well hidden in some crevice of the bark, as for example is the case with *S. destructor* and *multistriatus*, in neither of which can the opening be detected, except during its formation, and then by the frass lying at the entrance. This partly depends on the fruit trees attacked often having very smooth bark.

The gallery is longitudinal and rather more than an inch in length, and is lined all round with white frass from the wood, on which the burrow slightly encroaches, and not with frass from the bark, as in the other species, making the gallery when opened very conspicuous against the dark coloured bark beside it. The eggs are laid on either side, behind the frass; their numbers seldom reach 80. When not crowded together the larvæ make a tolerably regular "typograph," and burrow into the wood to hibernate, sometimes to a depth of nearly half-an-inch.

When the bark is thick, they sometimes, like *S. destructor*, hibernate in its thickness.

6 *SCOLYTUS INTRICATUS*, Ratz. This species, according to my experience, is, after *S. destructor*, the most common species, and cannot be considered scarce. It seems, also, to be not so closely allied to the other species as they are to each other, having more rounded outline, and less of the typical quaint truncated form. It feeds on oak, and differs from the other species in habit, by making a transverse instead of a longitudinal gallery of oviposition, which, in comparison with the

size of the beetle, is also much shorter than theirs, being often only about an inch in length. The eggs are laid along the sides and covered by a layer of frass, which is continuous over the roof of the burrow. The eggs are fewer than in the other species, seldom exceeding 6, and averaging much less. The larval burrows often lie perfectly parallel with the fibres of the wood, for nearly their whole length of about 8 inches. The larva does not follow the usual instinct of the genus in burrowing into the wood to hibernate, but is satisfied with making a tolerably deep depression, so that it is exposed on removing the bark, and I observed last winter that the birds did not wait for the weather to remove the bark, but picked it off themselves to secure the dainty morsels within. I have only observed it in oak branches broken off by the wind (and not in all these), and I have never seen it in felled timber or in growing trees. It is probable that, to suit *S. intricatus*, the wood must have been cut (or blown down) for some particular time, and, as the beetle oviposits in the middle of June, only that wood was attacked which was separated from the tree at a later period than that at which oak is usually felled. An aberration of instinct of this species in confinement is worthy of notice. I placed a number of beetles within some oak sticks, and several of them formed galleries of oviposition, but one of them formed the gallery longitudinally as the other species of the genus do, which it never does naturally, and another assumed the habit of still more widely separate species of the *Hylesinidæ*, by making its burrow in the solid wood, the eggs and frass were disposed as in the normal burrow, excepting that several eggs were placed beneath the frass of the roof. In no case did I observe both beetles in a burrow, and, from what I saw, I have no doubt that pairing occurs after the burrow is commenced, but without the male entering it.

In conclusion, I may observe, that in all the species the female beetle dies in the burrow after oviposition is completed. All the species have a fashion of placing their foreheads against other individuals and giving a thrust by pushing forwards the jaws. They employ this process to remove another beetle from a station they desire to occupy; it appears, also, to be an expression of anger, sometimes two beetles having an encounter in this way, and they use the same movement in recommending themselves to the other sex.

S. destructor, *intricatus*, and *pruni*, are able to squeak audibly by a rapid movement of the abdomen against the elytra, *intricatus* making the loudest sound.

The *Scolyti* are much infested by parasites, especially by *Hymenoptera* of the family *Chalcididæ*; *S. pruni* and *intricatus* lose a large

on of their broods by their attacks, but *S. rugulosus* was, of all species bred, the most copiously attacked. On removing a piece from a stick containing them, numerous larvæ of the parasites were visible, which had devoured the larvæ of the beetles, before they entered their hybernacula in the wood, all those that had escaped parasites having done so.

The parasites represented at least half the broods; I bred from half a dozen species of *Chalcididæ*, *Cheiropachus quadrum* being the most numerous. The greater liability of *S. rugulosus* to attacks from parasites has probably a close connection with the fact I have already mentioned, that the entrances of its galleries of oviposition are very obvious.

Mr. Rye informs me he often finds *Homalota coriaria* in the wet saw-logs of *S. destructor*.

W. H. C. MORGAVENNY, July, 1869.

ON *CENTROPTILUM*, A NEW GENUS OF THE EPHEMERIDÆ.

BY REV. A. E. EATON, B.A.

A careful comparison of the mouth organs of the nymphs of nearly all the British genera of *Ephemeridæ* leads me to modify the plan of classification which I drew up last year, in one or two important particulars. The arrangement then proposed by me was based principally on the structures of the imago, which seem to serve as a test (not altogether satisfactory) of their affinities to each other.

The most considerable changes that will have to be made are the transposition of *Cænis* and *Tricorythus* to the *Leptophlebia* group, to which they seem to be closely united by means of the S. American *Potamanthus inanis* of Kollar's M.S., Pictet, 1843-5; and the reduction of *Phlonurus* to the *Cloëon* group. Whether *Oligoneuria* and *Lachlania* should accompany *Cænis* or not, is a point I am unable to decide upon without an examination of their preparatory states; and these are at present unknown. The family seems separable into three principal groups of genera:—(1) those with fossorial nymphs, with the mandible produced externally into a porrect spine; (2) those with nymphs which crawl about the river-bed, whose females, when adult, have a ventral lamina slightly produced out of the apex of the penultimate abdominal segment; (3) those whose nymphs can run nimbly about the water-plants and river-bed, and swim rapidly.

The separation of *Centroptilum* from *Baëtis* is a mere alteration in the detail of my former plan, and does not affect the general arrangement.

Genus CENTROPTILUM,* n. g.

Sp. typ. *C. luteolum*, Müll.

Syn. *Ephemerella*, p., Müll., 1776.

Cloëon, p., Ste., 1835-6; *Cloë*, p., Burm., 1839.

Baëtis (Leach), section A. Etn., 1868.

Diagnosis.—Nymph agile, with seven simple pairs of undivided branchial plates. Upper maxillary palpus slender, rather long, 4-jointed, with the first the shortest, the second long and equal in length to the other two taken together which are sub-equal to each other.

The sub-imago assumes the same posture as *Baëtis* when reposing.

Imago similar to *Cloëon*; but with four wings. Hind-wing very narrow, with a long costal process, and two simple longitudinal veins.

Distribution.—The Palæarctic and Nearctic regions. Two European species are described, one of which (*C. luteolum*) occurs also in Hudson's Bay Territory. Besides these, there are an English and a Carinthian species known to me, undescribed.

Unfortunately I cannot just now lay my hands upon either specimens of the nymph or preparations of the mouth organs of *C. luteolum*; therefore I am unable to speak positively about the structure of the labium and lower maxillæ; but, so far as I can recollect, these are more like those of *Baëtis* than of *Cloëon*. The labrum is widely retuse, as in *Ephemerella*.

In *Cloëon* the palpi are two-jointed, with sub-equal joints: the upper maxillary palpi are very slender, filiform, and rather longer than their maxillæ: the lower maxillary palpi are slightly depressed, and somewhat expanded towards their oblique tips; and their maxillæ are a little longer, but no broader than the divisions of the labium. The labrum is narrowly emarginate.

In *Baëtis* the palpi are likewise two-jointed, with joints sub-equal to one another: the upper maxillary palpi are slender, of tolerably even diameter throughout, and not so very long: the lower maxillary palpi are depressed and broadly expanded towards their rounded tips, the basal joints being sub-cylindrical and stout; their maxillæ are long and much broader than the somewhat subulate divisions of the labium. The labrum is narrowly emarginate. Professor Pictet's figure of the labium and lower maxillæ with their palpi (Pict. *Ephem.*, pl. xxxvi), is not accurate.

The mandibles are much alike in all of these three.

Ashbourne, Derbyshire.

15th September, 1869.

* Derivation.—(Gr.) *Kentron*, a spur, and *ptilon*, a wing; so named in allusion to the costal process of the hind-wing.

to the List of British Coleoptera.

BEMBIIDIUM MARITIMUM, Steph.—Frequenting the banks of the rivers and streams capture frequently a *Bembidium* allied to, but distinct from, *B. femoratum*. I will, for the present, speak of as “No. 1,” is, on the average, larger than *femoratum*, and has the head, thorax, and dark portions of the body a distinct metallic green colour; while these parts in *femoratum* are of a brassy colour: No. 1 has, at the least, three joints at the base of the antennæ entirely pale, and the bases of the following joints more or less pale; while in *femoratum* at most the two basal joints are entirely pale, and the base of the third more or less so. The antennæ of No. 1 are markedly longer than in *femoratum*, and the colour of the palpi is much paler. Moreover, in No. 1, the tibiae are broader in proportion to their length than in *femoratum*, and flatter than in *femoratum*. In No. 1, the legs are generally entirely pale (but sometimes the thighs are a little clouded with pitchy in the middle); while in *femoratum* the femora are always pitchy. The careful examination of a long series of these insects has convinced me that we have here to do with two really distinct, but closely allied, and in some respects variable, species.

In his “Illustrations,” and in the “Manual of British beetles,” Stephens has described a *Bembidium* (*Peryphus*) *maritimum*, closely allied to *femoratum*, and named by Mr. Rudd on the banks of the Tees; and, though the descriptions in both are characterized by that looseness and want of precision which so greatly characterize Stephens’ descriptive works, I am of opinion that this *P. maritimus* of Stephens is the species I have above alluded to as No. 1; and consider that, in the absence of any opposing reason, the Stephensian name should be adopted for this insect. A reason, unfortunately, exists; for there stands in the European catalogue a *Bembidium maritimum* of Küster; and, although the description of this species is more frequent to Stephens’, yet the inadequacy of the latter author can scarcely prevent us in making the change, which the adoption of the name *maritimum* for a species allied to *femoratum* would render imperative. Schaum, moreover, informs us that *Peryphus maritimus* is represented in the Stephensian cabinet by two examples of *B. bruxellense*, one of *concinnum*, and one of *littorale*!

Duval, in his monograph of this genus, has assigned (it would appear without sufficient reason) *P. maritimus* of Stephens as a synonym to *B. concinnum*, and is followed in this respect by Harold and Gemminger in their general catalogue. In Waterhouse’s synonymical catalogue, *maritimus*, Steph., is given under the head of *femoratum* (following Dawson).

Duval, when speaking of *Bembidium femoratum*, alludes to a variety of that species, coming from the Pyrenees and from England, which he at one time supposed to be a distinct species, and proposed to name *B. puellum*, but afterwards supposed he had connected this form satisfactorily with *femoratum*. The characters he gives for this variety in some respects agree with the insect I have been describing of above; but in other points they disagree; thus, as no sufficient description exists of Duval’s *puellum*, and it is, also, as I say, doubtful whether it can be assigned to the species under discussion; as Stephen’s name of *maritimum* (likewise doubtfully appertaining to this insect) is not available; and as no other description will apply, it seems to me that I am justified in giving a name to the insect in

question. The following diagnosis (to be contrasted with the diagnosis of *femoratum* in Schaum's Ins. Deutschlands), taken in conjunction with the distinctions from *femoratum* I have pointed out above, will suffice to characterize it.

B. ANGLICANUM. *Viridi-æneum, sub-depressum, antennarum articulis ad minimum tribus basalibus, pedibus, palpisque rufo-testaceis, horum articulo penultimo infuscato; prothorace sub-cordato, basi sub-lævi; elytris testaceis, fascia media medium, margineque viridi-æneis, punctato striatis, striis lateribus et anterioribus evanescentibus.*

Long. 2—2½ lin.

Var. femoribus medio infuscatis.

GYRINUS SUFFRIANI, Scriba. This species is allied to *G. natator*, and is nearly equal in size to the smallest varieties of that species, but is readily distinguished by the very different punctuation of the elytra, the punctures of the striæ being obsolete towards the apex, but deep and distinct at the base. I have captured single specimens at Dumfries and Horning, and obtained a small series from Desvignes' collection; one of these I sent to Mr. Crotch, who has kindly compared it with specimens of *G. Suffriani* which he received from Herr Scriba, and finds that they agree in every respect.

ALEOCHARA LATA. Though, at the present time, this insect appears to be considered without doubt a variety of *A. fuscipes*, it is nevertheless, in my opinion, a distinct species therefrom, and can be distinguished by positive characters. In *A. fuscipes* the hind-margin of the dorsal plate of the 6th abdominal segment is slightly emarginate in both sexes, rather more so in the male than in the female; in *A. lata* it is completely rounded in both sexes. In *fuscipes* this same hind-margin is fringed with short ferruginous cilia, while in *lata* these cilia are black, and long in the male and short in the female. In *fuscipes* the ventral plate of the 6th segment is rounded at the hind-margin in both sexes; while in *lata* it is rounded in the male and emarginate in the female. These characters, in conjunction with the broad form and dark elytra of *A. lata*, are, I think, quite sufficient to establish its claim to a place as a distinct species from *O. fuscipes*. Gravenhorst described *A. lata* on specimens from N. America; so I am unable to say whether our British species is really conspecific with the American one; if this should prove to be the case, so, it will be necessary to find another name for the European insect.

ALEOCHARA FUMATA. I have no doubt this insect is only a variety of *A. brevipennis*, as I have all the intermediate forms, and moreover can find no characters to distinguish the most typical *fumata* from *brevipennis*, except size and colour.

D. SHARP, Eccles, Thornhill, September, 1869.

A few additions to the Coleopterous Fauna of Lundy Island.—During a sojourn of a month at Ilfracombe, I paid two visits to Lundy Island: curiosity alone would have induced me to explore this isolated granite block, but I was extremely desirous of ascertaining what Aculeate Hymenoptera were to be found on it in the month of August. I read, some years ago, with great interest, Mr. Wollaston's notes on the Coleoptera found there by him in the month of June, 1844, from which it appears that in five days he captured 63 species. It is a fact, alluded to in those notes, that one may start for the island frequently, but that landing on arrival there is a matter

uncertainty; I was extremely fortunate in being able to do so on both my
 ons. The first insect that I saw on the island was *Bombus hortorum*; not a
 as I might or fancied I might expect every species of the *Apidæ*, but the
 le insect, in stature and array, that disports in the meadows of Hampstead
 ghgate. Everything on the island had, to my eye, a stunted appearance;
 ere are none, but the few bushes that I found had certainly a dwarfed
 ance; the black-berries, also, being of the smallest dimensions. It is not
 ention to give any list of the *Hymenoptera* in the present communication,
 rely to mention a few species of *Coleoptera* not contained in Mr. Wollaston's
 ; one insect, therein mentioned as being uncommon in Devonshire, but abund-
 dy, viz., *Cetonia aurata*, I, also, found as late as the month of August; but I
 found it in Devonshire.

The first coleopterous insect that I found was *Ocyptus olens*; on turning up
 s in search of ants, this insect was to be found in abundance, yet it does not
 r in Mr. Wollaston's list; June being, I suppose, the interregnum between
 spring and autumnal broods.

The following species also do not appear in that list: *Nebria brevicollis*, found
 r stones, not uncommonly. *Calathus cisteloides*, under dried horse droppings.
omenus pallipes, under rubbish in an almost dry watercourse. *Anchomenus*
us in company with the former. *Pterostichus nigrita* and *Anisodactylus vino-*
, under stones. Agabus bipustulatus, under stones in an almost dried up pond.
 ve no doubt that I might have doubled or trebled this list, had I used the
 ing or sweeping net; but I was not intent on this description of game, and
 as I have enumerated were taken whilst searching for ants.—F. SMITH, 27,
 amond Crescent, Islington, August, 1869.

On Otiiorhynchus fuscipes, Walton.—It is always gratifying to have our own
 vs with regard to species confirmed by an able authority. I certainly experience
 on reading Dr. Sharp's observations on *Otiiorhynchus fuscipes*, at p. 107. I
 er had the pleasure of capturing this insect, but have repeatedly taken *O.*
tenebricosus. Dr. Sharp remarks, that, to render Mr. Walton's description of the
 distinctive specific characters of *O. fuscipes* perfect, it is only necessary to add,
 at the longitudinal striæ of the last abdominal segment are considerably finer
 d more closely packed than is the case in *O. tenebricosus*; this applies, of course,
 the males only, and is precisely the opinion that I indicated in my remarks at
 232, vol. ii, E. M. M. This difference of striation is the characteristic of all the
 ales that I possess, and which were given to me by Mr. Walton, and captured by
 m at Portland.

Mr. Rye, in his observations on Dr. Sharp's note, states that he has never been
 ble to find any males except those exhibiting the sexual character of *O. tenebricosus*;
 hat is, those that have the apical segment coarsely striated, although he has
 xamined many specimens that have passed through Mr. Walton's hands, including
 hose in the British Museum; unfortunately, amongst these, there are no males;
 Mr. Waterhouse's specimens I have not seen, so that I fear Mr. Rye has not
 utherto seen examples thoroughly examined by Mr. Walton. It certainly appears
 hat Mr. Walton did not detect the difference in the striation in the two species,
 since he describes the ultimate segment in both the males as "delicately striated."

With regard to Walton's *O. fuscipes* being the same species as that so named by Olivier, it may perhaps be impossible to determine, as the sculpture is differently described by different authors; but it is certain that Schönherer regarded them; and Germar observed a difference between *O. fuscipes*, Walt. & *O. tenebricosus*, but he regarded it merely as a variation. The insect which Stierlin regards as identical with Olivier's species appears to be accepted as such by continental entomologists, and such perhaps it really is; therefore Walton's species must be regarded as unnamed. I will therefore propose a name which I think will be accepted by all who regard the species as distinct; the synonymy will be as follows:—

Otiiorhynchus Waltoni, Smith.

fuscipes, Walt. (neo. Oliv.), Ann. and Mag.
Nat. Hist. (1847), vol. xix, p. 445.

fagi, Chev., Schön.

Id.

[The imposition of a new name to Mr. Walton's *O. fuscipes* seems to me to be rather premature. As insects are now proved to be found in Britain that have the sexual character of true *fuscipes*, and as that species is known to vary exceedingly in sculpture, it would appear more probable that Walton's insect should be a variety of *fuscipes* than that it should require re-naming as distinct and unrecognized. Moreover, by admitting the identity of this insect with *fagi*, which is known to be a variety of *fuscipes*, Ol., Mr. Smith does away with the necessity for giving it a fresh name. Considering it as distinct from *fuscipes*, I presume he has carefully compared it with the somewhat numerous European species in Stierlin's monograph closely allied to that insect and to *tenebricosus*. Under any circumstances I cannot regret that my inability to obtain a sight of Walton's two species, or to reconcile either of them with *fuscipes*, induced me to communicate the note which has originated the interesting observations of Mr. Smith and Dr. Sharp; as it has resulted in the tolerably certain conviction that we really do possess a good species allied to *tenebricosus*.—E. C. R.]

Captures of Coleoptera.—In the end of August last, I took a single specimen of *Triplax Lacordairii*, Crotch (*ruficollis*, Lac.), out of a hard dry fungus, near Darenth Wood, Kent (it will be remembered Dr. Power took his specimen at Erith). I also beat out of some dead branches a small specimen of *Anisoxenus fuscus* near the above place, on the same day. I have also taken, in the same neighbourhood, this year, *Tropideres niveirostis*, *Hydnobius strigosus* (2), *Scolytus intricatus*, *Hylastes obscurus*, *Opilus mollis* (several), &c.; and, in the Hemiptera, *Asopus luridus* (2), *Monanthia simplex*, *Phygadicus urticae*, &c.

In the middle of August last, I also found, near Croydon, *Agaricophagus cephalotes*, *Thalycra sericea*, *Gymnetron rostellum*, &c.—G. C. CHAMPION, 274, Whitechapel Road, London, S., September, 1869.

Captures of rare Coleoptera.—When at Sherwood, during the last summer, I captured about half-a-dozen specimens of *Cryptocephalus querceti*, by beating oak leaves, and I have taken, in this neighbourhood, a single example of *Cryptophagus serratus* from under birch bark.—J. KIDSON TAYLOR, Thorn Cottage, Lime Grove, Longsight, Manchester, October, 1869.

anninus brassicæ, Fab., an inquiline, not a gall-maker.—Mr. Rye having kindly sent me, that, of this awkwardly named beetle, the monographer of the *Ann. Soc. Ent. Fr.*, 1868, p. 333) "*qu'il y a une galle sur les feuilles du saule* (de Heyden)." I beg leave to explain, as far as my own observations go, the female pierces with the rostrum fully formed galls of a *Nematus* on the leaves of *Salix fragilis*, and deposits therein one or two eggs. The young larvæ feed voraciously on the substance of the gall, and, in their way to the centre, in many cases stifle by their crowding presence the young saw-fly larva to death; and, of course, if, at this period, the galls are removed, the inquiline is found in full possession of the limited free space within. When about half-grown, this beetle-larva has a length of about $\frac{1}{2}$ "", its colour is a pale yellow, the greenish tinge being caused by its full intestines; when full-fed it is about $1\frac{1}{2}$ "" long, but appears shorter by its usually curved position; the head is pale yellow, the head fuscous; the body sprinkled with sparse, isolated, white hairs, placed in more or less regular longitudinal rows. When full-fed, the larva drops to the ground, and, burying at once, forms there a dark, earthy cocoon, containing a coating of yellowish silk. The pupal state lasts about a fortnight or three weeks, when the beetle forces its way out by breaking the cocoon.

Some of the larvæ, which I kept in captivity, abstained from making a cocoon, instead of which they spun over a slight hollow on the surface of the ground a umbrella-shaped silken roof, beneath which they passed their metamorphosis. The roof, about three lines in diameter, possessed in the centre a round spot, so prominent, that the outline of the pupa could be dimly made out. It served as an entrance door to the perfect insect.—ALBERT MÜLLER, South Norwood, S.E., 4th November, 1869.

On the habits of Cecidomyia urticæ, Perris.—Having just bred British specimens of this midge from the well-known pale green hairy galls on the stems and leaves of *Urtica dioica*, I offer the following observations concerning its natural history, which may be considered as an unpretending supplement to the accounts published by Perris, Bremi, Loew, and Winnertz. Each gall harbours but one white larva, the alimentary duct of which gives its body a pale greenish hue. A full-fed larva, which I saw on the 22nd August last work its way out of the still closed transverse slit of the pouch, was about a line long, rather flattened; the first segment slender, beak-like, the second broader, but only half as broad as the third, the fourth to seventh segment each a little broader than the preceding, the eighth broadest, the ninth to twelfth each slightly diminishing in breadth, the thirteenth considerably narrower, the fourteenth (which is the last), oval, and less than half as broad as the thirteenth, which gives to the latter a truncated appearance. I could not discern any pubescence, but this may be attributed to my lens being not powerful enough. This same larva, placed on earth, burrowed without any delay about two lines deep, and on the 4th September, I found that it had changed into a sculptured pupa (described beneath) without spinning a cocoon, or even only a few threads; nor did its companion, which I left quite unmolested, spin at all. This fact is at variance with Winnertz's account, that this larva turns to pupa in a dense (dicht) white silken web (Linnæa, Ent., vol. viii, p. 240). Am I to suppose

that my larvæ abstained from spinning because in the glass jar wherein they kept they found themselves sheltered against any possible inclemency of weather? If so, their spinning is a faculty exercised at will, and not instinctively.

The pupa was $\frac{3}{4}$ " long, forehead broad, armed on each side with a protuberance; behind each eye and located on the thorax, one respiratory, one tube; colour of these tubes yellow, their tips fuscous; head fuscous, eyes bright shining, thorax strongly arched, pale fuscous, polished; wing-cases rounded, rather short, pitch black; feeler and leg-cases pitch black, shining; leg-cases twice as long as the feeler-cases; abdomen dirty-yellow, opaque, its upper surface reddish and somewhat darker than the rest.

The imago from this pupa, a ♀, appeared on the evening of the 12th September; its companions of both sexes made their appearance within two days afterwards, leaving the ground dotted by their protruded filmy white pupal skins and detached feeler-cases.—ID.

A Corixa flying by night.—When reading, with my window open on account of the heat, on the 27th August last, about nine p.m., when quite dark, I was considerably surprised by a female of *Corixa Wollastoni* flying to my light, around which it flew as madly as any moth, "flopping" down on the table and rising again so quickly that I had considerable difficulty in capturing it. When between my finger and thumb, it emitted an odour quite similar to that of the bed bug, but less powerful and persistent, only clinging to my digits for a few minutes. THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, September 16th, 1863.

Note on the habits of Iassus cruentatus.—My experiences with this species of *Hemipteron* do not lead me to the same conclusions as those to which Mr. B. Coquillett (p. 109) has arrived. Both last summer at Ross-shire, and this year in Inverness-shire, I have met with the species rather commonly, and always upon *birch* or *Myrica Gale*. Probably it affects other plants, but certainly the yew is not necessary to its existence.—F. BUCHANAN WHITE, Perth, October, 1869.

Parasites on the Pterophori.—Parasites are certainly rare on the larvæ of this group of *Lepidoptera*; an ichneumon has been, however, figured and described by M. Millière, and it has been my misfortune four times to have larvæ so infested. Twice the parasitism occurred in the larvæ of *brachydactylus*, sent to me from Zurich, as noted in the Entom. Mon. Mag., vol. i, p. 215. The dipterous parasite recorded as one of the *Tachinidæ*, has been kindly sent by Mr. McLachlan to Mr. Verrall, and decided by him to be a *Scopolia*, probably *S. oxypterina* (Zetterstedt). Again this spring, two larvæ of *tephradactylus* were infected, but the evil parasites which haunted them were in this case ichneumonids. They were regarded by me as the sexes of one species, but they have been named by Mr. Marshall, *Roggea bicolor* (Spinola), and *Mesochorus pectoralis* (Ratzeburg); both larvæ, as in the former case, had only a single tenant each, and, as in the case of the *brachydactylus*, they became stationary just before their time of change, and when dead, seem to consist only of a dried larva skin enclosing the parasite, and in the case of *brachydactylus* its cocoon also.—R. C. R. JORDAN, Birmingham, 24th September, 1863.

apture of rare species of *Neuroptera-planipennia*.—The following notes of
s of *Neuroptera* may prove of interest.

merobius pini, Steph. I obtained a single specimen of this rare insect from
e fir at "Redlands," Leith Hill, Surrey, on the 6th June last.

inconspicuus, McL. I have again met with this species in Addington Park,
I captured two examples on the 26th June by beating *Pinus sylvestris*.

Species would appear, therefore, to frequent the Scotch fir as well as furze.

See my note on this species in vol. v of this magazine, p. 125.

concinuus, St. At the same time and place as the last-named species, I
ed nine specimens of this local insect, all being beaten from *Pinus sylvestris*.

s not appear to continue out long, as a fortnight later I visited the same spot
ly obtained one more.

Orthochrysa capitata, Fab. This summer I have met with this rarity for the
ime during the eight years that I have collected the *Neuroptera*. I took one
men in Addington Park, at the end of June, by beating Scotch fir. When
, it has a very glittering appearance.

Chrysopa flavifrons, Brauer. I was staying at Southwold, on the Suffolk coast,
ugust, and near there I obtained two specimens of this rather scarce species
eating oaks. I saw others at the time, but did not take them.

Chrysopa tenella, Schn.—I have again met with this species. I captured two
mens at Hampstead at the end of June, and one specimen at Black Park,
s, on the 26th June.

Chrysopa aspersa, Wesmael. Mr. McLaehlan says in his "Monograph of the
sh *Neuroptera-planipennia*," that this species frequents woods. I have noticed,
ever, that it appears to prefer heath-lands which are planted with firs, and it
a habit of flying in the early dusk over the heather. It also, as far as my
rience goes, appears about three weeks later than *C. ventralis*, which species
ve always found in June in woods, and generally by beating oaks.—PERCY C.
MALD, 35, Bolton Road, St. John's Wood, 13th September, 1869.

The date of publication of Hübner's Works.—Not the least of the difficulties of
systematic Entomologist arises from the almost total impossibility of ascertain-
the dates of various foreign works originally published in parts, so as to fix the
riority of the synonyms of species described or figured in them with any degree
certainty. Hübner's works are peculiarly difficult in this respect.

The dates given for Hübner's European Lepidoptera are as follow :

1793	—	1840	...	...	...	Herrich-Schäffer.
1796?	—	1835?	...	...	...	Staudinger.
1805	—	1824	...	...	...	Hagen.

Hagen says that figs. 637—693 of vol. i, were published in 1824, thus implying
at the subsequent plates were of later date; but Hübner quotes figs. 639, 640
his own "Verzeichniss" (1816), so that the plates in question must either have
en issued previously, or Hübner must have quoted plates that were not published
r eight years afterwards. The text was apparently commenced in 1805.

The dates for Hübner's Exot. Lepidoptera are,—

1793	—	1840	...	...	...	Herrich-Schäffer.
1806	—	1824	...	...	...	Hagen.

The dates for Hübner's *Zuträge*,—

1806 Herrich-Schäffer.
1818 — 1837 Hagen.

Hübner cites vol. i. of the "*Sammlung*," in his *Verzeichniss*; and figs 83 of the "*Zuträge*." As the *Zuträge* and vol. ii. of the *Ex. Schmett.* are of different plan to vol. i, it seems that the former was commenced after the completion of vol. i. of the latter. Herrich-Schäffer's date of 1806 is evidently too early for the *Zutr.*; and Hagen's (unless Hübner cites unpublished plates) too late. Vol. ii. of the *Sammlung* is evidently subsequent to 1816.

Similar difficulties, but less serious, exist with respect to Esper, Cramer, and some other works. Any information respecting the dates of these or similar works would be most acceptable, as without more definite information than I possess at present, I cannot fix the synonymy of species described or figured by these authors with sufficient precision.—W. F. KIRBY, Dublin, August 24th.

[In my copy of Hübner's *Sammlung Europäischer Schmetterlinge*, which is in the possession of the late James Francis Stephens from the year 1840 to his death, are some valuable pencil notes as to the dates of Hübner's Plates.

My attention had been called to these more than once by Mr. Stephens in his life-time, when we were discussing (as we frequently did) whether in this or that case Hübner or Haworth had priority. Naturally, I have only concerned myself with these pencil notes in the 5th volume, but they also occur in the 3rd and 4th. In the two first volumes there are none.

The notes in vol. iii. are "Pl. 75 before 1805,
" 150 " 1816,
" 151 after 1822."

..... vol. iv. are "To plate 74 before 1806,
" " 100 " 1816,
From " 101 after 1822."

..... vol. v. are "*Pyralis* before 1801 to fig. 141,
Tortrix " 1801 " 194,
Tinea " 1801 " 258,
" 1812 " 2,3,
" 1816 " 444,
" 1822 " 450,
" 1829 " 470,
after " " 477."

I believe these calculations were arrived at from reference to other works published at such and such dates and noting where the references to Hübner's figures stopped.

Nothing is more likely than that an author would refer to his own unpublished Plates, if they were sufficiently advanced to enable him to do so. As a very good case in point, I may cite what I am actually doing at the present time. I have two volumes in the printer's hands; vol. xi. of the "*Natural History of the Tineina*," and the "*Tineina of Southern Europe*:" each of these contains references to the other, and I am quite uncertain which will be first published.—H. T. S., Sept. 11th, 1869.

currence of *Lemiodes pulveralis*, Hb.; a genus and species of *Lepidoptera* new to me.—During my stay in the Isle of Wight this season, I was so fortunate as to secure a ♀ specimen of this species, in company with *Botys flavalis*. Two others have since been taken by my brother, and one by myself, at Folkestone. The insect was kindly determined for me by Dr. Knaggs.—E. G. MEEK, 4, Old Road, E., 4th October, 1869.

This inconspicuous insect has already had a place in our Lists, on erroneous authority. Stephens, in his "Illustrations" (Haust., vol. 4, p. 55), includes it, under the name of *Botys flavalis*.—My specimens were taken in June, at Darenth Wood, several years ago, near Maldon Park, G. Wailes, Esq." But, in his British Museum Catalogue, he refers to these examples to *Botys fuscalis*. Guenée says (*Pyralites*, p. 402)—"La figure 326 de Wood, et peut-être même sa figure 323, pourraient être des individus de *Botys fuscalis*. Cependant Stephens lui-même rapporte la première au *Botys fuscalis*, et son nom doit être accepté."—Eds.]

Deiopeia pulchella at Folkestone.—On Friday last, October 1st, whilst shooting in the hills, at the back of Folkestone, and not far from where I took *sacraria* in the month of August, I disturbed and caught a specimen of *Deiopeia pulchella*. A turnip field, not far from the usual stubble, was the scene of capture. I kicked up the insect out of a strip of white turnip, between a field of swedes on the one side and a slope covered with a mixture of herb and stubble on the other; there was, however, a barley stubble at no great distance to windward. A close inspection of the vicinity produced no further specimens. When disturbed, the insect only flew a few yards at a time, but would not at first allow itself to be boxed, being exceedingly shy. On getting a hat over its head, it, however, most obligingly shammed death, and was speedily boxed. The specimen is a male in fair condition, but rather damaged in one hind-wing.

During a stay there of more than two months, I found little else worth mentioning; *Liparis chrysorrhæa* was exceedingly abundant in the Warren at the end of August, my brother and myself finding 62 cocoons (quite empty) on a single bramble bush. *Odontia dentalis* has been rather common in the Warren, but I have obtained most of mine by searching the Bugloss for its very conspicuous eggs. I have seen but few *Colias Edusa*, and only one *Hyale*. Sugaring has not been so pretty well, but then I have scarcely missed a night in the vain hope of seeing *Leucania albipuncta* putting in a re-appearance. A few *Aplecta occulta* came at the end of August, and *Agrotis puta* and *A. saucia* have been far more abundant than they were last season. *Puta* has continued from August 2nd until now, and of the latter species which came out about September 20th and is just over, I usually had eight or nine each night.—THOS. H. BRIGGS, 6, Old Square, Lincoln's Inn, October, 1869.

Leucania extranea, *Heliothis peltigera*, and *Sterrhia sacraria* at Neath.—I have had much pleasure in recording the capture here by R. Stafford, of a fair female specimen of *Leucania extranea*. He took it on September 15th, about 7.30 p.m., enjoying the sweet blossoms of *Scabiosa succisa*. He also took, on September 3rd, an unusually brightly marked example of *H. peltigera*.

I have been in the North of Argyleshire for two months, and saw many common *Lepidoptera*; the most noteworthy species being, perhaps, *Ph. lapidaria*: I found it amongst *Myrica gale*.

On the three first nights after my return home, viz., October 10th, 11th, and 12th, *Sterrhia sacraria* paid us a visit. All three were females, and have laid eggs, but I am afraid that the lateness of the season will make it a hard matter to rear the young larvæ, as my experience in 1867 showed how susceptible they are to the first frosts.—JOHN T. D. LLEWELYN, Ynisgygerwn, Neath, 13th October, 1869.

Agrotis saucia, &c., in the New Forest.—I have sugared in one of the enclosures near Lyndhurst, from September 2nd to 9th (omitting Sunday), and again on September 21st and 22nd. The weather on all the intervening days was so stormy that no sugaring could have been done, had I been here, which fortunately, I was not. Moths have been common as a rule, and *Agrotis saucia* has appeared every night in greater or less numbers. The variation among them is extreme, and many examples are very handsome: the normal *saucia* is common now, and I daresay will continue to be so, if nights are favourable. The other insects I have taken are *T. batis* (a second brood, of course), *C. diluta* (abundantly, it was on every tree), *T. fimbria* (still out), *A. pyramidea* (abundant), *N. glareosa*, *A. puta*, *croceago*, and *C. nupta*, *sponsa*, and *promissa*, the two last being, of course, much damaged and scarce. The later species are just beginning to appear, and on the 21st, *H. rhizolitha*, *A. rufina*, *lunosa*, *pistacina* and *litura*, and *X. silago* were all for the first time this season; last night again (the 22nd), these were joined by one *H. petrificata*, and I had also the pleasure of boxing a fine specimen of *Epurnia nigra* fresh from the pupa.—W. A. LEWIS, (at present at) The Crown, Lyndhurst, September, 1869.

Chærocampa Celerio at Weston-super-Mare.—A very fine specimen of *C. Celerio* was brought to me on September 16th, by a lady, who caught it at rest in her drawing-room.—M. A. MATHEW, Weston-super-Mare, September 30th, 1869.

Acronycta alni at Derby.—On the 19th of August, I took a larva of *A. alni* which spun up the next day in an elm leaf. It was crawling on some railing under wych-elms. I found one last year on the same road, but it was injured and died.—G. BAKER, 47, Kedleston Street, Derby, September, 1869.

Eupithecia fraxinata at Edinburgh.—A few larvæ of this rather scarce species were beaten out here at the end of August. Some were full-fed, and three belonged to the coloured varieties.—ANDREW WILSON, 21, Young Street, Edinburgh, 16th September, 1869.

Aplecta occulta at Edgware.—In the first week in September, I took a single specimen of *Aplecta occulta* at sugar in my garden, and since my note of the 15th September (page 114), I have taken three more specimens of *Agrotis saucia*.

It may be worth noting that of a dozen *C. nupta* which I have taken at sugar this autumn, ten have been upon one particular lime tree, the only side of which that I can sugar faces the north-west. I have regularly every evening, when I have been at home, sugared two large oaks and two limes in my garden, and have taken only one *nupta* upon one of the oaks, and one upon the other lime tree. The four trees are only a few yards apart, and upon them I have taken this year and last between sixty and seventy species of *Noctuæ*.—ARTHUR COTTAM, Stone Grove Cottage, Edgware, October 1st, 1869.

as *Edusa near Manchester*.—I have seen seven or eight specimens of *C.* this year in the Bollin valley. I think it has not been noticed there before, collectors to whom I have spoken on the subject seemed to doubt my identification of the species.—J. R. HARDY, 118, Embden Street, Hulme, Manchester, 1869.

on the larva of *Peronea rufana*, W. V. (*autumnana*, Hüb.).—As the larva of this species seems little known, I may state that in the autumn of last year, I saw two specimens of the var. *bistriana*, from larvæ taken on white poplar, in a field, between one and two miles from the Wimbledon Common locality.—W. LONGSTAFF, Southfields, Wandsworth, S.W., October 9th, 1869.

on a food-plant of *Eupithecia albipuncta*.—I have found the larva of this species upon *Lythrum salicaria* in Coombe Wood. I do not remember noticing this as one of the food-plants of this species.—ID.

Description of the larva of *Nephoteryx angustella*.—On September 30th, 1868, Mr. Achin kindly sent me two larvæ of this species feeding on the fruit of *Prunus europæus*, and from them I have drawn up the following description:—The full-grown larva is five-eighths of an inch in length, cylindrical, and somewhat plump, the two hinder segments rapidly tapering almost to a point, the second tapering a little to the head, which is small and flattened; the segmental divisions rather deeply defined.

The ground colour of the body and legs is a flesh tint, having the slightest tinge of yellowish-green in it; on the upper surface there are five longitudinal bands of dull red-brown markings, extending on each segment from its commencement to about two-thirds of its length backwards, and leaving the remaining third of the segment in appearance like a pale band; on each segment from two to five, the markings are to be seen as follows: the dorsal commencing broad, and becoming narrower, and finishes behind in a fine point; the sub-dorsal markings, on the contrary, commence with the point of a wedge shape, growing irregularly backwards and intersected near their base by transverse lines of the ground colour; on the 12th segment these sub-dorsal marks unite behind, and on the 13th they are darker in colour; below the sub-dorsal series comes another, very similar in appearance, but arranged with the broad part at the beginning, and of the same colour. The head is dark brown, and there is a broad brown plate on the 2nd segment with a black oval spot on each side of it behind.

The tubercular dots are not conspicuous, being of the same colour as the ground markings in which they are placed; but each of them is furnished with a minute flesh-coloured hair. The spiracles are exceedingly small, of a pale purplish-brown, invisible without a lens.

The larvæ spun up within rotten wood, and the perfect insects appeared on October 18th and 26th, 1869.—W. M. BUCKLER, Emsworth, October, 1869.

Note on the food of the larvæ of *Scoparia* and *Crambus*.—Mr. Gregson's remarks (see p. 116) remind me that I intended giving the readers of the Magazine some information on the finding and rearing of these larvæ—to the end more especially that

Mr. Buckler's gallery of larva-portraits might be benefited. My experience is small, that I trust Mr. Gregson will kindly tell us his *modus operandi* in finding and rearing these larvæ. It is probable that all (or nearly all) mosses are eaten by the larvæ indifferently, for I have found some of the species he mentions feeding on different mosses from those he names, e.g., *S. muralis* on *Hypnum cupressiforme*, *Dicranum scoparium*, &c., *Crambus falsellus* on *Tortula (Syntrichia) intermedia* and *auralis*, *S. truncicolalis* on *Dicranum scoparium*, &c. &c. I have not found any larva feeding on the *Hepaticæ (Jungermanniæ)*, or on lichens. The time for looking for them is of course spring and early summer, and the localities that I have found most productive are shady rocks, large boulders and walls, especially on the north side, as most mosses grow there. To find the larvæ, peel off the moss and examine the under-side of it. If larvæ be there, the galleries of silk slightly spun upon the moss and the frass will indicate their presence. To rear them, I find the best plan is to place the tufts of moss in a jam-pot with ground top, and cover with a piece of glass—the moss will not require moistening. The perfect insects will appear at intervals during the summer. Probably, if the larvæ are young, some fresh moss should occasionally be put into the jam-pot. Another Cryptogamivorous larva, not often seen, is that of *Nudaria mundana*. To find this note some wall of loose stones (a "dry stone dyke") where the imago is abundant, and in May lift the upper stones and examine their under-sides. The larvæ will be found feeding on a green confervoid growth that covers the stones.

F. BUCHANAN WHITE, Perth, October, 1869.

Captures at Yarmouth, with notes on the earlier stages of Crambus fascelinellus.—Some time last June, my young friend, Mr. Geo. Hunt, went over to Yarmouth for a days' collecting, but, the weather being cold and windy, could get very little except *Eubolia lineolata*. He, however, chanced to notice that the wind in blowing away the loose sand had exposed several cocoons, and by disturbing the sand he found a few more. Of these he kindly brought several to me, but, supposing they belonged to some common *Noctua*, I took no steps to obtain more, till on July 13th I was startled by the appearance of a lovely *Crambus*, which, though new to me, could be no other than *fascelinellus (pedriolellus)*.

Being unable sooner to leave home, I went on the 19th to Yarmouth, and after searching for some hours with very little success, at last found the cocoons in comparative plenty, and collected a considerable number.

These sandhills (locally called Denes) are the most barren that I have ever seen; there is very little even of the Marram or bent (*Amphiphila arenaria*), and what there is is stunted. *Ononis spinosa* in patches, *Galium verum*, *Convolvulus soldanella*, and a curious square looking succulent plant, with a berry-like capsule at the top, are the most conspicuous plants, and in those places in which the sand is too loose even for these, scattered blades of *Triticum junceum* only are to be found.

This grass appears to be the food of *fascelinellus*, and from observations made while searching for the cocoons, I gather that the larva lives under the surface of the sand in a silken tube of considerable size, that it feeds especially on the central shoot of the grass gnawing it down to the root, and that this dry pabulum suffers little apparent change in passing through its system, since the hinder part of the tube is generally stuffed with frass closely resembling bitten up morsels of grass.

When full-fed, the larva spins a long cocoon in a perpendicular position in the tube, and attached at right angles to the tube, the upper end being, I believe, to the surface; but this is a condition liable to constant alteration from the force of the wind.

On this occasion (July 19th), I found a few of the moths on the sand, and many had emerged from the cocoons before I got home.

On several days afterwards, as they did not emerge by any means as freely as I had expected, I went to Yarmouth again, and found a few cocoons still containing pupæ, and a large number of the moths sitting on the bare sand, generally at the bottom of a slight mark or other slight depression which would shelter them from the wind. One specimen was to be seen on a grass blade, and to this habit of sitting on the sand under the direct rays of the sun, I attribute their almost invariably late appearance.

To capture them it was only necessary to carefully examine the sand, and box them when found; no net was necessary, as they very seldom attempted to fly. The sluggish moths I have seldom seen, and it is not to be wondered at that the species remains excessively local. It seems to continue out a long time, as I took specimens as late as August 20th.

On my first and second visits I also found a few cocoons of *Agrotis cursoria*, which are oblong and egg-shaped, and the little stumpy ones of *Anerastia lotella*, and of the species the perfect insects were very common. Among them were two or three lovely varieties: one, very rare, dark grey with a broad whitish costal streak, another bright reddish with a similar streak, and a third reddish with whitish veins.

Except a specimen of *Gelechia distinctella*, nothing else of moment occurred during these two visits, but, on August 20th, the *Agrotis* being out, I obtained the most interesting varieties I ever saw of *cursoria* and *tritici*, both of which were very abundant; *oxalis* and *aquilina* also occurred but rarely; *Crambus latistrius*, which one generally finds in heaths with extensive heaths, was not scarce; and the lazy little *Eubolia lineolata* (in its brood) was constantly to be seen flying a few yards, and then lying on its side on the sand with its wings up, feigning death.—CHARLES G. BARRETT, Norwich, October, 1869.

Cymatophora ocularis, *Xylomyges conspicularis*, &c., near Worcester.—Of five specimens of *Cymatophora ocularis* I obtained last autumn, two attained the perfect state on the 25th of May, proving to be male and female, and paired about 10 p.m. of the same day; by 7 o'clock next morning they had separated. During the night of the 25th the female deposited ten eggs, on that of the 29th ten more, and several more on that of the 30th. She was quite lively for nearly a week after, but laid no more eggs. I fed her on sugar moistened with wine. The larvæ hatched during the 8th, 9th, and 10th of June, coming forth by day and night indifferently. Half of them have since died, the others are doing well. I have forwarded two or three to a gentleman who will, if all be well, in due time give an account of them. The eggs were rather large in proportion to the moth, somewhat flattened, of a colour bluish-white; they were deposited on the upper-side of the leaves of the larva (a twig of which I enclosed with the moth), near the edge, towards the middle.

It may be worth while to mention that I dug a pupa in the autumn which bore a strong resemblance to that of *Axylia putris*, but appeared a trifle larger: as the moth emerged from it I examined it one day this week, and, finding it dead, stripped off the skin from the wings and thorax, when I could plainly see it was *Xylomyges conspicillaris*. The pupa of the latter insect has been said to resemble that of *Tæniocampa*. My object in these remarks is to point out its likeness to that of *A. putris*.

In May I bred two or three each of *Nepticula catharticella* and *Tischeria augusticolella* from larvæ collected near here in the autumn.—J. E. FLETCHER, Worcester, 2nd July, 1869.

Captures of Lepidoptera at Glanvilles Wootton.—The following is a list of some of my best captures this season:—*Exapate gelatella* (January 7th), *M. alternata*, *L. Servillana*, *Stigmonota internana* (bred from oak-apple*), *Pericallia syringaria*, *Leucania straminea*, *Homæosoma nimbella*, *Aplota palpella*, *Ephyra orbicularia*. I also found *Arge Galathea* (not seen here since 1836), *L. Argiolus* (not since 1840) and *P. falcula* (not since 1836), species which used formerly to be common.—C. W. DALE, Glanvilles Wootton, Dorset, September 15th, 1869.

Sesia tipuliformis in New Zealand.—Last summer I had brought to me the fragments of a moth found on the window inside a house at Christchurch, and upon examination, found it was one of the "clear-wings," and such parts as remained had very much the appearance of *Sesia tipuliformis*. I set to work to examine the currant bushes, and at length found some with larvæ mining the stems; from these I bred beautiful specimens precisely similar to *tipuliformis*. I have not the least doubt the moth has been introduced here with imported currant bushes.—R. W. FEREDAY, Christchurch, New Zealand, August 5th, 1869.

Notes on Butterflies found near Paris.—Returning to Paris after having resided many years in England—particularly in Liverpool, where I first began to collect—I fancy that my three months' experience in entomologizing in the neighbourhood of the French metropolis might perhaps interest some of your readers, and I have therefore pleasure in forwarding you some of my notes; my list would, no doubt, have been more extensive and interesting had I more leisure to devote to collecting, but I have but little of that needful; added to this, the weather has been most unseasonable here, and everyone complains of the paucity of insects.

My business place and residence being in the S.E. of the city, I have consequently confined myself to working the country in that direction, particularly a sandy tract encircled by a bow of the river Marne, and called La Varenne St. Maur, not far from Vincennes; it is well timbered, but the trees (principally oak) are mostly young.

In the same direction, but across the river, lie two large woods of Villiers and Notre Dame, which I found very productive.

I visited several times that once notorious abode of robbers, the forest of Bondy; it was at one time a famous entomological locality, but it is now being cut up into lots and being built upon, so that it is not so good a place as it was.

The following is merely a list of the species which I have captured or seen myself.

* Is Mr. Dale sure of this food-plant? The insect usually feeds on *Ulex*.—Eds.

- Podalirius* and *P. Machaon*. Several in May, had some larvæ of the latter on carrot.
- sinapis*. Common; the spring brood differs from the summer brood in the absence of the apical dark spot, just as in England. The var. *diniensis* is only the summer brood.
- cratægi*. Bred a fine ♀ from a pupa found attached underneath a currant leaf. It resembles somewhat that of *brassicæ*, but it is larger and not so angular.
- brassicæ, rapæ, napi, cardamines,* and *rhamni*, all abundant.
- gynnis Paphia*, common; the var. *Valexina* occurs here, but not commonly.
- Adippe, Aglaia, Selene* and *Euphrosyne*, all common.
- Dia*. Common in May, a second brood in August, but this year I found a second brood early in July. A pretty species.
- elitæa Artemis*. Common, not differing from the English southern type. Welsh specimens are much admired here.
- Athalia*. Common; the insect is more distinctly marked and darker in color than in England; the band below the white one, in the middle of the under-side of the hind-wing is always filled up with dark fulvous, which I find is not the case in English specimens.
- Dictynna*. This once reputed British species is common here, and is found in *Athalia*, but I confounded it with that insect and only took three, which at the time I thought were merely dark specimens of the allied species. Having given a dark *Athalia* to a friend in Liverpool, I cannot establish a comparison, but I should not be surprised to learn some day that *Dictynna* has been confounded with *Athalia* in collections, and that it is once more re-integrated into the English list. It is darker than the typical *Athalia*, particularly on the hind-wings, the fulvous markings forming the bands being very minute. The characteristic markings, however, on the under-side of the hind-wing. The central pale band is narrower and more distinct than in *Athalia*; in the centre of the fulvous band there is a distinct black wavy line (not a merely indicated one as in the other species) and a row of small black dots below it. The hind margin is pale fulvous, and not straw-colored. The fringe is distinctly chequered. The larva feeds on *Veronica agrestis*.
- M. Cinxia*, which has such a restricted range in England, is common everywhere here, but more especially at La Varenne, where the larvæ are found abundantly in dry fields about their food plant, *Plantago lanceolata*.
- Vanessa Atalanta*. Common, hibernated.
- V. Io* and *urticæ*. Larvæ abundant; the larvæ of *urticæ* are much paler than those I noticed in England, being of a bright yellow color.
- V. Antiopa*. One hibernated specimen. This is swift on the wing, and I have often recommended to smear some honey on the trunks of birches, as in that way many may be taken. I hope it may prove so. It is not a common species in the neighbourhood of Paris, the best locality being the forest of Fontainebleau.
- V. polychloros*. The larvæ are common on elm, &c., everywhere, and the pupæ can be found under the copings of walls, attached by the tail. The greater portion of them, however, are attacked by parasites, for out of two or three dozen pupæ I obtained, only five were sound. They have four gilded spots in front. The perfect insect is strong on the wing, but frequently rests on the trunks of trees in clearings.
- V. C-Album* has similar habits to the preceding, and is common.
- Apatura Iris*. Went too late after it, and saw only a few faded ones. Caught a fine var. called *Beroe*. It has only the two apical white spots, all the other white markings being absent, and is very rare here.
- A. Ilia*. Saw several. Generally a common insect, together with its var. *Clytie*. It has similar habits to *Iris*, but is less restricted to woods.

L. Sybilla. Common in all the woods.

L. Camilla. I cannot understand how any one could have confounded this the allied species. It is abundantly distinct, differing in being smaller, in more acute wings, and in being bluish-black, with a marginal row of bluish. The white band is different, and it has a conspicuous white spot in the discal cell. The under-side differs also considerably. It flies with *Sybilla*, but is common. I only got one at Bondy.

A. Galathea, *S. Tithonus*, *Megæra*, *Ægeria*, *Hyperanthus*, *Janira*, and *C. philus*, abundant.

I caught a queer variety of *Janira*; it has two large white triangular blotches in the centre of the wings on the right side.

Satyrus Mæra, which very much resembles *Mægera*, has similar habits. I got a specimen from a pupa which I found suspended by the tail to a projecting part of a wall. This pupa was light green, round, with two rows of raised yellow spots in front. There are two broods.

Satyrus Dejanira. This fine species is not common; I only took a pair at Bondy.

Cænonympha Hero and *Arcanius*. Both common, but *Hero* is very local, found only in damp places in woods.

Thecla Lynceus (*Ilícis*, Hb.). Common at Bondy in June, but I took only a few, as it resembles *pruni* very much. The males are out first. This species becomes wasted.

T. quercûs and *rubi*. Several.

P. Phlæas. Abundant.

P. Dorilis. One in May; should be common. "Blues," except *Alexis*, very scarce. Took only solitary specimens of *Alsus*, *Adonis* and *Acis*, and a few *Argio*.

N. Lucina. Several.

Alveolus, *sylvanus*, *linea*, and *Paniscus*. All common.

I have enumerated 55 species, but about a hundred are found in the neighborhood of Paris (although some of the localities are at a considerable distance; for instance, Fontainebleau is 45 miles from the capital), out of about 240 of which the French Diurni list is composed. The district is poor in the *Satyridæ* (the *Ereb* of course, being totally wanting) and *Lycænidæ*.

I seize this opportunity to apologise to those esteemed friends with whom I corresponded whilst in England, for not writing to them, and I am sure they will excuse me as I have been so very busy of late. I shall be very glad to hear from those who care to correspond with me now in Paris.—E. L. RAGONOT, 33, Rue de Buffon, Paris.

The sexes of Papilio Merope.—I have much pleasure in making known the following important evidence received this afternoon from the lips of Herbert Usher, Esq., Administrator of the Gold Coast, and which perfectly bears out Mr. Trimen's views respecting the sexes of *Papilio Merope*.

Mr. Usher was collecting *Lepidoptera* at Lagos, in the year 1862, and was on one occasion much surprised to perceive two very distinct looking butterflies copulâ, the one pale yellow, black bordered, and with long tails, the other black and white, without tails (the latter form, which he took for *Danaïs Nicarius*, but considered very abundant); this pair was presented to Mr. Freeman, late Governor of Lagos, who noted them as sexes in his collection: the fact that they were placed together in the British Museum collection, recalled the occurrence to Mr. Usher's memory.—A. G. BUTLER, 17, Oxford Road, Ealing, 22nd September, 1869.

NOTICE OF THE SKANDINAVIENS FJÄDERMOTT OF
H. D. J. WALLENGREN.

BY R. C. R. JORDAN, M. D.

(Concluded from page 125.)

PHORUS (Geoffroy).

Antennæ rather long, those of the male finely serrated, of the female very finely ciliated, with the basal joint thickened. Forehead obtuse, the feathers no cone. Palpi shorter than the head, slender, rounded, somewhat ascendant, with the joints not distinguishable. The tibiæ all slender, not equal. First pair of spines in the posterior tibiæ very unequal, the inner very long, being more than double the length of the exterior one. Anterior cleft to one-third of their length, the posterior angle in the anterior segment not very distinct. The segments of the posterior wings slender, the posterior segment without black scales in its very long fringes. Anterior margin of the anterior wings deflexed, the posterior margin not deflexed, with the whole posterior segment both deflexed and turned in so as to form a tunnel, in which the posterior wings are received, when the insect is at rest. The veins of the anterior wings nine, of uniform thickness; the 1st from the base, in the very margin, the 2nd joined at the base with the common lower margin of the veins, the 3rd from the posterior margin of the cell, and as well as the 4th, which is two-branched, arises from the posterior angle of the cell, and goes into the inferior segment, the 5th to the 7th are simple, and arise almost from the same place (the anterior angle of the cell), running into the anterior segment, the 8th arises from the anterior margin of the cell, and the 9th from the posterior margin.

The veins of the posterior wings are five; the 1st, two-branched, arising from the anterior angle of the cell, and running into the first segment, the 2nd and 3rd simple, the 2nd arising from the posterior angle, and the 3rd from the anterior margin of the cell, and ending in the 2nd segment, the 4th and 5th simple, springing from the base, and ending in the 3rd segment. The cell of the anterior wings almost open, the transverse veinlet very slender, not distinguishable. The cell of the posterior wings closed by a spurious transverse veinlet.

Of this genus, Sweden and England alike possess only one species, the well-known *pterodactylus*. Wallengren believes this to be the same as *pterodactylus* of Linné, and hence calls it *Pterophorus monodactylus*. There are two well-known varieties, in one of which the upper wings are cinnamon-brown; and in the other, a light greyish-white, more or less tinged with reddish, seem to be both described.

LEILOPTILUS (Wallengren).

Antennæ of middle length, those of the male at least very finely ciliated, with the basal joint slightly thickened. Forehead obtuse, the feathers forming no cone. Palpi either shorter or very slightly longer than the head, slender, pointed, a little curved, sometimes bending downwards at the last joint. Tibiæ all slender, not equal. Spines of the posterior tibiæ almost equal. Anterior wings cleft to the middle part of their length, no posterior angle to the upper segment, and that of the lower segments also wanting, or else most indistinctly marked. Segments of the posterior wings slender, with fringes of moderate length, the 3rd segment without black scales in the fringe. Anterior wings almost flat, posterior margin not deflexed, deflexed, so as to enclose the inferior wings when at rest, as in the preceding genus.

The Swedish species of this genus are *L. scarodactylus*, *L. tepidactylus*, *L. microdactylus*, *L. osteodactylus*, and *L. brachydactylus*. Our own British species are also five, namely, *L. Lienigianus*, *L. tepidactylus*, *L. microdactylus*, *L. osteodactylus*, and *L. brachydactylus*. There is no reason why *scarodactylus*, the larva of which feeds on the blossoms of *Hieracium umbellatum* and *H. boreale* in August and September, should not be met with in our country. The moth appears in July. It is larger than *microdactylus*, nearly equal to *osteodactylus* in size, but not so yellow; the spots are browner than in *microdactylus*, and the lower one is not exactly at the fissure, but rather below it. The most striking difference, however, is in the dark grey fringe in the upper wings of *scarodactylus*, contrasted with the pale brown fringe in *microdactylus*.

9. ACIPTILUS (Hübner).

Antennæ finely ciliated, with the basal joint thickened. Forehead obtuse, with the palpi and feathery setae forming no conical eminence. Palpi rather shorter than the head, slender, the last joint bending downwards. All the tibiæ slender, and not thicker than the spines of the posterior tibiæ unequal. Anterior wings cleft almost to the middle of their length, the segments of all the wings slender, linear, and evident without angles. Inner margin not toothed, the 3rd segment of the posterior wing without black scales in the fringe. Anterior wings flat, with the margins only very slightly deflexed. Veins of the anterior wings five in number, simple; the 1st to the 3rd arising from the base and running to the posterior segment, the 4th and 5th also springing from the base and going to the anterior segment. The 1st, 2nd and 5th veins more slender than the others. The veins of the posterior wing are four; the 1st from the base into the first segment, the 2nd from the base into the middle segment, and the 3rd and 4th from the base into the third segment. The 3rd and 4th veins are more slender; the 2nd sometimes sends off a very fine branch towards the first fissure. Cells of the wings, none.

The Scandinavian species of this genus are only two, namely *Aciptilus tetradactylus* and *A. pentadactylus*. The larva of *tetradactylus* is said to feed on *Thymus serpyllum*, in May and June. In Britain we fortunately have several more of this genus, viz., *A. galactodactylus*, *A. spilodactylus*, *A. baliodactylus*, *A. tetradactylus*, and *A. pentadactylus*. *Paludum* certainly does not belong to it, the much longer palpi and the slightly thickened tibiæ would be quite enough to distinguish it. The only insect known to me in this group as likely to pass in our cabinets undetected is *xanthodactylus*, which might be overlooked as a variety of *baliodactylus*. It may be known by its having a spot on the inner margin of the anterior wing, opposite the one on the outer margin, as well as a spot at the fissure.

re is much in this excellent monograph which would well
 rther notice, and I leave it in hopes that some one conversant
 Swedish language will take it up, and that the restoration of
 Linnean names will be investigated by some one who has the
 f discovering the truth at his disposal.
 e following list of our native plume moths, with the food-plants
 o me, may be useful, at all events, to the young entomologist ;
 e noticed that none feed on trees, the rose and the bramble are
 rest approaches to them :—

	Food-plant.
<i>Protophylla festaliella</i> (Hübner)	Bramble and raspberry.
<i>Protophylla Bennetti</i> (Curtis)	<i>Statice limonium</i> .
<i>Protophylla rhododactylus</i> (Vienna Cat.)	Rose (flowers).
<i>Protophylla dichrodactylus</i> (Mühlig)	<i>Tanacetum vulgare</i> .
<i>Bertrami</i> (Rössler)	<i>Achillæa ptarmica</i> .
<i>isodactylus</i> (Zeller)	<i>Senecio</i> , sp.
<i>gonodactylus</i> (V. C.)	<i>Tussilago farfara</i> .
<i>Zetterstedtii</i> (Zel.)	<i>Senecio</i> , sp.
<i>Protophylla acanthodactylus</i> (Hübner)	<i>Ononis arvensis</i> , &c.
<i>cosmodactylus</i> (Hübner)	<i>Aquilegia vulgaris</i> .
<i>Protophylla lætus</i> (Zeller)	<i>Andryala sinuata</i> .
<i>pilosellæ</i> (Zeller)	<i>Hieracium pilosella</i> .
<i>teucris</i> (Greening)	<i>Teucrium scorodonia</i> .
<i>obscurus</i> (Zeller)	<i>Hieracium pilosella</i> .
<i>Protophylla phæodactylus</i> (Hübner)	<i>Ononis arvensis</i> .
<i>Protophylla serotinus</i> (Zeller)	<i>Scabiosa arvensis</i> .
<i>zophodactylus</i> (Duponchel)	<i>Erythræa centaureum</i> .
<i>Hodgkinsoni</i> (Gregson)	unknown to me.
<i>plagiodactylus</i> (Fischer)	<i>Scabiosa columbaria</i> .
<i>fuscus</i> (Ratzeburg)	<i>Veronica chamædrys</i> .
<i>Protophylla lithodactylus</i> (Treitschke)	<i>Inula conyza</i> , &c.
<i>Protophylla pterodactylus</i> (Linnæus ?)	<i>Convolvulus sepium</i> , &c.
<i>Protophylla Lienigianus</i> (Zeller)	<i>Artemisia maritima</i> .
<i>tephrodactylus</i> (Hübner)	<i>Solidago virgaurea</i> .
<i>microdactylus</i> (Hübner)	<i>Eupatorium cannabinum</i> .
<i>osteodactylus</i> (Zeller)	<i>Solidago virgaurea</i> .
<i>brachydactylus</i> (Treitschke)	<i>Lactuca muralis</i> .
<i>Protophylla galactodactylus</i> (Hübner)	<i>Arctium lappa</i> .
<i>spilodactylus</i> (Curtis)	<i>Marrubium vulgare</i> .
<i>baliodactylus</i> (Zeller)	unknown to me.
<i>tetradactylus</i> (Linnæus)	<i>Thymus serpyllum</i> .
<i>pentadactylus</i> (Linnæus)	<i>Convolvulus arvensis</i> .
genus, <i>paludum</i> (Zeller)	unknown to me.

A few words in conclusion, even at the expense of seeming prolix. What is the true position of the PTEROPHORIDÆ? We British entomologists are apt to take the position of groups for granted, and to create imaginary links of exotic species to fill up any gap however wide; the leap, therefore, from the *Nepticulidæ* to the *Pterophori* has, for this reason, passed unquestioned, yet surely no one could reasonably believe this to be a true sequence in classification. In the list above *Chrysocorys* is classed amongst the plumes, and if this be its true position (and for such opinion I have the high authority of Mr. Stainton to back me), it is certainly a strong connecting link to the *Tineina*, my own views of the affinities of the *Pterophori* would be, in spite of this, that they were rather an aberrant group of the *Pyralidæ* than of the *Tineina* (that is, taking the term *Pyralidæ* in its widest meaning) and of these, that the genus *Chilo* was their nearest ally: but there is so much that is anomalous in the whole group that this is said rather with the view of opening a difficult question than of giving a positive opinion. Heterodox as it must appear, I have often dared to think that there was something essentially wrong in our classification of the *Lepidoptera*; as a large group they stand between *Trichoptera* on the one hand, and either *Diptera* or *Hymenoptera* on the other. With the *Trichoptera* we have at least two true points of connection, namely through the *Psychidæ*, and again through *Catachysta* and *Acentropus*; on the other side the relationship is more doubtful; yet to me, considering that the mandibulate mouth exists in the embryonic or larval stage of the *Lepidoptera*, and considering further how nearly the larva of the *Tenthredinidæ* approach to those of *Lepidoptera*, the connection seems more close between that group and the *Hymenoptera*, than the *Diptera*. If this be so, the *Sesiidæ*, though confessedly one of the most mimetic groups among the *Lepidoptera*, have a true homological resemblance rather than a mere mimetic analogy with *Hymenoptera*, and it would follow almost as a corollary that instead of beginning with *Ornithoptera*, *Teinopalpus*, and *Papilio*, we should commence with *Trochilium*, and instead of finishing with the *Pterophori*, we should end our lists with the *Psychidæ* or *Acentropus*. But the reader must remember that I must lay the burden of this heresy on my back, and not on that of the author, whose monograph has been just brought before his notice.

Edgbaston, Birmingham, November, 1869.

THE ECONOMY OF THE *CHRYSIDES* PARASITIC ON *ODYNERUS*
SPINIPES.

BY T. ALGERNON CHAPMAN, M.D.

The species of the genus *Chrysis* are, so far as is known, parasitic to wasps and bees; those which are attached (apparently, exclusively) to *Odynerus spinipes* being *C. neglecta* and *bidentata*, which are common parasites of *O. spinipes* abounds. *C. ignita*, the most abundant species of *Chrysis*, appears to lay her eggs in the nests of almost any kind of wasp to which she can obtain access, and occasionally visits those of *O. spinipes*, but is abundant in the nests of *Odynerus parietum*. *C. ignita* has also been recorded (by Mr. F. Smith) as attached to *O. spinipes*; but I have never met with it, and suspect that it is the parasite of some other and rarer species of *Odynerus*, and that its occurrence with *O. spinipes* is accidental, in the same sense as that of *C. neglecta* and *bidentata*; *C. ignita* may be said to be so. I may remark, that I was quite surprised to find *C. ignita* so rare as a parasite of *O. spinipes*; as, I often to be seen about the burrows of that insect nearly as fully as *C. neglecta* or *bidentata*, out of more than a hundred *O. spinipes* cocoons collected last winter, I found only one of *C. ignita*; this summer I have seen only three of its cocoons in the cells of *O. spinipes*. The destruction caused by *Chrysidæ* amongst the young of *O. spinipes*, roughly measured by the cocoons collected last winter, is in the proportion of one to three of those of the wasp; the proportion of *C. neglecta* to *C. bidentata* being as three to two.

On July 17th, I observed a nest of *O. parietum* with one cell open containing a nearly complete supply of Lepidopterous larvæ. A *Chrysis ignita*, flying about, settled beside the cell; and, after a brief examination with her antennæ, wheeled round, and, introducing her head into the cell, rested for about twenty seconds, doubtless in the act of oviposition. I now regret that I did not then examine the contents of the cell, in order to ascertain the fate of the egg of *O. parietum*. Three-quarters of an hour later, *O. parietum* had closed the cell with the usual earthen pellets. Two days afterwards, I examined the cell, when I found a larva of *C. ignita* a quarter of an inch long, together with the Lepidopterous larvæ stored by the wasp, but there was no trace of either egg or larva of the latter. On the 23rd, six days from the date of oviposition, the *Chrysis* larva had eaten all the contents of the cell, and was full-fed. I obtained evidence, by finding the exuvizæ, of having cast its skin three times, whilst under observation; and, from the analogy of *C. bidentata*, I believe it had done so four times

altogether. The stored larvæ had all been eaten, their heads remaining, just as when eaten by the wasp grub. The larva then a cocoon, which I know to be typical of *C. ignita*. This was the occasion on which I had a feeding larva of *O. ignita*, and the rapidity with which it fed up astonished me. None of my *C. neglecta* or *bidentata* fed up so rapidly; but the warm sunny wall on which *O. parvicornis* had built her nest may partly account for this, my larvæ of the two species having been kept comparatively cool.

C. neglecta begins to emerge from the pupa state at the same time as *O. spinipes*, namely, about the middle of May; and, by the week in June, all of both species have emerged. On examining a bank colonised by *O. spinipes* at this period, the cocoons of the previous year are found empty; but, if the day be dull, *C. neglecta* will often be found hiding away in the empty cocoons of *O. spinipes*, and usually pair together. When the sun is out, *O. spinipes* is busy constructing her canals and granular tubes, and *C. neglecta* is actively running and flying about the burrows. *C. bidentata*, however, is not to be seen, and, on closer examination, it will be found that of this parasite the cocoon of the previous year still contains the perfect insect, which does not emerge until the last of the *spinipes* brood are coming out, nearly three weeks later than *C. neglecta*. I have not seen the egg of the latter, and do not know how or where it is laid; but it supplants that of *O. spinipes*, as, a few days after the mother wasp has closed her cell stored with green grubs, it contains a young larva of *C. neglecta* busily eating that store, and no trace remains of the egg or larva of *Odynerus*. Early in July, the larvæ of *O. spinipes* and *C. neglecta* are to be found full-fed, and spinning their cocoons. As the season advances, the later stored cells appear to escape the attack of *C. neglecta*; for, in the middle of July, whilst *O. spinipes* is still busy in storing, there are comparatively few specimens of *C. neglecta* to be seen. On the other hand, *C. bidentata* is now abundant, though its oviposition has hardly begun. Towards the end of July, *O. spinipes* and *C. neglecta* are represented only by odd specimens, which have survived the mass of their brethren, though *C. bidentata* is still to be found somewhat plentifully.

C. bidentata, when about to deposit her eggs, searches for a full-grown larva of *O. spinipes*, at, or immediately after, the period of spinning. *O. spinipes*, in the completion of her burrow, fills up the mouth with clay long before the most accessible cells can contain full-grown larvæ; but it happens, that, in a large proportion of cases,

half), the wasp meets with some accident, and her burrow is uncompleted, the cell last constructed being thus only protected by the wall of clay that was to serve as a party wall between it and the succeeding one, had the wasp lived to complete her work. Such protected cells are those chosen by *C. bidentata* for her oviducal cells. I once found satisfactory evidence of *C. bidentata* having passed through half-an-inch of the clay stopping placed by the wasp in one of these cells. The parasite was in the burrow, covered with earth brought down into it by her excavation to form an entrance,—the aperture too small for the wasp to enter, but just large enough for her to pass; and in the cell thus reached by her were to be seen her eggs, which she had deposited. On another occasion, a *C. bidentata* alighted on a cocoon of *O. spinipes*; she commenced to carefully investigate them with her mandibles, and now and then to scratch away some earth partly covering them; she did not, however, deposit any egg, possibly because the cells of the cocoons were not in proper condition.

When a cocoon contains eggs of *C. bidentata*, there is often to be seen, at its upper end, a minute aperture, through which the oviducal tube of the *Chrysis* has been thrust; at other times, this aperture is wanting, simply, I believe, because the larva of *O. spinipes* had not completed spinning her cocoon when the *Chrysis* deposited her eggs within it. There is nearly always a small spot outside on the yellow silken surface of the cocoon, as if the *Chrysis* had attacked it first with her mandibles; and those containing *C. bidentata* may be selected by this mark. I have seen a number of cocoons of the *Odynerus*. One of the most remarkable points of their history is, that *C. bidentata* does not deposit one egg only in the cocoon of the *Odynerus*, but actually drops in from six to ten eggs. These do not appear to be placed in any particular position, but simply fall on the enclosed larva; and the excess in number may obviate the destruction caused by the latter, especially when its mandibles are still active, before the completion of its spinning operations. In the instance above noted, where I found *C. bidentata* in the burrow of *O. spinipes*, the cocoon of the latter contained five eggs in good condition. The wasp larva had ceased to spin, but had not yet shrunk to those smaller dimensions which it rapidly assumes soon after that period. In various other instances, I found two healthy eggs of *C. bidentata*, but often only one, the shrivelled cases of from four to eight others being found with the healthy eggs. I never found any evidence of the hatching of two eggs of *C. bidentata* in the same cell;

which, though it seems a likely, would certainly be an awkward, occurrence. *C. bidentata* remains longer than *C. ignita* in the egg-state. a number reared by me from the egg, most were hatched two days after they were collected, but one remained for three days, and another did not hatch until the fifth day, and from the time of hatching the larvæ were eleven days in becoming full-fed. The eggs of *C. bidentata* are 1.5 millimetres in length, white, cylindrical, and very slightly arched; those of *O. spinipes* are larger, 2.5 millimetres in length, yellow in colour, and more arched. I failed to detect the egg of *C. neglecta* principally, I believe, because the interval between its being deposited and hatching is so short, and also because I did not quite know what to look for it. It probably resembles that of *C. bidentata*, and is to be found at the time the cell is closed up by *O. spinipes*, and for one or two a few hours afterwards; but of this I was not aware at the proper season.

The young larva of *C. bidentata* seizes that of *O. spinipes* with its jaws, pinching up a fold of skin, and contrives to extract fluid nutriment from it, without, apparently, making any aperture in the skin until it approaches to mature growth itself. I have very carefully examined larvæ of *O. spinipes* that were thus half sucked away (I cannot say eaten), and I could find no mark at the spot whence I had just removed a larva of *Chrysis*. I have several times squeezed the *Odynerus* larva firmly, without any fluid exuding; even when squeezed almost to bursting, on only one occasion did a drop of clear fluid exude. Nor is the *Chrysis* larva particular as to where it seizes the *Odynerus* larva, any point that may offer itself to its jaws being seized.

When the devourer is nearly full-grown, and the victim is very flaccid, a process that may be called eating takes place, and the *spinipes* larva almost entirely disappears. The manner in which the larvæ of *C. neglecta* and *ignita* and of *O. spinipes* itself eat the little green grub is precisely similar; when young, they merely suck the juices of several and sometimes return to and finish these when they are larger, but they may often be found neglected when the larva is full-grown.

The larva of *C. bidentata* casts its skin four times during its growth at tolerably regular intervals, of about two days. I have twice seen this process in operation: the skin splits down the back of the anterior segments, and the corneous covering of the head splits into two lateral halves, which remain attached to the skin when the shedding is completed. As compared with the larvæ of the *Lepidoptera* and *Coleoptera*, they feed up so rapidly, that one marvels how they have time to change their skins so often; many a *Lepidopteron* requiring four or five days

the process of once changing its skin, whilst *C. ignita* is fed up in
 days, during which it has found time to change its skin four times.
 I am also struck with the similarity between the larva of *Chrysis* and
 that of *Odynerus*; a similarity that seems to be a true and not a super-
 one. Throughout its existence, the larva of *spinipes* is yellow,
 its viscera are tolerably visible through the integument, especially
 those of a yellow tortuous duct in the lateral dorsal region from the
 segment backwards. In *Chrysis*, the larva is white, and its interior
 is more masked by masses of white fat. The first spiracles, which,
 though usually situated in the second (the head being the first), belong
 properly to the third segment, are in *Chrysis* at the anterior margin of
 the second segment; but, in *O. spinipes*, they are actually in the second seg-
 ment. The form of the head and parts of the mouth are very similar
 in both. This resemblance between the two larvæ is closer than that
 between the larvæ of *spinipes* and of the common wasp (*Vespa vul-*
garis); and, in those points in which the larva of *Chrysis* least resem-
 bles that of the *Odynerus* (e.g., form of jaw, distinctness of viscera as
 seen through the skin, and colour), it resembles *Vespa vulgaris* more
 than *O. spinipes* does. I have not been able to seize any characters to
 distinguish the larvæ of *C. ignita*, *bidentata*, and *neglecta* from each
 other.

C. neglecta spins a compact oval cocoon from 5 to 10 millimetres
 in length, of a greyish-white and blackish silk, in layers, similar to the
 cocoons of various ichneumons, *Ophion* for example; this is surrounded
 by a looser layer of brown silk, similar to that which loosely fills up
 the rest of the cell of *O. spinipes*, and some remains of the little green
 tubs are always to be found at the bottom of the cell. The cocoon
 of *C. ignita* is rather longer than that of *C. neglecta*, of a much slighter
 texture, and with hardly any loose silk about it.

The cocoon of *C. bidentata* is contained in that of *O. spinipes*, the
 cocoon proper occupying the lower half of the cell, and its roof being
 an almost mirror-like diaphragm of brown gummy silk stretched across
 the centre of the cocoon of the *Odynerus*, the walls of which, above
 the diaphragm, are also covered by a thin layer of silk spun by the
 larva of *Chrysis*; the lower part of the cocoon is in contact with the
Odynerus cocoon all round, and contains in its walls three vertical
 whitish patches, rather thicker than the rest of the cocoon, which,
 when removed from that of the *Odynerus*, is translucent.

Like the larva of *O. spinipes* and other hibernating Hymenopterous
 larvæ, that of *Chrysis* shrivels to a certain extent after it has spun its

cocoon, the skin becoming loose and being thrown into very fine folds; the head is bent forwards, and the lateral and sub-dorsal prominences which in the tense shining skin of the full-fed larva can hardly be detected, are very distinct.

Passing the winter as larvæ, they remain in the pupa state less than three weeks before emerging, often however, if the weather be cold, remaining perfect inside the cocoon for many days. *C. ignita* and *C. neglecta* escape by cutting off circular lids from their cocoons; *C. bidentata* cuts out the diaphragm of its cocoon, and makes a circular hole in the top of the *spinipes* cocoon.

I may note here a distinction in colouring between the male and female of *C. neglecta*, which, as it is not noted in Mr. Smith's excellent Monograph of the group in the 'Entomologist's Annual' for 1866, may possibly not have been previously recorded; viz., that in the male the marginal sulcation of the third abdominal segment is blackish or purplish from the margin almost up to the row of fossulets; whereas in the female the darker colour is confined to a line on the extreme margin of the segment.

It is, perhaps, worth pointing out, as bearing on the doctrine of the survival of the fittest, that *C. bidentata* destroys those larvæ of *O. spinipes* that probably most strongly inherit the weakness, whatever it may have been, that led to the death of their parent.*

Abergavenny,
September, 1869.

Occurrence in Britain of Bledius spectabilis, Ktz.—In a note at p. 281 of the second vol. of the "Insecten Deutschlands," Dr. Kraatz has described, in a few lines, under the name of *spectabilis*, a species of *Bledius* closely allied to *B. tricornis*, Herbst, and found abundantly in Greece. Some little time since, however, M. Fauvel challenged the correctness of this new species, stating both that it was a southern variety of *B. tricornis*, and that Dr. Kraatz had mistaken the true *tricornis* of Herbst. Dr. Kraatz, upon this, returned to the question in the Berl. Ent. Zeit., 1868, p. 346; re-affirmed the validity of the two species; and established their synonymy (about which there has been much confusion) in a most satisfactory manner.

Bledius tricornis has been for a long time in the British catalogue, and I have now the pleasure of making known that *Bledius spectabilis*, Kr., is also a British species; and at the same time of shewing, from its geographical distribution, that it cannot be a southern form of *B. tricornis*. I have found *B. spectabilis* in great

* The opponents of that doctrine might, however, reasonably urge that the majority of the causes of the incompleteness of the ordinary number of *Odynerus*' cells would, in all probability, be direct and incapable of transmission; such as the death by violence of the parent during the work (she being then peculiarly liable to injury, on account of her engrossment in the cares of maternity), the non-adaptability of the soil for a proper nidus, a failure of adequate food for the larva, a sudden accession of tempestuous weather preventing further mason-work, &c.—EDS.

ence in the salt marshes at Dumfries, also near Edinburgh, at Brighton, and
 mouth. *B. tricornis* I have never found but on one occasion, viz., at Deal,
 spring of 1863, when I had the pleasure of taking it in some numbers
 a collecting expedition, in which I was accompanied by Mr. Frederick
 and his son Mr. E. A. Smith. I imagine, therefore, from my own experience,
 the greater portion of the *B. tricornis* of our British collections will be found
B. spectabilis, Kr. The two species, though exactly alike in point of colour,
 easily enough distinguished when the males are examined; for *B. spectabilis* is
 considerably the larger of the two, and more sparingly punctured on the thorax
 elytra, and its male has on each side of the head a short pyramidal elevation,
 which can in no sense be considered a horn; while in *B. tricornis* this elevation is
 produced by a short but distinct horn. When these characters have been per-
 ceived in the male sex, the females of the two species are easily separated by the
 differences in size and punctuation.

The synonymy, as given by Dr. Kraatz (quite correctly, I believe), runs thus:—

tricornis, Herbst, Ol., Kr.
tricornis, Er. (Col. Marck.).
nuchicornis, Muls.

spectabilis, Kr.
tricornis, Er. (Gen. et spec.).
tricornis, Muls., Fauvel.

As far as M. Fauvel is concerned, I have verified the synonymy by sending him
 a specimen of *B. spectabilis*, taken by me in Scotland, and obtaining from him its
 name as *B. tricornis*. What the insect is that he understands as *B. spectabilis* I
 have no idea (neither, judging from the above synonymy, has Kraatz); but it would
 be interesting to know.—D. SHARP, Eccles, Thornhill, Dumfries, Nov. 10th, 1869.

[My own short series of *B. tricornis*, from Deal, is apparently correctly named.
 I find next to them three specimens, obtained lately from Mr. Brewer, solely
 on account of their large size, and taken by him on the Norfolk coast, I believe,
 which are evidently *B. spectabilis*. In addition to the characters mentioned above
 for that species, I observe that in these three the thoracic horn of the ♂ is much
 larger than in *tricornis*; the thorax is less bulky in proportion to the elytra, with
 the sides rather straighter, the contraction behind not quite so rounded, and two
 regular smooth discal spaces, starting from each side of the middle line and
 directed backwards, much more elevated and decided than in *tricornis*; and the
 black colour of the elytra more confined to the base. It will be observed, that, in
 this larger insect, the frontal horns exhibit a *diminution* of size, so that it cannot
 be considered a more highly developed form of *tricornis*.—E. C. R.]

Occurrence in Britain of Myllæna glauca, Aubé.—Some time ago, I took in
 a *Myllæna*, on Wimbledon Common, a *Myllæna*, which I could not satisfactorily
 refer to any of our recorded species, and which so distinguished an authority in
 that genus as Mr. Matthews also failed to identify. Hoping to be able to name it
 after that gentleman, I sent it for examination to M. A. Fauvel, who returned it
 as *M. glauca*, Aubé, which M. Fauvel has recently, in 'L'Abeille,' identified with
M. elongata, Kraatz. Subsequently to this determination, Dr. Sharp has observed
 to me that the *elongata* of Matthews is specifically distinct from Kraatz's subse-
 quently described insect of the same name; remarking that the former is common

in Scotland, running in muddy places on the banks of rivers and streams, while the latter occurs very rarely in England and Scotland, in *Sphagnum*. *M. Anbe glauca* must, therefore, be added to our list, and *M. elongata*, Ktz., must be suppressed. It may readily be distinguished from *elongata*, Matthews, by its small size and darker colour, the palpi and legs especially being nearly black.—E. C. R. 10, Lower Park Fields, Putney, S.W., November, 1869.

Note on Pythonomus Julinii, Sahlberg.—M. Capiomont, in his recent 'Révision des Hypérides,' Ann. de la Soc. Ent. de France, 1868, vol. 8, p. 153, considers this insect (which he, apparently with correctness, indentifies with the *Hypera alternans* of Stephens) as decidedly distinct from *P. Pollux*, of which the late Mr. Walton thought it to be a mere color variety. The addition of *P. Julinii* to our lists as a good species has already been made, and on the authority of M. Capiomont; but I have thought it may not be altogether useless if I were to enumerate the characters upon which that gentleman proposes to separate it from *P. Pollux* (four species intervene between them in the work above quoted), as the insect is not uncommon here ("assez commun en France," p. 152; "assez rare en France," p. 155), and observers in different parts of the kingdom may be more fortunate than I, in finding those characters sufficiently constant.

M. Capiomont, when treating of *P. Julinii* (p. 155), after stating generally that the pattern of its elytra, which are regularly and alternately lineated with dark and light scales, is sufficient to separate it from all the species allied to it, and is constantly the same, remarks that its form is rather different from that of *P. Pollux*, which, and especially its male, is always more slender, its female being more elongate. He states also that the striæ of the elytra in *P. Julinii* are better defined, the absolute punctures being wider, squarer, and better marked; the interstices are more regularly shagreened, and have coarser scales; and the thorax is always less cylindrical.

At p. 160, treating of *P. Pollux*, and commencing with the somewhat contradictory statement that it has *exactly* the form of *P. Julinii*, he enumerates (in addition to the above characters) the following points of discrepancy:—the rostrum is a little longer in *Pollux*, ♀, and the depression between the eyes is generally better marked; the thorax is less rugulosely punctured (though, as he admits, there are exceptions on this point); the colours of the elytra, instead of being separated by distinct intervals, are confused, so that they are uniformly variegated with grey and black, always excepting the 3rd and 7th interstices, which are variegated with white for a greater or less portion of their length; the punctures of the striæ are more uneven; the interstices are more shagreened (in *Julinii* more regularly shagreened, p. 155); and the female of *Pollux* is never so ventricose as the same sex of *Julinii*. M. Capiomont finally notes that, among the numerous specimens of *Pollux* that have come under his observation, he has never seen a single individual with the elytra almost lineated as in *Julinii*, or even with the coloration so disposed as to permit the suspicion of a passage from one species to the other. But he specifies a var. of *Pollux* having dark elytra with the 3rd and 7th interstices almost entirely, and the bases of some of the other interstices, whitish; and admits connections between this var. and the type.

far as my own experience goes, I may remark that I have never found *P.* except in the company of *P. Pollux* (though the converse does not hold and that I find the thoracic outline, and size, &c., of the punctures of the and of the interstitial scales do not afford *constant* diagnostic characters.—ID.

a certain British Hydropori recently brought forward by Dr. Sharp.

DROPORUS OBSOLETUS, Aubé. I have in my collection two examples of this ; one given me by Dr. Power, the other taken by myself at Gosforth. NIGRITA. I am very much inclined to think that the two insects separated Sharp [Entomologist's Monthly Magazine, Vol. vi, p. 82], are only the of one and the same species; the glossy, strongly punctured, pubescent one the male, and the obscure, less punctured, nearly glabrous one, the female. the species from the south of England, and it has occurred to me in several ies in Durham and Northumberland, rather sparingly, and copiously in erland, where it affects the runners from springs on the moors. In every these instances the two forms were taken in company, and in nearly equal ers. This, I think, would not have been the case, had they been distinct es. The last time I met with this species was on a moor near Lanercost, in when I took about one hundred individuals. This series furnished me with ies of both forms, principally in dilatation of the sides of the thorax, in the s of the elytra, and in sculpture, colour, and pubescence; in both sexes the -coloured examples are the most thickly furnished with hair. The general is the same in all, the fovea on the clypeus in all is alike, the margins, and es of the thorax are also alike, whilst the antennæ and legs are similarly ulated with fuscous.

Surely, Herr Thomson, when he wrote his "*Conspectus Specierum*," (Skand. ix, 73] must have had some other species in view, for he places *pubescens* *nigrita*, Shp.) in a section of which he says "*prothorax lateribus crasse marginatus*;" reas, in both sexes of our *nigrita*, the thorax is very finely margined at the s.

By the kindness of Mr. Crotch, I have examined a pair, ♂ ♀, of *H. discretus*, rm. The male is a little larger, a little wider in front, somewhat less convex, much more finely and closely punctured than any male *nigrita*; the pubescence, our of the antennæ and legs are alike. The female is similar in form to the le, has the same alutaceous upper surface and paucity of pubescence as female *nigrita*, but is darker in colour, and has the punctures on the thorax d elytra much finer. A long series, from various localities, may possibly show is species to be only a form of my *nigrita*; my series (33 ♂, 30 ♀), however, es not enable me to unite them. I strongly suspect that *H. brevis*, Sahlb., is anded on a small female form of my *nigrita*, which has the apex of its elytra mewhat prominent; and if *H. glabellus*, Thoms., be another form of it, the ulpture of the upper surface has been omitted, as it has been in the descriptions many other female *Hydradephaga*.

H. MONTICOLA, Sharp. I have taken this insect both in Northumberland and umberland, generally in mossy holes on the moors. Mistaking it for *H. melaniarius*, Stu., I have sent it to some of my friends as such. It is, however, abundantly distinct from that species.

H. PARALLELUS, Sharp. I have a single specimen of this species, which was taken by a friend in the north of Northumberland.

H. INCOGNITUS, Sharp. I had eight examples of this species, taken in various places in this vicinity, three of which have been lost in the post. Some years ago I separated it as distinct from *palustris*, but, on sending it to London, was told it was only an immature variety of that commonest of all commoners.—THOS. J. BOLD, Long Benton, Newcastle-on-Tyne, 18th October, 1869.

Pterostichus madidus a vegetable-feeder.—My friend Mr. Jas. Hardy writes me that he caught a specimen of this common beetle eating a bean, which was still green, and had been crushed by a passing foot; thus adding another to the list of vegetable-feeding *Geodephaga*.—ID.

Captures of rare Coleoptera in Devonshire.—On 10th October last, I took, in the wing in my conservatory here, a specimen of a minute Trichopterygian, which as Mr. Matthews tells me, is *Actidium coarctatum*, Haliday, of the greatest rarity in this country, having been found only by its describer in Ireland, and (single specimens) by Dr. Sharp and Mr. Crotch on the Chesil Bank. It appears to be recorded also from Sweden, the south of France, and Egypt. I also take here, in company with the common *Lathridius minutus*, what I consider to be *L. assimilis* Mann., with alternately raised interstices to the elytra, and usually dark legs otherwise extremely resembling *L. minutus*.—T. V. WOLLASTON, Barnepark Terrace, Teignmouth, November, 1869.

Occurrence of Bembidium obliquum at Manchester.—On a warm sunny day in last April, an example of the above rare beetle occurred to me at Clifton, near Manchester, in a similar habitat to that recorded at page 219, vol. v, of this Magazine. In May last, I captured *Harpalus neglectus* at the foot of the sand hills at Southport, near the New Hotel.—T. MORLEY, 29, John Street, Pendleton, Manchester, November 13th, 1869.

Capture of Anisoxya fuscata, Gyll.—I have lately met with a single example of this rare Heteromorous beetle near here, crawling on a stone wall, a singular situation for such a species. I have also taken (near here) *Cryphalus binodulus* in abundance; *Mycetochares bipustulata* in decayed oak, but more often dead than alive; *Brachytarsus scabrosus*, in exceeding abundance about May, in most white-thorn hedges; and *Colin brunneum* (2), by sweeping in the evening.—H. MARSH, 842, Old Kent Road, S.E.

Note on Asiraca clavicornis, Fab.—Early in the morning of the 1st June last I found myself in Dartford, and, unexpectedly, with a lucid interval of half-an-hour to wait for the next train to London, chains and slavery. Then there revived within me a fond recollection of the lane "within easy distance" (as the house-agents say), where the males of *Drilus flavescens* used to abound; where the female doubtless then existed, and might possibly now be found; where *Asiraca clavicornis* had once or twice been swept up by Mr. Rye; and where representatives might still exist. Filled with these ideas, I startled a chemist by an abrupt demand for

glass bottle without poison in it, got it, and left him evidently wondering at my taste, and perhaps thinking that I *did* mean to put poison in the bottle. I did, for a little further on I stole a leaf (only one and that very little) from a laurel bush, crushed it into the bottle, and strode on. Arrived at the lane,

I was soon prostrate on the sunny, grassy bank, poked about the roots of the grass, saw several *Calyptonotus pedestris*, and one *Asiraca*, ♀, which at once perched daintily on my hand. She had emerged from the base of a tuft of grass, looking for all the world like an *Ochsenheimeria Birdella*, and I rewarded her confidence by paying her more than heroic honour in placing her above the laurel. Here is a rough contemporaneous portrait of one of her ancestors, and so true are the lineaments of the race, preserved by nature, that this "false presentiment" may serve for the exact likeness of my captive.

History, it is said, repeats itself. On the 7th October instant, I was at the same place, under similar circumstances, and I again found one *Asiraca*, this time a male and one pupa. Having posted up my friend Scott with these data, he has had the felicity of taking "a lot" of this extraordinary species in the said place among the roots of grass.—J. W. DOUGLAS, Lee, October 16th, 1869.

Notes on the earlier stages of Nothris verbascella.—On coming to Norwich, one of my first objects was, of course, to find *Nothris verbascella*, and before I had been many weeks, I had obtained from Mr. Jas. Reeve (who recorded its capture in the "Intelligencer" years ago) directions where to find it. Accordingly, on October 1868, I went to the locality indicated, and found in the undeveloped leaves at the heart of the plants of *Verbascum pulverulentum* very young larvæ already at work, eating out these leaves and filling the empty space with black frass, but leaving the woolly covering of the leaves almost untouched. All through the summer they continued to feed slowly, and when the leaves began to grow in the spring the larvæ rapidly increased in size and voracity. At this time, however, through the spring, fresh ones appeared to be hatched, for at the end of April, many larvæ were well grown and a few had entered the pupa state, there were still plenty of minute ones, and this continued to be the case till the middle of June; and even as late as July 3rd, when the plants had thrown up their flower spikes two or three feet high, half-grown larvæ were still to be found feeding in the tender leaves, and even boring into the leaf, stalks, and stems. At the same time pupæ were to be found in a slight web, on the under-side of the large lower leaves, generally in the angle of two ribs, or in a turned-down edge of a leaf.

My first specimen of the perfect insect emerged indoors on May 22nd, and it continued slowly to come out till the middle of July; while at large I noticed the first flying late in the evening of June 25th, and the last on August 15th, but in the perfect state they are seldom seen.

The habits of the larvæ are curious. They do not mine a leaf, that is, they eat the whole of the solid substance, but take care to leave the soft down with which the leaf is covered, and this is so thick as to form a complete protection for them. Indeed, so necessary is this covering of down to their comfort, that when placed



with pieces of leaf in a box to be brought home, although they will make a silk passage at the corner of the box, they always continue to detach sufficient do from the leaf to completely cover the silk, and when about to become pupæ always cover the cocoon with the same material.

Sometimes a large plant of the Mullein is so full of larvæ that all the young leaves are completely eaten out as fast as they appear, and a curious mass is formed on the centre of the plant composed of the down of all these leaves and the excrement enclosed, and in this mass the largest larvæ generally reside, having galled through it, but it is never used to assume the pupa state in. When at last, from the older larvæ having spun up, the shoot is able to make a start, it carries with it traces of their ravages in scarred and blackened marks all up its side which take some time to heal.

The history of this insect will therefore appear to be:—That the eggs are laid in July and August, in the hearts of seedling plants of *Verbascum pulverulentum* that part hatch in the autumn, and the rest in the spring; larvæ, consequently feeding from September or October till July, and the perfect insects appearing from the end of May till August.—CHAS. G. BARRETT, Norwich, 14th September, 1869.

Description of the larva of Hydræcia micacea.—On the 22nd of June, 1869, received from the Honble. T. de Grey, a larva, which proved to be that of this species; and, more recently, the following note:—

“I first observed the larva by pulling up, on the 14th May, a sickly-looking plant of *Equisetum arvense*. It appeared to be feeding on the root and stem below the surface of the ground, but, when placed in a bottle with a supply of the food-plant, it immediately entered a stem, and fed upon the inner substance hollowing it completely out, and ejecting the frass at the lower end.

“The larva moved readily from one piece into another, and thrived upon this food till May 28th, when I supplied it with *Equisetum fluviatile*, on which it fed well till June 21st.”

On arrival, this larva was $1\frac{1}{8}$ inch in length, rather slender, cylindrical, and tapering just a little at the posterior extremity, its head as wide as the second segment, the upper lip and mandibles large, the transverse folds and segmental divisions rather deeply cut.

The colour of the back and sides down to the spiracles was a rather deep purplish red-brown, without gloss, and a little paler on the thoracic segments and at the divisions; the sides below the spiracles, the belly, and the legs were paler, and of a dingy flesh colour: the head ochreous-brown, and mandibles blackish brown; a polished pale ochreous-brown semi-circular plate on the second segment rather broadly margined in front with blackish-brown; a small shining pale ochreous plate on the anal tip, having a terminal border of very small dark brown warts: the other tubercular warts arranged in the situation usual in stem feeders, also blackish-brown in colour, and emitting each a fine hair; the spiracles black; the prolegs tipped with brown.

At the beginning of July, the larva had attained $1\frac{3}{8}$ inch in length, and had become moderately stout in proportion, having meanwhile gradually grown paler on the back; and by the 10th of the month, the upper and under surfaces were

of a deep smoky dull flesh colour, the dorsal pulsating vessel just visible by a darker stripe of the same; the warts, however, still dark brown, and the plates as before described.

Up to the larva had fed well on both species of *Equisetum*, but it now ceased and began excavating a hole in the earth, at the side of its pot, in which, at length, it had changed to a light ochreous-brown pupa, but without forming an imago!

The pupa was $\frac{3}{4}$ -inch long, moderately stout, presenting no unusual peculiarity but ending in an anal spike, which was inserted in the earth, and on the abdominal segments were a few fine short bristles pointing backwards. The moth emerged on the 14th of August.

After the above larva came into my possession, I identified it with my friend's one sent to me by Mr. Steele, of Congleton, on the 10th July, 1866 (which was found to be infested with *Microgaster alvearius*), and also of some others in May, 1867, which were quite small, and all of them feeding in the roots of Dock, but which unfortunately failed to rear to the imago state.—WM. BUCKLER, Emsworth, 1869.

Normal habits observed in Ennomos lunaria.—The following vagaries in the "history" of *Ennomos lunaria* may possibly be of interest to the readers of this journal. In August, 1868, I found five pupæ of this insect at the roots of ash in Derbyshire, being, at the time, ignorant of their identity. At the end of August, 1869, all emerged, viz., three females, and two males. From a pair, I had secured a considerable number of eggs, all of which, except twelve, I sent away to various applicants. The eggs which I had reserved, hatched the third week in August. Two larvæ died, and the remainder became pupæ at the end of June. Early in July, I came to this place, and, in arranging my larvæ, pupæ, &c., I put those of *Ennomos* into what I call "my next year's box," taking it for granted that they would remain in "statu quo" throughout the winter, as the others had done,—and as this species always does, according to my experience. In the first week of August, however, upon looking into the box, I found a male had emerged and spoiled the eggs. A few days later another male appeared, and at intervals, three females followed an interregnum, but on or about the 20th of September, a male and female emerged simultaneously. These paired, and the female laid about 50 eggs. Although this proceeding was quite opposed to my previous experience, I did not doubt myself, taking for granted that the eggs would remain dormant until the following spring. Judge my dismay as well as astonishment, when, the first week of October, I found every egg had hatched, and the young larvæ unusually brisk and active. I thought this too bad, as I knew their food-plant would fail before they were full-grown. However, I bestirred myself, and procured some as tender as I could find. Placing this in a bottle of water within a glass cylinder, I awaited the result. It struck me at once that the young larvæ were all "abroad." They were restless and uneasy, and did not take kindly to their food. However, by the end of the month, they had passed through the second moult. Seeing then that it would be impossible to rear them, the birch leaves being destitute of nutriment, I threw them away. Whether, had I kept them, they would have hybridized, or preferred dying of starvation, I cannot say. I thought that I was now

at the end of my tether, when lo! on *November 1st*, emerged another fine female quite full of eggs! This was *too* much, and I have this day (*November 1st*) terminated its existence. All these proceedings are at such variance with previous experience of the insect, that I have thought them worth recording.

J. GREENE, Apsley Road, Redland, Bristol.

P.S.—Everything seems out of joint. This day (*November 8th*), has emerged the largest and finest female *Eupithecia albipunctata* I ever saw. I just remark that all my cages, boxes, &c., are placed in a room at the top of the house, without a fire, and facing the north-east.—J.G.

Note on the odour of Sphinx convolvuli.—Early last September, my cousin (who resides some half-mile from hence) showed me a live male *convolvuli* which had been picked up on his door step by a boy. The creature had evidently flown a light over the door, and had been stunned by coming sharply in contact with the glass. On handling it, I noticed that the odour of musk (as observed by Hellins in a previous communication to the Magazine) was strongly perceptible. The sequel is curious:—After keeping it covered over with an inverted tumbler for three or four days, my cousin removed the thing from its prison, believing it to be dead or nearly so. When the gas was lighted up the same evening, however, the family were suddenly surprised by the great moth taking wing, flying at the light, and eventually immolating itself in the flame.—H. G. KNAGGS, 49, Ker Town Road.

Note on the development of the larva in the hybernating ovum in Lepidoptera. I am anxious to obtain information bearing on the following point: “In the species of *Lepidoptera* which pass the winter in the egg-state, is the larva developed within the egg shell before or after hybernation?” and shall be much obliged to anyone who has by him eggs of *C. neustria*, *C. elinguarina*, any of the genera *Ennomos*, *M. rubiginata*, *C. immanata*, *prunata*, *testata*, or *populata*, *E. cervina*, *H. popularis*, *C. graminis*, *L. cespitis*, or any other species, if he would kindly examine three or four eggs, and let me know the result; off hand I am inclined to think the larva is not developed till after hybernation, but this is only a guess which I should now be glad to have confirmed or disproved by an appeal to facts.—J. HELLINS, Exeter, *November*, 1869.

Xylina semibrunnea and *Agrotis saucia* at Dover.—I have to record the capture of *Xylina semibrunnea* at ivy-bloom, on the 29th October, in excellent condition. On the 26th October, I obtained four very fair examples of *Agrotis saucia*. E. WHITE, 2, Spring Place, Dover, 13th *November*, 1869.

List of Noctuidæ observed in Perthshire and Morayshire in 1869.—In the early part of this spring, I visited Crieff, in Perthshire, intending, should the locality turn out promising, to remain there during the whole season. The situation of Crieff is very beautiful, and the romantic Strathearn has much mixed wood and high moorlands on either side. The climate, however, is far colder and moister than in Morayshire. One of my first operations in the month of March was to sugar a few trees, but I found nothing beyond the usual

S. vaccinii, and *S. satellitia*. Later on, when the weather became milder, I at last took out my lantern at night to search the low herbage for larvæ. On the broom I took full-grown ones in plenty of *T. pronuba*, *orbona*, *fimbria*, and *janthina*. The moss growing on walls and tree stumps also yielded many pupæ of *orbona*, *H. thalassina* and *adusta*, *R. tenebrosa*, *X. rurea*, and one *A. herbida*. The pupæ of *Noctuæ* were taken up to the early part of July, when, owing to the dearth of them, I returned to Forres, in Morayshire. On the whole, the past season was a very poor one for sugaring; for, on reference to the list of captures last year (p. vi, p. 201), it will be seen that many good things never occurred at all, and others, which swarmed in 1868, only turned up as odd specimens. Probably, in the next season, Crieff would yield a better result, if diligently worked.

Noctuæ taken at Crieff.—*T. batis*; 28th June: scarce at sugar. *A. psi*; several pupæ, also with net. *A. ligustri*; 23rd May: pupæ on ash trees in moss. *A. rumicis*; 28th June: rare, at sugar. *L. lithargyria*; 7th July: common with net, also at sugar. *L. comma*; 27th June: with net. *L. comata*; 3rd July: rare, with net flying over rushes. *X. rurea*; 14th May: common with net, also from pupæ under moss on stumps. *X. polyodon*; 25th June: common at sugar, also taken with net. *C. graminis*; 27th June: larvæ found on stones at Ferntower. *M. anceps*; 23rd June: not uncommon, with net. *M. brassicæ*; 25th June: rare, with net. *M. brassicæ*; 22nd June: common, with net at rest. *A. basilinca*; 23rd June: common, with net. *A. gemina*; 22nd June: common, frequently with net: one very remarkable variety was taken. *A. oculea*; 22nd June: common, with net. *M. fasciuncula*; 30th June: very frequent, with net. *C. cubicularis*; 26th June: common, at rest and with net. *R. tenebrosa*; 25th May: very numerous at sugar, also bred from pupæ enclosed in a tough web attached to stones. *A. segetum*; 24th June: very common, some specimens very puzzling, one indeed, hard to distinguish from *A. cinerea*. *A. exclamatoris*; 24th June: common, at sugar and with net. *A. porphyrea*; 27th May: larvæ taken near Loch Turrit. *T. janthina*; 2nd May: larvæ at night on broom. *T. orbona*; 3rd April: bred a fine series from larvæ found on broom. *T. orbona*; 1st April: larvæ on broom with the foregoing. *T. pronuba*; 7th May: larvæ on dock, very common at sugar. *N. augur*; 5th July: with net. *N. plecta*; 24th July: rare, with net. *N. festiva*; 8th July: with net. *N. rubi*; 5th July: rare, with net. *T. piniperda*; 14th April: common at willow blooms. *T. gothica*; 31st March: common at willows, also at sugar. *T. rubricosa*; 12th April: common at willows. *T. instabilis*; 10th April: common at sugar and willows. *T. stabilis*; 10th March: common at willows. *T. cruda*; 14th April: willows, not common. *S. vaccinii*; 22nd March: very common at sugar and willows. *S. satellitia*; 6th April: common at sugar and willows. *X. cerago*; 27th April: larvæ swarming in catkins of willow. *A. herbida*; 20th June: bred from pupa found here. *A. herbida*; 29th June: common, with net. *A. adusta*; 10th May: not uncommon at Forres, also with net. *A. glauca*; 27th June: one, with net. *A. dentina*; 29th July: with net. *A. oleracea*; 27th June: with net, not unfrequent. *H. thalassina*; 27th July; pupæ very common. *M. rectilinea*; June 26th: took three very fine specimens of this beautiful moth at sugar. *C. exoleta*; 6th March: very common at sugar and on willows. *C. umbratica*; 26th June: rare, with net.

Noctuæ taken at Forres.—*A. psi*; 27th July: at sugar, larvæ very common. *A. leporina*; 25th August: beat larvæ from birch. *A. ligustri*; 24th July: at sugar. *A. rumicis*; 1st September: swept larvæ from heather. *A. myricæ*; 24th August: my excellent friend, Mr. G. B. Longstaff, beat from heather a hairy tuberculated larvæ, which can scarcely be any other than this species. *A. conigera*; 12th July: exceedingly common at sugar and ragwort, varying a good deal in colour. *L. lithargyria*; 10th July: very abundant at sugar, varies much in colour. *L. pallens*; 12th July: swarming at sugar, also on ragwort. *L. nictitans*; 19th August: not uncommon at sugar. *H. micacea*; 12th August: uncommon at sugar, also at rest. *X. rurea*; 31st July: at sugar, surely very common. *X. polyodon*; 10th July: swarming at sugar, and varying from the ordinary southern type to bistre-brown and black. *C. graminis*; 5th August: on ragwort by day. *C. cytherea*; 28th July: two specimens, one at sugar and the other at a "Cossus Birch;" an interesting addition to the Morayshire list. *L. testacea*; swarming at rest, at sugar, and with net, varies a good deal. *M. abjecta*; 31st July: surely not found before, I believe, so far north. *M. anceps*; 19th July: occasionally at sugar. *M. brassicæ*; 19th July: commonly at sugar and also at rest. *A. geminata*; 12th July: not unfrequent at sugar. *A. oculea*; 15th July: abundant at sugar, also on ragwort by day; as usual, very variable. *M. fasciuncula*; 10th July: swarming at sugar, also on ragwort by day. *M. literosa*; 20th July: at rest, also at sugared trees. *C. blanda*; 12th July: rare, at sugar; an addition to the Morayshire list. *C. cubicularis*; 19th July: common at rest, also with net. *A. tenebrosa*; 23rd July: common. *A. valligera*; 28th July: not uncommon at sugar and on a "Cossus Birch," on ragwort by day. *A. suffusa*; 15th August: common at sugar up to November. *A. saucia*; 29th September: took two at sugar, never heard of this insect so far north before. *A. segetum*; 20th August: at rest. *A. lunigera*; 28th July: not uncommon at sugar. *A. exclamatoris*; 10th July: abundant at sugar. *A. corticea*; 15th July; not unfrequent at sugar, also with lantern on ragwort. *A. cursoria*; 11th August: not unfrequent, by smoking out of "Bents," on the Culbin Sands. *A. nigricans*; 4th August: common under stones in barren fields, also at sugar. *A. tritici*; 4th August: swarming at rest at sugar, and under stones with the last; varies immensely in size, colour, and markings, some specimens closely resembling *obelisca*. *A. aquilina*; 14th August: rare, with net. *A. agathina*; 14th August: in great profusion flying over heather rarely at sugar. It is very difficult to take this moth in perfection. I know of no insect that so soon loses its freshness, owing to the looseness of the scales. The best plan to capture it is to light the lantern, and watch the places among the heather which are partly sheltered with trees. The insect appears to fly for about a quarter of an hour briskly over the heather, after which it settles for half-an-hour or so, during which time it may be found on the heather bloom; the slightest shake, however, causes it to fall like a stone, when it is usually lost. After this half-hours' rest, it flies again, and must be taken with the net and lantern. The period yields by far the greatest number of moths. *A. porphyrea*; 16th July: abundant flying over heather, larvæ afterwards in profusion. *A. præcox*; 5th August: smoked out of "Bents" on the Culbin Sands, also two specimens at rest in a greenhouse and one in a spider's web, same place. *A. pyrophila*; 29th July: smoked out of "Bents" on the Culbin Sands, also two specimens at rest in a house. *T. subscqua*; 10th September: only one or two specimens at sugar, very late, and

dition. *T. orbona*; 22nd July: swarming at sugar, also on ragwort by usual, varying much in colour and markings. *T. pronuba*; 16th July: abundant at sugar and at rest, many remarkable varieties. *N. glareosa*; 18th July: not uncommon with net, at sugar, also on heather and broom. *N. C-nigrum*; 17th July: at sugar. *N. depuncta*; 13th September: one forlorn individual put in appearance in wretched plight. *N. augur*; August 1st: common at sugar. *N. confusa*; 19th July: not unfrequent at sugar, also on ragwort. *N. confusa*; 20th July: frequent at sugar, also on ragwort by day. *N. Dahlii*; 10th August: this season than usual, also late and badly coloured. *N. rubi*; 23rd July: at sugar. *N. umbrosa*; 5th August: on ragwort by day. *N. baja*; 28th July: common at sugar. *N. neglecta*; 20th August: not unfrequent at sugar and on heather. *N. xanthographa*; 17th July: common at sugar and on ragwort by night. *T. piniperda*; 18th July: larvæ. *O. macilenta*; 15th September: common at sugar. *A. rufina*; 8th September: abundant at sugar, some remarkably beautiful varieties. *A. litura*; 28th August: very common at sugar. *A. cinii*; 13th September: swarming at sugar, varying in colour and markings to a surprising degree. Some specimens have the lines in slate-blue, while others have the wings suffused with black lines and blotches. I fear *C. spadicea* must be excluded from my last year's list, having mistaken some varieties of this insect for *C. satellitia*; 13th September: abundant at sugar. *X. cerago*; 26th July: at sugar. *X. silago*; 21st September: beaten from a birch tree. *X. ferruginea*; 6th September: in great profusion at sugar. *E. fulvago*; 7th September: Mr. G. B. Longstaff took it once or twice at sugar. *C. trapezina*; 10th September: at sugar. *C. psincola*; larvæ abundant on *Lychnis vespertina*. *D. cucubali*; 8th August: common on *Silene inflata*. *P. chi*; 22nd August: very abundant at rest, also at sugar. *E. lutulenta*; 18th August: at rest on ragwort and heather by night, also on stones in a barren field. *E. nigra*; 10th August: very abundant at sugar, hiding amongst pebbles on the paths. *M. oxyacanthæ*; 12th September: abundant at sugar. *A. aprilina*; 13th September: very frequent at sugar. *P. maculosa*; 31st August: common at sugar. *A. occulta*; 16th August: taken by my friend, Mr. Longstaff, twice at sugar. *A. nebulosa*; 17th July: rare, with net. *H. protea*; 21st August: abundant at sugar and at rest; very variable. *H. denudata*; 19th July: at rest on wall. *H. oleracea*; 20th July: at sugar. *H. pisi*; 1st September: larvæ found by Mr. Longstaff; an addition to the Morayshire list. *H. vetusta*; 25th August: common at sugar. *C. exoleta*; 7th September: in the greatest profusion at sugar. *A. myrtilli*; larvæ abounding on heather. *P. gamma*; 1st September: not so frequent as usual. *P. interrogationis*; 22nd August: one seen flying over heather at night—new to this locality. *A. tragopogonis*; 8th August: very common everywhere, at rest, also at sugar. *S. anomala*; 3rd August: very abundant with net, also at rest.

On my round of some 315 sugared trees, I frequently counted above 500, and on one occasion 846, moths.—GEO. NORMAN, Cluny Hill, Forres, October 30th, 1869.

[Some surprise having been expressed at the occurrence so far north of several species mentioned in Mr. Norman's Morayshire list for last year, we beg to say that we have very sufficient reasons for believing that he correctly determined his species, with the exception of the one he has cancelled in this paper. The productions of that district are evidently of a less boreal nature than are those of Rannoch.—Eds.]

Captures of Lepidoptera in the New Forest.—The following are our best captures taken in various parts of the Forest during the past season:—*L. sinapi* common in May and June; *P. cratægi*, not rare, in young fir plantations; *C. Hyalæ* saw one specimen in June; *A. Paphia*, very abundant (black variety, *Valeriana* 20 specimens); *A. Adippe*, common; *A. Aglaia*, males common, females rare; *V. polychloros*, common in the spring; the larvæ (from which we bred a fine series) were abundant in June. Our specimens emerged as early as the beginning of July. *L. Sibylla*, abundant, also bred from larva; *A. Galathea*, a few; *H. Semele*, common; *P. Argiolus*, males common, females three; *P. Ægon*, abundant; *N. Lucina*; *P. fuciformis*, common at rhododendron flowers; *S. bombyliiformis*, 10; *C. porcellus*; *L. aureola*, *H. hectus*, *T. trifolii*, *C. miniata*, *L. mesomella*, *L. complanula*, *C. villia*; *A. fuliginosa*, *A. mendica*, *L. monacha*, *E. lanestris*, larvæ abundant on sloe and hawthorn, *E. advenaria*, *E. dolobraria*, *P. syringaria*, *B. consortaria*, *T. consonaria*; *P. cytisaria*, *N. viridata*, *E. porata*, *punctaria*, and *trilinearis*, *A. trigeminata*, *C. temerata*, *C. taminata* (abundant), *A. strigillaria*, *S. plumaria*, *M. liturata*, *M. rubiginata*, *S. undulata*, *L. viretata*, *T. chærophyllata*, *A. subsericeata*, *A. plagiata*; *E. palumbaria*, *M. euphorbiata* (common), *P. unguicula* and *hamula*, *E. punicealis* and *purpuralis*, *H. barbalis*, *E. glyphica*, *E. flammealis*, *E. fuscula*, *E. angularis*; *H. prasinana*, *A. caliginosa*, common, but worn. We obtained our specimens of this by sweeping the long grass in damp woods. I am kindly indebted to Mr. Cappe and Mr. Owen for furnishing me with the exact locality for the species.

On the whole, sugar was unprofitable. Our best captures were *T. batis*, fresh from the pupa and in fine condition the first week in September, which is, I think very late; *C. diluta*, *H. nictitans*, *C. cytherea* (abundant), *A. puta*, *A. soucia* several, *N. umbrosa*, *baja*, *triangulum*, and *neglecta* (2), *C. diffinis*, *H. contigua* (1) *R. tenebrosa*, *T. fimbria*, *janthina* and *orbona*, *C. sponsa* (6), and *C. promissa* (2). Many other common species surrounded every tree. Besides the above, we captured an immense number of common species not worth recording.—J. E. & H. RAMSAY COX, W. Dulwich, S.E.

Lepidoptera captured at Darlington.—I annex a list of a few things which I have met with this season; all of them, excepting *C. albersana*, were taken within three miles of the town. With one exception, there is nothing very wonderful about them; the wonder is, that, though I have lived here and collected assiduously for the last twenty years, I never before met with them in this locality. *Thyatira batis*, one at sugar; *Macaria liturata*, common; *Mixodia Ratzeburgiana* (common among spruce firs) I never took before; *Halonota tetragonana*, one, beaten out; *Coccyx nanana*, in the same manner as *M. Ratzeburgiana*; *Retinia pinicolana*, common among Scotch firs; *Retinia pinivorana*, one, among Scotch firs; *Carpocapsa grossana*, one, beaten out; *Catoptria albersana*, one bred, larva in April; *Eupacilia atricapitana*, one flying; *Lampronia luzella*, one, beaten out; *Cerostoma lucella*, a few from young oaks, I find that by day they generally drop straight down, but not towards evening; *Gelechia Mouffetella*, one bred; *Gelechia dodecella*, a few from fir; *Zelleria hepariella*, one, beaten out (no yew or privet in the wood); *Asychna profugella*, one, beaten out. The larva of *Gelechia rhombella* is very abundant in the apple bushes in hedges about the town. The moths are all of a very dark grey colour, none of them being light like southern specimens.—J. SANG, High Row, Darlington, September 6th, 1869.

Thera juniperata near Edinburgh.—On the 28th of October, I beat one sickly

since dead) of this species out of juniper, on the Pentland Hills. This is the *juniperata* has been met with in this district.—A. WILSON, Edinburgh, 1869.

On *Eupithecia helveticata*.—On the same day, 14 full-grown larvæ of this species were beaten out. From the same localities I had larvæ in some number at the end of August, and many were then full-grown.

I have forwarded a few larvæ to Professor Zeller, about the middle of September (at which date most of those taken were in pupæ or spun up), but have not ascertained whether these have confirmed or modified his belief that *helveticata* and *arceuthata* are one species.

Although I have examined large numbers of the larvæ, I have as yet failed to find the points relied on by the Rev. Mr. Crewe, as separating it from *arceuthata*. As regards the imago, I find, in this district, that the large pale var. is scarce, and that black varieties more common, and medium shades by far the most common.

Additional note (and corrections) respecting the sexes of *Papilio Merope*.—In my note on p. 148 of the last number of the Magazine, for H. T. Usher, Esq., read H. Ussher; also at line 5 from bottom of page, for *Danaïs Nicarius* read *Danaïs Nicarius*.

Since writing the above note, I have noticed a peculiarity in the outline of the wings of the sexes of *P. Merope* which I think worth mentioning. In the southern form the outer margin of the anterior wings is strongly undulated in both sexes; whereas in the western form (*P. Brutus*) the margin is nearly entire.—A. G. BUTLER, British Museum, October 10th, 1869.

Great abundance of *Pieris rapæ*.—On the 24th of August, immense numbers of *Pieris rapæ* suddenly appeared here, filling every garden with their swarms. On the 25th, they were still more numerous, and continued so until the 28th, when we had a storm of wind and rain, with a great fall of temperature, since which they have been much less abundant. Thousands were slain by the gardeners, some of whom were heard to say that for the first time in their lives they had done a day's work in entomology. I examined some scores of the killed, and all were, without exception, the small white, *Pieris rapæ*.—T. J. BOLD, Long Benton, September, 1869.

Great abundance of *Thrips*.—During the hot calm weather in August, immense numbers of a small black *Thrips* were on the wing in our neighbourhood, and were a great annoyance both to children and adults, by crawling upon their hands and faces, and sheltering amongst their hair. Many people declare that they were often bitten by them. All flowers were much infested, and immense swarms came from the wheat fields, then in the process of reaping. These swarms entering by open doors and windows, were, in many cases, swept from the walls and floors like dust, whilst quiet corners, door-steps, and the like, were black with congregated thousands, much like what they were with *Aphides* in the cholera year.—ID.

ENTOMOLOGICAL SOCIETY OF LONDON, 1st November, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

The President announced the presence at the Meeting of Dr. J. L. Leconte, one of the Honorary Members, a distinguished American entomologist.

Mr. Janson exhibited on behalf of Dr. Power, 7 species of *Coleoptera* not on the British lists, viz., *Triarthron Maerkelii*, Schmidt, taken near Esher in 1869, and also by Mr. O. Janson at Shirley, about the same time. *Silvanus sordidus* Er., taken at Esher, on 4th August; *Nitpus gonospermi*, Duval, of which many specimens were taken by Mr. J. B. Syme in the Orkney Islands; *Bruchus leucostriatus* Schön., from Birch-wood and Gravesend; *B. nigripes*, Schön., from Brighton; *B. nubilus*, Boh., from Surbiton and Gravesend; and *B. canus*, Germ., from Gravesend. Also *Phratora cavifrons*, Thoms. (see Ent. M. Mag., vol. v, p. 100), from Esher, Cowley, and Gravesend.

Mr. Grut exhibited a selection of *Coleoptera* taken by M. T. Deyrolle at Trebizond, including four new species of *Carabus*.

Mr. M'Lachlan exhibited larvæ, pupa, and cocoon of *Mantispa styriaca*, taken to him by Herr Brauer, of Vienna, the species being parasitic in its earlier stages in the nest of a spider of the genus *Lycosa*; the young larvæ, on emerging from the egg, had moderately well developed legs, but became almost apodal as they approached maturity.

Mr. Smith exhibited a considerable number of *Meloe rugosa*, Marsham, which this species had not been captured for many years. He found them near Prittlewell in Essex, in the vicinity of the nest of an *Anthophora*. He had hoped to have exhibited them alive, but their pugnacious disposition caused them to mutilate each other to such an extent that he had very few perfect specimens left.

Mr. Müller exhibited part of his collection of galls, calling particular attention to two forms of maple galls, one on the leaf, the other on the footstalk; notwithstanding the difference in appearance and situation of these excrescences, he believed them to have both been produced by *Acarus aceris* of Kaltenbach.

Mr. Cutter exhibited, on behalf of Mr. Ward, a ♀ of *Ornithoptera Brookiana*, that sex being previously unknown; also a magnificent example of *Papilio Anaximachus*, from the interior of Old Calabar, the only known example having been taken there, one collected by Smeathmann, a century since, and figured by Drury.

Mr. Wormald exhibited some *Rhopalocera* from Shanghai and neighbourhood, collected by Mr. W. B. Pryer. Among them were examples of the curious *Anthracoceros caris*, with hook-tipped wings (*A. Scolymus*), hitherto only known from Japan.

Mr. Dunning exhibited some *Bombyces* sent from Shanghai by Mr. Holdsworth, among them insects identified as *Eona punctata* of Walker, *Lasiocampa remota* of Walker, and *Lebeda hebes* of Walker. Mr. Holdsworth mentioned having bred three from one description of larva.

The President exhibited a drawing of an extraordinary larva sent by Mr. Henry Birchall from New Granada. It was apparently a species of *Chærocampa*, and was remarkable for the extraordinary form of the head, which resembled that of one of the venomous snakes of that country.

Mr. W. F. Kirby communicated a paper "On the Diurnal *Lepidoptera* of Gmelin's edition of the "*Systema Naturæ*."

Professor Westwood read some notes on the type collections in Sweden, viz., at Stockholm, those of De Geer, Paykull, Fallen, some of Schönherr's, and of Gyllenhal's, Dalman, Fries, Billberg, Sahlberg, Boheman, Stal, Holmgren, Thomson, Wallengren, Wahlberg, and the types of the "Eugénie's Resa;" in Upsala, those of Linné (Mus. Lod. Ulricæ), Thunberg, and Gyllenhal; in Lund, those of Zetterstedt, Dahlbom, Thomson, and Ljungh.

LIST OF BRITISH SYRPHIDÆ.

BY G. H. VERRALL.

As I wish to rescue the British *Diptera* from the state of confusion which they exist in most collections, I offer a systematic list of one of the most attractive families; hoping, in course of time, to supplement it with others. As Mr. Walker, in the "Diptera Britannica," has described 153 species of *Syrphidæ*, and I now give only 166, and even some of these doubtfully, I have not materially increased our number of species; but upwards of 20 of Walker's are sunk as varieties, and in many cases the nomenclature has been brought more into agreement with that in use on the continent. When I have marked a species with an asterisk, I have not been able to critically examine it, but give it to be truly British. I intend to supplement the list with notes upon a number of the species; and as a caution, I may remark that I do not consider it at all exhaustive, but anticipate adding it to at least 200 species.

BACCHA, *F.**elongata, F.**scutellata, Mg.**obscuripennis, Mg.*SPHEGINA, *Mg.**cluipes, Fln.*ASCIA, *Mg.**podagrica, F.**floralis, Mg.**dispar, Wlk. (Mg?)**hastata, Wlk. (Mg?)***geniculata, Mg.*DOROS, *Mg.**conopseus, F.*XANTHOGRAMMA, *Schin.**citrofasciata, Deg.**ornata, Mg.*SPHÆROPHORIA, *St. Farg.**scripta, L.**dispar, Lw.**picta, Mg.**menthastri, L.**nitidicollis, Ztt.**teniata, Wlk.*DIDEA, *Mcq.***alneti, Fln.*SYRPHUS, *F.**pyrastri, L.**unicolor, Curt.**laternarius, Müll.**glaucius, L.**albostrigatus, Fln.**confusus, Egg.**lunulatus, Mg.**tricolor, Fln.**topiarius, Mg.**grossulariæ, Mg.**diaphanus, Ztt.**ribesii, L.**vitripennis, Mg.**nitidicollis, Mg.**nitens, Ztt.?*

latifasciatus, *Mcq.*
excisus, *Ztt.*
affinis, *Lw.*
flaviceps, *Rond.*
 corollæ, *F.*
crenatus, *Mcq.*
 luniger, *Mg.*
 arcuatus, *Fln.*
 lasiophthalmus, *Ztt.*
 umbellatarum, *F.*
 auricollis, *Mg.*
maculicornis, *Ztt.*
 cinctellus, *Ztt.*
 balteatus, *Deg.*
 bifasciatus, *F.*

MELANOSTOMA, *Schin.*

hyalinata, *Fln.*
 mellina, *L.*
 scalaris, *F.*
gracilis, *Mg.*
maculosa, *Mg.*
 ambigua, *Fln.*
concolor, *Wlk.*

PLATYCHIRUS, *St. Farg.*

manicatus, *Mg.*
 albimanus, *F.*
cyaneus, *Wlk.*
 peltatus, *Mg.*
 scutatus, *Mg.*
 *fulviventris, *Mcq.*
ferrugineus, *Mcq.*
 immarginatus, *Ztt.*
 clypeatus, *Mg.*

PYROPHÆNA, *Schin.*

ocymi, *F.*
granditarsus, *Wlk.*
 rosarum, *F.*

CHILOSIA, *Mg.*

œstracea, *L.*

intonsa, *Lw.*
 pigra, *Lw.*
vulpina, *Mg.?*
 barbata, *Lw.*
 variabilis, *Pz.*
nigrina, *Mg.*
 impressa, *Lw.*
 albitarsis, *Mg., Ztt., Wlk.*
 flavimana, *Mg., Ztt.*
 ? mutabilis, *Fln.*
 ? funeralis, *Mg.*
 flavicornis, *F.*
flavipes, *Pz.*
 chrysocoma, *Mg.*
 grossa, *Fln.*
 chloris, *Mg.*
 decidua, *Egg.*
 ? vernalis, *Fln.*
 ? chalybeata, *Mg.*
 præcox, *Ztt.*
 pulchripes, *Lw.*
means, *Ztt., Wlk.*
subalpina, *Rond.*
 scutellata, *Fln.*
 soror, *Ztt.*
scutellata, *Wlk.*
maculicornis, *Bons.?*
 pubera, *Ztt.*
pedemontana, *Rond.*
 sparsa, *Lw.*
 antiqua, *Mg.*
nigripes, *Mg.*
 maculata, *Fln.*

LEUCOZONA, *Schin.*

lucorum, *L.*

CHRYSOCHLAMYS, (*Rond.*) *Wlk.*

cuprea, *Scop.*

BRACHYOPA, *Mg.*

bicolor, *Fln.*

RHINGIA, Scop.
 mpestris, Mg.
 rostrata, Deg., Wlk.
 strata, L.

VOLUCELLA, Gffr.
 ombylans, L.
 plumata, Deg.
 ellucens, L.
 affata, F.
 manis, L.

SERICOMYIA, Mg.
 orealis, Fln.
 appona, L.

ARCTOPHILA, Schin.
 russitans, F.
 superbiens, Wlk.

ERISTALIS, Ltr.
 sepulchralis, L.
 eneus, Scop.

stygius, Newm.
 cryptarum, F.
 nubilipennis, Curt.
 tenax, L.

vulpinus, Mg.
 intricarius, L.
 arbustorum, L.

fossarum, Wlk.
 rupium, F.
 pertinax, Scop.

similis, Fln.
 pratorum, Mg.
 nemorum, L.
 horticola, Deg.

HELOPHILUS, Mg.
 florens, L.
 nigrotarsatus, Schin.
 trivittatus, F.
 hybridus, Lw.
 pendulus, L.
 similis, Curt.
 versicolor, F.
 *frutetorum, F.
 lunulatus, Mg.
 transfugus, L.

lineatus, F.
 vittatus, Mg.
 Ruddii, Curt.

MERODON, Mg.
 equestris, F.
 clavipes, F.

TROPIDIA, Mg.
 milesiformis, Fln.
 rufomaculata, Curt.

SPILOMYIA, Mg.
 speciosa, Rossi.

XYLOTA, Mg.
 segnis, L.
 lenta, Mg.
 nemorum, F.
 sylvarum, L.

SYRITTA, St. Farg.
 pipiens, L.

BRACHYPALPUS, Mg.
 bimaculatus, Meq.
 femorata (Criorhina), Wlk.

CRIORRHINA, Meq.
 ruficauda, Deg.
 ranunculi, Pz.

berberina, F.
 asilica, Fln.
 oxyacanthæ, Mg.
 floccosa, Mg.
 regula, Fln.

MYOLEPTA, Newm.
 luteola, Gmel.

EUMERUS, Mg.
 sabulonum, Fln.
 selene, Mg.
 ornatus, Mg.
 lunulatus, Mg.
 strigatus, Fln.

*litoralis, Curt.

ORTHONEURA, Meq.
 elegans, Mg.
 nobilis, Fln.

CHRYSOGASTER, *Mg.*splendida, *Mg.*metallina, *F.**discicornis*, *Mg.**metallica*, *F.*viduata, *L.*, *Fln.*Macquarti, *Lw.*splendens, *Mg.*chalybeata, *Mg.*cœmeteriorum, *L.*? fumipennis, *Wlk.*PIPIZA, *Fln.*noctiluca, *L.*bimaculata, *Mg?*notata, *Mg?*flavitaris, *Mg?*guttata, *Mg.*quadrinaculata, *Pz.**quadriguttata*, *Mcq.?*vana, *Ztt.**noctiluca*, ♂, ?lugubris, *F.**luctuosa*, *Mcq.*CNEMODON, *Egg.*acuminata, *Lw.**vitripennis*, *Wlk.*PIPIZELLA, *Rond.*virens, *F.*biguttata, *Curt.**flavitaris*, *Wlk.*Heringii, *Ztt.**interrupta, *Hal.**melancholica, *Mg.*PARAGUS, *Ltr.*tibialis, *Fln.**sigillatus*, *Curt.**obscurus*, *Mg.**femoratus*, *Mg.*CHRYSOTOXUM, *Mg.*sylvarum, *Mg.**arcuatum*, *Wlk.*? *marginatum*, *Wlk.**arcuatum*, *L.**scoticum*, *Curt.*octomaculatum, *Curt.*elegans, *Lw.**intermedium*, *Wlk.*festivum, *L.*vernale, *Lw.*bicinctum, *L.*PSARUS, *Ltr.**abdominalis, *F.*CALLICERA, *Pz.*ænea, *F.*MICRODON, *Mg.*mutabilis, *L.**apiformis*, *Wlk.*devius, *L.**apiformis*, *Curt.*CERIA, *F.*conopsoides, *L.*

* * I shall feel much obliged to any gentleman who possesses any *Syrphidæ*, if he will allow me to examine them. It will be a benefit to both of us, as it will improve the arrangement and nomenclature of his collection, and increase my knowledge of the British species. I should like anybody willing to send to put the whole of his specimens in a store box, and send them by train; as I think types picked out to send by post would miss many allied species.

The Mulberries, Denmark Hill, S.E.; December, 1869.

DESCRIPTIONS OF TWO NEW SPECIES OF LEPIDOPTERA RHOPALOCERA.

BY W. C. HEWITSON, F.L.S.

CHARAXES CINADON.

Upper-side. Male rufous-brown. Both wings crossed beyond the middle by a rufous band, broadest where the wings meet, narrow and in the form of a V at its commencement on the costal margin: both wings crossed from the band to the outer margin. Anterior wing with two black spots within the cell, and three or four larger black spots on the outer border of the band: a marginal series of rufous spots. Posterior wing with a sub-marginal series of lunular rufous spots: the margin black: two minute spots of lilac-white at the anal angle.

Underside. Both wings with the central band (which is narrower than above on the anterior wing) silver: three spots in the cell, two below these, one at the end of the cell and three touching the central band, all black bordered with silver: a sub-marginal band of grey, bordered towards the anal angle with black. Posterior wing with a black band at the base bordered with silver: three brown bands bordered with silver parallel and near to the inner margin, a band near the base bordered at its commencement on the costal margin, black below bordered with silver and in the form of a V where it runs parallel to the bands just described: three or four black spots on the central band and below it a band of black spots bordered outwardly with silver: a sub-marginal band of spots and the outer margin black, bordered with silver: two spots of silvery-grey bordered with black at the anal angle.

Exp. $3\frac{3}{8}$ inch. Hab. Natal.

In the collection of Mr. Christopher Ward. This species, one of the most beautiful of the genus, decorated as it is profusely with silver, was taken by Mr. Morant, who describes it as exceedingly swift in flight.

OPSIPHANES ORGETORIX.

Upper-side. Male dark rufous-brown. Anterior wing crossed from the costal margin beyond its middle to the anal angle by a curved rufous band, broadest where it crosses the discoidal nervures: three sub-apical white spots. Posterior wing with a tuft of hair having its origin near the end of the cell: the outer margin broadly rufous.

Under-side rufous, beautifully undulated and spotted with dark brown and white. Anterior wing with a brown spot near the base, a quadrifid spot in the cell bordered with black, a broad transverse dark brown band before the middle: the outer margin rufous-brown, bordered

inwardly with rufous-yellow in arches on its inner margin, and traversed by two linear arched bands of black; a sub-apical oval ocell with rufous border, and for pupil a line of white: some apical spots white. Posterior wing with two large ocelli bordered with black, touching the costal margin at its middle, marked by a semi-circular white line; the other towards the anal angle, marked by a round spot bordered with black, and irrorated with brown and yellow, crowned by a line of white: the outer margin broadly rufous, its inner border zigzag.

Female dark rufous-brown. Anterior wing crossed near the middle by a nearly straight band of *lilac-grey*. Posterior wing with the outer margin broadly orange-yellow. Under-side exactly as in the male.

Exp. $4\frac{1}{10}$ inch. Hab. Nicaragua (Chontales).

In the collection of W. C. Hewitson,

I am indebted to Mr. Belt for this very interesting addition to my collection. The male on the upper-side scarcely differs from *O. Bercythus*, which, with all the other species we know, has a female like itself. This species alone has a female very dissimilar in the colour and position of the band of the anterior wing.

Oatlands, Weybridge: December, 1869.

ON SOME BRITISH CYNIPIDÆ,
BY THE REV. T. A. MARSHALL, M.A.

(Continued from Vol. iv, p. 275.)

In former papers I have endeavoured to enumerate British species as far as the genus *Aulax*, inclusive. I have now to deal with the remaining sections, (1) INQUILINÆ, (2) APHIDIVORÆ, and (3) PARASITICÆ. The first of these consists in Britain at present of the genus *Synergus* alone. These insects form a natural link between the gall-makers and the carnivorous groups that follow. They are found abundantly in all galls, upon the interior substance of which they are supposed to feed in the larva state, although they contribute nothing to the formation of the excrescence. Their position in life, is, therefore similar to that of the cuckoo-bees, *Apathus*, &c., which are not carnivorous, but avail themselves of the labours of others for support. The real proprietor of a gall infested by *Synergi* never arrives at maturity so far as I have been able to observe. The reason of this seems obscure. Several inquilines will emerge from a gall of *C. lignicola*, intended only to accommodate a single *Cynips*. They cannot have sustained themselves on the flesh of the *Cynips*, which would be insufficient for more

one. It does not appear, then, why the *Cynips* should not come uninjured; as the contents of these large galls seem to be more enough both for the legitimate owner and the intruders billeted him. These guest-gallflies have been a fruitful source of error servers. No less than 7 of the species described by Linné as galls, are in fact referable to the genus *Synergus*. The numerous species have found no describer but Hartig, whose brevity renders unlikely that any one should succeed in identifying them with certainty. The second group, the *Aphidivora*, consists of the numerous and minute species of the genus *Allotria*, which live in the larval and pupal states in the bodies of plant-lice, and stand first among the true parasites. They are distinct from those which follow by their structure, which closely resembles that of *Cynips*. The members of the third* group are all true parasites, infesting various insects, and especially, it would seem, appointed to keep down the numbers of the voracious order. I shall now give a short table of the British genera, before proceeding in my proposed attempt to reckon up the indigenous species.

- Facies prope clypeum striolata. Pronotum sensim declivè. Terebra exserta. Coxæ posticæ distantes 1. SYNERGUS, Hart.
- Facies haud striolata. Pronotum verticale. Terebra haud exserta. Coxæ posticæ approximatae.
- A. Scutelli fovea cyathiformis, marginata. Abdomen segmento 2^{do} maximo, cæteris brevissimis. (*Eucoilidæ*.)
 - a. Alæ apice integræ, nec ciliatæ.
 - b. Abdomen segmento 2^{do} basi haud tomentoso 5. COTHONASPIS, (Hart.) Thoms.
 - bb. Abdomen segmento 2^{do} basi tomentoso.
 - c. Metapleuræ haud tomentosæ. Alæ completæ. Antennarum articulus 1^{us} 2^{do} longior 4. EUCOILA, Westw.
 - cc. Metapleuræ tomentosæ. Alæ abbreviatæ. Antennarum articulus 1^{us} 2^{do} parum longior. 6. GLAURASPIDIA, Thoms.

* According to Walsh, the genera *Aular*, *Amblynotus*, and *Sarothrus* are inquiline. Some of the European species of *Aular* certainly make galls. Of the habits of the other two nothing is known in Europe; and it seems better to leave our species where they are for the present.—T. A. M.

aa. Alæ apice marginatæ, longius ciliatæ,
—sed interdum desunt7. KLEIDOTOMA, Westw.

AA. Scutelli fovea nunquam marginata,
minimè cyathiformis, interdum nulla.

a. Abdomen fortius compressum, segmen-
tis ♂ 2—6 æqualibus, ♀ 5° maximo.
Antennæ ♂ 15-articulatæ.....3. IBALIA, Latr.

aa. Abdomen non aut vix compressum,
segmentis ♂ ♀ 2 — 6 inæqualibus.
Antennæ ♂ 14-articulatæ.

b. Scutellum basi haud foveolatum. Ab-
domen segmento 2° 3° longiore.....2. ALLOTRIA, Westw.

bb. Scutellum basi foveolatum vel bi-
foveolatum. Abdomen segmento
2° 3° non vel parum longiore.

c. Abdomen petiolatum, segmento
2° 3° non brevior.

d. Metathorax areolis 2 instruc-
tus. Petiolus striolatus,
coxis posticis brevior. Ab-
domen non compressum.....14. EGILIPS, Hal.

dd. Metathorax areolis nullis.
Petiolus lævis, coxis posticis
longior. Abdomen compress-
iusculum13. ANACHARIS, Dalm.

cc. Abdomen subsessile, segmento
2° 3° brevior.

e. Segmentum secundum dorso
in ligulam non producto,
simplex.

f. Scutellum fovea basali unica.9. LONCHIDIA, Thoms.

ff. Scutellum fovea basali gemi-
nata.

g. Oculi hirti.....8. FIGITES, Latr.

gg. Oculi nudi.

h. Segmentum 2^{um} basi
tomentosum

- kk.* Metapleuræ opacæ.
 Antennæ ♀ thorace
 longiores12. *AMBLYNOTUS*, Hart.
- kk.* Metapleuræ læves.
 Antennæ ♀ thorace
 non longiores11. *SAROTHRUS*, Hart.
- hh.* Segmentum 2^{um} basi
 nudum, glaberrimum.10. *MELANIPS*, Hal.
- ec.* Segmentum secundum dorso
 in ligulam producto.
- l.* Scutellum apice truncatum,
 haud mucronatum15. *ONYCHIA*, Hal.
- ll.* Scutellum apice mucrona-
 tum16. *ASPICERA*, Dahlb.

Mr. Haliday formerly detected a species allied to *Allotria*, but
 the two apical joints of the antennæ connate. This he named
Charips microcera. It is not included above, for want of types
 description. All the above genera may easily be found by the
 vector except *Ibalia*, *Lonchidia*, *Onychia*, and *Aspicera*. *Ibalia* is a
 parasite of *Sirex juvenicus*, and is well known by Curtis's figure. It
 probably not been met with since his time. *Onychia* I have never
 been able to find. *Aspicera* includes *Evania ediogaster*, Rossi, which
 the scutellum produced into a horizontal spine; it is stated to be
 British in several books. A species of *Lonchidia*, having a dark spot in
 the fore-wing, was first noticed by Mr. Walker, and afterwards taken
 in Wales. *Synergus*, *Eucoila*, and *Allotria* are rich in species,
 and require much further investigation. *Synergus* may be bred from
 oaks, or taken by beating oaks, *ad libitum*. The *Eucoilidæ* are parasites
 of *Anthomyia*, *Syrphus*, &c., and frequent *Umbelliferæ*, as does also
Figites. The curious little *Glauraspidia* I have found rarely, in dark
 places, in woods. The minute *Kleidotomæ* occur in flowers,—and at
 least two sub-apterous species are to be sought on the sea shore,
 amongst *Algæ* (*Figites subapterus*, Walk., and *Kl. halophila*, Thoms.).
Figilips is common in flower gardens, and on windows. The petiole is
 not so long as that of *Anacharis*, which resembles a *Pelopæus* or *Ammono-*
ila, *in petto*. *Figites* is easily distinguished from *Eucoila* by the
 scutellum, which in the latter has a singular cup-shaped fovea, mar-
 gined all round. *Melanips* is sometimes common on nettles.

(To be continued.)

Observations on Necrophorus microcephalus, Thoms.—Herr Michow (Be. Ent. Zeit., X, p. 411) makes some remarks upon this species, entirely in accordance with my observations upon the subject in the "Entomologist's Annual" for 1869, and of which I add a translation, as likely to interest British Coleopterists.

"Among a great number of *Necrophorus ruspator*, Er., taken by me in Pomerania, is a ♂ exactly agreeing with the diagnosis of *microcephalus*, Thoms. Moreover, amongst these same *N. ruspator*, are two ♀, noticeable for their small and delicate build of body (analogous to *microcephalus*, ♂). These ♀ had the apex of the trochanter, as in the larger *ruspator* ♀, thin, pointed or obtuse; but I believe that I found a constant differential character for the small ♀ in the structure of the clypeus, whereby I referred them to the *microcephalus* of Thoms. whose diagnosis (clypeus of the ♂ with a membranous depression in the middle) I was inclined to complete thus:—"clypeus of the ♀ with a membranous depression near the anterior margin." But, after having examined my other species of *Necrophorus*, I am inclined to doubt the value of this as a diagnostic for ♂ as well as ♀. Large and small examples of *N. sepultor*, Charp., exhibit characters similar to those of *ruspator*; thus,—in large ♂ *sepultor* the inner apex of the trochanter is strongly developed, and projects laterally, whilst in small specimens it does not project laterally, and the projection sometimes entirely disappears, thus approximating to the ♀; the clypeus, also, in the larger ♂ has a deep membranous depression, reaching to the posterior margin, whilst in the smaller specimens this depression only reaches the middle. I have, moreover, a ♂ which forms a transition from the largest to the smallest ♂ *sepultor*, in the structure of the apex of the trochanters and of its clypeus. In the commoner species of *Necrophorus*, the structure of the clypeus and trochanters generally varies too much (as well in the ♂ as the ♀) for those parts to afford valid differential characters. Moreover, as in that genus the ♂ universally exhibits a preponderance of development in build of body, it is evident to me that our species individually exhibit in their smaller male a form which, whilst approximating very closely to the female type in general structure, also comes very near that type in the slighter development of individual organs, without thereby forming a separate species. In this view I am materially assisted by the fact that these smaller varieties exactly agree, as to pattern of the elytra, with the larger forms to which they specifically belong; whilst all the species of *Necrophorus* that are acknowledged to be good, and exhibit other constant and differential characters, are very distinctly separable by the elytral markings. If it be possible to indicate a like connexion, through intermediate forms, between *N. gallicus* and *N. fossor* (for which I have not sufficient material to do so) then the former will constitute the type and the latter the less developed form of the same species."—E. C. RYE, 10, Lower Park Fields, Putney, S.W., November 1869.

Note on Microptinus (Nitpus) gonospermi.—Referring to my remarks upon the supposed British origin of certain examples of this insect in the Annual for 1870, I may observe that I have just received a letter from Mr. Syme (too late for incorporation in that publication), wherein he says that *M. gonospermi* must not be put in the British lists on his authority, for he has no idea when he took it, certainly not in Orkney, where he took *Niptus crenatus* and no other of the *Ptinidae*.

adds that he has received many plants from the Canaries, and very
 the beetle came in some of these, especially as he took it in the house.
 observations fully agree with my own recorded convictions.—ID.

Hemiptera at Folkestone.—When collecting *Coleoptera* at Folkestone in June
 was particularly struck with the abundance of *Hemiptera-Heteroptera* in the
 of that town; certain of the larger species being especially plentiful.
 the most common was *Eurygaster maurus*, varying from light drab or grey
 deep red-brown. This large and interesting insect was to be seen by the
 en, or more, at almost every sweep of the net among the grassy ditches on
 slopes behind the town. Folkestone is the only locality given for it in
 and Scott's "British Hemiptera;" and the earliest time therein stated for
 the two species next mentioned, viz., July, may certainly be ante-dated by a
 month. It is excessively difficult, in mounting this bug, to persuade its legs
 to any other but a swimming position on the card. Equally abundant, on
 the slopes of plants, both in the above-mentioned places and all along the cuttings
 S.E.R. for many miles, was *Coreus hirticornis*; and the awkward looking
Coreus scapha occurred, almost as commonly, in similar situations. The prettily
 and *Eysarcoris melanocephalus*, for which the only locality given in Brit. Hem.
 month (where I have taken it in June, on the road near the "Fox"), also fell
 to the net sparingly; as did, once, *Alioides inflexa*, on the Railway bank close to
 the Station: for this insect Folkestone seems a new locality. On the Warren,
 large stones in grassy places at the bottoms of the cliffs, I found
Coreus scapha *agilis*, on some half-dozen occasions, when looking for *Plinthus*. For
 this insect, which fully acts up to its specific name, both the time and locality ap-
 pear to be new, as it is only recorded from Devon, in September. On the hill-slopes,
 I found one example of *Corimelana scarabæoides*, which has also occurred to Mr.
 Waterhouse and myself at Carshalton, and used to be taken by the late
 Robertson near Gravesend; these being all new localities. The common
Coreus albomarginatus was, also, frequently to be seen; and succeeded in "taking in"
 the writer of these notes, who thought he had found a bug new to Britain,
 one of the specimens he found had "the lateral margins of the pronotum
 yellowish-white," which they should have had, *teste* British Hemip. Of other plebeians
Coreus purpureipennis (abundant at Wimbledon, on *Ulex*), *Pentatoma baccarum*,
Podops inunctus were especially common. The Schoolmaster of the *Hemiptera*
 have been fearfully abroad in 1860, when the last mentioned bug was recorded
 as the "Intelligencer" as confounded with some *Cassideæ*; but I am afraid the
 number of students of that order in the present year are not so numerous in this
 country as to justify us in much self-exaltation.

Of minor species, taken at random, and kindly named for me by Mr. Scott, I
 mention *Scolopostethus contractus*, *Peritrechus nubilus*, *Trapezonotus agrestis*,
Coreus sylvaticus, *Zosmerus capitatus*, and *Monanthia cardui* and *costata*; none of
 them, save, perhaps, the last, worth the trouble of recording.

In the *Hymenoptera*, I found a specimen of the very curious and (for a *Chalcis*)
 large *Brachymeria flavipes*, when sweeping on the hill-slopes above referred to.—ID.

Notes on Nematus pedunculi, Hartig ("Blattwespen und Holzwespen," p.

—In July of the present year, my friend, Mr. H. W. Kidd, sent to me Godalming, a large batch of leaves of *Salix cinerea*, bearing on the under surface numerous slightly pedunculated pubescent galls of about the size of a large pea.

Their colour was throughout of an uniform green, a shade paler than that of the leaves themselves, and they preserved this green tinge unaltered until the larvæ left them. They were placed principally in rows of two or three along the main ribs.

The base of deeply seated specimens protrudes sometimes through the cuticle, in which case it alone assumes a red tinge.

Each gall was tenanted by a single saw-fly larva, lodged within a cavity equal to the size of the gall.

When about a line and a-half long, the larvæ were whitish-green, their head dark brown with a black spot each side, within which the eye was situated.

At 7.30 p.m., on the evening of the 10th July, I noticed a full-fed larva leaving one of the galls.

It first showed its head through a round hole *just gnawed*,* and scarcely large enough to get through. Gradually segment after segment was worked out, a strong internal pulsation forward being perceptible all the time. The freeing of the last two or three segments seemed to give it the most trouble, as it rested repeatedly for several minutes after each effort. Why the hole was previously enlarged enough to admit of an easy and quick exit, I do not understand, except on the supposition, that, when it is sufficiently large to pass the head, the larva's instinct prompts it to force its way out without delay, even with some inconvenience.

It took the larva in question about fifteen minutes to emerge, and, when out of the gall, it rested, extended to its full length (3") for about seven minutes. It was now of a dull olive colour, the head dull pale brown.

Subsequently it became restless, and began to perambulate without interruption the interior of the jam-pot and the surface of the layer of earth contained therein.

Within a week's time a great number of companions gradually made their appearance, all displaying the same restless disposition, wandering day and night about their prison. But only very few burrowed and spun their thin coffee-brown cocoons of the size of a grain of wheat under-ground. The majority made no attempt to construct cocoons, and gradually died above ground, attacked by some insidious disease. For symptoms of this ailing, I took their becoming lazy, their becoming immobile, stiff, and their assuming a dull reddish hue. When this change occurred, death generally set in within an hour.

Warned by this failure, which may perhaps be attributed to the close confinement and the dampness of the earth supplied, I separated a few still inhabited galls from the rest, and placed them in a large chip box without any earth. When the larvæ of this batch came out, the same impulse of wandering about was shown, but opening the box a few days afterwards, I found they had all disappeared.

I turned the leaves out of the box, expecting to find the cocoons attached

* In this respect, this larva has a different habit from others of the genus, which long before the final exit, keep a hole open for the discharge of "frass," and an occasional emergence.

es, but none were to be seen; so, knowing that an escape had been im-
 [carefully began to examine gall after gall, when it soon turned out that
 them were filled with the closely packed cocoons, divided only by walls,
 of frass intermingled with silken threads to keep the fabric together.
 of their usual resources, the sagacious creatures had crowded together in
 the most capacious galls, and spinning (against their custom) gregariously,
 their own frass as a substitute for earth.

A few perfect insects bred from Mr. Kidd's batch appeared 4—6 weeks after
 their cocoons. They liberated themselves in the usual way, by cutting
 top of the cocoons with their mandibles.

1868, I collected a few of these galls near Penge, as late as October the 9th;
 they were full-fed about the 16th of the same month, but died in their cocoons.
 It is very likely that the antumnal brood passes the winter in the cocoon
 state, the fly appearing in spring. At the present time, the galls in all stages
 are plentiful in this neighbourhood.—ALBERT MÜLLER, South Norwood, S.E.,
 November, 1869.

On the examination of living gall-midges.—The circumstance, that the minute
 insects of *Cecidomyia* are peculiarly liable to shrivel up, and to change their
 appearance soon after death, particularly if the latter be brought on by artificial and
 means, necessitates their examination whilst alive, as most of the published
 descriptions, and very properly so, are drawn up from such specimens.
 But, on the other hand, their great vitality and restlessness present consider-
 able obstacles to the observer who attempts doing so.

After several unsuccessful experiments, I have accidentally hit upon a simple
 method which allows one to examine these delicate insects closely, whilst alive, and at
 the same time renders them immobile, as far as head, antennæ, body, halteres, and
 legs are concerned.

By exposing them to the scent of "Eau de Cologne" (and I find that anything
 stronger will not do), and, of course, without wetting them at all, they lose after
 a few minutes the power of moving their limbs; the wings alone are lifted up and
 begin to vibrate rapidly, so much so as to become almost invisible.

This state lasts about twenty minutes, during which time every other part is
 motionless and still, the sexual organs being generally much protruded, a matter of no
 importance in the separation of closely allied, yet distinct species.

During this partial collapse of vital action, the midges, possessing still all
 the brilliancy of outline and colours of life, may be turned over and examined care-
 fully, and when the sudden stoppage of the alary vibration indicates that the
 process has arrived, the investigation may be terminated by scrutinizing the
 position of the wings, and setting the flies for the collection, in which, however,
 the shrivelled bodies present, as a rule, anything but a good appearance.—ID.

Semasia obscurana, a gall inquiline.—There having been some doubt as to the
 identity of the *Tortrix* bred by Mr. C. W. Dale from oak-apples, as recorded by him
 in the November number, p. 146, we requested that gentleman to allow us to examine
 the specimen which he obligingly did. It appears to be a small starved example of *Semasia*
obscurana, Steph., a somewhat rare species, generally found among undergrowth

in woods. With reference to this, we ask our readers to compare the late Sen von Heyden's Note on his *Grapholitha gallicolana*, in the Stettin. Zeitung for 1868, p. 118 ("Entomologist's Annual," 1868, p. 41). An examination of a type *gallicolana* (which was bred from oak-apples) induces us to think it may only be a climatic form of our *obscurana*. Mr. Dale bred his specimen on the 23rd of June from oak-apples collected in the spring, near Sherborne. *Obscurana* occurs in Darenth, and we hope some of our metropolitan entomologists will collect oak-apples there next spring; but the insect probably frequents all oak-woods, and will become common now that something is known of its habits.

Dr. Rössler states that the larvæ of *gallicolana* live through the winter in old and dried galls of *Cynips quercûs-terminalis* which are firmly fixed on the trunk of young oaks, and that severe winters seem to be fatal to them; after a mild winter, nearly every gall collected produced one or several of the moth.—Eds.

Notes on Psychidæ.—Bruand's name of *anicanella* is very apt for that species, as the ♀ has the anal tuft of a snowy whiteness. In the ♀ of *salicicolella*? the anal part is not altogether so white, particularly beneath, but it has a white bloom on the sides. The anterior wings of the ♂ of the last species are much elongated, a fact very different from any other I possess. The ♂ *anicanella*, on the contrary, much resembles in appearance specimens of our *intermediella* and *roboricolella*.

Judging by Bruand's description in his Manual, surely these two last are named in our collections, as he describes the ♀ of the first to be much lighter coloured than *crassiorella*, whereas our *intermediella* ♀ is by far the darkest of the three we have, and he describes the ♀ of *roboricolella* as having a white anal tuft: ours has it brown.

In all probability, the mistake has arisen from male specimens only having been sent to the Continent to be named; without the cases and females in a fresh state, it would surely be impossible to determine a species.

Males of *intermediella* copulated most readily with females of *roboricolella* and *vice versâ*, but I could not get males of *anicanella* to take to any females but those of its own species, and then only towards evening (the other species copulated at any time, even in broad sunshine).

It seems to be of a much more sluggish nature than the rest, more nearly allied, as its case proclaims to *Pysche fusca*, which flies most at dusk.

Anicanella I discovered for the first time this season, although I have worked our woods nearly 30 years.

I wish entomologists in other localities would interest themselves more with this little genus; but I am afraid its friends are few.

I have the young of three species now feeding on the trunk of an apricot in my garden, and growing capitally, but they are mixed.—ROBERT MITFORD, Hampstead, N.W., September 8th, 1869.

Life history of Emmelesia unifasciata.—I am indebted to Mr. J. Bryant for the specimens which have enabled Mr. Buckler and myself to work out the early stages of this species, which had long eluded our investigations.

I have taken the imago at gas-lamps here in Exeter, and have several times had eggs sent to me; and amongst other plants, I have supplied the necessary

It now proves its proper food, namely, *Bartsia odontites*; but, owing to the
 with which this plant, when plucked and put in water, decays and becomes
 , I had always failed to rear them. In 1862, Mr. Buckler received from
 and, and figured, a larva now proved to belong to this species; but, as it
 , the figure remained un-named, and nothing could be said about it.
 the second week of last September, Mr. Bryant sent Mr. Buckler eggs
 l by captured specimens of *unifasciata*; and, on being instructed by him
 look for, found that *Bartsia odontites* was growing plentifully in the
 in which the moths were taken; when, therefore, the eggs came on to
 determined not to confuse the larvæ with a number of food-plants to pick
 ose from, but put them at once on a potted plant of *Bartsia*. This was
 eptember 14th, and, unfortunately, I was not able to devote much attention
 till the beginning of the present month, when (October 4th) to my dis-
 ound the plant dead and decaying. However, a careful search enabled me
 t a solitary survivor crawling about on the damp rotten seed-pods, so I
 e now that there was no longer a doubt about the food-plant; and finding
 e field, which had supplied me with it here, had just been ploughed up, I
 pply at once from Mr. Buckler. The seed-pods on the sprigs he sent me
 ginning to ripen, so partially opening one of them, I placed my little larva
 nd soon saw it hide itself within. I now left it undisturbed for a week,
 t for granted that it was going from pod to pod, and feeding up well; at
 ought I would look for it, and, after opening several pods as carefully as
 , found it stowed away in one of them; but, instead of being increased in
 ooking shrivelled, and much thinner than when last seen. This was dis-
 eing; but, taking comfort at the thought that more tender diet might suit it
 I asked Mr. Buckler to get some of the greenest pods he could find, and
 scovered that they were just what was wanted. On October 16th, I found
 va in the act of moulting within a seed-pod, and, after this, its last moult, a
 change took place in its appearance and manner of life.
 about this time, too, Mr. Bryant, having, at Mr. Buckler's instigation, searched
 lly the *Bartsia* plants in his locality, found several larvæ feeding at large;
 s those which he kindly sent to Mr. Buckler exactly corresponded with the one
 reared, there was no difficulty in identifying their species; and from these
 er, with my own solitary specimen, the following account and descriptions
 been drawn up.
 The egg is laid in August, and larva soon hatched. Perhaps it feeds first inside
 owers of the *Bartsia*, but, at all events, we know that, whilst young, it lives
 i the un-ripe seed-pods, which it enters by a hole in the side, remaining
 n until all the seeds are consumed, the frass at the entrance hole alone show-
 s whereabouts. After its last moult, it no longer hides itself, and seems to
 no difficulty with the ripening capsules and seeds, still making a hole as
 e, in the side, and inserting its head and front segments as far as it finds it
 ssary to get at the seeds, all the while holding on with its prolegs to the stem
 de. It seems to become full-fed towards the end of October, and goes just
 r the surface of the ground for pupation.
 The simultaneous change of habit and ornamentation at the last moult is very
 esting, but I will leave wiser heads than mine to determine which is the
 e of the other.

The eggs were too far gone for description when I had them. The hatched larva is exceedingly small, yellow in colour, with a dark head. Afterwards it becomes paler, of a yellowish-white, and is to look at like a small maggot.

On October 14th, just before its last moult, I made this note of its appearance. Full $\frac{1}{4}$ -inch long, and plump, but able to stow itself away in a *Bartsia* seed. Tapering towards the head, and not so much towards the tail; the skin smooth and glossy, the usual dots very minute, but distinct, being dark; the ground-colour yellowish-white; head dark brown; plate on 2nd segment pale brown; a similar pale-brownish plate also on 13th segment, which looks darker from the tubercles on it being black. On a very close inspection, one can trace the course of the lines—soon to be developed distinctly, but they cannot yet be described as plainly noticeable.

Immediately after the last moult, its appearance is much prettier than at other time, the ground-colour being of a pale delicate buff, and the lines very clear and almost black; but this contrast is soon lost, the ground becoming darker and dingier, and the lines paler and more diffused.

When the larva has become full-fed, the length is about half-an-inch, the figure stout, somewhat flattened; the segments 4, 3, and 2, tapering rapidly; the head still narrower than 2, and round in shape; half the 2nd segment scale-like and shining; the hinder segments also taper to the tail; the 1st is rough and wrinkled; the tubercles dull white, furnished with short dark brown hairs: the ground-colour varies in different individuals—being greyish-yellow, greenish-grey, greyish-brown, or brown; the dorsal line blackish, beginning very faintly on the front of each segment, thickening towards its end, and slightly interrupted at the fold; the sub-dorsal line more or less visibly continuous according to the depth of the ground colour, and may be described as a line of stout blackish dashes placed at the folds, sometimes connected by brownish streaks which fade away into the ground-colour about the middle of each segment; on segments 10 to 13, the dorsal and sub-dorsals unite to form a darker smoky streak, which tapers away to a point at the anal extremity: below the sub-dorsal comes a brown wavy line; the spiracular region is brownish above and more yellowish-white below, these colours being definitely separated by a line; the black spiracles are placed in open spaces of the paler colour: at the 10th segment, the lateral lines fade away into the paler colour, thus forming a strong contrast to the united dark lines on the back; below the spiracles comes a clearly defined stripe of dark brown, followed by a broader one not so dark; the belly varied with yellowish and pinkish-white, with two or three distinctly darker lines along it; the head and collar yellowish, the dark lines passing through them as freckled stripes.—J. HELLINS, Exeter, October 25th, 1866.

Description of the larva of Chilo phragmitellus.—On February 12th, 1869, received from the Rev. J. Hellins, two larvæ of this species, and on the 28th, some more of them from the Hon. T. de Grey, in stems of *Arundo phragmites*, either hibernating or feeding (perhaps) on the knots inside. Early in April, I found one that had escaped from the stems, very actively crawling about.

The larva is three-quarters of an inch in length, cylindrical, and tapering very little behind; the segmental divisions deeply cut: each segment with only one sub-dividing and deep wrinkle.

ground-colour of the back is pinkish-grey or pinkish-brown, the sides
 ur, and the belly white.

dorsal line very thin, is dark greyish-brown or pinkish-grey; the sub-
 riple is of a similar colour but a little paler; the spiracular lines a little
 and paler, though on the thoracic segments it is not linear but blotchy;
 spiracular line is thinner still and of the same pinkish-grey colour; the
 brownish-grey or pinkish-grey, with an ochreous tinge, having the large
 the mouth blackish; on the back of the second segment is a pinkish-
 wn semi-circular plate, and another on the anal tip; the small tubercular
 dark brown, each having a fine bristle of the same colour; the spiracles

vious to pupation, the larva gnaws an oval hole from within at the side of
 l, and covers it carefully with silk and bits of dry reed, so as almost
 to conceal it, and which serves as an outlet for the moth.

the pupa is three-quarters of an inch long, moderately slender, and of nearly
 bulk, tapering only at the two last abdominal segments; the anal extremity
 and fringed with a circle of small hooks; its colour is a pale ochreous-brown,
 little polish. The moths emerged on June 4th to July 2nd.—Wm. BUCKLER,
 18th.

Notes on the larva of *Acronycta alni*.—A friend, who took a larva of this
 last summer, in Herefordshire, has communicated to me some curious facts
 ng it, with permission to make what use of them I pleased. With a view
 re, of encouraging the search for this larva, so widely distributed, yet so
 send the following particulars:—

the larva was taken on alder, the 17th of July, and was not recognised as
alni, being then black and whitish-grey, and resembling a piece of birds'
 (this comparison, it will be remembered, has been used before for this

After changing its skin, it showed clubbed hairs, and was recognised. It
 all hours, by day as well as by night, resting on the *upper-side* of the leaf,
 is very *easily dislodged*. It was sluggish, and drank freely. Surely this may
 explanation of so many having failed to induce this larva to feed in confine-
 it wanted water. When about to change, it nibbled a large hole in a piece
 k, and, fastening the fragments together, framed its cocoon, and became a
 pupa, with the abdominal segments rather long and pointed.

the larva was beaten in the usual way with umbrella and stick. It was
 offered water till it got sluggish, and seemed preparing to change, when
 a bath given it, which "assists some larvæ in changing their coats." At
 eriod, it rolled about, if disturbed, in a loose half-circle, speedily returning to
 ight position. After changing its skin, it grew rapidly, and drank several
 drops of water daily. As these were sprinkled on the leaves, it moved its
 from side to side, and drank very quietly. At this time it was isolated, and
 the choice of several sorts of leaf. It ate a little lime and a little oak, but
 at first: afterwards confining itself to *small alder leaves*, at the lower end of
 ng shoots. There were several large oaks close to the alder hedge; also apple,
 and nut in rear of the spot, where it was taken. The last moult was about
 22nd of July, and it turned to a pupa the first week in August. After changing
 skin, it did not eat the cast-off coat, but left it on the upper-side of a leaf.--
 NARD SMITH, Marlow, November 27th, 1869.

Abnormal second brood of Selenia illustraria.—Since my communication in the last number respecting *lunaria*, a still more remarkable aberration has occurred with the above insect. A friend sent me a few larvæ, last spring, from which I had about half-a-dozen pupæ. To my great disappointment, these did not produce the summer insect, and I supposed them to be dead. In the last week, however, of November, a female appeared. This, in itself, was strange enough; but, what was far more remarkable, it was not of the summer form.—J. GREENE, Appleton Road, Redland, Bristol, December, 1869.

[We can share Mr. Greene's surprise at his insect not proving of the summer form.—Eds.]

Note on Morayshire Lepidoptera.—In the editorial note to my friend, Mr. Norman's list of *Noctuæ* at Forres, there is the following remark: "The productions of that district are evidently of a less boreal nature than are those of Rannoch." Now with all due deference to the editors, I think that "less boreal" should be replaced by "less alpine;" for, *cæteris paribus*, Forres has as many boreal species as Rannoch; otherwise the two places can scarcely be fairly compared—one, a high-lying, cold, inland district; the other, low-lying, warm (Forres is one of the mildest and driest places in Scotland), and maritime. And it is this maritime situation that I think Forres is indebted for its southern species. For taking the case of a common fern (*Scolopendrium vulgare*) and a common land Mollusc (*Helix aspersa*), we find that, although found throughout Britain, yet in the northern provinces they only occur near the sea (see Watson's *Cybele*, vol. 2, p. 283, "the tendency of plants to linger along the coast-line to a higher northern latitude than that at which they will exist in inland situations"). Thus, I think that many of those southern species which appear to be isolated at Forres would be found at other parts (if otherwise suitable) of the northern coast line; e.g., the two southern species (not yet found at Forres) whose occurrence on the coast of Forfarshire I now record.—F. BUCHANAN WHITE, Perth, December 7th, 1869.

Lepidoptera new to the Scottish lists.—*Leucania littoralis* and *Heliethis marginata*, not hitherto recorded as Scottish, have been taken this summer by Mr. Bruce, on the coast of Forfarshire. *Phycis subornatella*, Dp., has been taken not uncommonly near Perth, both last and this summer by Mr. W. Herd. My determination of this local species has been kindly corroborated by Mr. Doubleday.—ID.

Pædisca oppressana at Norwich.—I have stumbled upon a new locality for *Pædisca oppressana* on some poplars not a quarter of a mile from my house, but I only took two specimens; it seems very scarce. Perhaps the ground is already occupied, as *Spilonota neglectana* and *aceriana* abound on the same trees, while *Sesia apiformis* has honeycombed the bark and roots.—CHAS. G. BARRETT, Norwich, 16th November, 1869.

Occurrence of Xylina conformis and Dasycampa rubiginea in Monmouthshire. I send you this, to tell you that Mr. T. Philipson, of Newport, Monmouthshire, has taken *Xylina conformis* at sugar on October 2nd, in that county, and a friend of his took another example a few days previously. On the 17th November, he took *Dasycampa rubiginea*, settled on the trunk of a tree.—WM. BUCKLER, Emswold, 25th November, 1869.

on the scarcity of *Lepidoptera* in 1869.—I have been unable to work well; but, independently of this, the past season appears to me to have been a good one for *Diurni* and *Geometræ*. Of *Noctuæ* I cannot speak, as my health would not allow of my sugaring. All the butterflies, except the *Lycenidæ*, have been common. Some of the blues, as *Arion* and *Argiolus*, have been unusually abundant, and they are about the only exceptions to the general scarcity of *Diurni*. A Geometric pest, *M. fluctuata*, has been quite scarce this season, and even far from common, compared with its usual abundance.

Fact respecting the time of appearance of certain species may be worth noting. Last year, *S. tipuliformis* was out in my garden on June 5th and 6th, and *Arion* on the next day. This year, I first saw *Arion* on June 13th or 14th, and the clear-wing was not out at all until the last week in June; I think this is the first seen, and yet I watched most carefully for it. This shows only a difference between early and late seasons for the *Lycæna*, and three weeks for *Sesia*.—HERBERT MARSDEN, Brook Street, Gloucester.

Captures of *Lepidoptera* in Gloucestershire in 1869.—*L. Arion*, Cotswolds, near Gloucester, much commoner than usual, about June 15th; *T. W-album*, three or four; *A. Atropos*, a few pupæ in October; *M. bombyliiformis*, not uncommon in May; *S. myopæformis*, bred, from apple bark, July; *P. Geryon*, Cotswolds, Gloucester, common, May; *B. abietaria*, Cotswolds, near Gloucester, not common, July; *A. emarginata*, usually a scarce insect here, but took several; *Eup. satyrata*, only one specimen, where last year they were very common; Dursley, June; *Eup. subnotata*, a few in the suburbs, new to the county; *Eup. isogrammata*, a few worn ones flying over clematis, August; *C. semiothis*, one bred from pupæ dug last autumn, May; *X. semibrunnea*, four at ivy, near; *E. anguinialis*, Cotswolds, May, scarcer than usual; *Botys pandalis* and *B. ulmarie*, as usual, pretty common in beech-wood openings on the Cotswolds.—ID.

Captures of *Lepidoptera*, &c., in 1869.—The following is a list of some of the lepidopterous insects I have taken, noticed or bred, during the past season. The species to which Lytham is given as the locality were captured on Whit-Tuesday and Whit-Tuesday, May 17th and 18th.

T. W-album: bred a fine series; larvæ from Doncaster.

Aglossa stellatarum: I noticed this species on the cliffs at Scarborough, in July.

Arion loniceræ: on the cliffs at Filey, in July, the former species in profusion.

Arion plantaginis: in the larva state; Norland moors.

Arion fuliginosa: larvæ on the sand-hills at Lytham.

Arion scelina: larvæ on the sand-hills at Lytham, but not so commonly as I have noticed them in previous years, on other parts of the Lancashire coast.

Arion antiqua: a larva brought to me from near Mirfield; this insect, though so abundant in most localities, seems to be a scarce species here.

Arion byæ quercus: larvæ common on the sand-hills at Lytham.

Arion allunæ: common, Greetland moors and Linthwaite.

Arion permia perfumaria: larvæ on ivy at Golcar.

Arion talia inornata: bred; larvæ from London. Before hibernation they feed on knot-grass, afterwards on dock.

Scodionia belgiaria : common on the Greetland moors ; larvæ by sweeping the heath in April, imago at rest on the ground in June.

Cheimatobia boreata : a few larvæ by beating birch on Black Fir Wood.

Eupithecia albipunctata : bred ; larvæ from Coombe Wood, London.

E. fraxinata : larvæ rather freely by beating ash in August. Dirkby.

E. tenuiata : bred a good series ; pupæ from Perth.

Odontia dentalis : reared a good series ; cocoons from St. Leonard's-on-Sea.—G

T. PORRITT, Huddersfield, 12th November, 1869.

[We imagine that few believe in *Boarmia perfumaria*, as distinct from *rhomboidaria*. The story of its having been bred from a peculiar form of larvæ, feeding upon ivy, has been proved to be utterly mythical. The "very smoky" north-west varieties of many species are not generally considered distinct.—EDS.]

Captures of *Lepidoptera*.—Near Battle.—May 16th, *Ephyra orbicularia*, one on a gas lamp ; 21st, *A. fuliginosa* ; 24th, *T. culiciforme*, on a bush ; 31st, *E. decolorata* and *Eup. plumbeolata*. June 1st to 5th, *C. or* and *P. palpina*, one specimen of each flying round poplar, *F. pinaria*, round pines, common, *Selenia lunaria*, one on a bush ; 7th, *Lobophora sexualata*, one beaten out of willow ; *Harpella Geoffrella*, abundance ; 15th to 24th, *Heliodes arbuti*, *Arctia plantaginis*, *Eup. albipunctata* and *Macaria notata*. July 17th, *Lithosia mesomella* and *Cymatophora duplaria* at dusk ; 26th, *Herminia derivalis*, one by beating, *Aventia flexula*, *P. syringaria*, and *P. bojnularia*, one of each, *E. flammealis*, *C. miniata*, and *L. complana*, a few of each ; *P. glaucinalis*, one in a window. August 1st, *V. polychloros*, two specimens ; 16th, *A. porphyrea* ; 22nd, *Aplceta advena*. September 6th, *Ennomos tiliaria* and *popularis*, on gas lamps. October 8th, *Ennomos fuscantaria* and *Eubolia cervinaria* on lamps.

Near Lewes.—Insects at willows very scarce ; my best capture was *gracilis*. April 10th and 12th, *Lobophora polyommata*, on hedges after dark ; 25th, *E. venosata*, bred from pupa dug ; 31st, *P. vitalbata*, over clematis, *P. tersa* over clematis. June 11th, *T. extersaria*, at sugar ; 20th, *Crambus chrysonuchella* ; 22nd, *C. fluvialata*, one, flying at dusk ; 24th, *A. aceris*, bred. July 6th, *A. Atropos* brought to me by a friend, I suppose an hibernated specimen ; 7th, *M. galiata* and *procollata*, and *Eup. venosata*, flying at dusk ; 13th, *M. miniata* and *Endotria flammealis*, also *Herminia derivalis*, ten specimens, flying about 10 p.m. My friends also took several at the same time ; 15th, *Crambus falsellus* and *Pyrausta glaucinalis*, over thatch. August 5th, *Lithosia griseola*, by beating ; 10th to 21st, *A. Atropos*, larvæ brought, heard of between 20 and 30 ; 12th, *Botys flavalis* and *G. obscurata*, common ; 16th, *P. stratiotalis* and *P. vitalbata*, on gas lamps ; 23rd, *Hepialus sylvinus*, at dusk. September 6th, *S. convolvuli*, several specimens have occurred in this neighbourhood ; 7th, *E. tiliaria*, on gas lamp ; 8th to 20th, *australis*, by searching grass and on sugar, common ; 8th, *L. cespitis*, several specimens ; 21st, *A. saucia*, on sugar. October 1st, *X. aurago*, one, on ivy ; 4th, 14th, *P. empyrea*, on sugar and ivy, several specimens ; 5th to 14th, *A. saucia* rather commonly ; 4th *H. armigera*, one specimen at rest in the town ; 6th, *fluvialata*, one, on a gas lamp. November 3rd, *P. cassinea* and *H. pennaria*, on gas lamps.—J. H. A. JENNER, Lewes, November 9th.

tures of *Lepidoptera* at St. Ives, &c.—I have taken, during the first season, among other insects:—*Thecla pruni*, *Steropes Paniscus*, *Acherontia* (commonly), *Gastropacha quercifolia* (commonly), *Epione vespertaria* (one ♀), *s fuscantaria* (one larva), *Eupithecia consignata* (one), *Cerura bifida* (commonly, but not before observed here), *Cirrhædia ærampelina* (several), *oo* (two, at sugar), *Epunda nigra* (commonly), *E. lutulenta* (at sugar), *npa vetusta* (commonly), *Xylina semibrunnea* (seven, at sugar) and *Catocala* (more common than usual). *Chærocampa Celerio* has been sent to me by a friend from Middlesborough, who took it at rest; one other was taken.—
 W. W. B. G. G. G., St. Ives, Herts, December 9th, 1869.

Review.

THE ANIMAL WORLD; a Monthly Advocate of Humanity. Parts 1 and 2. London: S. W. Partridge & Co. Published for the "Royal Society for the Prevention of Cruelty to Animals."

On receiving from the Society two parts of their new publication, with a list that we would notice it, we had, at first, serious misgivings that we should therein some dreadful agitation against entomologists generally, as opposed to the principles advocated by it, but were much relieved at finding that not only naturalists not condemned, but even indirectly complimented. And so it should be. Of all men, a true naturalist is the least likely to transgress any of the noble principles so well and ably held up by this—we say it emphatically—the most christian in its objects of all existing societies, whether religious or otherwise. The Magazine is admirably got up, and is published at a price that places it within the reach of the humblest cottager; the illustrations we have seldom seen surpassed for fidelity; and the full-page reproduction of Mr. H. Weir's "Churchyard Turner" is really excellent.

ENTOMOLOGICAL SOCIETY OF LONDON, 15th November, 1869.—H. W. BATES, F.Z.S., President, in the Chair.

D. J. French, Esq., of Chatham, and C. S. Websdale, Esq., of Barnstaple, were elected Members; S. G. Barnes, Esq., of Birmingham, N. E. Brown, Esq., of Reigate, E. M. Janson, Esq., of Chontales, Guatemala, O. E. Janson, Esq., of Highgate, H. Pearson, Esq., of Birmingham, and W. D. Robinson, Esq., of Dalbeattie, were elected Subscribers.

Mr. F. Smith exhibited, on behalf of Mr. E. Brown, a locust, several specimens of which had been recently taken at Burton-on-Trent (this has since been identified as *Acrydium peregrinum*, Oliv., a native of Asia and North Africa, but not hitherto found in Europe). Mr. Smith also referred to a paper by Mr. Andrew Murray, in the "Annals of Natural History," respecting the habits of *Rhipiphorus*, in which Mr. Murray stated that, according to his opinion, the insect was an inquiline in the wasp's nest, rather than a parasite. Mr. Smith combated this opinion, and exhibited numerous larvæ of *Rhipiphorus*, received from the late Mr.

Stone, some of which had their heads embedded in the wasp-larvæ in the act sucking the juices.

Mr. Pascoe exhibited numerous new species of Heteromorous *Coleoptera* from Australia. One species of *Sargus* was remarkable, inasmuch as it was always covered, even when living, with a floccous substance, which had been declared to be the immature state of a fungus (*Sphaeria*).

Mr. Briggs exhibited *Deiopeia pulchella*, captured recently by him at Folkestone.

Mr. Davis exhibited numerous preserved larvæ, including a case illustrating the life history of *Cossus ligniperda*.

Mr. Müller stated that *Cynips lignicola* emitted, when handled, a strong and disagreeable odour, and he thought that this might partially account for its rapid spread in this country, the odour possibly rendering it distasteful to birds, &c.

Mr. Dunning made some observations respecting a swarm of *Syrphi* he had noticed at Waltou-on-Naze, in Essex, last autumn. Mr. Verrall had examined some of the specimens, and said there were six species.

A discussion then took place respecting the enormous number of *Syrphi* and *Coccinellæ* noticed last season, especially with reference to the supposed migratory powers of these latter. The general opinion of the Meeting was, that there was no necessity to suppose immigration to have taken place, as the larvæ were most extremely abundant a short time before the appearance of the swarms of the perfect insects.

Mr. Bates read a paper on "New genera and species of *Coleoptera*, from Chontales, Nicaragua."

Mr. Baly communicated new genera and species of *Hispidæ*.

Mr. Salvin read a "Synopsis of the Rhopalocerous genus *Clothilda*."

6th December, 1869. H. W. BATES, Esq., President, in the Chair.

M.M. d'Emerich, De Marscul, and Oberthür were elected Foreign Members. Capt. A. M. Lang, of Brockham, near Reigate, W. A. Lewis, Esq., of The Temple, J. C. Melvill, Esq., of Manchester, and Howard Vaughan, Esq., of Chancery Lane, were elected Members.

Professor Westwood exhibited drawings of several very large species of *Chalcididæ*, and of new genera and species of *Pselaphidæ*.

Mr. F. Smith exhibited a larva-case which he supposed to belong to a species of *Oiketicus*, found by Mr. J. K. Lord, in the plains of Sinai, on the sand where the only vegetation consisted of low plants; also a mass of earth-cells formed by a species of *Halictus*, near Cairo; these penetrated the sand to the distance of a foot.

Mr. Jenner Weir exhibited *Heliothis armigera*, bred from larvæ feeding in the fruit of the Tomato, in Spain or Portugal.

Mr. Müller exhibited a photograph of an example of *Pterostichus Prevostii* from Switzerland, with two supernumerary hind-legs.

Mr. McLachlan communicated "Notes on *Borcus hyemalis*, Linné, and *B. Westwoodii*, Hag."

SPECIES, &c., OF HEMEROBIINA—SECOND SERIES (*OSMYLUS*).

BY R. M'LACHLAN, F.L.S.

The insects noticed in this series all pertain to *Osmylus*, with one exception, for which I have thought it necessary to institute a new genus.

One rather important fact has struck me, when examining the insects, viz., that in most of the species (perhaps all, excepting the European *O. fulvicephalus*) the claws are toothed internally, or

The following is a concise tabular arrangement of the more closely allied genera:—

Ocelli desunt... .. POLYSTÆCHOTES, Burm.

Ocelli adsunt.

—*Area costalis serie areolarum unicâ.*

b.—*Tarsorum plantulæ simplices. Area sub-costalis venulâ transversâ basali* OSMYLUS, Latr.

b.b.—*Tarsorum plantulæ bifidæ vel lunuliformes.*

c.—*Area sub-costalis venulâ transversâ basali*... STENOSMYLUS, McL.

c.c.—*Area sub-costalis venulis transversalibus plurimis* PORISMUS, McL.

a.—*Area costalis seriebus plurimis (ad basin 5)*

areolarum HYPOSMYLUS, McL.

The genus *Myiodactylus*, Brauer, is placed in the family *Nymphidæ* on account of its filiform antennæ.

The now described species of the above-named genera are as follows:—

POLYSTÆCHOTES.—*punctatus*, F. (N. America); *vittatus*, Say (N. America).

OSMYLUS.—*fulvicephalus*, Scop. (Europe); *multiguttatus*, McL. (Asia Minor); *conspersus*, Walk. (India); *lineatocollis*, McL. (India); *Langii*, McL. (India); *pubicosta*, Walk. (India); *tuberculatus*, Walk. (India); *interlineatus*, McL. (India?); and *inquinatus*, McL. (Ceram).

STENOSMYLUS.—*tenuis*, Walk. (Tasmania); *stenopterus*, McL. (Australia); *incisus*, McL. (N. Zealand); *pallidus*, McL. (Australia); and (?) *longipennis*, Walk. (Australia).

PORISMUS.—*strigatus*, Burm. (Australia).

HYPOSMYLUS.—*punctipennis*, Walk. (India).

OSMYLUS MULTIGUTTATUS. *n. sp.*

O. niger, nitidus. Pedes flavi; tarsorum articulis 1—4 ad apicem,

ultimoque toto, nigris; unguibus piceis, intus serratis. Alæ albido-hyalino confertim nigro-guttatæ, venis plerumque pterostigmateque flavo-albidis.
Long. corp. 5—6''' ; exp. alar. 19—20'''. *Hab. Trebizonda.*

In mus. auctoris, necnon Dom. De Selys.

The whole body, including the antennæ, eyes and ocelli, intensely black, head much polished, the other parts duller; abdomen clothed with moderately cinereous hairs, especially at its apex. Head with the crown very convex and sulcated in front, the ocelli prominent; palpi piceous, the terminal joint tipped black. Legs yellow, moderately pubescent; the coxæ, four first tarsal joints at apex, and the last joint entirely, black; claws blackish piceous, stout, finely serrated internally; plantule simple.

Wings broad, the apical margin rounded; whitish-hyaline, thickly covered with large and intensely black spots. In the anterior wings there are about 25 more or less rounded spots, some of those on the costa being confluent, and forming transversely elongate, cuneiform dashes; the margins are regularly spotted, the disc with two irregular longitudinal rows, those placed on the two rows forming gradate veinlets often united into interrupted transverse streaks; in the posterior wings the discal spots are less numerous. The margins (especially the costal) and all the veins are strongly ciliated with black. The longitudinal and most of the transverse veins and veinlets in the basal half of the wings are whitish yellow except where they traverse the spots, when they become black; most of the gradate veinlets and of the longitudinal apical veins are black (but the first gradate veinlets in the outer series are white in the middle, even although they are placed in the black spots); the sector about 10-branched in the anterior wings; the pterostigmatal region in all the wings is slightly tinged with yellowish.

This beautiful and striking species was collected in 1869, at Trebizond, by M. Th. Deyrolle. In structure it is much like *O. fulvicephalus* (*chrysops*, Auct.), but has shorter and broader wings, with the apical margin slightly rounded, instead of slightly excised, hence the apex is less produced. The net-work of the wings is rather more open, and the series of gradate veinlets more parallel.

OSMYLUS LINEATOCOLLIS, n. sp.

O. albidus. Caput fusco nigroque varium; antennis, labro, palpisque flavo-albidis. Prothorax albidus; supra lineâ mediâ longitudinali, striâ utrinque interruptâ, punctisque quatuor nigro-fuscis. Meso- et meta-thorax ad latera anticeque nigro-fusci. Abdomen brunneum, pilis flavis vestitum. Pedes pallidè flavi; unguibus testaceis, intus ad basin serratis. Alæ albido-hyalinæ, punctis fuscis conspersæ.

Long. corp. 4''' ; exp. alar. 14½—15½'''.

Hab. India septentrionalis.

In Mus. Brit.

Whitish. Crown of the head whitish, with a large cordate swelling, in which is an irregular, transverse, blackish groove, and behind this a transverse, polished brown ridge, dilated in the middle and at each end; front whitish, varied with

fuscous; labrum and palpi yellowish; antennæ pale yellowish, the basal slightly fuscous above. Prothorax whitish, about one-half longer than slightly narrower in front; above, with three transverse ridges, one in the middle and one at each end; a longitudinal line in the middle, which is dilated on the sides, an interrupted line on each side, and four dots, all blackish-fuscous; blackish. Meso- and meta-thorax whitish, broadly blackish-fuscous in front, sides, and under each anterior wing. Abdomen brownish, the sides of the segments margined with yellowish; terminal segment yellowish. Legs primrose-colored with concolorous hairs. Claws testaceous, the apical half simple, the basal serrated internally, the serrations being nearly hidden in the plantula. Forewings moderately broad, the apical margin slightly rounded, the apex acute; hyaline, with sparsely scattered brown dots, especially round the apical outer margins, two or three at the pterostigma and one on the disk being larger than the others; in the posterior wings the basal half is without dots: the discal cell rather open, varied with whitish and brownish; radius dotted with whitish; ciliation for the most part whitish; the gradate series in the anterior wings nearly parallel.

There are three examples in the British Museum, varying slightly in the number of the brown spots in the wings. The species is allied to *conspersus*, Walker, but has fewer dark markings on the wings, and the coloration in *conspersus* is almost entirely blackish, margined with whitish; the markings on the head and thorax are also differently arranged.

OSMYLUS LANGII, n. sp.

O. piceo-niger. Antennæ flavæ, articulis duobus basalibus piceis. Prothorax fuscus; unguibus intus serratis. Alæ elongatæ, sub-angustatæ, discalibus, vix falcatæ: anticæ flavidæ, punctis plurimis margaritaceis conspersæ; maculis tribus costalibus, nonnullis ad apicem, fasciæque irregulæ ante apicem et marginem dorsalem strigas tres emittenti, fuscis; posticæ venulisque flavis, nigro minutè punctatis: posticæ hyalinæ, venulisque plerumque nigris vel nigrescenti-suffusis.

Corp. 4—5''; exp. alar. 17—20''.

Hab. India septent.

In Mus. Brit. et auctoris.

Pitchy-black, the head somewhat shining. Palpi piceous. Antennæ yellow, the two basal joints pitchy-black. Eyes very large, black and shining. Ocelli small. Prothorax rather short, the sides parallel; above, with three transverse ridges, one in the middle, and one at each end (forming raised margins), the surface clothed with sparse blackish hairs. Abdomen blackish above, somewhat ochreous beneath. Legs yellow, with minute blackish points and short yellow pubescence; claws serrated internally.

Wings long, narrow, acute, the apical margin very slightly excised, giving the wings a slightly falcate appearance: anterior wings washed with yellow, shining; posterior wings with fuscous markings, viz., three large, somewhat quadrate, spots on the costa,

several beyond these near the apex, and a large irregular band extending from near the apex and along the dorsal margin, emitting three broad streaks, one of which enters the apex, and the two others reach the dorsal margin; beyond this band, nearer the base, is a less distinct and somewhat quadrate spot on the dorsal margin, and there are also two small and distinct discal blackish spots, one near the base, the other in the middle; the whole wing is rather thickly sprinkled with pearly drops, being in reality portions of the membrane which have not acquired the yellow ground tint; in the fuscous band these dots are more distinct, and several of them are there much larger, forming large spots; neuration moderately open, the veins and veinlets yellow, with minute black points, from each of which springs a short blackish hair: posterior wings hyaline, all the basal veins and veinlets, and also the gradate veinlets, black and suffused with blackish; the longitudinal veins between, and on each side of, the gradate series, whitish, with blackish points.

There is a specimen of this beautiful species in the British Museum, and I have a long series before me, which I owe to the liberality of Captain Lang, by whom they were collected at Masuri, in June.

OSMYLUS PUBICOSTA, Walker.

Chrysopa pubicosta, Walk., Tr. Ent. Soc. Lond., n. s., vol. v, p. 13.

O. albidus. *Caput thoraxque nigro-signati. Antennæ flavo-albide articulis duobus vel tribus basalibus piceo-nigris. Palpi piceo-annulati. Pedes flavo-albidi, tarsi testaceis, unguibus intus minute serratis. Alæ laevissimæ ad apicem vix acutæ, albo-hyalinæ: anticæ area costali lata, ad basin abrupte dilatata; punctis nonnullis basin versus, duobus pterostigmatalibus, strigaeque transversa irregulari ante apicem, nigro-fuscis; venulisque albis, nigro minutè punctatis, cum costâ ciliis longis instructa. Posticæ punctis duobus pterostigmatalibus nigro-fuscis.*

Long. corp. 4—4½^{'''}; *exp.* 15—18^{'''}. *Hab. India septentrionalis.*

In Mus. Brit. et auctoris.

Whitish, with a pale yellow tinge. Crown of head much inflated, with irregular blackish markings; front with blackish dots, and blackish lines at base of antennal sockets: palpi annulated with piceous: antennæ yellowish white, two basal joints (and sometimes also the third) pitchy black. Prothorax rather short, slightly broader posteriorly; above, with interrupted longitudinal blackish lines, and clothed with sparse but long yellowish hairs: mesothorax large, much inflated. Legs pale whitish yellow, and clothed with long concolorous hairs; apex of the tarsi testaceous, claws testaceous, curved, internally at about middle with two or three small and indistinct teeth.

Wings broad, sub-acute at the apex, whitish-hyaline with whitish veins and veinlets; the costal margin and neuration longly ciliated: anterior wings with the costal area very broad at the base, rather abruptly dilated (almost as in *Ancyloptera* and *Megalomus*); markings few and blackish, consisting of a spot on each side of the somewhat yellowish pterostigmatal region, the inner of which is the large

transverse streak placed on the inner series of gradate veinlets, and sundry dots at the base of the wing and on the dorsal margin; veins and veinlets with small and distinct black points, from each of which springs a blackish spot of the veinlets of the inner gradate series, some in the outer, and several at the base of the costal area, black; costal margin with pale ciliation, which is long near the base; reticulation very open (transverse veinlets few): anterior wings with a black spot upon each side of the pterostigmatal region; posterior wings without black points; some of the gradate veinlets in both series blackish. I have re-described this insect, partly because it was erroneously described by Mr. Walker in *Chrysopa*, and also because I have before me fine examples taken by Capt. Lang at Masuri in June and July, which hitherto been unique. It is an anomalous *Osmylus*, and I am very clear as to the existence of ocelli, which I believe are present, and certainly obscure. The species is best placed in this genus provisionally.

OSMYLUS INTERLINEATUS, n. sp.

O. griseo-brunneus, pilis flavis nigrisque vestitus. Antennæ flavæ. Caput pallidè flavi, tibiis anticis intermediisque extus nigro-tripunctatis. Antennæ modicè elongatæ, acutæ, griseo-hyalinæ; pterostigmate utrinque nigro-notato, punctisque nonnullis fuscis; venis venulisque nigris, albo-lineatâ, margine dorsali puncto tuberculato fusco notato. Corp. corp., 5^{'''}; exp. alar., 17½^{'''}. Hab. Natalia? (India orientali?). In Mus. Brit.

Color lurid greyish-brown with yellow and blackish hairs intermingled. Antennæ five. Eyes grey. Prothorax stout, rather longer than broad. Legs pale yellow; anterior and intermediate tibiæ with three black spots externally, of which one is in the middle, one near the base, and one near the apex. Wings rather long, the apex acute, the apical margin straight; greyish-whitish; pterostigmatal region with a blackish spot on each side, a smaller blackish spot placed across two of the nervules of the outer gradate series, and two or three more in the disc on the cubital region; on the inner margin of the anterior wings at about one-third of its length from the base, is a rounded raised (hex) fuscous spot with black veins: venuration for the most part black, but not here and there: sub-costa and radius in the anterior wings whitish, with six pairs of long black spaces, and with black lines in the membrane in the sub-costal region, one line being placed between each pair on the veins; in the posterior wings there are five pairs of black spaces on these veins, and no lines in the sub-costal region: the net-work of the basal portion of the wings is moderately dense; the gradate series not parallel but converging on the inner margin.

There is one example (not in good condition) in the British Museum, indicated as from Port Natal; but, without being able to affirm

that it is so, I am rather inclined to believe that this locality is neous, and that the insect is, in reality, Indian. It is allied to *tuberculatus* and *inquinatus* (the next described species), differing from former in its larger size, broader aspect, and in the lineated sub-area; its differences from *inquinatus* are noted in the following comparative diagnosis.

OSMYLUS INQUINATUS, n. sp.

O. interlineato similis; sed alis sine punctis discalibus, antice areâ sub-costali, areaque inter sub-costam et radium, fasciis duabus transversalibus, puncto inter fascias, strigisque duabus apicem versus sordidè aureis, mox distinguitur.

Long. corp. 4''' ; exp. alar. 19'''.

Hab. C

In Mus. Brit.

This species, collected in Ceram, by Mr. Wallace, has the form of *interlineatus*, but is apparently abundantly distinct in consequence of the dull golden markings of the anterior wings.

O. tuberculatus, *interlineatus*, and *inquinatus*, are no doubt closely allied; yet I cannot consider them as only forms of one species. I doubt not that more extensive materials will prove their specific value. Possibly also the raised spot of the wings, and somewhat different general appearance, may eventually cause them to be generically separated from the other species of *Osmylus*. The claws in *O. tuberculatus* are distinctly bifid at the apex, and the same character doubtless obtains in the two others; but the single specimens of each of these are not in a condition for minute examination.

HYPOSMYLUS, nov. gen.

Caput parvum: antennæ breves; ocelli supra et inter antennarum positi; labrum paullo emarginatum; palporum maxillarum articuli basales breves, cæteri longiores, inter se æquales, ultimo acuto. Prothorax latitudine paullo longior. Pedes pilosi, unguibus crassis, valde curvatis, plantulis simplicibus. Alæ amplæ: anticarum areâ costali latâ; venis costales furcatæ, venulis obliquis plurimis, series areolarum plurimas formantibus, connectæ; sub-costâ et radio ad apicem confluentibus; area sub-costalis unâ ad basin solum instructa; sectore et radio parallelis; areâ discalibus per-numerosis; venulis marginalibus furcatis; areâ post-costali multi-areolatâ: posticæ fere ut in anticis, sed area costalis angustata, areolarum unicâ.

This genus is formed for the reception of *Osmylus punctipennis* Walker, and differs especially from *Osmylus* (as here restricted) in the costal veinlets being united so as to form several irregular rows of cells.

HYPOSMYLUS PUNCTIPENNIS, Walker.

Hypomyzus punctipennis, Walk., Tr. Ent. Soc. Lond., n. s., vol. v, p. 183.
H. brunneus. Caput testaceum, super antennis flavum. Antennæ
 æ. Pedes flavo-brunnei, flavo-ciliati; tarsi obscurioribus. Alæ
 o-hyalinæ, venustè micantes: anticæ punctis nonnullis ante apicem
 ; sub-costâ et radio flavis, reliquis venarum venularumque flavis,
 variis; spatio pterostigmaticali flavido, obsoletè fusco-notato.
 corp. 6''' ; exp. alar. 24—28''' . Hab.: India septentrionali.
 In Mus. Brit. et auctoris.

Male brown. Head testaceous; crown much inflated, but with an abrupt
 depression above the antennæ which is occupied by a yellow transverse space, in
 which are situated the ocelli, which are very small, and placed closely together in
 a triangle; the posterior portion of the head, partly below the eyes, shows two
 small oval tubercles, one on each side. Antennæ and palpi pale brownish.
 Eyes somewhat plumbeous. Thorax above with sparse, but long, testaceous
 hairs.

Abdomen fuscous (colours probably altered), clothed with testaceous hairs;
 the first segment entirely testaceous and provided with two large oblique approxi-
 mating valves (♂?). Legs yellowish, with yellow hairs; the tarsi somewhat
 darker; the claws shining brown.

Wings long and broad, acute at the apex; hyaline with a testaceous tinge, and
 showing beautiful blue, purple, and golden reflections; the pterostigmatic region
 yellowish with indications of fuscous dots; sub-costa and radius yellow; most of
 the other veins whitish, but many of the transverse veinlets fuscous; the margins
 of the veins longly ciliated with yellowish hairs: in the anterior wings are several
 fuscous dots on the outer series of gradate veinlets, and a smoky corneous dot in
 the middle of the discal cellules near the middle; the cellules in the costal area irregular;
 the discal cellules very numerous, but leaving a very broad marginal space.

Of this large insect I have seen but two examples—Walker's type,
 the one given to me by Captain Lang, by whom it was captured at
 Tanawur.

Limes Grove North, Lewisham, S.E.,
 December, 1869.

 HINTS ON PRESERVING LARVÆ.

BY H. PRYER.

Some two years ago, seeing some preserved larvæ in the possession
 of Mr. Boud, I became desirous to know the method by which they
 were prepared; and, after a good many experiments, I attained success.
 Believing that there are many others who would like to be informed of
 the *modus operandi*, I have pleasure in giving them the result of my
 experience, as follows.

Having procured a larva, immerse it in a solution of alum or pyro-

ligneous acid for a short time; then gently squeeze the inside out, or between pieces of blotting paper, taking care not to tear or enlarge the anal orifice. After having extracted all the moisture and intestines, insert in the aperture a bent glass blow-pipe, having a bulb in the middle, and inflate the larva over a spirit lamp, having a flat piece of zinc fixed over the flame. Holding the tube so that the larva does not touch the zinc plate, blow gently, until it is quite dry and hard. This requires great care, as it is liable to scorch; and, if the skin be partially dry, it will, although apparently finished, become indented and depressed in those places where it is not thoroughly hardened. To ascertain if the operation be complete, cease blowing, and draw in your breath gently; when, if the larva is not dry, it will shrivel up, and may be inflated again immediately; if, on the other hand, it is dry, it will remain distended to its natural size and appearance. To prevent the head from being extended too much, dry all the body except the first and second segments, take the larva away from the spirit lamp, and press the head into its natural position, afterwards drying it at a small distance from the flame, without blowing through the tube. If the larva require colouring (as almost all green larvæ do) some very fine powdered dry colour (rather darker than the original colour of the larva) must be introduced into the skin after it is thoroughly dry. To get the colour evenly on the inside of the skin, it must be rolled a little in the hand. In order to direct the heat on to any particular place, a small hole (about the size of the head of a pin) should be made in the centre of the piece of zinc. This will be found to be particularly useful when finishing the head of the larva, as above described. The object of having the glass tube bent is, that the head is then above the level of the flame; and the bulb is to prevent any moisture from the mouth-piece running down the tube into the inside of the larva. I generally put a piece of blotting paper in the mouth-piece of the tube.

The inflation while the larva is over the lamp must be kept up without intermission. This is very easy after a little practice, and does not cause any exertion, as the breathing is carried on through the mouth-piece. A larva should be kept without food for a day before being killed, as it is almost impossible to extract the food that it has just eaten; and, as the larva is dried, this shows in an ugly black patch just behind the head. Very frequently it occurs, that, while blowing, the larva will slip off the tube; this can be prevented by tying a thin piece of cotton round the end of the tube and the last pair of claspers. It is, however, as far as possible, to dispense with tying the larva on the tube, as it very often distorts the shape of the last segments. The best larva for a first

It is one that has no bright colours and is not hairy; such as *xanthographa*. The reason for putting the larva in pyroligneous solution of alum is to harden the skin, so that it may not be too much; and, if hairy, to prevent the hairs from falling out being handled. When preserving a brightly-coloured and hairy such as *Bombyx neustria*, I generally starve it until it is nearly dead, and then kill it and take the inside out. In conclusion, I remark that some amount of patience is requisite to ensure. Any further particulars or explanations that may be required will be most happy, if possible, to afford.

Mark Lane, E.C. : November, 1869.

NOTES ON THE BRITISH SPECIES OF *CHILOSIA*.

BY G. H. VERRALL.

It is my intention, in any notes on the *Syrphidæ* I may publish, to go to a single genus or group of genera and work through the species, and I commence with *Chilosia*, as that is one of the largest and most obscure genera.

The most tangible characters for separating it from its allies, *Syrphidæ*, *Melanostoma*, &c., lie in the unicolorous brown, blackish, or black colour and pitted front; superficially some species of *Pipiza* or *Agaster* resemble others in this genus, but the first is distinguished by its hairy perpendicular epistoma, without any knob or prominence, the second by its unequal sub-apical and discal cells, and by the coarsely ribbed front of the female; also, the third joint of the antenna of *Chilosia* is always round or rounded-oval.

Mr. Walker has included in this genus *Leucozona lucorum*, L., now separated by its pale epistoma and markings about the base of the antenna, which is more arched.

In Schiner's catalogue of European *Diptera*, published in 1864, there are 93 species enumerated, to which about a dozen have since been added; these probably represent about 70 distinct species, as, in consequence of the insufficient descriptions of many of the earlier authors, the synonymy has always been in a most tangled state. The descriptions are those of Loew and Egger, in the "Verhandlungen des entom. bot. Verein." for 1857 and 1860, and I have adopted the three species proposed by Loew, the first of which is distinguished by the presence of distinct hairs on the disc of the epistoma, which must not be confounded with the hairs on the eye-margins, nor with the often abundant tomentum; these hairs are scarcely distinguishable to the

naked eye, but may be easily seen with a lens in a good light; the species in this group always have hairy eyes: the second group has the disc of the epistoma without any hairs, and the eyes (at least in the male) distinctly hairy; the females in a few species (*albitarsis*, *flavipes*, and *mutabilis*) have the eyes quite bare, but I think all the bare-eyed females have the legs black, with the middle joints of the front tarsi pale: the third group has the epistoma without any hairs on the disc and the eyes bare in both sexes.

Group I.—*Epistoma* with distinct hairs on the disc; eyes hairy.

1. *Æstracea*, L. This species may be at once known by its rounded shape and shaggy whitish pubescence, with a band of black hairs across the thorax, and on the third segment of the abdomen; the apical segment is clothed with tawny hairs, thus giving the insect the appearance of a *Criorhina*. I believe it is tolerably common, though I have only met with it near Dorking, in June, 1868.
2. *intonsa*, Lw., may be distinguished from any other British species of this group by its soft brown pubescence, without the least admixture of black hairs round the edge of the scutellum on the thorax; I expect it is rare, as I have only seen a pair in Mr. Win's collection, probably caught in Sussex, and a male in the Entomological Club collection. Our species may be *griseiventris* Lw., as the belly is dull.
3. *pigra*, Lw. The characters of this species lie in the dark brown tennæ, with an only slightly pubescent arista, the brownish alar hairs of the male, and the peculiar whitish pubescence on the abdomen of the female, forming slight fasciæ. In the Entomological Club collection are one male and three females, and I possess one male captured by Mr. Smith in North Devon last year.
4. *barbata*, Lw., is distinguished by its distinctly pubescent arista and rather pale legs, the pubescence on the thorax is more reddish than usual, and the hairs on the disc of the epistoma more abundant. I captured one female of this near Box Hill, in the summer of 1867.
5. *variabilis*, Pz. This is the commonest of the genus, and may be known by its entirely black legs, elongate abdomen, and bluish black colour. It is a large species, and occurs abundantly in woods and about hedges in June.

Group II.—*Epistoma* without any hairs on the disc; eyes (of the male) hairy.

6. *impressa*, Lw., is separated from the allied species by its entirely

black legs and yellowish base of the wings. There is a female in the Entomological Club collection.

tarsis, Mg. This, and the following, are considered the same by continental authors, but I agree with Zetterstedt in thinking that *bitarsis* is well distinguished by its more bluish colour, more pelucid wings, smaller size, less pubescence, &c.; the species are remarkable for their black legs, with the middle joints of the front tarsi yellow, and are distinguished by the almost bare arista from *utabilis*. There are about four pairs of *albitarsis* in the Entomological Club collection.

immana, Mg., is much commoner than the last, occurring in tolerable abundance about June, mostly in marshy places.

utabilis, Fln. There is one male in the Entomological Club collection; this I refer with considerable doubt to this species, which is distinguished by its black legs, with the middle joints of the front tarsi yellowish, and by its rather small size and pubescent arista. The species should be common in England.

lavicornis, F. This is the first of a group of large, thickly pubescent species, which have no strong black hairs round the edge of the scutellum; it is distinguished from the others by the entirely yellow legs of the female, and by the yellowish antennæ in both sexes; the male is smaller than *grossa*, with less pubescence, and entirely yellow tibiæ; there are two males and three females in the Entomological Club collection, and Mr. Smith has given me a female captured by him in North Devon.

chrysocoma, Mg., is known by its entirely yellowish pubescence, without the least intermixture of black hairs; the tibiæ have a dark ring round the middle. I possess a male, purchased at Mr. Stevens' rooms in 1868.

grossa, Fln., is distinguished by its large size, very thick pubescence, dark antennæ, and black pubescence about the tip of the abdomen; this black pubescence is very much less in the male than in the female. The species is not rare in woods in March.

chloris, Mg. This is the last of the thickly pubescent species, and generally has a few black hairs round the edge of the scutellum, it has much less pubescence than the others, and is distinguished by black hairs on the front, thorax, &c., and by the luteous antennæ, and a blackish spot about the middle of the tibiæ in the male. I believe it is not rare on *Caltha palustris* in April.

14. *decidua*, Egger, is distinguished from the rest of this group by a broad, flat epistomal knob, yellowish antennæ, and whitish fawn-like pubescence on the abdomen in the female, like *pigra*, to which it is much allied; there is one female in the Entomological collection.
15. *vernalis*, Fln. I am not sure whether I am right in the determination of this species, and cannot at all make up my mind as to its limits, as it varies exceedingly in the colour of its pubescence on the tibiæ, the shape of the abdomen, &c.; the species, or group of species, is distinguished from the others by its smaller size, shining epistoma, dark antennæ with almost bare arista, blackish with the tibiæ ranging from almost black to broadly yellow at the ends, and the thickened hind metatarsus. It is common in woods and banks of rivers from May to July.
16. *præcox*, Ztt., is the smallest species I have seen, and may further be known by its narrow abdomen, bare arista, and yellow legs, with the femora at the base broadly, and the last joint of the tibiae blackish; there is a pair in Mr. Unwin's collection, and a female in that of the Entomological Club.
- Group III.—*Epistoma* without any hairs on the disc; eyes bare.
17. *pulchripes*, Lw. This is very much like the last species, but much larger, and has the eyes quite bare; it is readily known by its pale legs, with the tarsi principally pale, the antennæ are reddish-yellow, very large in the female, and the arista is almost bare. I believe it is not rare, as I have caught it near Lewes and Richmond.
18. *scutellata*, Fln., may be distinguished from any other species by its very large swollen epistomal knob; its legs are principally pale and its antennæ brown. It is the commonest species after *variegabilis*, occurring on *Umbelliferae* in June.
19. *soror*, Ztt., resembles the last, and, like it, has the tip of the scutellum yellowish in the female; it differs in the bright orange-red antennæ and smaller epistomal knob. There is one female in the Entomological Club collection.
20. *pubera*, Ztt. This, and the following species, have the legs quite black, and, all but the last, have the antennæ blackish; *pubera* is distinguished by its bright reddish pubescence ("pube subaurea" Rond.), distinctly though shortly pubescent arista, and yellowish hyaline wings. I possess a female captured in the Plashett Wood near Lewes.

sa, Lw., is remarkable for its very slight punctuation; the pubescence is nearly all black: there is a pair in the Entomological Club collection.

iqua, Mg., resembles the last, but is much more punctate, and the short pubescence of the thorax is generally pale; the wings of the first and the last are of a blackish-hyaline hue; it should be common in England, but I have only seen two males in Mr. Unwin's collection, and two females in that of the Entomological Club.

culata, Fln., is remarkable for its bright orange antennæ and large grey spots on the abdomen; the epistoma is also very much produced like a snout: there is a pair in the Entomological Club collection.

In addition to these twenty-three species, I have seen (1) a male bred in the New Forest rather like *flavimana*, but with the legs and the knees only brownish; (2) a female in Mr. Unwin's collection, probably allied to *pictipennis*, Egger, but smaller, and coming near *chloris*, with no black hairs round the edge of the scutellum, and the wings suffused with brown about the lower transverse veinlet near the tip; (3) a female in the Entomological Club collection near *decidua*, but rather smaller, with no pale fascia-like markings on the abdomen, darker tibiæ, shorter and barer arista, and yellower pubescence. There are upwards of a dozen species known on the continent very likely to occur in Britain; and I expect our lists to reach at forty species when Scotland has been more worked. It will be that most of the species, so far as is yet known, are rare; and one could hardly expect to catch above six or eight in a year's collection; but I believe that individuals will prove tolerably abundant near any spot where any species is found to occur.

Mulberries, Denmark Hill, London, S.E.

January 10th, 1870.

DESCRIPTION OF A NEW SPECIES OF THE COLEOPTEROUS FAMILY
DORCIDÆ.

BY CHAS. O. WATERHOUSE.

As the insect which I am about to describe belongs to the genus *Macrodorcas* (Motschulsky), concerning which scarcely anything appears to be known, I may here note that I have determined (as it would appear, simultaneously with Major Parry) that *Macrodorcas rectus* (Motsch.) is identical with *Eurytrachelus niponensis* (Vollenh.). With

the other three species of *Macrodorcas* I am at present unacquainted with, but in the British Museum collection there is a small variety of *M. niponensis*, having simple mandibles, which so nearly agrees with *M. rugipennis* (Mots.) as to make it probable that that species is only a variety of *M. rectus*, described immediately before it.

MACRODORCAS OPACUS, *sp. nov.*

♂, *M. parallelus*, *depressus*, *opacus*, *nigro-fuscus*; capite transverse deplanato, supra subtilissimè granuloso, pone oculos punctis interspersis anticè ferè recto-truncato, angulis anticis obliquè truncatis, lateribus parallelis; mandibulis tenuibus, sub-arcuatis, medio intus dente obtuso armatis; thorace capite latiore, transverso, supra subtilissime granuloso punctis parvis interspersis, suturâ læviore parcè punctatâ; scutello opaco, punctato; elytris elongatis, parallelis, apice rotundatis, opacis, crebrè at leniter punctulatis, suturâ sub elevatâ, nitidâ, parcè punctulatis; tibiis anticis 5-denticulatis, mediis uni-spinosis, posticis inarmatis; tarsis ciliatis; mesosterno parcè flavo-pubescenti, suturâ nitidâ, leniter cancellatâ, lateribus reticulato-punctatis; abdomine sat crebrè punctulato suturâ læviore.

Long. corp. (mand. excl.) $9\frac{1}{4}$ lin. (20 mill.)

Long. mandib. 2 lin. (4 mill.).

Habitat, N. Japan (Hakodadi).

In Mus. Brit.

This species resembles a very small *Macrodorcas niponensis*; but the head is not contracted behind, so that the sides are almost parallel. The thorax is proportionately less broad. The elytra are almost of equal breadth, from the base to the posterior two-thirds, and are then evenly rounded; whilst in *niponensis* the elytra are slightly narrower at the base, broadest in the middle, and then gradually contracted to the apex; the humeral angles are slightly produced; in *niponensis* the elytra are thickly and finely rugulose-punctate, the interstices being shining; in *opacus* the elytra are dull, being somewhat thickly and delicately punctured. The abdomen is distinctly punctured, somewhat thickly so towards the margins, where it is dull; whilst in *niponensis* it is sparingly punctured, the sutural portions of the second, third and fourth segments being scarcely punctured at all. The meso-sternum is longitudinally concave. The metasternum in *opacus* is gently but distinctly canaliculate, especially posteriorly.

The female is at present unknown.

on M. Pandellé's Monograph of the European Tachyporidae.—M. Louis having recently (Ann. de la Soc. Ent. de Fr., 4^{me} série, T. 9^{me}, 1869, p. 261) published his "Étude monographique sur les Staphylins Européens de la Tachyporini, Erichson," I propose briefly to notice that work, and especially attention to such parts of it as are likely to interest British coleopterists. Pandellé, thinking Erichson incorrect in his chief character for this family (the insertion of the antennæ at the base of the forehead, beneath a lateral groove between the mandibles and below the eyes), rejects from it *Trichophya* (for which he assigns, however, no other location) and (following Kraatz) *Tanygnathus*. He entirely omits reference to the parts of the mouth, relying upon more accessible characters, such as the modifications; prominent among which are the number and position of the punctures, and the proportionate length of the coxal interval of the femur (i.e., the space between the rims of the cavities of the intermediate and anterior coxæ).

With regard to the Stephensian species, he remarks as follows—"Thanks to Mr. Westwood, of Cambridge, who has generously communicated to me the extensive collections which he has made upon the species of Stephens, I have also been able to determine the synonymy of that author; but it is easy to perceive with certainty that Stephens has described varieties rather than species; and, when even a species is not recognisable in his description, I cannot resolve to give his name priority over that of Erichson and Kraatz, because I find it a great inconvenience to substitute a name adopted by everybody, one that has been abandoned (*délaissé*) and of which the legitimacy is nearly always open to contest." Without seeing the necessity for troubling anew any British coleopterist for information which has been given in 1858 before the public in Mr. Waterhouse's catalogue, wherein are (with many more) the few Stephensian synonyms given by M. Pandellé, I would only remark, that, where Stephens' species are good, as it is here admitted some of their validity will not be affected by M. Pandellé's convenience or otherwise; and that, where good, they have not been abandoned by us; and that the other species which have not been adopted by "everybody,"—unless two generations of British coleopterists are to be considered as not included in that comprehensive term.

By abandoning, as above intimated, the Erichsonian characters, M. Pandellé proceeds to enumerate his own: these are very ingenious, but are too long for a description, and not very capable of condensation; the result of them being that the family, as restricted by him, may be distinguished from the *Oxytelini*, *Omalini* (except from the absence of ocelli), *Piestini*, and *Proteini* by the head being smooth, the vertex less, and without impression or elevation at the base of the antennæ, and by the thorax being more extensively contracted in front than at the base; and from the other *Staphylinidae* by the deflexed side-pieces of the elytra being wide and rounded on their upper sides by a sharp and well marked ridge.

His genera are as follows:—*Hypocyptus*, *Conurus* (M. Pandellé finds no inconvenience in adopting this Stephensian genus in preference to the continentally-known *Conosoma* of Kraatz, who proposed that modification of it on account of there being a prior genus *Conurus* in birds), *Tachyporus* (of which he makes two subgenera, *Lamprinus* and *Tachyporus* proper), *Habrocercus*, *Cilea*, Duv. (including the subsequent *Leucoparyphus* and *Coprophorus* of Kraatz), *Tachinus* and *Boletobius* (the former afterwards referred to as *Bolitobius*). The latter genus is made to include the

following sub-genera : *Megacronus*, Steph., *Mycetoporus* (these two absorb *Bryoporus*, not even considered a sub-genus) and *Bolitobius*. Very long characters are given for these genera, in treating of which, as also of the species, the continental sub-division, reference, and tabulation is carried to a most perplexing extent, the whole monograph being a table, and no one item complete in itself.

The species of the several genera are as follows.

HYPOCYPTUS :—*grandicornis*, Fairm.; *unicolor*, Rosenh.; *longicornis*, Panz.; *rufipes*, Kraatz; *rubripennis*, n. s. (described from a single ♀, France); *læviusculus*, Mann.; *lancifer*, n. s.; *nigripes*, Stephens; *seminulum*, Erichs.; *apicalis*, Brullé; Gren., Cat. et Mat., (attributed to England expressly); *discoideus*, Er. *H. tenuicornis*, Ktz., and *pictus*, Mots., are added as not having been seen by M. Pandellé; however, he has had all the other types of Dr. Kraatz's described species of *Tachyporidae* sent to him by that author.

Of these, *H. rufipes*, Ktz., is apparently possibly only a badly developed specimen of *longicornis*, to which insect it was attributed with a similar expression of doubt in Wat. Cat. M. Pandellé notes the prior *H. rufipes* of Stephens, but is wrong in thinking that insect belongs apparently to another genus. It is similar to *H. longicornis*, and is even acknowledged by Stephens himself to be so, in his "Manual," p. 376. *H. pulicarius* is suppressed as a species; the only mention of it being that Dr. Kraatz has communicated a large example of *seminulum* under that name. *Erichson's pulicarius* is not referred to. The *nigripes* of Stephens is identified from the description with the *pygmæus* of Kraatz: but Stephens' *longicornis* is *longicornis*. In the "Manual," he refers his *nigripes* to *læviusculus*, Mann., and states the hinder angles of the thorax to be "very straight,"—a definition which does not agree with the characters of *pygmæus*. The *anisotomoides* (Steph.) in Wat. Cat. is not mentioned. In Wat. Cat. it is identified, with a query, with *læviusculus*, Ktz. (these two names are inverted in Mr. Crotch's Cat.); it can however, from size and coloration be attributed to M. Pandellé's species of that name; nor does Mr. Waterhouse's type agree with Stephens' description, who states the legs and antennæ to be red. It agrees however, specifically, with Stephens' type, which is very immature, and appears to differ from the insect known here as *pygmæus*, Ktz., solely in the more slender joints of its antennæ.

CONURUS :—*pedicularius*, Grav.; *Lethierryi*, n. s.; *lividus*, Er.; *littoreus*, Linn.; *pubescens*, Er.; *fuscus*, Er.; *binotatus*, Gr.; *Wankowiezi*, n. s.; *bipustulatus*, Er.; *bipunctatus*, Er. Of *C. fuscus*, M. Pandellé remarks that it seems well to be recognised in the *immaculatus* of Stephens' Illust., v, 1832. As Erichson's insect, described in 1839, I suppose this must be considered as one of the "inconvenient" species. Mr. Crotch, in his catalogue, gives precedence to the Stephensian name.

TACHYPORUS :—(Sub-genus *Lamprinus*) *erythropterus*, Panz.; *saginatulus*, (early spring, ant's-nests); *hæmatopterus*, Ktz.; *pictus*, Fairm.; (Sub-genus *Tachyporus*) *brunneus*, Fab.; *pusillus*, Grav.; *tersus*, Er.; *transversalis*, Grav.; *hypnorum*, Fab.; *scitulus*, Er.; *humerosus*, Er.; *quadriscopulatus*, n. s.; *ruficornis*, Gr.; *Erichsonis*, n. s.; *ruficeps*, Ktz.; *chrysomelinus*, Linn.; *solutus*, Er.; *discolor*, Reiche et Sauley (*solutus* var?); *obtusus*, Linn.; and *formosus*, Matthews (à la mode Française, "Mathews"). The unseen species are *nigricornis*, Gyll., *nigriceps*, and *crassicornis*, Mann., *flavipes*, Mäkl., *obscurellus*, Zott., and *caspius*, Mots.

ese, *brunneus* is recognised as comprising several forms; the darkest being *T. elegantulus*, Reiche et Sauley. The dark form of *pusillus* is equivalent to the Syrian *T. Abner* of Sauley. *Tersus* is said often to be represented by small specimens of *chrysomelinus* (!). *Scitulus* is stated, on Stephens' authority, to be the *macropterus* of Stephens. The two species are identical in Wat. Cat. synonymy: and I have examined the Stephensian types, and as is the *scitulus* of Wat. Cat., a dark form of *pusillus*. *T. abdominalis*, as is the *scitulus* of Wat. Cat., a dark form of *pusillus*. *T. abdominalis*, as appeared in our later catalogues with and without a query, is disposed of finally, being represented by *T. Erichsonis*. M. Pandellé suppresses the name, as there is no work or collection wherein it is not applied to the species: e. g., *abdominalis*, Grav., = pale *brunneus*; of Kraatz, = pale *pusillus*; of Erichson, = pale *obtusus* and *Erichsonis*, Pandellé; and of Mann., = *pusillus*. All so-called *abdominalis* in Britain that I have seen are pale *solutus*. *Erichsonis* (l. c., 305) is described as rare, found at Berlin and in Prussia. *Nitidicollis* (*obtusus* var.) does not occur in England, but in Ireland and France, as far as my experience goes.

PROCERUS:—*capillaricornis*, Grav. A second species, from Chili (*marginolius*) is noted, wherein the antennæ are not pilose.

TEUCHOCERUS:—*colchica*, Ktz.; *silphoides*, Linn.

TACHINI:—*nitidus*, Fauvel; *flavipes*, Fab.; *latiusculus*, Kies.; *proximus*, Grav.; *humeralis*, Grav.; *rufipennis*, Gyll.; *marginatus*, Gyll.; *Fauveli*, n. s.; *marginatus*, Fab.; *pallipes*, Grav. (*frigidus*, Ktz.); *palliolatus*, Ktz.; *rufipes*, De Meijere; *laticollis*, Er.; *flavo-limbatus*, n. s.; *marginellus*, Fab.; *collaris*, Grav.; *minutus*, Linn.; *fimetarius*, Grav.; *Bonvouloiri*, n. s.; *discoideus*, Er.; *elongatus*, Grav. Unseen species; *nigerrimus*, Solsky, and *nivalis*, Mots.

The only remark in this genus calling for observation is that at p. 323, where Pandellé says that *T. palliolatus* seems to be the same as Stephens' *scapularis*; but the size given, which is that of his largest *Tachini*, leads to the belief that *pusillus* (not described till 23 years later, and only just found on the Scotch mountains) or an obscure variety of *humeralis* were in Stephens' view when he was writing it. M. Pandellé is, however, not accurate in his statement as to the size, and incorrect in his inference. Stephens' largest *Tachini* are *aterrimus* and *elongatus*, which he states to be respectively 4 and 4½ lines long. He gives 3 lines for *collaris*, and 3 to 3¼ for *cinctus*, Marsham (*humeralis*). Kraatz gives 3 lines for *pusillus* or his *palliolatus*, and 3 to 3½ for *humeralis*. If *proximus* had then been described, Stephens' size would have been right, as Kraatz gives 3 lines for that species. The insects named *scapularis* in Stephens' collection are the same as *palliolatus*.

TACHINIDAE:—(Sub-genus *Megacronus*) *formosus*, Grav.; *Barnevillei*, n. s.; *Aubei*, Grav.; *inclinans*, Grav.; *Cedronis*, de Sauley; *cingulatus*, Mann.; *analis*, Payk.; *pusillus*, Grav. (*Bryoporus*, Ktz.); (Sub-genus, *Mycetoporus*) *elegans*, Mäkl.; *splendidus*, Grav. (*non frequens!*); *nanus*, Er., nec Grav.; *tenuis*, Muls.; *debilis*, Mäkl.; *pusillus*, Er.; *splendens*, Marsh.; *Reichei*, n. s.; *Chevrolati*, n. s.; *Reyi*, Pandellé; *marginatus*, Muls. et Rey, nec Payk., Steph., Sachse); *Fairmairei*, Pandellé (*niger*, Grav., n., nec Grav.); *lucidus*, Er.; *Brucki*, n. s.; *Märkeli*, Ktz.; *marginatus*, Ktz.; *pusillus*, Gyll.; *longulus*, Mann.; *lepidus*, Grav.; *bimaculatus*, Boisd. et Lac.; *pusillus*, n. s.; *pachyraphis*, n. s.; *rufus*, Er. (*Bryoporus*); *rufipennis*, n. s. (*Bryop.*);

castaneus, Hardy and Bold (*Bryop.*); (Sub-genus *Bolitobius*) *striatus*, Ol.; *bi* Grav.; *Kraatzii*, n. s.; *intrusus*, Hampe; *pygmæus*, Fab.; *trinotatus*, Er.; *exo* Er.; *lunulatus*, Linn.; *speciosus*, Er.; *atricapillus*, Fab. Unseen species; *punctu* and *semirufus*, Heer, *crassicornis*, *ruficollis*, and *bicolor*, Mäkl., *humeralis* *prostratus*, Mots., *trimaculatus*, Fab., *laponicus*, *punctipennis* and *piceus*, Thom

Mäklin's name is dropped as the founder of *longicornis*, his description offering no points of separation from *splendidus*. Mr. Crotch (who in his catalogue of the Stephensian name precedence) is quoted as identifying with *pronus* the *clavicornis* of Stephens, "*dont la description lui convient en effet*" (p. 343). Nevertheless, M. Pandellé calmly ignores the evidence which he himself publishes. *Bimaculatus* is the prior *brunneus*, Marsham and Stephens, = *ruficornis*, *punctiventris*, Thomson (persistently mis-printed "Thompson"). M. Pandellé whilst giving *longulus*, *bimaculatus*, and *lepidus* as species, states that he is led to believe there is only one specific type of them. Having examined very many examples, I have never had any difficulty in separating these insects satisfactorily.

Rugipennis (p. 352) appears to be a new species, stated to be often confounded with *rufus*, from which it differs solely in having its eyes convex, the large middle front punctures of the thorax distant from the margin in the proportions of 16 instead of 9—10 (as in *rufus*), the outer punctures approaching the margin "evidenter," and the longitudinal striolæ of the elytra more defined. To a dark variety of this species must be referred the insect brought forward by myself as most probably *rufus*, var., from Grayvel, Rannoch. *Rugipennis* is stated to occur in the Pyrenees and at St. Gothard. It will be noticed that *Bryopeternus* is transferred to the *Megacronus* sub-genus, next to *analis*, and far removed from its quondam ally *rufus*, which will now, of course, have to be expunged from our lists. *Castaneus* also occurs in the Pyrenees: M. Pandellé does not acknowledge *Hardyi*, Crotch, as Stephens' prior *castaneus* does not stand specifically. He repeats Stephens' erroneous statement, that *lunulatus* occurs here, being more common than *atricapillus*. *B. intrusus* is like highly colored *pygmæus*, with the metasternum tri-tuberculate, the tubercles being approximated, but separated by a complete impression.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., January, 1870.

Occurrence in Aberdeenshire of Amara Quenseli, Schön.; a species new to the British list of Coleoptera.—In June last, I took a trip up the valley of the Dee in Aberdeenshire, for the purpose of acquainting myself with the *Coleoptera* of the district. Among other things less noteworthy, I captured two or three specimens of an *Amara* which at the time I hoped would prove an addition to our list; and I am now assured, through the kindness of Mr. Crotch, and on the authority of M. Putzeys, who is working at the genus, that they are to be referred to *A. Quenseli*, Schön., Syn. Ins., i, 190; Schaum, Ins. Deuts., i, 542.

This species belongs to the sub-genus *Celia*; and, compared with *ruficornis* and *bifrons*, is broader, more ovate and depressed, with the elytral striæ faint and not deepened towards the apex. The colour above is brassy: but the elytra are sometimes non-metallic and dull ferruginous, while the thorax is greenish. Length $3\frac{1}{4}$ —4 lines. My specimens were found at a height of between 2000 and 3000 feet on the mountains of Braemar. The insect is said to be not uncommon in Lapland, the Alps, and the range of the Caucasus.

Deeside a single broken specimen of *Magdalinus duplicatus* occurred, under the circumstances as in Morayshire,—ROBT. HISLOP, Blair Bank, Falkirk, 1870.

occurrence of *Dyschirius angustatus*, Ahr. (*jejunus*, Daws.), on the south coast.—Fortunate enough, in October last, to take four specimens of this rare beetle resting in our lists on the authority of the two specimens taken by Mr. Northumberland, and upon which Mr. Dawson's species was founded), by sand, along the border of a fresh-water ditch near the ferry, at Hayling. The insect can only be compared (of our British species) with a small *s*, Putz. (*elongatulus*, Daws.): but is readily distinguishable, as has been pointed out, by the evident wrinkling on the head (apart from the usual *s*), and by the armature of the anterior tibiæ; the inner and outer apical *s*, of which are stout, and of equal length, the toothlets on the external *s*, above the outer apical spine, being, moreover (and most especially the *s* of the two), very well marked. Mr. Rye has compared my specimens with *s*amples above alluded to as belonging to Mr. Bold, who most kindly *s*ted them to the tender mercies of the post for that purpose.—H. MONCREAFF, 11 Street, Southsea, Hants, January, 1870.

Note on *Bembidium anglicanum*, Sharp.—This species is an old friend of mine, acquaintance I made many years ago on the sandy flats by the Irthing, near *s* coast, Cumberland, where it was in great profusion, in company with *B. s*atum, amongst the stones, and generally at some distance from the river. It *s* also on the "Devil's Water," and other of our upland streams. Noticing *s* d legs and green colour, I sent specimens to Mons. Jacquelin Duval, when he *s* preparing for publication his paper "De Bembidiis Europæis," and which he *s* ned to me as varieties of *femoratum*, without expressing any doubt upon the *s*. This led me to mention it in our catalogue of the insects of Northum- *s* nd and Durham, at page 237, as a "pretty variety" of *femoratum*, and as *s* it has since stood in my collection. After a very careful examination of my *s* s of *anglicanum* and its allies, I am of opinion that, although some of its *s* s come very close to varieties of *femoratum* and *Bruxellense* (less so to small *s* littorale), yet it is indeed a good and distinct species, and which I hope will *s* ain a lasting proof of the acumen and unwearied perseverance of its talented *s* sor.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, January 10th, 1870.

Blemus longicornis, Sturm, taken in Cumberland.—This beetle is so rare, that I *s* induced to record that I have in my collection three specimens, taken by myself *s* of *rejectamenta*, on the Irthing, near Burtholme, in June. This locality is a *s* e lower down the river than Lanercost, and just where it makes a sharp turn *s* tward.—ID.

Phyllotoma melitta, Newman, = *Fenusa betulæ*, Zaddach.—In the last number of *s* "Entomologist," Mr. Newman describes a saw-fly as *Phyll. melitta*, and the *s* tory of the larva, which mines birch leaves, is detailed by Mr. Healy. Through *s* e kindness of the last-named gentleman, I have received two examples of this *s* ect, and find it identical with *Fenusa betulæ* of Zaddach (Besch. neuer oder wenig

bekannt. Blattw., 1859), who also gives a brief notice of the larva and its habits. The words in the description of *P. melitta* "antennæ shorter than the thorax" must result from a slip of the pen, as Mr. Healy's specimens have these longer, if anything, than the head and thorax together, as they should be according to Zaddach. The insect is a true *Fenusa* and not a *Phyllotoma*; the latter has from 11 to 15 antennal joints, whereas in *Fenusa* there are only 9 (or exceptionally 10); moreover, the lanceolate cell ("lanzett-förmige Zelle," Hartig) in the fore-wings is very differently shaped in the two genera—in *Phyllotoma* it extends nearly to the base of the wing with a notch in its lower edge, and includes an oblique veinlet; in *Fenusa* it is of the form of a pointed oval or loop, a long pedicel connecting it with the base.—R. McLACHLAN, Lewisham, 18th January, 1870.

Note on the pairing of Odynerus spinipes, Linn.—*Odynerus spinipes* takes its specific name from the curious tridentate structure of the femora of the intermediate legs in the male. As I was unable to learn the use of this development, and observed it for myself, my observation is possibly worth recording.

The structure above referred to is used by the male to imprison the wings of the female in pairing. By a very rapid movement he places himself on the back of the female, and at the same instant secures her wings, the nervures of which near the base of the wing, fit into the spaces between the teeth of the femur, and are held there by the tibia being closed on them, and bent almost parallel to the femur, the tarsi of the opposite sides, crossing close under the body of the male, the costal nervure might rather be said to occupy the hollow at the base of the tibia. The "spines" of the femur, in fact, fit between the nervures of the wing, and are, with merely the membrane of the wing between, in contact with the tibia. The wings are thus held securely in a slightly elevated position, and at an angle of about 90° with those of the opposite side. The anterior claws of the male hold by the anterior angles of the thorax of the female, and his long antennæ are directed straight forwards, their curled extremities seizing the scapes of the antennæ of the female.

The female, thus securely pinioned, still resists pairing; which I have never seen occur, although I have seen the female so held for several minutes. This is not the case in insects in confinement. I have only once made the observation on the wasp, which is large, and on that occasion pairing failed to occur. Except in bright sunshine the males are very sluggish.—T. ALGERNON CHAPMAN, M.D., Abergavenny, January, 1870.

Morayshire Lepidoptera.—I spent six weeks (August 9th—September 20th) with my friend, Mr. George Norman, at Forres, N. B., and had some very pleasant results in collecting. This locality, like many in Scotland, only needs well working to produce an abundance of good insects. The extensive sandhills (barren as the Author of the "Lepidopterist's Guide" could possibly desire), moors, and woods of birch and pine, afford a rich and unusually varied field for the entomologist. Except *Noctua*, but little is known of the *Lepidoptera* of the district, and I do not think even they are yet quite worked out.

The only butterflies of note which I saw were *H. Semele*, on the Culbin sands (I believe a scarce species in Scotland) and *E. Blandina*, common throughout the district. I succeeded in obtaining a considerable number of eggs of this species.

rs. Buckler and Hellins, and noticed that the butterflies while in confinement frequently from a wet sponge, besides feeding on treacle, and I think probable that it will be found advantageous with other species, when trying to supply them with water.

larvæ of *O. fascelina* and *antiqua*, *B. rubi* and *Saturnia carpini* occurred on birch; and what I suppose to be *D. coryli* on birch.

the *Geometræ*, I may mention *Larentia olivata*, common early in August; *Erica pulchellata*, *satyrata*, *nanata*, and *absynthiata*, the larvæ of which fed on the heath, *Erica cinerea*, *Calluna vulgaris*, and rag-wort respectively; also *Euphrasia* by mothing on a heath. Though I several times examined the seeds and fruits of *Angelica sylvestris*, I failed to discover any trace of *albipunctata* or *aria*.

The larvæ of *T. juniperata* were not scarce, but many were ichneumonated. *T. variata* struck me by (contrary to the usual rule) being paler than in the autumn; the imago and small and large larvæ occurred on the same day (August 10th).

No *Drepanulæ* or notable *Pseudo-bombyces*. Of the *Noctuæ*, a good many species occurred; the following are the best—*A. leporina*, larvæ; *A. myricæ*? (if I breed the moth I will send a further notice); *C. graminis*, *N. xanthographa*, *A. vallisneria* (1), and *M. fasciuncula* (2), all on rag-wort flowers in full bloom. *M. literosa*, sugar, August 15th—September 10th; *A. cursoria* (accompanied by *X. polyodon*, *T. pronuba*, *L. orbona*, and *S. onomala*) burnt out of the bent-herb (*Psamma arenaria*), August 11th and 21st; *A. nigricans*, at rest, August 22nd, in a greenhouse; *A. præcox* in the same, August 14th; also *orbona*, *tritici*, *tragopogonis*, &c. This formed an excellent trap: the moths getting in at night, and being unable to get out, were found at rest in the day time. The *præcox* was stowed away amongst the leaves of a small species of *Tropæolum*; the glaucous green of the leaves being so like the colour of the moth that its discovery was quite an accident. *A. tritici*, common, mothing, especially after 11 p.m., one or two at sugar, August 10th; *A. agathina*, common, flying in the evening on a heath, August 20th to September 8th (a friend took one at sugar); *Triphæna orbona*, marvellous red and black varieties, quite unlike southern specimens; *T. subsequa* (1), worn, at sugar, September 15th (this may be distinguished from *orbona* by the narrowness of the fore-wing); *N. glareosa*, August 17th—September 18th, on the wing, and at sugar; *N. conflua*, August beg.-mid., sugar; *N. Dahlii*, sugar and flying, August 10th to September 18th; *N. neglecta* sugar, in a pine wood, and at heath-bloom, August 10th—September 4th; *N. xanthographa*, very dark varieties, and one with the *signata* very large and almost confluent; *Euperia fulvago* (1), at sugar, September 10th, and one at "Cossus sap," September 16th. (I may here say that Mr. Norman pointed out to me that moths may not only be often found below the sugar, but a few above, or on the other side of the tree, and, in the case of *C. exoleta* and *C. vaccinii*, hanging on to the twigs nearest to the sugar. This is more frequently the case on some nights than others; sometimes more will be found above than on it). *Polia chi*, common at rest on white walls, where it is difficult to see, and also on dark pine trunks, where it is very conspicuous, August 24th to September 11th (Mr. Norman took two at sugar); *Epunda nigra*, at sugar, at rest on pine trunks and on and among pebbles on a gravel walk, August

10th to September 20th; *Aplecta occulta* (2), at sugar, August 16th and September 16th (obtained a lot of eggs); *H. pisi*, larvæ, new to the district; *C. exoleta vetusta*, sugar, September; *Stilbia anomala*, ♂ common on the wing, ♀ scarce. No *Deltoides* or *Aventivæ*.

Scopula lutealis; one moth layed its curious flat scale-like eggs upon its comrade! These eggs were laid upon the wings; but a specimen of *Epunda* n. out-did *lutealis*, as it laid 50 or 60 eggs upon its own hind leg!

Scoparia muralis, on cottage walls, often close under the thatch; excessively abundant on one cottage, keeping out in good condition. (unlike most *Scoparia* all the summer, till the middle of September. On this same cottage wall, after at night, *A. tragogoponis*, *H. micacea* and *L. testacea* were common, often in cop.

Scoparia truncicolella, not common, in a pine wood; and, with it, *Phyllobietella*, August 23rd.

The *Micro-Lepidoptera* of this place have been almost entirely neglected; following is a list of all that I took in nameable condition:—

Tortrix ribeana, *xylostearia*, and *unifasciana*, with a very distinct fascia; *Peroneola favillaceana* (Mr. N.); *P. mixtana*, *hastiana* and *maccana*, all bred from larvæ found on sallow, *Myrica gale*, &c.; *ferrugana* just coming out as I left. *Teras caudata* (scarce) and *contaminana*; *Penthina betuletana*, *Cnephasia subjectana*, *Grapholita Paykulliana*, var. *costana* commoner than the type; *Penkleriana*, common, as usual amongst alders; *Pædisca corticana*, small, distinctly marked varieties, common during all my stay; *Solandriana*, scarce; *E. pinicolana*, Mr. Norman took this on a heath; *Retinia resinana*, the large lumps of resinous matter formed by last year's larvæ, and often containing the empty pupa cases, were common; *D. Petiverana*, *E. angustana*, and *A. pratana* (scarce).

Plutella xylostella. *Depressaria costosella*, *atomella*, *umbellella*, *arenella*, and *assimilella* (!) all occurred upon twigs of broom and furze at night. Some varieties of *costosella* had the veins and some lines on the thorax fuscous, and in other respects different from the type; but, unfortunately, connecting forms occurred. Of *D. discipunctella* (*pastinacella*), a specimen was brought to me. *E. fenestrella* and *C. Hübnerella*, among furze; *G. humeralis* (*Lyellella*), *terrella*, and *mulinella* were all beaten out of furze; *A. Gædartella* was common, of course, amongst birches, and *C. radiatella* (beautiful varieties) among oaks; *C. costella*, *E. pseudospretella*. A beautiful specimen of *G. stramineella* came out of an oak; the fore wing is suffused with rich red-brown. Mr. Norman has since sent me a typical specimen from the same locality.—G. B. LONGSTAFF, New College, Oxford, October 31st, 1869.

Description of the larva of Hypenodes costæstrigalis.—For eggs of this species I am indebted to Mr. T. J. Carrington, who sent me some on July 8th, 1868. Unfortunately, I have mislaid the notes I took of their appearance, but I know it was the more struck with it, because it did not correspond with my recollection of the eggs sent me by Dr. Knaggs, in 1865.

However, I know that these sent by Mr. Carrington were deposited singly, and were of the usual *Noctua*-shape, and dark-red in colour.

The larvæ were hatched on July 12th and 13th, and, after a little hesitation, seemed to take kindly enough to the flowers of *Thymus serpyllum*; I cannot help

that they also took kindly to one another—in the style of Hamlet's little more than kin, and less than kind ;"—for, although I never caught act of cannibalism, somehow they became fewer and fewer in number, August 12th, there remained but one full-grown larva to be described. Newly-hatched larva is quite translucent and glossy, in colour rose-pink, taper towards the tail ; the head blackish ; the skin furnished with some bristles. At the end of a week it had lost much of its translucent look, the head became more of a claret, the bristles had disappeared. At the end of a week or ten days, much of the purplish-red had vanished, and the colour became a dark brown. On August 12th, the full-grown larva was thus described. Length, when stretched out in walking, about $\frac{1}{2}$ -inch ; but its general position is to "hunch up" its middle segments into a close loop, keeping the front segments close to the surface on which it is resting ; and for this position it seems specially adapted, the head and three following segments being smaller than the 5th, 6th, 7th, and 8th, all four of which are tumid, and the following segments being also somewhat smaller ; there are but two pairs of ventral legs in all. The colour of the back is dark purplish or crimson-brown, glossy, making it hard to distinguish the obscure markings on it ; through the middle runs a slightly paler central stripe ; the sub-dorsal line is faintly seen as a brown line, edged with blackish below ; the sides and belly are paler, and more greenish in tint ; taken altogether, the larva has a general appearance of a glossy, dark, chocolate colour.

On August 15th, my larva became a pupa, naked, because I had unfortunately lost it whilst setting about a slight cocoon : its length was about $\frac{1}{4}$ -inch, its head blunt at the head, tapering gradually towards the tail, which was rounded, the body cylindrical, with polished surface ; in colour it was all over alike, of a greenish brown, faintly tinged with brown.—J. HELLINS, Exeter, December 2nd, 1869.

Early breeding of Aplecta occulta.—Last autumn I had eggs of this moth given me by my friend Mr. G. B. Longstaff, from a ♀ taken at Forres. These hatched in the autumn, and fed up on *Plantago lanceolata*, growing, however, very irregularly. On the 12th December, some four had gone under the moss to change.

On the 11th January, I was surprised to find a fine ♂ specimen of the perfect moth in my breeding cage. The larvæ and pupæ had been kept during the whole winter in a room, which had a fire during the day-time.

Other early pupæ of *Noctuæ*, such as *piniperda*, &c., which usually produce the perfect moth much earlier than *occulta*, were in the same box, and are yet unchanged. *Early breeding of occulta* seems to be worth recording.—GEO. NORMAN, Bennington, 12th January, 1870.

More abnormal appearances of Lepidoptera.—A male *Selenia illustraria* emerged in the winter of the present Year's day. Like the one recorded in last month's Magazine (p. 190) it was in the spring—not the summer—form. On this day (January 14th) a fine ♀ *Heliothis helveticata* has made its appearance. Am I a privileged individual, as regards these abnormal appearances which I have recorded, or have others experienced the same ? I would repeat that, in all the cases, the pupæ have been kept in a cold room, at the top of the house, facing the north.—J. GREENE, Apsley Park, Redland, Bristol, 14th January, 1870.

Note on Hydrilla palustris.—The specimen of *Hydrilla palustris* taken in Cambridgeshire, and referred to by Dr. Knaggs at p. 124 of this year's "Annals of Entomology," was exhibited at the Entom. Soc. on May 2nd, 1864 (vide Ent. Mon. Mag., p. 23), and was, as there stated, taken in Quy Fen on May 29th, 1862, by Scholfield. The insect was disturbed from among some half dried grass which had been cut a day or two, and flew pretty quickly.

I was present and saw the capture made.—H. JENNER-FUST, Jun., Hill Cottage, Berkeley, January 2nd, 1870.

Lepidoptera captured at Guestling in 1869.—Notwithstanding the unfavorable season, I have met with about 20 species of "Macros," which I had not previously found here. Some are generally reputed common,—as *Anticlea badiata*, *Eumecurus mensuraria*, and *Agrotis suffusa*,—which I had often wondered I had not before; while a few have the reputation of being somewhat scarce,—as *Nola strigula* and *Ephyra orbicularia*.

In the following notes, the date given is the first day on which each species was observed.

The season began early, for, on January 28th, *Eupithecia pumilata* was found dead in a breeding cage in the open air; another specimen appeared on February 1st; April 2nd, *Teniocampa miniosa*, three, at shallows; May 5th, *Anticlea derivata*, one specimen in the Rectory garden; 27th, *Lithosia aureola*, one specimen; June 1st, *Diphthera Orion*, one found at rest on an oak trunk, another bred a few days from a pupa, found, I believe, under moss; July 9th, *Halias quercana*, one, by mothing, one by beating; 10th, *Calligenia miniata*, this was in abundance, flying at dusk; 12th, *Limacodes testudo*, two specimens, one utterly spoiled in securing; 13th, *Nola strigula*, by mothing; 14th, *Dicranura furcula*, *Erastria fuscata*, *Periclyptera syringaria*, and *Tephrosia crepuscularia*, one of each, by mothing (the specimens recorded last year as *T. biundularia*, should have been *T. crepuscularia*); 15th, *Phycis roborella*, *Rhodophaea consociella*, and *Rhodophaea advenella*, several of each, by mothing, and at light; 21st, *Odontia dentalis*, one bred this day from larvæ collected on the beach, at Pett (misprinted last year, "beech at Pelt"), no more appeared for more than a fortnight; August 5th, *Eupithecia subfulvata*, one, at light; 6th, *Liparis chrysorrhæa*, a nice series, bred from larvæ taken at Pett; 9th, *Cucullia asteris*, one, at light; 10th, *Clostera reclusa*; 13th, *Platypteryx hamula*, two, at evening, at light; 16th, *Agrotis puta*, one, at light; 17th, *Ephyra orbicularia*, two specimens; *E. porata* and *E. punctaria* have been abundant this year; 20th, *Camptogramma fluviata*, ♂, by mothing; September 3rd, *Acherontia Atropos*, one specimen of the brown variety of the larva was brought to me, which I sent Mr. Buckler to be figured; 9th, *Sphinx convolvuli*, a few days after this, two were seen in my garden, and continued to appear until October 8th, and one was seen as late as the 15th of that month; 22nd, *Agrotis saucia*, took five at different times, on sugar, and saw others; 24th, *Noctua glareosa*, by mothing. Several species which have been common in other years, were either not seen at all, or were represented by one or two specimens.—E. N. BLOOMFIELD, Guestling Rectory, Hasting, November 18th, 1869.

Obituary.

MR. BENJAMIN D. WALSH.—With sincere regret we have to announce the death of this well-known American entomologist. Rumours of such an event having taken place had been current in England for some weeks, but it was not

ently that their un-hoped-for confirmation arrived. In Mr. Walsh our
 antic brethren have lost one of their most energetic workers, a man who
 did more than any other entomologist, either in Europe or America, to
 ate the necessity for scientific advisers, when absurd prejudices and
 ions regarding the causes, effects, and treatment of the depredations
 y insect-pests, surmount all other considerations in the minds of the
 . Though his bent evidently tended towards utilitarian entomology, Mr.
 ood prominently forward as a man of science, and his discovery of the
Cynips will not soon be forgotten. A devoted adherent to the theory of
 he at all times rendered to his scientific mentor the homage of a pupil,
 ve mistake not, the forthcoming works of our renowned philosopher will
 w much he assisted him. Respecting Mr. Walsh's history, we cannot do
 than extract the following from an American paper, dated the 26th Decem-
 39, believing it gives a true portraiture of the man—"The unexpected
 of our State Entomologist, Benjamin D. Walsh, of Rock Island, from
 es resulting from his being run over by a railway train at that place, excites
 rsal regret. He was a man of strong likes and dislikes—as good a hater
 . Johnson could have desired—and doubtless had his enemies among those
 e opinions he had freely scouted, and whose wrong-doings he had unsparingly
 mned; but his heartiness, his earnestness in the pursuit and dissemination
 ientific truth, his efforts in popularizing and making his favourite study of
 ology of immediate and practical value to our farmers and fruit-growers,
 nake him regretted and remembered by all.
 Born in England in 1808, and a graduate of Trinity College, he attained
 honours of a fellowship which he resigned, and coming to Illinois, was en-
 d first in farming, afterwards dealing in lumber, and finally, as he attained a
 erate competence, in pursuing his favourite study of entomology. As editor
 e 'Practical Entomologist' in 1865-7, and afterwards associated with
 . Riley, the State entomologist of Missouri, in the 'American Entomologist,'
 as earned a national fame."

ENTOMOLOGICAL SOCIETY OF LONDON, 3rd January, 1870.—H. W. BATES, Esq.,
 ., President, in the Chair.

Mr. Hewitson sent for exhibition a magnificent collection of butterflies collected
 r. Buckley, in Ecuador. Although in the locality for only a few months, he had
 t time collected about 5,000 butterflies, including 135 species new to science.
 Buckley, who was present, gave some interesting details respecting the distri-
 n, &c., of these insects; remarking that very few species occurred on both
 of the Andes, and that in *Heliconia* there seemed to be a species peculiar to
 valley.

Professor Westwood exhibited drawings of a peculiar example of *Anthocaris*
umines in the collection of Dr. Boisduval. This appeared to be a male in
 h the orange-tip of the fore-wings was variegated by patches of the white
 ale coloration.

Mr. Bond exhibited two examples of *Acrydium peregrinum* from Cornwall; about
 xamples had been captured in that county, and in Devon, last autumn.

Professor Westwood, on behalf of the Rev. L. Jenyns, exhibited a species of *Aphodius* said to be frequently vomited by the Hottentots.

Mr. Müller exhibited photographs of *Abax parallelus* and *Clerus formicosus*, the former being remarkable for its zig-zag striation; the latter for its white bands.

Mr. Quaritch (present as a visitor) made some enquiries respecting a letter addressed to him from a lady in Ireland whose library had been much damaged by the "book-worm." A specimen exhibited as one of the culprits was *Leptocryptus saccharina*, which had evidently been mistaken for the *Anobium* to which the damage was really attributable. Professor Westwood said he had found the use of benzine the most efficacious agent for destroying those pests.

The Rev. A. E. Eaton communicated a paper "on some new British species of *Ephemeridæ*."

Mr. Butler read "descriptions of six new species of *Callidryas*."

Mr. Pascoe read "A revision of the genus *Catasarcus*," and exhibited numerous species in illustration thereof.

Mr. Crotch communicated a paper entitled "The genera of Coleoptera stated chronologically (1735—1801)."

HAGGERSTON ENTOMOLOGICAL SOCIETY, December 3rd, 1869.—Mr. E. Barber, President, in the Chair.

The half-yearly meeting of this Society took place on the above date.

After the usual business was concluded the President called upon the Secretary to read his half-yearly report, he accordingly did so, observing during the course of his address that he was happy to inform the Members that the Society was in a flourishing condition, having a balance in its favour; that during the past six months 14 fresh Members had been elected; and that the cabinet had been enriched by kind donations from following gentlemen, namely, Messieurs Newman, Cooper, W. Harper, Jonas, King, Gainsbury, and Lorimer. Some beautiful varieties of *A. caja*, *A. cardamines*, *V. Atalanta*, *L. Alexis*, *H. leucophæaria*, *B. pilosella*, *A. betularia*, *C. ferrugata*, and *S. tiliæ* had been exhibited at the weekly meetings. As regarded the Society's Library, that had not been forgotten, several additions having been made thereto, and a brother member, Mr. E. Newman, had presented the Society with a copy of his *British Moths*, and had given each member a copy of the *Insect Hunters' Year Book* for 1868. Amongst the many rare specimens of British *Lepidoptera* exhibited by the various members during the past half-year the following deserve special mention: *Colias Hyale*, *Erebia Cassiope*, *Lycophotia Artaxerxes*, *Acherontia Atropos*, *Sphinx convolvuli*, *Sesia chrysidiformis* and *ichneumoniformis*, *Lithosia aureola* and *helvola*, *Chelonia plantaginis*, *Bombyx castrensis*, *Selenia illustraria*, *Psodos trepidaria*, *Fidonia carbonaria*, *Eupithecia pusillata*, *Lobophora polycommata*, *Cidaria picata*, *Platypteryx hamula*, *Stauropus fuscicornis*, *Ptilophora plumigera*, *Notodonta dictæoides*, and *dodonæa*, *Cymatophora ruficornis*, *Acronycta leporina*, *Cirrædia ærampelina*, *Dianthæcia Barrettii*, *Dasypolia Temata*, *Cucullia chamomillæ*, *Heliothis dipsacea*, *Anarta melanopa* and *cordigera*, *Platypteryx interrogationis*, *Scoparia paralis (alpina)*, and *Hypercallia Christiernana*. In conclusion, he congratulated the Members on the great success of the Society's "Exhibition" which took place on the evenings of the 18th and 19th of November last, several leading Entomologists having honored the Society by their attendance, and the Society's Meeting Room being crowded each evening with Entomological friends and visitors, many of the latter expressing the great pleasure they had derived from an inspection of the many beautiful objects that had been submitted to their notice.

OF BRITISH MACRO-LEPIDOPTERA WHICH HYBERNATE IN
THE EGG STATE.

BY THE REV. J. HELLINS, M.A.

Since the publication of my note on the hibernating ovum at the end of this vol., I have collected some information which may be of

perhaps I ought to say, that the question I put in my former note was previously started in the course of a correspondence between Mr. Wallace and Dr. T. A. Chapman. The former had satisfactorily ascertained the fact that the larva of *Bombyx Yuma-Mai* is perfected within the egg shell a month after deposition, and therein hibernates, remaining till spring; and he was anxious to know if this were the case generally with those species which pass the winter in the egg. I had thought of this question some years ago, I might have made use of opportunities, which have presented themselves from time to time, and then I could have given dates for a great many species; but, from my deficiencies have been made up by friends, and so, from my books reaching back to 1857, and by the kind help of Dr. T. A. Chapman, Revs. Bernard Smith and H. Harpur Crewe, and Messrs. Barrett, W. Buckler, T. J. Carrington, A. H. Jones, W. Machin, and Traill, I have got together what follows.

During this winter, eggs of *Bombyx mori*, *Trichiura cratægi*, *Yuma-Mai tiliaria* and *angularia*, *Cheimatobia brumata* and *boreata*, *Polia vetulata*, *Ptilophora plumigera*, *Xanthia aurago* and *Polia chionura* have been examined from time to time up to the middle of January; and so far—with one exception only—nothing but the faintest traces of the future larvæ have been detected by microscopic examination of the still fluid contents. At the last examination—about January 14th—a larva of *X. aurago* was found partially developed, but not to such a degree that it could be extracted from the shell in the larval form. It is, therefore, the guess formed by Dr. Chapman and myself, that, as a general rule, the larva is not developed till after hibernation, has now been confirmed. Still there are many more species to be examined, far more than I imagined till I set myself to make the list of species, which I now give in two divisions; the first containing those species, the dates for the deposition of the egg and the hatching of the larva of which can be vouched for either by myself, or by one or more of the above-mentioned correspondents; and the second giving the species, the dates of which we have no positive information, but which we believe to have the same habit. I think it probable that the names of some species ought to be added.

I.

NAME OF SPECIES.	EGG LAID.	LARVA HATCHED.	NAME OF SPECIES.	EGG LAID.	LARVA HATCHED.
<i>Lycæna Ægon</i>	July	March	<i>Chesias spartiata</i>	October	April
<i>Hesperia comma</i>	August	March, April	<i>Tanagra chærophyllata</i> ..	June	February
<i>Liparis dispar</i>	Do.	April	<i>Petasia cassinea</i>	November ..	April
<i>monacha</i>	Do.	Do.	<i>Ptilophora plumigera</i> ...	Nov., Dec...	Do.
<i>Orgyia antiqua</i>	July, Sept.	Do.	<i>Heliophobus popularis</i> ...	September..	February ..
<i>Trichiura cratægi</i>	Aug., Sept., Oct.	March, April	<i>Chæræas graminis</i>	Do.	Do.
<i>Pœcilocampa populi</i> ..	Nov., Dec.	March	<i>Luperina cæspitis</i>	Do.	April
<i>Clisiocampa neustria</i> ..	July, Aug.	March, April	<i>Orthosia suspecta</i>	July, Aug...	Do.
<i>castrensis</i>	Do. Do.	Do. Do.	<i>lota</i>	September..	Do.
<i>Epione apiciaria</i>	August	May	<i>macilenta</i>	November ..	March
<i>vespertina</i> ..	July, August	Do.	<i>Anchocelis rufina</i> ..	September..	March
<i>Crocallis elinguaris</i> ..	August	February ..	<i>pistacina</i>	Do.	March
<i>Ennomos alniaria</i>	September	May, June ..	<i>litura</i>	Do.	March
<i>tiliaria</i>	August	Do. Do.	<i>Xanthia citrago</i>	Aug., Sept..	March
<i>fuscantaria</i> ..	Do.	Do. Do.	<i>cerago</i>	September..	Do.
<i>erosaria</i>	Do.	Do. Do.	<i>silago</i>	Sept., Oct..	Do.
<i>angularis</i> ..	July, August	April, May ..	<i>aurago</i>	September..	March
<i>Himera pennaria</i>	October	April	<i>gilvago</i>	Do.	March
<i>Fidonia pinetaria</i>	July	March	<i>ferruginea</i>	Sept., Oct...	Do.
<i>Hybernia aurantiaria</i> ..	November	Do.	<i>Cirrhædia xerampelina</i> ..	August ..	April
<i>defoliaria</i> ..	Oct., Nov.....	Do.	<i>Tethea subtusa</i>	July, Aug...	Do.
<i>Cheimatobia boreata</i> ..	Nov. Dec.....	March, April ..	<i>Cosmia trapezina</i>	Do. Do....	Do.
<i>brumata</i>	Do. Do.....	Do. Do.	<i>diffinis</i>	Do. Do....	April
<i>Oporabia dilutata</i> ..	Oct., Nov.....	Do. Do.	<i>affinis</i>	Do. Do....	Do.
<i>fligrammaria</i> ..	September	February ..	<i>Polia chi</i>	Aug., Sept..	March
<i>Melanthia rubigidata</i> ..	July	April	<i>flavocincta</i>	September..	April
<i>Scotosia vetulata</i>	Do.	March (?) ..	<i>Epunda viminalis</i>	July	March
<i>Cidaria immanata</i>	August	March, April ..	<i>Miselia oxyacanthæ</i>	October.....	Do.
<i>prunata</i>	Do.	April	<i>Agriopsis aprilina</i>	Do.	Do.
<i>testata</i>	Do.	Do.	<i>Amphipyra pyramidea</i> ! ..	Do.	March
<i>populata</i>	Do.	Do.	<i>tragopogonis</i> ..	September..	Do.
<i>dotata</i>	Do.	Do.	<i>Catocala sponsa</i>	August	April
<i>Eubolia cervinaria</i> ...	November	April, May..			

II.

<i>Halia wavaris</i> ?	<i>Scotosia rhamnata</i> ,	<i>Dicycla oo</i> ,
<i>Eupithecia tenuiata</i> ,	<i>Gortyna flavago</i> ?	<i>Cosmia pyralis</i> ,
<i>rectangulata</i> ,	<i>Tethea retusa</i> ,	<i>Catocala nupta</i> ,
<i>debiliata</i> ,	<i>Euperia fulvago</i> ,	<i>promissa</i>

Into the question of the gradual formation of the larva within the egg shell, I do not pretend to enter; my note must be regarded simply as a contribution towards clearing up those points in the æconomy of our *Macro-lepidoptera*, on which the numerous books, which are published to tell us all about them, fail to throw any light.

Exeter: January 25th, 1870.

P. S.—On communicating the above notes to my friend Mr. McLachlan, he very kindly looked up some papers, which he remembered to have read in Continental publications, namely, two contributions by Von Prittwitz to the Stettin. Zeitung, 1861, p. 191—22

1862, p. 481—509, entitled, "Die Generationen und die Winter-
 der in Schleichen beobachteten Falter;" and also Rössler's
 zeichniss der Schmetterlinge des Herzogthums Nassau," 1866;
 from them has extracted a list of the British species mentioned by
 writers, amongst those which they speak of as hibernating in the
 Von Prittwitz gives seven of the species mentioned in my list
 , and the following eight in addition :—

anis Paphia,	Thecla quercûs,	Thecla betulæ,
obius Pamphilus,	w-album,	Liparis salicis.
na Agestis?	pruni,	

Rössler gives 47 species mentioned in my first list, and 31 others
 es (some of which, however, I had put in my second list), viz. :—

a betulæ,	Eupithecia debiliata,	Tethea retusa,
w-album,	Thera juniperata,	Euperia fulvago,
pruni,	firmata,	Dicycla oo,
quercûs,	Cidaria fulvata,	Cosmia pyralina,
cucullatella,	pyraliata,	Polia nigrocincta,
strigula,	Diloba cæruleocephala,	Hadena protea,
ris salicis,	Cymatophora diluta,	Toxocampa craccæ,
a wavaria,	Nonagria geminipuncta,	Catocala fraxini,
thecia tenuiata,	typhæ,	nupta,
sobrinata,	Orthosia upsilon,	promissa.
rectangulata,		

A few of the species, however, given in these lists, seem to have
 t in by some mistake; for instance, Mr. Buckler found when he
 ed *A. Paphia* from the egg, that the larva hatched in August, hyper-
 ed, and fed up in spring; also in the case of *C. Pamphilus*, eggs laid
 May became perfect insects by the following August; perhaps,
 ever, Von Prittwitz may refer to the eggs laid by these August
 terflies. As to *Lycæna Medon* = *Agestis* (indicated with great doubt
 Von Prittwitz), Professor Zeller has elaborated its history with
 at care (*v. E. M. M.*, vol. iv, p. 74), and he there states that the larvæ
 ch before August 31st, and hibernate in the same stage.

Orthosia upsilon I know nothing about myself, but several of my
 ends tell me it hatches in September, and hibernates as a larva;
lia nigrocincta has been the subject of notes by Messrs. H. Doubleday
 d C. S. Gregson, at p. 90 and 116 of the current vol. of *E. M. M.*,
 d it appears that, whilst the latter gentleman gives it as a species
 hibernating in the larva stage, Freyer and Millière, as well as Rössler,
 ss it with those of which the eggs do not hatch till spring.

I ought to have been able personally to vouch for *Cidaria pyraliata*
 d *fulvata*, but they had escaped my recollection.—J. H.

DESCRIPTIONS OF NEW SPECIES OF DIURNAL LEPIDOPTERA
FROM MADAGASCAR.

BY CHRISTOPHER WARD.

The four new species here described have been recently received by me from Mr. Alfred Crossley, my collector in Madagascar. Among other good species, he sent a series of the rare *Papilio Lalandei*, including the female, which had not been hitherto taken; it differs from the male only in the marking that crosses the discoidal cell of the upper wing being narrower, and light yellow instead of lavender.

PIERIS MANANHARI, *n. s.*

♂. Upper-side: *Anterior wing* yellow; the apical angle black, containing four yellow markings mingled with black; a small black spot at the extremity of the discoidal cell. *Posterior wing* entirely yellow, lighter towards the base and inner margin. Under-side: *Anterior wing* light yellow, darker at the base and apex; a small black spot at the extremity of the discoidal cell; a second black spot between the second and third nervures. *Posterior wing* yellow, deeper than the anterior; with an indistinct narrow marking commencing near the centre of the anterior margin, continued downward, and crossing midway to the inner margin.

♀. Upper-side: *Anterior wing* white, with a broad black margin which is widest at the apex; a black spot at the end of the discoidal cell. *Posterior wing* yellowish-white, the broad black margin continued round to, and narrowing at, the anal angle. Under-side: *Anterior wing* white, with black margin, excepting at the apex which is orange; a black spot at the extremity of the discoidal cell. *Posterior wing* orange, with a narrow, irregular, black band, commencing near the centre of the anterior margin, and continued downward, crossing midway nearly to the inner margin. This band is much more distinct in the ♂ than in the ♀. Expanse, ♂ ♀, $2\frac{1}{2}$ inches.

A remarkable species, which almost appears to connect *Anthocaris Ione* with *Pieris*.

ERONIA VOHEMARA, *n. s.*

♂. Upper-side: *Anterior wing* pointed at the apex, white; the space from the middle of the anterior margin, across the cell, and down to the middle of the hind margin is bright yellow; apical margin black. *Posterior wing* entirely yellowish-white.

♀. Under-side: *Anterior wing* orange, shading to white at the

margin; a black spot at the extremity of the discoidal cell. *Anterior wing* entirely orange. Expanse $2\frac{7}{10}$ inches. A well marked species.

Mr. Watson, who has examined the plumules, finds them quite different from those of any other.

DANAIS NOSSIMA, *n. s.*

♂. ♀. Upper-side: *Anterior wing* white with a black margin continued entirely round; apical angle black, containing two white spots; a triangular black marking immediately above, and partly run into, the extremity of the discoidal cell, containing two small oval spots near the upper margin; a similar marking at the hind margin, with small white spots near its edge (in some examples these triangular black markings are confluent). *Posterior wing* white, with a black band continued round the outer margin, changing to black at the anal angle, and containing a number of small white spots.

♂. ♀. Under-side: as in the upper-side, except that the white spots in the black band are much more numerous. Base of wings, and legs, black. Expanse, ♀, 3 inches; ♂, $3\frac{3}{10}$ inches.

Allied to *Danais Ochlea*.

"Frequents only the tops of the highest-trees" (Crossley).

JUNONIA ANTEVA, *n. s.*

♂. Upper-side: *Anterior wing* strongly falcate; bright rufous-brown, shading to dark brown at the outer margin; apical angle brown-black, containing a transverse light blue band, faintly interrupted by the nervures running through it. *Posterior wing* curved inwards at the anal angle; rich deep brown, paler at the base; two narrow, waved bands, of a darker brown, following the margin, and meeting at the anal angle. Both wings with a beautiful purple bloom.

♀. Under-side: *Anterior wing* brown with two indistinct waved bands near the base. *Posterior wing* brown, with a narrow band crossing from the anal angle to the upper margin; six small white spots on the inner-side of this band; two short grey waved bands at the anal angle. *Body* brown. Expanse, ♂, $2\frac{8}{10}$ inches.

This species will be best placed between *Junonia Augustina* and *n. Cacta*, but is quite distinct from either.

"A rapid flyer and very wary" (Crossley).

Halifax: February, 1870.

DESCRIPTIONS OF NEW SPECIES OF *ERYCINIDÆ*, FROM CHONTAL
NICARAGUA.

BY W. C. HEWITSON, F.L.S.

EURYGONA LABIENA, *n. s.*

Upper-side (male): orange. Anterior wing with the costal and outer margins and apex broadly dark brown. Posterior wing with the costal margin, which is broad, and the outer margin, which is narrow, dark brown; the inner margin paler brown.

Under-side: orange-yellow. Posterior wing with a sub-marginal series of minute black spots.

Exp. $1\frac{1}{5}$ inch.

Form of *E. Mys*, but larger.

EURYGONA ELMIRA, *n. s.*

Upper-side (male): orange. Anterior wing with the costal margin from the middle, the apex (which is acute) and the outer margin dark brown, with its inner border sinuated at the middle. Posterior wing long, the apex dark brown; the outer margin darker than the rest of the wing.

Under-side: white. Both wings crossed beyond the middle by a rufous band, with the outer margin broadly pale grey-brown, marked by a series of minute black spots bordered with white.

Exp. $1\frac{2}{5}$ inch.

Size and form nearly of *E. Dorina*.

SYMMACHIA LEENA, *n. s.*

Upper-side: rufous-brown. Anterior wing with many indistinct red spots below the median nervure; a minute spot on the middle of the costal margin, a second spot a little beyond this, and a third near the outer margin, before the middle. Posterior wing brick-red, with the base, the costal and inner margins, which are broad, the outer margin, which is narrow, and five or six spots between the median nervure all dark brown; some red spots near the base.

Under-side: dark brown. Anterior wing as above. Posterior wing with some grey spots between the median nervules and near the inner margin.

Exp. $\frac{1}{2}$ inch.

I have, I hope, described the spots on both sides correctly; so many of the scales have been removed by mites that it is not easy to determine the original spots.

SYMMACHIA THREISSA, *n. s.*

Upper-side (male): black. Anterior wing marked at the middle costal margin by a triangular transparent white spot. Posterior wing with a broad unequal band of scarlet parallel and near to the outer margin.

Under-side: dark brown. Anterior wing with the inner margin blackish grey.

Exp. $1\frac{1}{10}$ inch.

One of the largest known species.

In a small collection just received from Mr. Belt there are six specimens of this rare and beautiful genus—*S. accusatrix* of Westwood, *S. vector* of Cramer, *S. tricolor* and *S. rubina* of Bates, and the two new ones now added to the list.

MESENE XYPETE, *n. s.*

Upper-side (male): rufous-orange. Both wings with the outer margin, the fringe, and a sub-marginal band (broken into spots) dark brown. Anterior wing with the base, four triangular short bands (the one near the apex longer than the rest) from the costal margin, two black spots, and one or two near the outer margin, all dark brown. Posterior wing with seven or eight brown spots below the outer margin, the two largest of which are placed thus, one near the apex, the other near the anal angle. Underside: as above; except that it is blackish brown near the outer margins, and that both wings are marked by many black spots.

Exp. $\frac{1}{2}$ inch.

Size and form of *M. Phareus*.

LIMNAS (?) BRYAXIS, *n. s.*

Upper-side (male): dark brown. The palpi, forehead, thorax, and the first two segments of the abdomen, yellow. The centre of both wings, from the base to the middle of the outer margin, bright yellow; angular on the anterior wing and widest in the middle (in some specimens not touching the outer margin).

Under-side: as above; except that the base of the costal margin of the posterior wing is yellow, and that the abdominal margin has a black fringe of pale yellow.

Exp. $1\frac{3}{10}$ inch.

This species is so singular in its appearance that it does not seem to take its place in any described genus. It is too slender for

Limnas, but agrees very well generically with *L. Inaria*, which set to me rather out of place where it is.

I am indebted to Mr. Belt for the six species now described.

Oatlands, Weybridge: 18th January, 1870.

DESCRIPTION OF A NEW SPECIES OF *BRACONIDÆ* BELONGING TO
GENUS NEW TO BRITAIN.

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

Among some parasitic *Hymenoptera* forwarded to me for inspection by Mr. Champion, are two females of the genus *PAMBOLUS*, Hal., Ent. Mag., iv, 49, ♂ = *Dimeris*, Ruthe, Stett. Ent. Zeit., xvi, 329, ♂ ♀; ibid. xv, 344, ♀ only. This genus, hitherto known only on the Continent, is an interesting addition to our *Braconidæ*. The described species are two, *P. biglumis*, Hal. (♂ only), from Belgium,—and *P. mirus*, Ruthe (♂ ♀), found under moss at the roots of an oak near Berlin. Both are described as blackish, and may well be suspected of being identical, in which case the name *mirus*, Ruthe, must be dropped. The very different coloration of the present individuals leading to the conclusion that they are new, they are here described as

P. MELANOCEPHALUS, n. sp.

Sub-apterus, rufus, capite nigro; antennis apicem versus, abdominis segmento secundo, cum tarsorum apicibus, fuscis. Terebra abdominis media parte paulo brevior. ♀. *Long.* 1—1½ lin.

Very finely punctulate, with pale, scattered, adpressed hairs. Antennæ 15-jointed, pubescent, joints 7—15 fuscous. Wings halteriform. Metathorax bispinose. Segment 1 longitudinally striolated, convex, semicircular, divided from the 2nd by a deep incision. All the rest of the segments are concealed by the 2nd, so that the large, ovate, sessile and depressed abdomen appears bi-articulate, a character at once decisive of the genus.

Mr. Champion informs me that he found "one specimen on the grassy downs near Box Hill in moss, and the other in dead leaves at Darenth Wood." Both were taken last October.

Barnstaple: February 7th, 1870.

variance in Britain of Calodera rubens, Er.—Among some insects sent to me by Mr. G. C. Champion, I find a single specimen of a *Calodera* which I refer to as *rubens, Er.* (Gen. et spec. Staph., 67; Ktz., Ins. Deutschl., ii, 142). Not any type of that species, I sent Mr. Champion's insect to Dr. Sharp, who also happening not to possess an authentic type) also refers it to *C. rubens*. The appearance and even and somewhat parallel form prevent its being compared with any of the recorded British *Caloderae*; in fact, it can only be likened to a specimen of *Homalota languida* (but with, of course, much more transverse antennæ). It is pitchy-black, with reddish-brown antennæ and legs, and exceedingly finely and closely punctured all over. Two specimens have subsequently been taken in a marshy place, near Putney, by Mr. Champion.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., London, 1870.

Observations on Ceuthorhynchus distinctus, Bris.—M. Ch. Brisout de Barneville first described (in L'Abeille, vol. vii, p. 42, February, 1870) a *Ceuthorhynchus* under this name, which he refers to the Pyrenees and England, as rare. From his description, it appears to differ from *C. marginatus* solely in having six joints to the funiculus, instead of seven. I entertain no doubt whatever that this is an insect which I sent to M. Brisout last year, and to the structural peculiarities of which I drew his attention. I took one specimen of it on 12th July, 1863, at Dover; and at the same sweep of the net secured two or three undoubted *C. marginatus*. The first specimen is recorded by me in the "Entomologist's Annual" for 1866, p. 105; and the result of that record was the discovery by Dr. Sharp and Mr. F. Smith of other insects amongst their series of *marginatus*. Since that time, in June, 1869, I was at Folkestone, where *marginatus* was tolerably common, I mounted and examined very many specimens of it, with the express object of finding more examples with six-jointed funiculus. In this I so far succeeded, as to find four such specimens, which I recorded at p. 58 of the present vol., as aberrant in structure. I have now very carefully examined under the compound microscope, with the result that my former conviction of their specific identity with *marginatus* is corroborated; my chief reasons being that in one of these four specimens the funiculus of one antenna is six-jointed (the third joint of the funiculus being undivided and having apparently absorbed what should have been the fourth joint, though with no apparent suture), and that in the other the funiculus is apparently seven-jointed, the third and fourth joints being ankylosed, but with a very slight indication of the usual articulation. If, in so limited a number as four specimens, one so aberrant in structure be found, I see no difficulty in considering the other three as equally aberrant from (but still conspecific with) the numerous typical *marginatus* in company with which they were taken. These four specimens vary much in size (as does *marginatus*), two being as large as ordinary *marginatus*, and the other two rather smaller than my smallest example of that species. After the most careful and minute scrutiny, I fail to detect the slightest difference in structure, scaling or facies, between the specimens in which the funiculus is seven-jointed, and those in which it has only six joints.—ID.

Cryptocephalus bipustulatus a good species.—M. Gabriel Tappes, who is engaged

upon an exhaustive monograph of the European *Cryptocephalides*, makes some remarks (Ann. de la Soc. Ent. de France, 1869, ix, p. 7) of which I add a translation, as being likely to interest British Coleopterists:—"My own observations are corroborated by those of several of my colleagues, and especially of Messrs. Rouget, Godart, Varin and Peragallo, lead me to regard *Cryptocephalus bipunctatus* (Fab.) as a species perfectly distinct from *C. bipunctatus*" (of which the British form *C. lineola* is unquestionably a simple variety, although the type-form has not yet been discovered here.—E. C. R.). "The habitat of the two insects is not the same, the ridges formed by the striæ of the elytra are very much more evident, and they form a sort of rugosity not found in *C. bipunctatus*. It seems to me impossible to maintain the mistakes of the past upon this point."—Id.

Note on the identity of Spanish and English species of Homalota.—Mr. Croft during his visit to the Asturias last summer, collected some specimens of the genus *Homalota*; and, with his usual kindness, has allowed me to make an inspection of them. I find that they agree in most cases exactly with our British examples; and, except in one or two instances, could not be distinguished from my Scotch specimens. The following is a list of the species.—*H. labilis*, Er., *elongatula*, Gr., *decipiens*, Sharp, *fungicola*, Kr., *merdaria*, Th., *boletobia*, Th., *cadaverina*, Bris., *fungi*, G., *orbata*, Er., *picipes*, Th., *analis*, Gr. (the var. *major* of my Revision), *fusca*, Sahlb., *inquinula*, Er., *sordidula*, Er., *clientula*, Er., *nigra*, Kr., *volans*, Scriba, *boletophila*, Th. (not yet a British species, but I think sure to be found here), *pygmaea*, Gr. (a dark var. found in Scotland), *macrocera*, Th., *parva*, Sahlb., *analis*, var. ? This last is the only one that presents a chance of being considered a new species.

I have little doubt that the species of *Homalota* are very widely distributed throughout Europe, and that their number will be found to be much smaller than would be supposed from the large number of British species. Indeed, I have evidence that two or three of Mr. Wollaston's species from Madeira are identical with our British ones, though still known by different names. I will mention here that *H. obliquipunctata*, Woll.=*H. pavens*, Er., and *H. montivagans*, Woll.=*H. pulchra*, Kr. In this latter case Mr. Wollaston's name stands.—D. SHARP, Eccles, Thornhill, Dumfriesshire, February, 8th, 1870.

Further note on the parasitism of Aphodius porcus.—It appears that *Aphodius porcus* is rather a scarce species; and, several of my correspondents having asked me for specimens, I made an attempt to find them at the beginning of August last. With a view, at the same time, of further confirming the natural history of the species, I determined to search for them before they had left the 'sausage rolls' of *Geotrupes stercorarius* in which they had been reared. I had, however, great difficulty in finding the site of deposits of the previous autumn; but, after some failures, I discovered the remains of a burrow of *stercorarius*, the contents of which were in a semi-pulverulent condition, and contained six specimens of *A. porcus* (one of which I destroyed in my search) quite recently emerged from the pupal state, and one or two of which I clearly found to be contained in a cavity or cocoon partially framed of earth. I afterwards secured one more specimen, in another burrow, and in several other burrows I found a few larvæ, which, from size, &c., I supposed to be those of *porcus*. These, however, I failed to rear. I have also found some

larvæ and pupæ of *G. stercorarius*. The pupa lies in a firm cocoon, partly of earth and partly of the remains of the pabulum, usually at the end of the tunnel where the egg was originally placed, the larva having traversed it backwards and forwards at least once (I suspect, oftener).—T. ALGERNON ABERGAVENNY, January, 1870.

A. tarsatus taken in Northumberland.—I found, in a duplicate box, a single specimen of this recently introduced rare species, and which was taken by myself in the neighbourhood. It closely resembles in form and size *A. guttatus*, and, as I have no doubt passed it over at the time of capture; it differs however, from the common spring-frequenting species in having the legs darker coloured, the upper surface covered with fine curved anastomosing striæ, and the two pale spots on the apex of the elytra replaced by a piceous dash just within the margin, each reaching from the suture to quite one-third the length of the elytra.—T. ALGERNON ABERGAVENNY, Long Benton, Newcastle-on-Tyne, January, 1870.

Catchures of Coleoptera during the past season.—On the coast of Whitstable, I have taken the following species, amongst others:—*Polistichus vittatus*, *Staphylinus luridipennis* and *littoralis*, *Bembidium scutellare* and *ephippium*, *Pterostichus* sp., *Dichirostichus obsoletus*, *Anisodactylus pæciloides*, *Bryaxis simplex*, *Trogosiphus tenellus*, *Corticaria curta*, *Coccinella labilis*, *Heterothops binotatus*, *Philonthus* sp., *Staphylinus stercorarius*, *Ochthebius marinus*, *margipellens*, *bicolor*, *æreus*, *pygmæus*, *Berosus ariceps*, *Agabus conspersus* (common), *Hydrobius oblongus*, *color*, *Donacia menyanthidis* and *nigra*, *Eriirhinus festuæ*, *Bagous tempestivus*, *Pha opaca*.

In the neighbourhood of Croydon:—*Acidota cruentata* (in a sand pit at Shirley), *Staphylinus cordatus* and *punctatulus*, *Amara rufocincta*, *Panagæus 4-pustulatus*, *Staphylinus depressus* and *Byrrhus Dennii*; and on the chalk-downs near Henley, *Agabus castaneus*, *Cryphalus abietis*, *Tomicus micrographus*, *Ilyobates forticornis*, *Staphylinus primitus*, *Scaphidema metallica*, *Balaninus rubidus*, *Miarus campanulæ*, *Staphylinus atriceps*, *Agathidium convexum*, *Cæliodes ruber* and *rubicundus*, *Smicronyx* sp., *Homalota mortuorum*, *atomaria*, *testaceipes* and *pagana*, and *Clerus formi-*

color.
In the neighbourhood of Dartford, Greenhithe, and Darent Wood:—*Læmo-*
stichus clematidis, *Hypulus quercinus*, *Trachys minutus*, *Xylophilus populneus*,
Staphylinus ruficornis and *Scymnus minimus*.

At Mickleham, Box Hill, and Buckland:—*Colon Zebei* (one specimen, ♂) and
Staphylinus sp., *Thalycra sericea*, *Trichonyx Mærkelli*, *Hydnobius strigosus* and *punctatus*,
Staphylinus sophila inquilina, *Eros minutus*, *Cryptocephalus nitidulus*, *Hyperaspis reppensis*,
Staphylinus trophæus ferrugineus, *Gonioctena pallida* (beaten off hazel), *Malthodes fibulatus*,
Staphylinus ar and atomus, *Crepidodera atropæ*, *Ceuthorhynchideus quercicola* (Wat. Cat.)
Staphylinus punctiger, *Scydmanus angulatus*, *denticornis*, *pumilio* and *elongatulus*, *Anthero-*
gus silaceus, *Mordellistena lateralis*, *Psylliodes dulcamaræ*, *Xyloterus domesticus*
Aspidophorus orbiculatus.

In July, I spent three days in the New Forest, and, though too late to get
any desiderata, took the following species, amongst others:—*Microrhagus pygmæus*

(2, swept off fern), *Strangalia aurulenta* (dug out of rotten tree stumps), *C. viennense* (1, ♀), *Tomoxia biguttata*, *Tychius 5-punctatus*, *Cryptarcha imperialis strigata*, *Bagous frit*, *Cryphalus fagi*, *Orchesia undulata*, *Epuræa 10-guttata*, *Anthrenus Chevrolatii*, *Haploglossa pulla*, *Tiresias serra*, *Homalota autumnalis* (at a), *Haliphus variegatus*, *Hydræna testacea* (common) and *Ischnoglossa corticina*.

I have also taken *Stenus major* at Morden, and a single specimen of *Leptotestaceus* in a nest of *Formica fuliginosa* at Tilgate Forest.—G. C. CHAMPION, Walworth Road, London, S.

Captures of Hemiptera-Heteroptera during 1869.—Near Whitstable, Kent, *Henestaris laticeps* and *Agramma læta*; near Croydon, *Sehirus dubius* and *Zicronia cœrulea* (abundant); and at the New Forest, *Orthostira concinna*, *Lopus gothicus* and *Eysarcoris æneus*.—ID.

Note on the young larva of Colias Hyale.—On August 13th, 1868, Mr. A. Jones most kindly sent me more than 20 eggs, which he had obtained from a captured female; and although I failed with the larvæ, yet I think my experience may be of benefit to anyone who may have the same luck another time.

The larvæ were hatched August 17th to 20th, first ate their egg-shells, then settled on *Medicago lupulina*, in preference to *Lotus corniculatus*, *Trifolium repens* and *pratense*, with all of which I supplied them; they grew slowly, dying off one by one, till the three or four survivors were about $\frac{1}{2}$ inch long, at which size they hibernated, but never began to feed again in spring, and so perished in February and March, 1869. Perhaps the right way would have been to have kept them in a greenhouse, and fed them up rapidly without hibernation.

The egg is of a long fusiform shape, one end conical, the other knobbed like a bag tied round the neck; the shell delicate and glistening, ribbed longitudinally, and with very slight transverse reticulations: the colour at first a pale straw, changing to rich apricot or salmon colour, and lastly blackish. The newly-hatched larva is of a very pale olive, freckled with brownish; head as wide as the body and blackish; on each segment a transverse row of clubbed pellucid bristles. After a moult it becomes pale yellowish-green; and after another, a full green. And from this time to their early and lamented death, my larvæ remained as follows:—Length about $\frac{1}{2}$ inch, stout, cylindrical, uniform in bulk: head narrower than second segment. Colour a dull full green, head slightly tinged with brown, whitish spiracular line; the whole skin covered closely with short black spines and bristles.—J. HELLINS, Exeter, December 14th, 1869.

Description of the larva of Hydrelia unca.—I am indebted to Mr. Carrington for the eggs of this species. They were laid on June 23rd and 24th, 1868, and received by me June 28th. The egg is soft-looking, rather irregularly shaped, but still of the usual echinus-like outline, with nearly 40 very shallow and irregular ribs, connected by irregular transverse reticulations, and in colour a full yellow; in fact, it looks like a little speck of butter.

On June 29th, the eggs became dark grey, and on 30th the larvæ came forth. By July 17th, they were about $\frac{1}{2}$ -inch in length, by the 28th, $\frac{3}{4}$ -inch, and by the first week of August, full-grown.

ey fed well on *Carex sylvatica*; when at rest, stretched out flat along the of their food; looping in walking, and jumping about angrily when touched. e newly-hatched larva is a little greenish looper, with the usual dots show- own, and emitting bristles. As it grows, it becomes more and more of a en after every moult. When it is full-grown, the length is quite an inch, are slender, cylindrical, uniform throughout in bulk, save that the 3rd seg- eems a trifle swollen, and the last three segments taper slightly to the anal hich is bluntly rounded off, or almost squared off; the head is hard and ar, about as wide as the second segment; there are two pairs of ventral lly developed and useable, and the rudiments of another pair, useless. he colour is a full velvety-green, with a pulsating dorsal vessel of a darker here is a fine whitish-green sub-dorsal line, and a rather broader spiracular y very pale yellow; the spiracles are indistinctly brownish, and the hinder ents paler than the rest of the back; the belly is also paler, but still of a ch green; the head somewhat yellowish-green. The larva retired under ground for pupation.—Id.

Description of the larva of Thanos Tages.—On the 28th of May, 1868, I ened to meet with this species on the wing in a thicket, and brought home me three specimens alive; and luckily having a plant of *Lotus corniculatus* d, I covered it with a glass cylinder and placed them therein. After a few days, I saw that two of the butterflies were dead, whilst the third ooked lively, and fortunately proving to be an impregnated female, she sited on the leaflets of the plant a few pale greenish pellucid eggs, of a some- elliptical figure standing on end.

About the middle of June I noticed the egg shells were empty, but I could see the young larvæ either then, or for some time subsequently, until June , when at last I detected them, three in number; they had been all the while ing in little caves, formed by drawing together three leaflets with silken eads, and it was the glistening of these threads in the sun that first caught my . Each cave was formed by the two outer leaflets being drawn almost close ether (leaving space enough for the ejection of frass), and the middle one being t over them like a curved roof; all this was managed quite naturally, so that cave passed easily for a leaf not quite expanded.

Some of these caves had already served their turn and been abandoned for ver ones, and it appeared that the larvæ had been feeding on the inner surface the leaflets; in others I was able with the help of a lens to detect through the ertices somewhat of the fat form of their tenants.

On the 30th of June I turned one out for figuring; it was then nearly three- hths of an inch long, with a prominent dark purplish-brown head covered with nute pale greenish points; the body rounded above, a little flattened underneath, amp, and tapering a little at each end; the second segment much smaller than e third, especially in the part just behind the head; the colour of the body a le rather bluish-green, somewhat paler still on the sides and belly; a distinct orsal line of darker green, a sub-dorsal line faintly paler than the ground colour; e whole surface of back and sides irrorated or shagreened with exceedingly nute greenish-white points.

These most interesting little fellows continued to feed and grow, and as began now to eat away the whole thickness of the leaflets forming their cover, their ravages exposed their bodies to the light, and as soon as this happened moved off to new habitations; this change of residence always took place at night, though from the slow and deliberate pace at which they moved, it hardly be called a "flitting."

Throughout July these larvæ consumed a great quantity of food, so that I frequently to renew my plant of *Lotus*, but still they hid themselves, and I was quiet so persistently, that I no longer wondered how it was that no one had found this common species for me, even though its food-plant was known.

After various moultings, I secured three more figures of them at intervals, and by July 31st, they had attained their full growth. At this time the larvæ were nearly three-quarters of an inch in length, with the back a little arched and the belly rather flattened, being just of the same form as when younger; the body very plump, and thickest in the middle segments, the segmental folds distinct, each segment also sub-divided into five portions, the broadest one in front; the head is somewhat heart-shaped, and flattened on the face: the colour of the body is rather more of a yellowish-green than before, the minute raised points black, the dorsal line a darker green, and the sub-dorsal paler stripe delicately edged above and below with a fine faintly darker line; the anterior pair of tubercles just perceptible on each segment, but only with a strong lens; the spiracular region forming a slight ridge of paler whitish-green, the spiracles very small and red in colour: the head is purplish-brown as before, but with the addition of a ochreous streak from the crown down the front of each lobe, united below by another broad transverse streak at some distance above the mouth, and also a spot of the same colour on each cheek.

Having sent one to Mr. Hellins, I found my two remaining larvæ had, early in August, fairly left their hiding places, and were ascending the sides of the cylindrical leno cover at the top, they began to spin threads of silk and to pucker up the leno into a fusiform shape; the foundation threads were very strong and thick, spun parallel to each other, in a little transverse series at each end of the retreat: the larva that was on the leno first contrived to complete its hybernaculum; but the other, after spinning the two bundles of parallel threads to form the two ends of its intended winter quarters, was unable to find the leno slack enough for puckering into the required shape, and began again the next day at another part, but was again defeated, and finally relinquished its attempt on the leno, and went below amongst the plants; and some weeks afterwards I found it on the earth killed by mildew; the same fate befel the one which I sent to Mr. Hellins.

The other slumbered safely through the winter, until early in April, 1869, a ray of sunshine reached it, and I saw the larva coming out as though in distress to escape either the warmth or the strong light; whereupon I shifted the glass to a pot containing a violet plant, and the larva crawled down the sides till it found the violet leaves, and then selecting two near the bottom in a shady position, in an hour it had spun a retreat between them as they lay horizontally one below the other; but I suppose this operation exhausted its strength, for when, after waiting in vain for the butterfly to appear at the proper time, I pulled the leaves asunder I found it had died without having become a pupa.—WM. BUCKLER, Emsworth January, 1870.

Description of the larva of Epunda lutulenta.—On the 8th October, 1868, Mr. Terry, of St. Marychurch, captured a ♀ of this species, and having induced her to deposit her eggs in captivity, he kindly sent me a portion of them, retaining a few for himself, and sending others to the Rev. E. Horton.

The egg of *lutulenta* is circular, a little depressed at top, and flattened beneath, and beaded; when first laid it is of a canary yellow, and changes in a few days to a pale pinkish grey-brown, having the top and a broad zone round the middle of the sides of a much darker tint of the same: in about a month it changes to a purplish grey tint, and just before hatching assumes the bloom-like appearance of a purple grape.

The last change was simultaneously assumed by all the eggs in my possession on November the 22nd, that is about six weeks after they had been laid, but from some reason or other unknown to me, no more than two larvæ were hatched out; my friends, as will be seen below, were more fortunate.

The young larvæ at first has a very dark purplish-brown head, the body pale greenish and translucent, the internal organs showing through the skin give the appearance of a broad dark grey stripe down the back; there is a dark brown stripe on the second and on the anal segments; the tubercular dots distinct, and blackish, each having a rather long dark brown hair.

My young larvæ fed freely on *Poa annua*, but, the grass becoming infected with mildew, they both suddenly died on the 14th January, 1869. I am, however, able to say on their history, Mr. Terry having kindly forwarded me some of his batch on January 20th; these were then three-eighths of an inch long, of a full green on the back and sides, the ventral surface rather paler; the most noticeable feature at that time was the sub-spiracular stripe being whitish or greenish-white in some, yellowish or of a pale flesh tint in others; and by aid of a lens one could see that the dorsal line was of the ground colour, finely outlined with darker green, and the sub-dorsal paler green also outlined with darker; also that the ground colour on the back was delicately freckled over with darker green, an unfreckled plate of green on the second segment, and the head both paler.

These individuals fed tolerably well for some days on mixed grasses sown in a pot, and they varied their food a little by feeding on some of a miscellaneous collection of plants that had sprung up with the grass, especially on *Potentilla fragariastrum*, leaving chickweed and trefoil almost untouched; however, they did not seem healthy since their arrival, and they soon began to die off, the longest-lived going about the middle of March.

Soon after this, I became aware that the Rev. E. Horton had been more successful, and though his stock of young larvæ kept out of doors during the winter had been a temptation to robins as choice morsels of food not to be resisted, yet there remained one solitary individual uneaten, which he most kindly entrusted to my care, and on May 8th, I had the satisfaction of figuring it.

This larva was then one inch one-eighth in length, and moderately stout, of the usual *Noctua* form, its colour a bright yellowish-green, finely freckled with paler green, the segmental folds showing yellow; the dorsal stripe of darker green, the sub-dorsal stripe of very pale rather dull yellowish-green; the spiracles whitish placed on a thin dingy red line, and close beneath them a rather broad stripe tapering at each end of greenish ochreous, edged above and below with whitish

(the whitish edgings of this stripe appear to me to be the most distinctive mark of the species); the ventral surface and legs of the same colour as the back.

On the 19th of May, Mr. H. Terry succeeded in finding a nearly full-grown larva on grass in its native haunts, and subsequently two or three others on flowers of wild mint, and the leaves of *Scabiosa arvensis*, these he also forwarded to me. They were then an inch and a-half in length, rather darker and less brilliant in colour than the one reared by Mr. Horton, but otherwise similar, even in the details, with the exception that the spiracles were pinkish flesh colour, delicately edged with black, and each situated in a purplish-red crescentic blotch; the plate on the second segment slightly tinged with the same colour, and in the middle of the sub-spiracular stripe there was a streak of dull pink beneath each spiracle.

On June 19th, I received another larva from Dr. F. Buchanan White, who had found it feeding on heather in Inverness-shire; this would not touch grass, but fed up on heather within a few days after I had it.

This larva was of the same form and character as the foregoing, though the ground colour was a rather bright olive-green, and the dorsal stripe becoming suddenly blackish on the fifth segment continues so to the twelfth, being intensely black just at the beginning of each of these segments; on each of the same segments there was a black streak anteriorly on the upper edge of the sub-dorsal stripe, there was also a fine black spiracular line interrupted only by the spiracles themselves, and at the segmental divisions.

Although, as I said, this last-named Scottish larva refused grass, yet from what I could see of the others, I am of opinion that this species is a veritable grass feeder, probably eating grass all through any mild weather that may occur in winter, and in spring probably attacking any low plants that may suit its taste. It seems also that the larvæ invariably both feed and rest on the blades of grass with their heads downwards.—ID.

Notes on Lepidoptera observed at light at Norwich.—After living for years in a country place out of the reach of gas, I looked forward with sanguine anticipations to the opportunity of collecting afforded by the lamps round the outskirts of this city. But it must be confessed that, thanks to the very unfavourable season for insects, hard and constant work has given but meagre results; of the few good species, most having occurred only singly.

Last October and November (being the end of a good season), I found *Nonagria lutosa* and a few *Petasia cassinea*, while *Diloba cæruleocephala*, *Cidaria miata*, and a few other species swarmed. This season I have found *Porthesia chrysothorax* (singly!) *Cerura bifida*, *Ennomos erosaria* and *fuscantaria*, *Acidalia promutata* (in plenty), *Eupithecia subfulvata*, *assimilata*, and *fraxinata*, *Scotosia certata*, *Phibalapteryx lignata*, *Pelurga comitata*, *Luperina cespitis*, and a singularly pale form of *Dianthæcia carpophaga*: a most scanty list for the amount of time and labour bestowed.

Among the smaller insects, the *Crambites* were well represented as to species, though individuals were scarce. Among them were *Schænobius forficellus*, *Homæosoma nimbella* and *nebulella*, *Phycis abietella*, *Rhodophæa formosella*, *advenella*, *marmorea*, and *suavella*. Of *Tortrices* and *Tinsina*, I observed an unusual number

es, and even a few plumes; the common ones, *Pterophorus pterodactylus*, *actylus*, *ochrodactylus*, and *Alucita polydactyla*, occurring occasionally, and worn specimen which agrees with nothing so well as *Lienigianus*.

Halonota roborana, *Orthotenia striana*, and *Eupæcilia atricapitana* were actually at the lamps, and specimens occurred of *Catoptria expallidana*, *Sciaphila*, *Sericoris decrepitana*, *Halonota fœneana*, *Peronea aspersana*, *Retinea*, and at least a dozen more *Tortrices*, mostly common; while of *Tineina*, *Tinea semifulvella*, *Enicostoma lobella*, *Depressaria chærophylli* and *subpro-*, *Gelechia rufescens*, *leucatella* and *domestica*, *Cecophora lunaris* and *lineolea*; and, seeing that many of these were found repeatedly, and in not to say excited, state, it seems reasonable to credit them with a amount of activity at night, than we have usually been in the habit of.

—CHAS. G. BARRETT, Norwich, 16th November, 1869.

some *Lepidoptera* found on the chalk near Norwich.—The chalk formation underlies this city and neighbourhood, at no great depth, finds its way to surface in a valley about two miles away; and it is curious to observe the of species of *Lepidoptera* to be found on this spot, but almost or quite from the surrounding country.

of the most interesting of these is *Homœosoma nebulella*, which is rather among the rough herbage, and may be found at dusk on the blossoms of and musk-thistle. It may also be trodden up from patches of *Anthemis* though what attractions there may be in this plant does not appear.

the chalk-pits, *Argyrolepis subbaumanniana* is common, and so different, tive, from *Baumanniana*, that it seems impossible to doubt its distinctness species; indeed, when at liberty, it looks as much like *Chrosis tesserana*, and ilar habits.

the same old pits, *Cochylis stramineana* is plentiful, and *Pterophorus plagio-*, *Elachista triatomea*, *Opostega salaciella*, and *Bucculatrix cristatella* occur, ry rarely, *Nemotois scabiosellus*.

ong the neighbouring hedges and banks may be found *Catoptria æmulana*, *Phtheochroa rugosana*, *Endopisa Germarana*, *Dicrocampha simpliciana*, *janthinana*, and *Stephensia Brunnichella*; and, on the trunks of some ash trees, in a lane, *Eudorea lineolea*, *Depressaria granuloseella*, and *Gelechia ferella*.

me few of these species are to be found in hedges for a considerable dis- out the majority appear confined to the chalk.

the other hand, many chalk insects, such as *Eubolia bipunctaria*, *Melanippe* and *procellata*, and *Gracilaria semifascia*, seem altogether absent.—ID.

arly appearance of *Eupithecia albipunctata*.—A very fine specimen of this made its appearance in my breeding cage on New Year's Day. The room in I had the pupa is very cold, and much exposed.—C. CAMPBELL, 14, Blackburn Hulme, Manchester, February 12th, 1870.

Lythria purpuraria, near York.—I have two old specimens of this rare insect taken in Stockton Forest, four miles from here, by Henry Baines. These are pinned with short household pins; were taken at the same place, and by the same captor as my old *Acidalia rubricata*, which species has since been taken in the same locality.—T. H. ALLIS, Osbaldwick, near York, February, 1870.

Note on Cidaria reticulata.—I wish to call attention to a distinct character in the male, I allude to the large round yellow spot on the under wings, which shows both above and below. I have not seen any notice of this in English works.—I

Depraved appetite in Lepidopterous larvæ.—I have made a note of two cases of depraved appetite in Lepidopterous larvæ during the past season.

The first is that of a larva of *Agrotis saucia*, which, though furnished with green food, ate a portion of the dead and dried body of a larva of *Agrotis ripae* and the other is that of a larva of *Eupithecia expallidata*, which I watched devouring one of those claret—or mulberry—coloured aphides, that infest the *Solidago virgaurea*.—J. HELLINS, Exeter, 12th January, 1870.

The sexes of Coniopteryx psociformis.—With reference to the supposition that *C. psociformis* and *C. aleyrodiformis* may be only the sexes of one species, as noted in my Monograph of British *Planipennia* (Tr. Ent. Soc. 1868, p. 193), I may remark that Mr. B. Cooke recently submitted to me two examples of *psociformis* which appeared to be decidedly ♂ and ♀. They were quite similar in general form, both with small hind-wings; but that which I consider the ♀ was smaller than the other, and with the abdomen swollen and elongated, apparently full of eggs.—ROBERT McLACHLAN, Lewisham, February, 1870.

British Lepidopterists as viewed by a German.—Some years since, when I was in London, I called on a dealer in High Holborn, and, looking through his stores, saw among others, a *Castnia* that suited me. It was the, as yet, rare *papilionaria* of Walker. He demanded sixpence for the specimen, which was somewhat worn, but quite fit for the Cabinet. I could not do better than buy it at so cheap a price. When I had looked over the exotics and picked out something more, he showed me some European species. There I found a very beautiful *Luperina Haworthii*. Moved from curiosity than from a desire to buy, I asked the price. "One pound" was his answer. I replied that, considering the low price of the exotics, he perhaps meant "one penny." "Oh! no, no, Sir. One pound: that's a British insect." He hesitated scarcely spoken, when in came a British Collector who admired this "fine specimen" and without more to do, because this was a British-born specimen, bought it for one pound. As a German insect, this *Noctua* would only have cost a few pence, but as a pure-blooded Briton it was worth one pound. "*O sancta simplicitas*" murmured I, and went my way.—PETER MAASSEN, of Elberfeld [in the "Stettin Entomologische Zeitung," 1870, p. 58, note].

[The insect noticed is *Cœlena Haworthii* of our lists. We would not for the moment accuse Herr Maassen of having invented a ridiculous statement for the purpose of throwing up in stronger relief the self-isolating tendencies of many

dopterists, but conclude that he made some great mistake as to the species. A British entomologist, in his right senses, would give "one pound" for this of which a specimen, British or otherwise, is not worth more, at the highest, fifteen-pence. The moral to be drawn from the anecdote is evident.—Eds.]

Review.

"FAUNE GALLO RHENANE," Coléopterès, Tome 1^{er}, 2^{me} Livraison; by Albert Fauvel, Caen, 1869.

The prefatorial chapters of this work, completing the 1st vol., and extending to 100 pages, accompanied by 4 exceedingly well executed plates, are now published; and themselves form a satisfactory introduction to the study of European Coleoptera. The present livraison treats of metamorphoses, external anatomy and nomenclature (with an elaborate terminological list); and also enters at some length upon "varieties," sexual and other differences in structure, &c., the laws of nomenclature, and the different schemes of classification. To these is added a preliminary list of contemporary coleopterists of the district to which the work refers, viz., France, Belgium, Holland, Luxemburgh, Rhenish Prussia, Nassau, and the district of the Valais. This introductory portion (though, of course, giving no idea of the way in which the body of the work is to be treated) can be read with interest by the general student, and can hardly fail to be instructive to the young British Coleopterist, abounding as it does both in original observations upon well-known facts put in an agreeable way. The remarks upon the foundation of new species (in the usual entomological sense) are particularly commendable. Amongst them is the suggestion that there should be an annual or biennial congress of well known Coleopterists (to be held at Paris), to whom all unique, new, remarkable or doubtful species should be submitted, with a view to the furtherance of their knowledge and consequent reduction of synonymy. A typographical error makes Fauvel term this committee an "aeropage" (instead of "areopage"): it is to be regretted that this is not an augury that the proposed assembly is likely to remain "in nubibus."

M. Fauvel notes that only three species of our *Brachelytra* (which he enumerates at 700), viz., *Stenus exiguus*, Er., and *Oxyptoda rupicola* and *Homalium bipenne*, Rye, are peculiar to Britain; but this does not, of course, include the genus of Dr. Sharp's new species of *Homalota*. He also remarks that *Stephens' Myporus var. nitidicollis* of *obtusus* is the only really indigenous race we possess in that group. His general observations lead to the impression that many changes in nomenclature will be made by him, and that he intends to collocate allied insects which have hitherto chiefly relied for specific distinction on the character of having wanting wings, added to the usual modifications of structure attending those conditions.

ENTOMOLOGICAL SOCIETY OF LONDON, January 24th, 1870 (Anniversary Meeting).
 W. SMITH, Esq., Vice-President, in the Chair.

The Ballot for the Council and Officers for the present year took place, when the following were elected:—Messrs. H. W. Bates, Dallas, Dunning, Fry, Grut, McLachlan, Parry, Pascoe,

Salvin, E. Saunders, A. R. Wallace, and Wormald, were elected Members of Council; and Mr. A. R. Wallace (President), Mr. S. Stevens (Treasurer), Messrs J. W. Dunning and R. McLachlan (Secretaries), and Mr. E. W. Janson (Librarian) as Officers. Mr. Dunning read the report of the Council and (in the absence of Mr. Bates) the President's Address. The proceedings terminated with the usual vote of thanks to the outgoing Council and Officers.

February 7th, 1870.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

It was announced that the Council offered two Prizes of the value of Five Guineas each to authors (whether members of the Society or not) of Essays or Memoirs, of sufficient merit, and drawn up from personal observation, on the anatomy or œconomy of any insect, or group of insects—the Essays to be sent in before the end of November, 1870.

Mr. Bond exhibited four examples of *Satyrus Semele* in which the colour peculiar to each sex were combined, although the individuals were essentially either male or female.

Professor Westwood exhibited drawings of *Anthocaris cardamines*, *Lycæna Adonis*, &c., presenting parallel peculiarities to those exhibited by Mr. Bond.

Mr. Bond also exhibited various cocoons of *Bombyx Yama-Mai* and *B. Perny* from various countries (on behalf of Dr. Wallace).

Mr. Stainton exhibited a box of Continental *Micro-Lepidoptera*, of which each example was carefully labelled with respect to locality, date, food-plant (if bred), &c. this being the plan he adopted throughout his collection; and he suggested it was the only perfect plan, inasmuch as numbers referring to a register, though of equal value while a collection was intact, were comparatively useless if it were dispersed.

Mr. Bond exhibited more examples of *Acridium peregrinum* from Plymouth (not Falmouth as recorded in our last).

Mr. Smith exhibited specimens of *L. migratoria* from Scotland, and remarked on the differences between them and *L. Christii*.

Mr. Janson exhibited (for Mr. Crotch) *Philonthus cicatricosus* of Erichson, new to this country, taken by Mr. Moncreaff at Portsea; also *Dyschirius angustatus*, *Hydroporus unistriatus*, and *H. minutissimus*, all rare or local British species.

Major Parry read the concluding part of his paper intitled "A revised Catalogue of the Lucanoid Coleoptera, with descriptions of new species, &c.;" and exhibited a specimen of *Nicagus obscurus*, a species of doubtful location.

The Secretary communicated some notes by Mr. Trimen on the habits of some species of *Paussidæ* at the Cape of Good Hope.

Mr. Butler read notes on the species of *Charaxes* of the Reise der Novara with descriptions of new species.

Mr. McLachlan placed before the meeting the MS. of the first part of the Catalogue of British Insects proposed to be published by the Society. This part comprised the *Neuroptera* in the Linnean sense (consisting of *Psocidæ*, *Perlidæ*, *Ephemèridæ*, *Odonata*, *Planipennia*, and *Trichoptera*), and numbered, in all, about 323 species. The *Ephemèridæ* had been furnished by the Rev. A. E. Eaton; the *Odonata* were compiled from the works of De Selys & Hagen; the others (with the exception of the *Perlidæ*, which were in a very imperfect condition) from Mr. McLachlan's various Monographs, with additions and corrections.

BRITISH HEMIPTERA: ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

GEODROMICA.

n 5.—LYGÆINA.

FAMILY I.—RHYPAROCHROMIDÆ.

STETHOTROPIS (*Fieb.*), *n g.*

Short, broad, oval, stout.

Head transverse, short, pentagonal; *crown* (including the eyes) wider than the front of the pronotum, rather convex; *face* very short, sides slightly curved inwards, apex obtuse. *Eyes* rounded, projecting laterally. *Antennæ* slender, 1st joint stout, reaching beyond the end of the face, 2nd slender, slightly clavate, $2\frac{1}{2}$ times longer than the 1st; 3rd more slender and less clavate, about two-thirds the length

Details of *Stethotropis incana*, D. & S.

of the 2nd; 4th thicker than the 2nd, about the same length as the 3rd, fusiform. *Rostrum* slender, reaching to the posterior coxæ, 1st joint as long as the head, 2nd nearly twice as long, 3rd about as long as the 1st, 4th rather shorter.

Thorax: *pronotum* long-trapezoidal, moderately convex, anteriorly contracted to the width of the head but immediately widened and the anterior angles rounded off; anterior margin slightly concave; sides nearly straight, very slightly sinuate, the margin at first very narrowly reflexed, then gradually thickened and forming a small callus at the posterior angles which are thus obtuse; posterior margin, within the callosities, slightly emarginate. *Scutellum* long, triangular, slightly convex, sides depressed, apex acute. *Elytra*: —*clavus* long, narrow, sides parallel; *corium* wide, curved outwards, anterior margin not reflexed, the outer nerve incrassated and prominent on the basal half, its posterior course on the disc also considerably raised; *membrane* short, sub-quadrate, posterior angles subequally rounded, base depressed; of the four nerves the 1st is short and curved outwards, the 2nd, arising near the middle of the base, is nearly straight, slightly curved at the base; the 3rd, arising at the inner angle, curves

towards the 2nd and then slightly towards the inner margin; the 4th arises near the middle of the inner margin and curves parallel to the 3rd *Sternum*, each segment with a triangular *xyphus*; *meso-* and *metasternum* with a central keel, the *xyphus* depressed. *Legs* moderate; *thighs*, 1st pair incrassated, simple, long-fusiform; *tarsi*, 1st pair short, 1st and 3rd joints sub-equal in length; 2nd very short; 3rd pair longest, 1st joint longer than the 2nd and 3rd together, 2nd very short.

Abdomen: *connexivum* wide, sharply reflexed.

Species 1.—*STETHOTROPIS INCANA* (Doug. & Scott), *n. sp.*

Black. *Head* and *pronotum* clothed with dense ashy pubescence; *elytra* dark shaded brown, base and nerves of *membrane* yellowish-white.

Head appears ashy by reason of the dense decumbent pubescence, *antennæ* black with fine projecting hairs, apex of 1st, 2nd, and 3rd joints piceous.

Thorax: *pronotum* covered like the head with dense, appressed, ashy pubescence, closely but distinctly deep-punctured, the callosities smooth. *Scutellum* less pubescent, with fine, less distinct punctures. *Elytra* dull, dark brown; *clavus* on the basal half with three rows of distinct punctures, posteriorly the punctures less distinct; *corium* in the inner margin, posteriorly, a longitudinal blackish streak, the raised course of the 1st nerve is also dark, the colour spreading posteriorly and outwardly into a blotch which extends narrowly on to the base of the membrane: *membrane* fuscous, the base (except as above stated) yellowish-white on the outer two-thirds, on the inner 3rd broadly clear, spotlike, with a blackish streak from the corium beyond the base of the 3rd nerve; nerves clear yellowish-white, and a streak of the same colour, sometimes interrupted, between the 1st and 2nd, and 2nd and 3rd. *Legs*: *thighs* pitchy-black, *tibiæ* pale piceous, *tarsi* pale piceous, the last joint black.

Abdomen: beneath clothed with fine, decumbent ashy pile. Length $1\frac{1}{2}$ line.

A single individual, ♀, was taken by Mr. T. V. Wollaston, last summer, at Teignmouth, and kindly presented to us. Dr. Fieber has founded on it a new genus and has sent a drawing of the characters, from which our figure is taken. Its place is near *Stygnocoris*.

Section 9.—*CAPSINA*.

FAMILY II.—*ONCOTYLIDÆ*.

Genus 7.—*CONOSTETHUS*, *Fieb.*

Species 2.—*CONOSTETHUS GRISEUS*, *n. sp.*

♂ Dark greyish-green.

Head yellow, somewhat darker on the sides and leaving an indistinct central line;

the base of the head, and near to each eye, a small brown spot. *Antennæ* black, 1st joint at the base greenish; 4th joint, apex brownish-green, *Eyes* rufous-brown. *Rostrum* greenish or yellowish, last joint black.

Prothorax: *pronotum*—sides and a central line yellow; callosities brownish-yellow minutely spotted with brown, their posterior margin brown. *Scutellum* dark greyish-green, anterior portion and a central line yellow, the former darker than the latter, transverse channel brown, interrupted by the central line. *Elytra* dark greyish-green; *clavus*—inner margin narrowly black; *corium*—anterior margin as far as the 1st nerve yellow, the colour softened down and blended with the prevailing colour as they approach each other; *cuneus* yellow; *membrane* blackish, slightly iridescent, lesser cell white; cell nerves yellow, outer nerve of the large cell darker, between the apex of the *cuneus* and lesser cell nerve and the apex of the anterior margin is enclosed a pale triangular patch, margined with black at its lower extremity. *Sternum* greenish; *mesosternum* with a broad dark greyish-green streak on each side of the centre. *Legs* greenish: *thighs* next the apex with a short row of minute brown spots on the upper and under-sides, those on the 3rd pair placed diagonally towards the base; *tibiæ* brownish-green or yellow with erect, somewhat spinose, black hairs; *tarsi* brown, 3rd joint, except the base, and claws, black.

Abdomen: upper-side black or brown-black; under-side green; *connexivum* yellow.

♀ slightly paler than the ♂.

Antennæ: *antennæ* yellowish or brownish-yellow; 2nd joint brown; 3rd and 4th black, basal half of the 3rd dark brown, apex of the 4th brownish-green. *Elytra* scarcely so long as the abdomen. *Membrane* abbreviated; cell nerves yellow. All the other characters as in the ♂. Length 2 lines.

In the appendix to the "Europäischen Hemiptera," p. 394, Fieber describes an insect as a variety of *Conostethus roseus*, Fall., to which the present bears a great resemblance in many respects, but its stature (early one-third larger), rounder head, and different colour of the *elytra* (the two former characters not referred to by Fieber) render it very conspicuous when placed alongside *C. roseus*.

Taken in some numbers by Dr. Power below Gravesend on and underneath *Arenaria maritima*, in June last.

AQUATILIA.

Section 5.—CORIXINA.

FAMILY I.—CORIXIDÆ.

Genus 1.—CORIXA, Geoffr.

CORIXA SOCIA, n. sp.

Brown-black, with very fine yellowish lines and markings. *Prothorax*: *pronotum*, *clavus* and *corium* delicately rastrate. *Pronotum* with 7—9

lines, mostly entire; *clavus* with the first five or six lines straight and parallel; *corium* with short irregular, delicate lines. *Palæ*, ♂, twisted and roundly dilated on the upper side anteriorly; 1st joint of the posterior *tarsi* with a large, sub-trapezoidal, posterior, black spot.

Head: above pale piceous, posterior margin black-brown with a very slightly angular medial prominence; on the crown, posteriorly, two very short, fine, punctate longitudinal striæ, not extending quite to the base. *Face* pale yellow; facial depression in ♂, deep, oval, extending forwards nearly to the middle of the eyes.

Thorax: *pronotum* rounded behind, anteriorly without a carinate elevation, with 7-9 fine, close, indistinct, slightly undulating, dark yellowish, transverse lines, mostly entire, but sometimes shortened and confluent. *Elytra*: *clavus* with fine, dark yellowish, transverse lines, the first six or seven straight and parallel, then two shortened inwardly, and the remainder less regular, shorter and often turned down at the inner end; *corium* with very fine, irregular, short, faintly jagged, transverse yellowish lines, the posterior inner angle nearly clear of markings; membrane-suture broad, clear yellowish, the colour extending round the apex, as a line, on to the marginal channel which is dark livid, in certain lights pale inwardly; *membrane* with fine, irregular, sub-angularly twisted yellowish markings, sparse in the middle, the entire margin black. *Sternum* black; *scapulae* pale yellow; *pleurae* black on the base, the posterior half, and a line on the margin of the basal half, pale yellow; *parapleurae* pale yellow. *Legs* pale yellow,—1st pair, *coxae* outwardly black, apex yellowish; *thighs*, at the base, exteriorly with a blackish spot, extending upwards; *tibiae* arcuate, black above, apex yellowish; *palæ*, ♂, the lower margin nearly straight, the upper-side at first much constricted and flattened, then dilated and rounded, turned broadly inwards, and abruptly rounded to the apex, so that the upper surface exhibits a broad screw-form; the colour at first brown deepens to black on the dilated portion and is continued as a line almost to the apex: 2nd pair, *coxae* black, apex yellowish; *thighs*, apical third, especially on the upper-side, fuscous; *tibiae* pale fuscous; *tarsi* brown at the apex: 3rd pair, *coxae* black, apex yellowish; *thighs* broadly black exteriorly, less so interiorly; *tarsi* with long, black cilia, 1st joint at the end with a large black spot extending quite across, sub-trapezoidal, the inner side being longer than the outer, and the upper margin sloping outwards; 2nd joint clear yellow with a very fine black line on the margins.

Abdomen black; *connexivum* pale yellow: beneath, in ♂, the basal segments black with the posterior margin and sides pale yellow; the last two or three segments dusky yellow; in the ♀ all the segments pale yellow. Length $2\frac{3}{4}$ —3 lines.

In the form of the *palæ*, ♂, like *C. præusta*, but differs from that species in being blacker, in the more delicate and shorter character of the lines on the *corium*, in the darker colour of the middle and posterior *thighs*, and in the sub-trapezoidal (not quadrate) shape of the black spot on the posterior *tarsi*.

A few specimens were taken last summer in the district of Strathglass, Inverness-shire, by Dr. F. Buchanan White.

CORIXA BOLDI, n. sp.

♀. Black-brown with pale yellow markings. *Pronotum* with 7—8 fine interrupted black lines. *Clavus* with long, zig-zag, longitudinal in the middle, and short transverse lines on the sides. *Corium* short, twisted, transverse lines. Posterior *tarsi*: the 1st joint with a large, apical, black spot, semi-oval on its upper end.

Color brownish-yellow, fuscous at the base, with a short, punctate, longitudinal stria on each side of the slightly raised middle.

♂: *pronotum*, *clavus* and *corium* finely rastrate. *Pronotum* posteriorly rounded, anteriorly without a keel, transversely with 7—8 very fine, slightly impressed black lines, the intermediate yellow lines rather wider. *Elytra*: *clavus* with long, zig-zag, sharply angulated, longitudinal, yellow lines on the middle, broad at the base, the margins each with a series of short hieroglyphic marks, sometimes connected; on the posterior 4th these marks form irregular transverse lines: *corium* with short, twisted, angulated, somewhat oblique transverse lines, interrupted on the posterior inner angle by a longitudinal black streak, the angle itself, at the end of the *clavus*, with a black spot; marginal channel pale yellowish; membrane-suture narrow, dusky yellowish: *membrane* filled with hieroglyphic yellowish markings, interrupted near, and parallel to, the inner margin by a pale streak, exterior margin black, posterior margin fuscous. *Sternum* pale yellow. *Legs* pale yellow: 1st pair, *palæ*, ♀, cultrate, narrow, acute: 2nd pair, *tarsi* with a brown spot at the apex: 3rd pair, 1st joint with a large, apical, black spot reaching quite across the joint, the upper end of the spot semi-oval; 2nd joint with a delicate black margin; *cilia* black.

Abdomen above, black; sides and *connexivum* pale yellow; the last segment, within the posterior margin, with a brown line; under-side pale yellow.

Length 3 lines.

This species is at once distinguished by the longitudinal direction of the peculiar markings on the *clavus*. By the spot on the posterior *tarsi* it is related to *C. præusta*, but the form of the spot differs, being sub-oval, instead of quadrate.

Described from a single ♀, taken by Mr. T. J. Bold in August, at Gosforth, "in a lake into which a burn runs."

CORIXA SODALIS, n. sp.

Brown-black, with fine pale yellow markings. *Pronotum* with 3—9 very fine black lines. *Clavus*; the lines on the basal half straight or furcate; *corium* with irregular, interrupted, twisted lines. *Palæ*, ♂, anteriorly, on the upper-side, roundly dilated to the broad apex, outwardly, like the *tibiæ*, black: *tarsi*; 3rd pair, the 1st joint with a small triangular, apical, black spot.

Head piceous; facial depression in ♂, deep, extending forwards to the middle of the eyes.

Thorax: *pronotum*, *clavus* and *corium* delicately rastrate. *Pronotum* rounded behind; disc with 8—9 very narrow, impressed black lines, the intermediate yellow lines rather broader, the first three or four straight, the rest more or less curved downwards, frequently shortened in the middle and confluent. *Elytra*: *clavus* with fine, pale yellow, transverse lines; on the basal half six or seven parallel, mostly entire, but sometimes furcate at the ends, the first three or four slightly broader than the others; on the 2nd half irregular, broken or angularly twisted: *corium* with delicate, irregular, much broken and angularly twisted, pale yellow, transverse lines, sparser on the posterior inner angle leaving there a short, longitudinal black streak; membrane-suture narrow, clear pale yellow, marginal channel narrow, pale livid: *membrane* with minute hieroglyphic markings, the middle more or less free, the margins black. *Sternum* and side plates pale yellow. *Legs* yellowish: 1st pair, *tibiæ*, ♂ arcuate, the upper-side, except the apex, black; *palæ*, ♂, viewed from the side cultrate, the upper-side anteriorly, broadly arcuate, apex broad, flattened and curved inwards, outside black, but the colour not extended to the apex: ♀ cultrate, narrow; slightly curved, apex acute: 2nd pair; *thighs*, on the basal half, pale, the apical half infuscated, darker on the upper edge; *tibiæ* infuscated outwardly, *tarsi* yellowish with a black spot at the end: 3rd pair; *thighs* pale; *tibiæ* broadly black on the sides; *tarsi* yellow with black cilia, 1st joint with a short, triangular, apical, black spot on the inner side, its outer angle generally not extending quite to the black outer margin, but sometimes touching it; 2nd joint clear yellow with a delicate black margin.

Abdomen above, infuscated in the middle lengthwise, the sides and *connexivum* pale yellow; beneath infuscated in the middle, the sides and posterior margin of the segments yellowish. Length 3 lines.

By the form of the *palæ*, ♂, closely allied to *C. Wollastoni*, but differs in colour, being brown-black, not brown; in the greater sharpness, distinctness, and paleness of the lines on the elytra; and especially in the short form of the black spot on the posterior tarsi, which in *C. Wollastoni* reaches far up the inner side of the joint.

Several examples taken by Mr. Bold in September, at Gosforth "in a lake into which a burn runs."

CORIXA COGNATA, n. sp.

Yolk-yellow with black markings. *Pronotum* with seven very fine, impressed black lines, nearly all of them shortened and joined to others. *Clavus* with the first five or six lines mostly straight, the rest irregular. *Corium* with short, thick, irregular lines, posteriorly and inwardly interrupted by a longitudinal streak. *Legs* yellow, *palæ*, ♂, roundly dilated on the upper-side anteriorly; *tarsi*; 3rd pair, on the apex of the 1st joint a small, black, triangular spot.

yellow-brown; facial depression, in ♂, oval, deep, extending forwards to the middle of the eyes.

Prothorax: *pronotum* with a faint anterior keel and seven very fine, impressed, black, transverse lines, all, or nearly all, shortened and joined to others, the yellow intervals wider. *Elytra*: *clavus* with the first five or six black lines mostly straight with wider intervals, the rest irregular, angularly undulating: *corium* with short, thick, irregular, jagged and twisted transverse black lines mostly connected just before the outer ends, (the yellow intervals broader and more irregular in the ♀ than in the ♂), on the posterior inner angle a short, longitudinal, black streak; marginal channel entirely yellow; membrane-suture yellow, narrow, distinct: *membrane* with twisted, hieroglyphic markings, sub-parallel round the margin; margin narrowly black. *Sternum* entirely yellow. *Legs* yellow: 1st pair; *tibiæ* arcuate, in the ♂ brown above; *palæ*, ♂, on the upper-side, anteriorly, roundly dilated to the apex, with a brown line on the edge: 2nd pair; *tibiæ* embrowned, *tarsi* with a brown spot at the apex: 3rd pair; 1st joint at the apex, on the inner side, with a small, black, triangular spot, of which the outer angle just touches the exterior margin of the joint, 2nd joint clear, the margins with a fine black line; *cilia* black posteriorly, yellowish on the basal half of the 1st joint.

Abdomen pale yellow, the base of the segments, especially in the ♂, infuscated.

Length $2\frac{3}{4}$ —3 lines.

Distinguished from all other species by its yellowness. Comes next to *C. sodalis* in the character of the *palæ* and in the form of the spot on the posterior tarsi, but differs widely in colour and in the older character of the markings on the elytra.

One ♂, Loch Grienan, Rothiesay, September, 1866 (*Douglas*).

One ♂ and two ♀, Loch Leven, August, 1868 (*Power*).

CORIXA SHARPI, *Doug. & Scott*.

Of this species, described last year from a single ♀ (*Ent. Mo. Mag.*, v, 295), Dr. F. Buchanan White was fortunate enough last July to take two or three specimens in the same loch where he found *C. lpestris*, and we are thus enabled to give the distinctive characters of the male.

♂. Facial depression broad, deep, extending beyond the eyes on the frontal prominence. *Tibiæ* arcuate, narrow at the base, sub-clavate, longitudinally trigonate, the angles sharply defined. *Palæ* cultrate, broad, the base narrower than the end of the *tibiæ*, the upper margin gradually rounded to the obtuse apex, and anteriorly inclined inwards, the lower margin gradually widened from the base and then slightly sinuate to the apex; seen from the inside, the upper margin, from the base for nearly half its length, is depressed and turned down sharply

inwards; outside slightly convex; seen from above, the whole palpi have a flattened and twisted appearance, resembling one of the blades of a steam-ship's screw-propeller.

The following species, in the form and width of the head, in the eyes not reaching the posterior margin, in the presence of the facial depression in both sexes, and in the form of the pronotum, recede from the type of *Corixa*, and approaches *Cymatia*, and it may hereafter be deemed desirable to establish for it a new genus, which may probably also include *Corixa Rogenhoferi*, Fieb

CORIXA ALPESTRIS, n. sp.

Corixa alpestris, Buchanan White, in litt.

Black, shining. *Head* considerably wider than the pronotum, prominent in front; facial depression in both sexes. *Pronotum* and *clavus* delicately rastrate. *Pronotum* short, angular posteriorly, distinguished with a distinct longitudinal keel on the anterior half, and about eight indistinct, impressed, concolorous, transverse lines. *Clavus* and *corium* with very fine, scarcely perceptible yellowish lines. *Palæ* in both sexes narrow, very long-cultrate, in the ♂, seen from the side, at the base on the upper-side, roundly widened, the dilatation, seen from above forming a long, cordate depression.

Head, including the eyes, much wider than the pronotum, anteriorly convex, in front prominent beyond the eyes, posteriorly, on each side piceous, depressed the middle rather elevated, on each side of which, and along the margin of the eyes, is a row of punctures, other scattered punctures are also on the crown posterior margin sharply raised, extending behind the eyes. *Face* covered with very long, projecting, yellowish hairs; facial depression in ♂ oval concave, extending on the frontal prominence beyond the eyes, in ♀ piceous, flat, extending only to the middle of the eyes; *labrum* yellowish-brown.

Thorax: *pronotum* short, pentagonal; sides short, nearly straight, hinder sides nearly straight, apex obtusely pointed; disc slightly convex, with about eight transverse, scarcely perceptible, slightly impressed concolorous lines (in some examples, in certain lights, the intervals are indistinctly yellowish at the ends); on the anterior half of the disc a distinct longitudinal keel. *Elytra*: *clavus* with delicate, undulating, interrupted, transverse lines rarely reaching the inner margin, more distinct at the base; claval suture raised, distinct: *corium*, clothed with very fine, short, decumbent, yellowish hairs and with delicate, undulating, much interrupted, yellowish, transverse lines, the posterior inner angle almost devoid of marking; membrane-suture obsolete, and the markings continued over it; marginal channel livid black: *membrane* with markings like those of the corium, short and parallel on the inner side, the margin all round black, unspotted. *Sternum*: *prosternum* side lobes pale

yellow; *scapulæ* pale yellow outwardly; *pleuræ* obscure yellowish posteriorly, *parapleuræ* obscure yellowish (in the ♀ the light colour on all these sternal lobes is more obscure than in the ♂). *Legs*: 1st pair black above, dingy whitish beneath; ♂, *thighs* beneath, on the lower margin, with a pale, rounded, foliaceous enlargement, which is suddenly contracted at the apex (in the ♀ this enlargement is less); *tibiæ* arcuate, on the upper side compressed into an angular, longitudinal ridge: *palæ* very long, cultrate, curved above to a long point, the inner margins with very long, strong, projecting brown hairs; seen from the side the base seems widened on the upper-side in a semi-oval form, seen from above this enlargement has the form of a long-cordate hollow with raised edges, projecting at its base roundly on the outer side, and extending nearly half the length of the pala (looking as if a small open shell had been affixed); in the ♀ the *palæ* are narrower, sub-aculeate, and without the basal enlargement: 2nd pair, *thighs* fuscous, pale on the basal third and beneath, *tibiæ* and *tarsi* fuscous, posteriorly black, *claws* fuscous, posteriorly yellowish: 3rd pair, *thighs* and *tibiæ* obscure yellowish, broadly black on the margins; *tarsi* yellow with black margins, overlaid with very long, black cilia.

Abdomen above, black; *connexivum* yellow with black margin; under-side, in the ♂, the straight segments black with the posterior margin distinctly dingy white, the border broadest in the last of these segments, the contorted segments dingy white with fuscous shades; in the ♀ all the segments, dingy whitish with narrow paler margins.

Length, ♂, 3½, ♀, 4 lines.

For this fine and remarkable addition we are indebted to the enterprise of Dr. F. Buchanan White, by whom several examples of it were found last July "in a small loch at an elevation of about 2,000 feet on Ben Hearag, Strathglass, Inverness-shire, in company with *Dytiscus lapponicus*."

In the "British Hemiptera," the following corrections are required:—

Page 57.—*Sehirus albomarginatus*: the lateral margins of the *pronotum* and *elytra* are stated to be yellowish-white, whereas this colour exists on the latter only. Mr. Rye pointed this out to us just after he made the captures noted *ante* p. 183.

Page 225.—*Nysius*: "the 3rd, 4th, and 5th nerves connected beyond the base by a cross-nerve forming two cells," should be "the 4th and 5th nerves connected beyond the base by a cross-nerve forming one large cell."

Page 299.—*Miridus*: "longish-oval; viewed from the side almost a parallelogram,"—insert "head" *before* "viewed."

ON NEW OR RECENTLY DESCRIBED SPECIES OF DIURNAL
LEPIDOPTERA.

BY A. G. BUTLER, F.L.S., &c.

Family NYMPHALIDÆ, Westwood.

SUB-FAMILY SATYRINÆ, Bates.

Genus EUPTYCHIA, Hübner.

1. EUPTYCHIA FETNA, n. sp., pl. 1, fig. 1.

Wings above pale brown; front-wings with two curved ferruginous bands, the inner one crossing the discoidal cell in the centre, the outer one at its external inferior angle; a nebulous ferruginous patch between the median nervules; an interrupted zigzag sub-marginal brown line and a sub-apical blind black ocellus with yellow iris: hind-wings crossed by a central ferruginous line; a macular sub-marginal brown stria and a sub-anal black ocellus with small silver pupil and yellow iris.

Wings below paler, ocelli placed as in *C. Enyo*, but the three inferior ones of front-wings obliterated; a sub-marginal brown chain-line; front-wings with ferruginous bands as above; a line of the same colour on the inner margin of the sub-costal basal swelling; hind-wings with two transverse ferruginous bands, the inner one crossing the discoidal cell just before its centre, the outer one just before its termination.

Expanse of wings, 1 inch, 5 lines.

San Geronimo, Plain of Salama (Hague), one example.

Coll. Salvin.

This beautiful little butterfly will come next to *E. Enyo* from Cuenca; it is a very distinct species of the *Mollina* group, and is the fifth *Euptychia* of that group hitherto described.

2. EUPTYCHIA LABÈ, n. sp., pl. 1, fig. 2.

Allied to *E. Myncea*, but differing in its lighter colouring, larger and more distinct ocelli, also above in the broader sub-marginal band of the hind-wings: below the ground colour is brownish-white; the bands narrower than in *E. Myncea*, of a deep red colour, the ocelli, though agreeing in their position, differ in their relative size, the black-centred ones being enlarged, the silver-centred ones diminished in size; the dark nebulous discal band is obsolete, giving place (below the ocelli) to a broad ochreous patch; the undulated sub-marginal line (simple throughout in *E. Myncea*) is geminate, forming an irregular chain, and terminating at the anal angle in a sub-quadrate ferruginous patch.

Expanse of wings, 1 inch, 10½ lines.

Calobre and Santa Fé, Veragua (Arcé); Polochic Valley (Hague)
♂, ♀, three specimens.

Coll. Salvin.

May be placed next to *E. Palladia*, a species, in some respects, intermediate between it and *E. Myncea*.

3. EUPTYCHIA GULNARÈ, n. sp., pl. 1, fig. 3.

♂. Allied to *E. Harmonia*, but differing in its greater size and sinuated hind-wings; also below in its uniform brown colouring; the central lines (especially of

t-wings) placed wider apart and scarcely divergent; the undulated sub-marginal line, and the obscurity of the ocelli, which are also more uniform in size.

Expanse of wings, 1 inch, 9 lines.

Guatemala (McLeannan), ♂, one specimen.

Coll. Salvin.

Will come next to *E. Harmonia* from Quito.

EUPTYCHIA MAIMOUNÈ, n. sp., pl. 1, fig. 4.

Front-wings above dark olive-brown; hind-wings with a black sub-marginal line from the third median branch to the anal angle: below paler with two sub-marginal lines (the inner one undulated); margin and fringe dark brown: front-wings perforated with ochreous scales; two central, transverse, dark brown bands (the outer one oblique), and a disco-cellular striola of the same colour; five discal spots with ochreous irides, the two uppermost black, the rest brown, the first and second slightly smaller than the others, and blind, the remainder with minute white spots: hind-wings with two somewhat irregular parallel dark brown central bands; six large discal ocelli with yellow irides, the fourth brown, the rest black, the first and fourth with bluish, the others with silvery pupils, the second and fifth considerably larger than the others.

Expanse of wings, 1 inch, 7½ lines.

Pebas, E. Peru (Hauxwell), ♂, one specimen.

Coll. Salvin.

This species, though belonging to the most variable group of the *Euptychia* genus, seems to me to be distinct; it differs from all its allies in the position of the dark bands of the under-surface, which in the front-wings are more regular, and diverge more towards the costa than in the other species; the ocelli, also, are very distinct, and, in the hind-wings, are so large, that they encroach upon the sub-marginal line.

The regularity of the hind-wing bands in the *Hermes* group proves to be a variable character, so that I am inclined to believe that two species, hitherto regarded as distinct from others, will have to be sunk, *E. Sositybius*, Fabr., as a variety of *E. Hermes*, Fabr., and *E. Alantata*, Butl. of *E. fallax*, Feld.

E. JAREZIA, Butler, pl. 1, fig. 5.

Cistula Entomologica 2, p. 20, n. 2 (Jan., 1870).

Habitat unknown.

♂, Coll. Druce.

Allied to *E. Saturnus*, but differing on the under-surface in the absence of any white colouring in the front-wings, and the much greater restriction of the white in the hind-wings; also in the entirely different relative position of the central lines.

E. MUSCOSA, Butler, pl. 1, fig. 6.

Cist. Ent. 2, p. 20, n. 3 (1870).

Brazil.

♂, Coll. Druce.

A very remarkable species of the *Quantius* group: in the moss-like spots upon the under-surface, and in the strongly angulated form of the front-wings, unlike any other *Euptychia*.

7. *E. OREBA*, Butler, pl. 1, fig. 7.

Cist. Ent. 2, p. 19, n. 1 (1870).

Habitat unknown.

♂, Coll. Druce.

The colouring of the under-surface in this insect is very similar that of the species belonging to the *Neonympha* group of the genus *Taygetis*: the species comes nearest to *E. nebulosa*, from which it may be at once distinguished by its greater size, the more slender central lines, and different ocellation of the under-surface.

Before leaving *Euptychia*, I wish to correct one or two errors which the re-examination of types and the comparison of longer series of species than were formerly at my command have discovered to me.

The true type of *E. similis*, described in my monograph in the Zoological Proceedings for 1866, proves to be a modification of *E. Themis*, described and figured in the supplement to my monograph (P. Z. S., 1867; pl. xii, fig. 13); whilst *E. similis* of the supplement figured (pl. xii, fig. 10) from an example in the British Museum collection, proves to be a distinct species, which may now take the name of *E. Undina*.

Euptychia Pieria (Monogr., p. 463, n. 13; pl. xxxix, fig. 3) is, in all probability, a variety of *E. usitata* (Monogr., p. 463, n. 11, pl. xxxix, fig. 2).

Family *ERYCINIDÆ*, Westwood.

SUB-FAMILY *ERYCININÆ*, Bates.

Genus *NYMPHIDIUM*, Fabricius.

NYMPHIDIUM LILINA, n. sp., pl. 1, fig. 8.

♂. Front-wings above dark cupreous, intersected by greyish nervures; the basal area striolated with violet scales: a broad oblique snow-white patch upon the costa beyond the discoidal cell, and terminating (upon the second median branch) in two black spots: the anal half of the inner margin irregularly white; a sub-marginal chain-like series of violet ring-spots, terminating (upon the white internal area) in two black spots; fringe white, black-varied: hind-wings snow-white; base copper-brown; three sub-marginal black spots near the apex: body brown, abdomen ochraceous.

Wings below nearly as above; the copper-brown replaced by dull brown, which, in some lights, shows a cupreous reflection; the violet markings replaced by white; hind-wings with seven sub-marginal black spots; base olivaceous, bounded upon the costa by two black spots; a brown patch upon the costa near the apex.

Expanse of wings, 1 inch, 9 lines.

Mexico.

♂, one example, Coll. B. M.

This very beautiful species was presented to the National Collection by the late Edward Doubleday, Esq.; it is perfectly unique in pattern, and comes near to no described species of the genus.

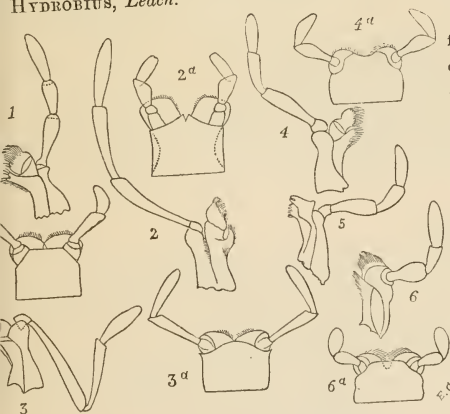
British Museum, February, 1870.

ON HYDROBIUS AND ALLIED GENERA.

BY D. SHARP, M.B.

Whilst engaged in the examination of our *Hydrophilidæ*, I have been impressed with the fact that the species of the genus *Hydrobius* (understood by Mulsant, Lacordaire and Duval) are very discordant in species or appearance; and, acting on the impression so gained, I have made careful examination of the external anatomy of these insects and the allied genera. The result is that I have found that an arrangement of the species of these genera, in accordance with their generic characters, would also be a natural one as regards their anatomical and generic characters. The divisions I think it will be well to adopt are exactly in accordance with those proposed by Thomson in his "Scandinaviens Coleoptera." As, however, the characters given for these divisions by that talented author are in some respects incomplete, and as his genera have not been yet adopted in such catalogues as have been published since his work appeared; I have thought a sketch of the characters of these genera may be useful to entomologists. I am not acquainted with the exotic species of this family; but hope they will help to prove the validity of the divisions here adopted.

HYDROBIUS, Leach.



- 1 —maxilla and max. palpus of *Hydrobius fuscipes*.
 1a —labium of ditto.
 2 —maxilla and max. palpus of *Helochares lividus*.
 2a —labium of ditto.
 3 —maxilla and max. palpus of *Philhydrus melanocephalus*.
 3a —labium of ditto.
 4 —maxilla and max. palpus of *Enochrus bicolor*.
 4a —labium of ditto.
 5 —maxilla and max. palpus of *Paracymus æneus*.
 6 — ditto ditto *Anacena globulus*.
 6a —labium of ditto.

Of an oblong-oval form. Mesosternum carinated in the middle, in front of the intermediate coxæ. Tibiæ strongly spinulose. Maxillary palpi moderately long, the third joint shorter than the second or fourth, which are of about equal lengths; labial palpi moderately long and moderately stout, the second joint longer than the third.

Two British species; *fuscipes* and *oblongus*.

HELOCHARES, *Mulsant*.

Of an oblong-oval form; mesosternum simple; tibiæ feebly spinulose; maxillary palpi very long, the third joint not so long as the second, and the fourth not so long as the third, but more than half the length of the second. Labial palpi short, the third joint not quite so long as the second.

Two British species; *lividus* and *punctatus*.

This genus, established some years ago by Mulsant, has not been generally accepted by entomologists, and is usually considered a subdivision of *Philhydrus*: from this, however, it is distinguished readily by its simple mesosternum and its longer maxillary, in conjunction with its shorter labial, palpi; this last character, a very striking one, seems to have entirely escaped attention up to this time. The species of *Helochares* are flatter than the *Philhydri*, and rather narrower to the front; this and the more developed maxillary palpi give them a facies of their own, easily recognised after it has been once seized.*

3. PHILHYDRUS, *Solier*.

Of an oblong-oval form; mesosternum carinated, tibiæ feebly spinulose. Maxillary palpi long, second joint considerably longer than the third, and the third than the fourth; the fourth not quite half so long as the second. Labial palpi long and slender.

We have six indigenous species; *testaceus*, *maritimus*, *melanocephalus*, *nigricans*, *ovalis* and *marginellus*.

OBS.—The figures are drawn from dissections of *P. melanocephalus* in *P. maritimus*, the labial palpi, though similar in structure, are rather shorter, and not quite so slender, and the mentum is even more rounded in the middle.

4. ENOCHRUS, *Thomson*.

Of an oval, convex form; mesosternum carinated, tibiæ feebly spinulose. Maxillary palpi rather long, third and fourth joints of nearly equal lengths; second longer than either of them. Labial palpi rather short.

The single species of this genus, *E. bicolor*, Payk., has hitherto been placed in the genus *Hydrobius*, from which it differs in numerous important characters. It is distinguished from *Philhydrus*, however, only by the differences of the palpi; and, as it has in every respect the facies of that genus, if *Enochrus* be not adopted, it must be considered as a section of *Philhydrus*.

* In making the above engraved drawings from Dr. Sharp's dissections, I have, moreover, observed that the mentum in *Helochares lividus* is of a very different structure to that of *Philhydrus*, having an acute triangular notch in the middle of its anterior margin. Dr. Sharp (to whom I pointed this out and whose observation it had escaped through the medium in which his dissections were mounted, not having dried up enough for minute investigation) has verified this by further observations.—E. C. R.

RACYMUS, Thomson.

Of an oval, but very short and convex form; mesosternum carinated, tibiae strongly spinulose. Maxillary palpi short, second and fourth joints of about equal lengths, the third rather shorter. Labial palpi short, the third joint not quite so long as the second. Posterior femora glabrous, and shining beneath.

P. æneus, the single species of this genus, has usually been associated with *Hydrobius*; but, independently of its great dissimilarity in general appearance, it is distinguished from that genus by some evident structural characters; among these may be mentioned its much less developed tibiae, and its glabrous posterior femora. In general appearance, it resembles very much the next genus, *Anacæna*, from which it is distinguished by its carinated mesosternum, and glabrous posterior femora.

ANACÆNA, Thomson.

Of a convex and sub-hemispheric, or oblong form; mesosternum simple, tibiae strongly spinulose. Maxillary palpi short, the fourth joint rather longer than the third. Labial palpi very short, the third joint stout, nearly as long as the second. Posterior femora opaque, and densely pubescent beneath.

This genus has also hitherto been associated with *Hydrobius*, but is distinguished, independently of its small size, by its uncarinated mesosternum, and much less developed maxillary and labial palpi. We have, I believe, three species in this country; and, as they have been nowhere, so far as I know, sufficiently described, I give below the characters which distinguish them.

A. GLOBULUS, Payk. *Sub-hemisphericus, niger, prothoracis elytrorumque marginibus dilutioribus, antennarum basi palpisque testaceis, his articulo ultimo piceo; pedibus rufis, tarsis, præsertim posterioribus, sat crassis.*
Long. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.

Very common in moist, dirty places, throughout England and Scotland.

This species is larger, broader, and more convex than the following, and has the elytra always of a darker colour, except at the margins, and the tarsi are stouter.

2. A. VARIABILIS. *Subovalis, convexus, capite nigro, palpis piccis, articulo ultimo nigro, antennarum basi testaceo; prothorace piceo-nigro, lateribus dilutioribus, elytris vel piceis, vel piceo-testaceis; pedibus piceo-rufis, tarsis gracilibus.*
Long. $1\frac{1}{4}$ — $1\frac{1}{2}$ lin.

Var. *capite utrinque macula parva ante oculos rufo-testacea.*

Common in England, rare in Scotland.

This species varies considerably in size and colour. It generally stands in our collections as *Hydrobius bipustulatus* of Stephens; but, Stephens' description of that species does not accord with the present insect, and as the species has not yet been distinguished (so far as I am aware) by foreign entomologists, I have been obliged to give it a new name.

3. A. BIPUSTULATUS, Stephens, Ill. Brit. Ent., ii, 133 (*Hydrobius*)

Late ovalis, sat convexus; capite nigro utrinque macula magna ante oculos testacea, antennarum basi palpisque testaceis, his articulo ultimo piceo; prothorace testaceo, disco plus minusve infuscato elytris testaceis, nigro-irroratis; pedibus testaceis.

Long. 1—1½ lin.

Common in England, and sometimes taken in numbers with the water-net; but I have never found it in Scotland.

The colour differences in this species are of themselves sufficient to separate it from the foregoing. I would especially call attention to the *large* marks on the head as a never failing character. Though, as I have stated above, the preceding species is generally called *bipustulatus*, Stephens, and the present one *ochraceus*, Steph., yet, as Stephens' description of *Hydrobius bipustulatus* agrees well with this species, and his description of *H. ochraceus* cannot possibly be applied to it, I have felt no hesitation in changing the name, so as to make it accord with the Stephensian description.

Eccles, Thornhill, Dumfries,
February, 1870.

Note on the occurrence in Britain of Tomicus nigritus, Gyll., and Dryæctes alni, Georg.—Some time back Mr. Crotch was kind enough to forward on my behalf an example of a species of *Tomicus*, distinct from any hitherto recorded as British, to Herr Eichhoff, the great authority for that genus. This has been returned as *T. suturalis*, now considered the female of *nigritus*, Gyll., which must therefore be added to our list. I captured my specimen in Strath Glass, Inverness-shire. Mr. Crotch also informs me that he also forwarded to Herr Eichhoff a specimen of the *Tomicus* described provisionally by Mr. Rye as *T. Marshami*, and that it is considered by Herr Eichhoff to be *Dryæctes alni*, Georg.—D. SHARP, Eccles, Thornhill, Dumfries, February, 1870.

Dryæctes alni, Georg.—Without doubting the correctness of Herr Eichhoff (who, I presume, possesses or has examined *Dryæctes alni*) in referring my *Tomicus* (*D.*) *Marshami* to that species, I would simply observe that the tree mentioned by Georg (Stettin. Ent. Zeit., 1856. p. 59) as that in which his insect lives is the alder, whereas *Marshami* was found in beech; and that his description is so unsatisfactory



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A. G. Pictor del et lith Feb 1870

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|---------------------|------------------|----------------------|----------------|
| 1. <i>Euptychia</i> | <i>Petra</i> | 5. <i>Euptychia</i> | <i>Jaresia</i> |
| 2. " | <i>Labè.</i> | 6. " | <i>Mucosa</i> |
| 3. " | <i>Culnarè</i> | 7. " | <i>Oreba.</i> |
| 4. " | <i>Maimounè.</i> | 8. <i>Nymphidium</i> | <i>Lilina.</i> |

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8 253

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zeburg seems to have been compelled to add a postscript, by which (as he
 e beetle in turns to *bicolor*, *bidens*, *autographus*, *laricis* and *curvidens*) he
 urrently still further obscured its affinities, since in no Catalogue until the
 ion of de Marsenul's has it appeared in its correct place in *Tomicus* or its sub-
 There is another *alni*, published by Mulsant in the same year as Georg's
 but which is sunk as a synonym of *Saxesenii*, Ratz.—E. C. RYE, 10, Lower
 elds, Putney, S.W.

ditions to the list of British Coleoptera.—Mons. Chas. Brisout de Barneville,
 n I sent in 1869 some doubtful species of British *Coleoptera* for corroboration,
 ently communicated a list of them to me, from which I am enabled on his
 ty to add the following to our list:—

nodulosus (Gyll.) Schön., Syn. Ins., 75 One of my two exponents of
nodulus, given to me by the late Rev. H. Clark, who took it, I believe, near
 el, is undoubtedly that species; the other, obtained from Mr. Brewer, is as
 otably *nodulosus*. I do not know the locality of this second specimen, but
 formed it was also from Mr. Clark's collection. *B. nodulosus* was erroneously
 uced into our lists by myself some years ago, upon an enormous and abraded
 le of *B. lutulentus*; and it appears to have escaped record since through some
 ght, as Mr. G. R. Crotch tells me that he has for some time known that we
 ooth species in this country; *B. binodulus*, indeed, being much the rarer of
 wo, as he had only one specimen of it, taken by Mr. Brewer in the fens.
ychius (*Sibynes*) *sodalis*, Germ., (Boh.) Schön., Syn. Ins., 377 (*cretaceus*, Bris.).
 is the *S. statices*, M.S., of Moncreaff, in "Newman's Entomologist." See Ent.
 1870.

Cryptophagus fumatus, Gyll.; Er., Ins. Deutschl., iii, 363. Already attributed
 itain, in De Marsenul's Catalogue, possibly from the Stephensian reference in
 on (Stephen's insect is *dentatus*). Taken by Mr. Bold in Northumberland.
Meligethes fulvipes, Brisout in Gren. Cat. et Mat., 49. This is the "6, spec.
 ?" of Wat. Cat., from Southend, allied to *M. æneus*.

M. rotundicollis, Brisout, l.c., 56. From Mickleham. Allied to *M. picipes*, from
 h it differs in its thorax being more strongly rounded at the sides, its finer
 ctuation, and its tibiæ being less strongly denticulated.

I reserve for a future communication remarks upon some other species appa-
 ly new to us in this genus, named for me by M. Brisout. Mr. Crotch has very
 ily sent me a list of British *Meligethes* from his own collection, also revised by
 same authority, and which contains at least two other species new to our lists,
 not amongst my additions.

M. Brisout also corroborates the *Meligethes* originally brought forward by
 as *Kunzei*; identifies the *Ceuthorhynchus marginatus* with 6-jointed funiculus
 erred to in the last No. of this Magazine by me as *C. distinctus*, Bris.; and
 corroborates as *C. vicinus* (*sibi*) one small and two larger specimens from
 uthend hitherto referred to that species with doubt by me.—Id.

Localities for Homalota.—The following species of *Homalota* (with others
 o common to mention, in all 86 in number) have been taken by me during the
 st two seasons, chiefly in the London district. All of them have been examined

by Dr. Sharp, to whom I tender my sincere thanks, and the names are those of the Monograph. Most of them are chance captures, and I cannot say I have worked the genus thoroughly; had I done so, this list would probably have been longer.

H. languida, Er., 1 specimen in a marshy place on Wisley common, Weybridge: *luteipes*, Er., 1 specimen at Sanderstead, in dead leaves: *plumbea*, Wat., under sea-weed on the coast, Dover: *londinensis*, Sharp, a few in marshy places at Lee: *oblongiuscula*, Sh., in dead leaves, Sanderstead: *pagana*, Er., several specimens at Sanderstead, Wimbledon, &c.: *occulta*, Er., 1 or 2 specimens at Shirley: *fungivora*, Th., at Shirley, Hampstead and Darenth, in dead leaves and in fungus at Loughton: *incana*, Er., sparingly, in the neighbourhood of Lee and in marshy places: *nigella*, Er., in company with the preceding, but of more frequent occurrence: *aequata*, Er., under bark at Cobham, Kent (a few specimens): *angusticollis*, Man., in a sand pit at Shirley, and in dead leaves on Mickleham Downs: *limbata*, Gr., under bark of various trees at Shirley, Mickleham, Cobham, and Darenth: *debilis*, Er., several specimens in a marshy place at Lee: *fallaciosa*, Sh., 1 specimen in a marshy place at Lee, Kent (mentioned in Dr. Sharp's Monograph as occurring only in Scotland): *rufotestacea*, Kr., 1 specimen at Mickleham (Ent. Mo. vol. v., p. 218): *gemina*, Er., in marshy places at Lee: *soror*, Kr., sparingly at Weybridge, Hammersmith, Loughton, and Mickleham: *exilis*, Er., a few specimens at Weybridge and Wimbledon: *palleola*, Kr., 1 specimen in dead leaves at Darenth Wood, last autumn (the only locality given in Dr. Sharp's monograph is Reigate): *validiuscula*, Kr., at Mickleham, in dead leaves (the only locality given in Dr. Sharp's Monograph is Edinburgh): *subænea*, Sharp, in fungus, at Mickleham: *triangulum*, Kr., 1 specimen at Gravesend, on the banks of the Thames: *ignita*, Sh., several specimens at Loughton, last autumn, in fungus and dead leaves (all recorded from Edinburgh and Shirley in Dr. Sharp's Monograph): *boletobia* (*nigritula*, Wat. Cat.), in fungus at Weybridge and Mickleham: *coriaria*, Er., several specimens in West Wickham Wood, in moss, also at Darenth: *sodalis*, Er., scarce, Weybridge, Mickleham, and Loughton: *divisa*, Märk., a few specimens at Weybridge and Mickleham, in fungus: *gagatina*, Bau. (*variabilis*, Kr.), in dead leaves at Weybridge, Birch Wood, Mickleham, and New Forest: *nigricornis*, Er., at Weybridge, in dead leaves: *angusticollis*, Th., single specimens at Mickleham and Richmond Park: *corvina*, Th., single specimens at Weybridge and Mickleham, and in profusion in fungus, last autumn, at Loughton: *atomaria*, Kr., in dead leaves at Sanderstead, 1 specimen: *testaceipes*, Heer, 1 specimen at Sanderstead, in dead leaves: *oblita*, Er., several specimens at Mickleham, in fungus: *autumnalis*, Er., 3 specimens in *Cossus*-burrows in the New Forest, last July, (only recorded from Norwood and Horning in Dr. Sharp's Monograph): *inquinula*, Er., common in dead leaves, at Gravesend: *flavipes*, Gr., at Cobham, a few specimens in vegetable refuse: *canescens*, Sh., single specimens at Hounslow and Weybridge: *celata*, Er., several specimens at Weybridge, in dead leaves: *marcida*, Er., very common in fungus and in the autumn, at Loughton, Shirley, Darenth and Birch Woods, and Mickleham: *intermedia*, Th., at Mickleham, in fungus, rare: *cadaverina*, Bris., rare, several specimens at Weybridge and Loughton: *lavana*, Muls., 1 specimen at Weybridge: *cinnamoptera*, Th., a few specimens at Loughton, in fungus: *testudinea*, Er., sparingly, at Wimbledon and Mickleham, in leaves: *muscorum*, Bris., common at Darenth, Weybridge, Southend, and Cobham: *pilosiventris*, Th., 2 or 3 speci-

ley: *subsINUATA*, Er., a few specimens at Hampstead and Shirley, in dead
ORPHANA, Er., 1 specimen near Weybridge.—G. C. CHAMPION, 274, Walworth
 S., 29th January, 1870.

Capture of Rhizophagus cribratus in quantity.—Whilst pupa-digging round an
 oak in Studley Park this afternoon, I came upon a piece of decayed fungoid
 wood on the tree root, about an inch in diameter, covered with *R. cribratus*.
 The wood being rather cold work, I put the whole piece in a pill-box, and now find
 it contained more than sixty specimens of the beetle.—EDWARD A. WATERHOUSE,
 Gains' Hall, Ripon, March 7th, 1870.

Notes on the æconomy of Abdera bifasciata.—My attention was one day attracted
 to a rotten oak-stick lying on the ground, from the circumstance that the bark on
 its side presented numerous minute circular holes irregularly disposed. My
 immediate conclusion was that I had come across traces of some *Tomicus*; but, on
 going into the stick, I found that each hole led into a little *cul-de-sac*, one-fourth
 of an inch long, lying parallel with the fibres of the wood. This was
 obviously the work of some insect; but, as clearly, not of any of the *Hylesinidæ*.
 I was further puzzled by the inadequateness of the removed material to have fed
 an insect of the size indicated by the exit aperture. I have not since found any
 stick containing these holes so abundantly as this first one; but I soon after
 found sticks similarly perforated, and almost invariably found the holes associated
 with the presence on the stick of the remains of a fungus. Last spring, I succeeded
 in finding sticks still inhabited by the larvæ that make these holes, and from which
 I reared *Abdera bifasciata*. The fungus, of which I have mentioned that traces
 always accompanied the perforations, is *Corticium quercinum*, P. The larva of
Abdera feeds in reality not on oak-wood, but on the *Corticium*; and the reason that my
 stick was so puzzling was, that all trace of the *Corticium* had disappeared from
 it. The *Corticium*, though certainly not rare, is only to be found in its appropriate
 situation, which, as far as my observations go, is on the branches of from one to
 two inches in diameter that die and become rotten on the tree. The fungus
 grows on the under-side of these branches, and though only, I suppose, really
 present for one season, its dry remains may continue for several years, and I have
 found larvæ in it in its second year. Its favourite tree is the oak, but I have
 also found it on ash.

Such rotten branches as the *Corticium* affects are usually broken off piece-
 meal by the wind; and, should they happen to fall when the *Corticium* is in suitable
 condition, the larva of *Abdera* is easily found beneath it. As I have informed
 several of my correspondents that the *Corticium* grows on the branches after they
 have fallen, I wish especially to point out that this is not the case; and that,
 though the fallen branches only are available in searching for the insect, the
 proper habitat of the fungus, and consequently of the beetle, is, I have fully
 satisfied myself, on the tree, and their being on the ground is to be regarded as an
 accident.

The *Corticium* is a thin fleshy fungus of a reddish-chocolate colour, lying flat
 against the bark on which it grows, but of a tougher consistence than its appearance

suggests. When dry it is a thin hard dark-coloured scale, which finally curls and falls off leaving the bark a little altered in appearance, but no doubt advances a stage in the process of decay.

I know nothing of the oviposition of *Abdera bifasciata*; but, throughout winter, the larvæ may be found of various ages beneath the *Corticium* feeding on those portions of it nearest the bark. Towards April and May they are full-fed, each makes its way directly into the wood, usually for a short distance, then sometimes for nearly half-an-inch, and then makes a little cell of its own length parallel with the fibres of the wood, in which it changes to pupa, the entrance to the cell being protected by being stuffed with the sawdust removed in its formation. The larva turns round with its head towards the opening before assuming the pupal state. In emerging I think it usually has to enlarge this opening. A perfect insect emerges in July. Though this is the usual habit of the larvæ, it often happens that the fungus begins to peel off before they are full-fed. I believe this occurs only when the fungus is in its second year of existence. In this case the larvæ make their way into the superficial layers of the bark, in which they seem to find sufficient nutriment, possibly part of the mycelium of the fungus, and feed them to their full growth.

The full-grown larva of *Abdera bifasciata* is 5 mill. in length; its general appearance is much that of a longicorn, the second segment, into which the head can be retracted, being the broadest, the head is oval, being rather longer than broad. The stout jaws, seen from below, are gouge- or scoop-shaped, with a slight projection near the apex, on the upper-side. The labrum is as long as the jaws, rounded, with a fringe of fine hairs, and a transverse line near its edge which does not seem to indicate articulation. The maxillæ have each a three-jointed palpus, and their inner angles are produced into an organ of similar shape to the palpus, fringed with short hairs, and directed towards the extremity of its inner margin, and not appearing to be jointed to the rest of the maxilla, the labium, difficult to observe between the maxillæ, appears to be a rounded plate divided into a basilar half which seems to be dotted with obscure hairs, and from the margin of which two three-jointed palpi appear to arise, one of which the large basilar joints at least are united to the anterior half of the labium, almost entirely hiding it, and the terminal joint (bearing a minute seta) is so small that its existence is doubtful: the antennæ are four-jointed, the last joint bearing a stiff bristle. Beside the last joint, and in front of it, is a rounded body, which may be either a separate joint or a process of the third joint (I have not satisfied myself on this point). Behind each antenna, is a row of three blackish eye-spots, the first emarginate in front; centrally behind these is a fourth, and at a little distance above this a fifth; these two last are blackish circles, broadest in front. On the sides of the body there are several bristles; the body consists of twelve segments, they are so transparent that much of the internal anatomy can be seen, some of it being obscurely marked by regularly disposed masses of white fat. There are three pairs of four-jointed legs, the last joint being a brownish claw. Each segment has laterally a stiff long hair, with two or three smaller ones; the thirteenth segment having two long hairs and several smaller ones. There is a slight projection on the ventral surface of this segment, hardly perhaps of sufficient size to be called an anal tubercle or pro-leg. There are ten pairs of spiracles, of which the first is situated below the line of the others at the anterior border of the third segment; the second at

border of the fourth segment (this one is smaller than any of the others, but satisfied myself that it is really an aperture, and not merely an approach of the tubes to the surface); the others are situated more towards the middle of the respective segments, so that the last four or five may be said to be so placed. The thirteenth segment, as usual, has no spiracle. The *Abdera* is infested by *Neumon*, which spins a white silken cocoon in the pupal cavity of the beetle, which I have not succeeded in rearing.—T. ALGERNON CHAPMAN, Abergavenny, Wiltshire, 1870.

Description of the larva of Noctua Dahlii—On September 11th, 1868, I had the pleasure to receive from Mr. G. B. Longstaff an abundant supply of eggs of this species, that had been obtained from several females in captivity by Mr. G. Norman, Wiltshire.

The eggs were dome-shaped, flattened, and slightly concave beneath, ribbed and reticulated, of a drab colour with a central zone of brown; in a few hours after laid them they turned to a brownish-slate colour, and the larvæ began to hatch on the 13th September and were all out by the 15th.

The young larvæ were at first of a brownish-grey colour, with black heads, and soon began to eat the green cuticle from either surface of leaves of dock, *Urtica crispus* and *pulcher*, showing a most decided preference for these plants, though supplied with various other kinds of food.

After their first moult they became a paler brown, with their minute tubercular black dots and hairs distinct; and by the time they had passed a second moult, they were three-eighths of an inch long, brown on the back with faintly paler dorsal and sub-dorsal lines, the sides down to the spiracles of a rather darker brown than the back, the ventral surface and sub-spiracular stripe paler brownish-grey tinged with bluish-grey anteriorly.

These larvæ when about one-third grown were handsomer than at any other period, their colours being then deeper and brighter. The full grown larva is from one and three-eighths to one and half-an-inch in length, longer perhaps when fully stretched out, and then it also tapers from the sixth segment to the head which is narrower than the second segment, the thirteenth also tapers and slopes down from the back to the anal extremity; otherwise the figure is tolerably cylindrical.

The great feature in the colouring of this species is the contrast of the back with the rest of the body, and, although the pattern was very much the same throughout the numerous brood which I reared, yet I noticed great variations of colour—from whitish-ochreous—through greyish-ochreous, ochreous-yellow, cinnamon-brown, rich orange-brown, to the deepest tint of mahogany on their backs.

I shall describe one of the varieties as typical of the greatest number. The ground colour of the back down to the sub-dorsal region, bright ochreous, delicately speckled with darker ochreous-brown; on each segment from third to twelfth, more or less distinctly appears a diamond shape of ochreous-brown, with its edges gently fading into the ground colour; the dorsal line is of the ground colour between two lines of very dark brown, though in full grown examples it is seldom uninterrupted, being visible only at the beginning of each segment, and thence obliterated by the brown diamond.

The sub-dorsal line is thin, rather paler than the ground colour, edged above

at the beginning of each segment with a thin black streak, which is general-ly inclined to end in the slightest possible curve just at the lateral point of the diamond: this diamond form is but obscurely and vaguely represented on the second and fourth segments, and the last of the series is on the twelfth, where it becomes little more than a triangle, while the pale sub-dorsal lines and their black edgings are there continuous, and become united by both crossing transversely at the end of that segment; on the thirteenth segment the dorsal line only is distinct.

The ground colour of the sides grey or brownish-grey, tinged anteriorly with bluish-grey, the space between the sub-dorsal line and the spiracles is very thickly freckled with dark grey-brown, forming a dark longitudinal side band in agree-ment with the back; the sub-spiracular stripe is pale greyish, like the ventral surface, and only to be distinguished from it by its upper and lower edges being a little paler than the rest.

The head is rather pale brown; the second segment has on the back a dark brown velvety patch or plate, rounded behind and margined in front with a darker brown. The tubercular dots are black, rather small, but rendered conspicuously distinct both on the back and sides by a small circle of pale ground colour surrounding each of them; the spiracles also are black.

The winter of 1868-69 being of a mild character, and the food-plants easily obtainable, about sixty of these larvæ continued feeding, and reached their full growth before the end of 1868, the most advanced spun up between dock leaves on November 14th, and others quickly followed; somewhat to my surprise they refused to enter the earth, but, on being supplied with moss, for the most part hid themselves in that, constructing very slight cocoons.

The pupæ is quite of the ordinary *Noctua* form; at first it is a pale greenish colour, and changes in a couple of days to brown, and finally to dark brown, and is very slightly attached by the tail to a thread of its cocoon. This portion of the brood, having all become pupæ by the end of December, did not remain long in that state, but began to appear as moths as early as January 19th, 1869, and so on at intervals, until April 29th, by which time I had bred twenty-six ♂ and twenty-seven ♀: however, a large proportion of them were more or less crippled in their wings, and very dingy in colour, though some curious varieties occurred; but, as a whole, they were not fine examples.

The remainder of the brood meantime had hibernated, some of them no more than two lines in length, others nearly half-an-inch, and many of them died off during the winter; but, on the approach of April, the survivors began to feed, and by the 10th of May they were full grown; they also preferred spinning themselves up in moss or in dock leaves to entering the earth.

The perfect insects, and they really were very perfect and fine, forty-five in number, appeared at intervals between June 4th and July 11th.—WM. BUCKLER, Emsworth, February, 1870.

Comparative notes on the larvæ of Xanthia cerago and silago.—Not until the season of 1869 have I had a good opportunity of really knowing the difference between these two species in the larval state, and, for this reason, I never till then had both at the same time, but only one or two of either at long intervals, so that in my recollection they had somehow got to be so much alike as not to be known

from the other. No doubt this confusion had arisen in part from my having seen two or three figures at different times of solitary examples too far matured; my experience having demonstrated that when they are full fed, or nearly approaching that condition, their distinctive characters have faded away, and their identification is then hopeless. I have therefore thought that a description of both *silago* may be of use to some, who perhaps, like myself, have hitherto been unable to distinguish the one larva from the other as they chanced to come under my notice.

My sincere thanks are justly due for the kindness and liberality I experienced from Dr. Buchanan White, of Perth, and on May the 4th from Mr. George Baker, of Derby, they having both sent me an abundant supply of caterpillars containing young larvæ of both species; and I may mention that throughout these larvæ all fed and thrived well on sallow leaves, and the moths appeared from the 30th of July to the 14th of August.

In both species the body of the larva is cylindrical, having the segments plumply defined, and tapering a little anteriorly; the head decidedly smaller than the second segment; the hinder segment tapering also, and the anal pro-legs close together beneath its extremity.

The larva of *cerago* has on the upper-surface, as far as the black spiracles, a ground colour of reddish-brown or purplish-brown, and beneath the spiracles a much lighter tint of the same; the ventral surface pale greyish-violet with a slight tinge of green on the anterior segments; the whole upper-surface is freckled with brown excepting the segmental divisions, which, when stretched out, are seen unfreckled, and of rather a violet tinge.

The dorsal line when visible is pale brownish-ochreous, often obscured by the dark brown lines that enclose it, and these often run together in a dark brown line at the beginning of each segment, are lost in the middle, and re-appear at the end. For, on the middle of each segment is a *diamond* shape of dark brown composed of closely aggregated freckles: the sub-dorsal is a dark brown freckled line forming the upper boundary of a broad side-band of dark freckles, extending to the spiracles, which are situated on its lower edge; the sub-spiracular region, belly, and anal are faintly freckled with pale brown; the head is dark brown, the second segment has a black velvety collar or plate rounded behind, on which the sub-dorsal line appears conspicuously whitish or pale ochreous, with sometimes a faint indication of a dorsal line on it; the anal tip is often similarly marked; the tubercular spots are often distinctly visible on the back in three pairs on each segment (two being the usual allowance), scarcely paler than the ground colour, and ringed with dark brown.

When young, some larvæ of this species are much darker, with the marks and spiracles almost black; but, as they increase in size, they become paler. In short the distinct series of *diamond* shapes down the back, and the broad dark band along the sides, are characters that effectually distinguish this species.

The larva of *silago*, though of similar size, form, and general aspect of colouring, when closely scrutinized, presents to view a different design in the ornamentation.

The freckling on the back extends on either side as far as the sub-dorsal region, forming on each segment an *irregular squarish* shape, quite uniform in depth of

colouring, with the dorsal line only just indicated at the segmental divisions: sub-dorsal region forms the upper boundary of a very broad stripe of paler freckles followed by a much narrower and still paler one, and then a broad one of similar depth of colour to the back, but with more of a violet hue: the rest may be described in the same terms used for similar parts of the larva of *cerago*.—ID.

Note on Anthrocera filipendulæ.—From larvæ of this species collected during last July at Branscombe, which is situated between Seaton and Sidmouth, I bred the perfect insects in August; and, as the under-cliffs at Branscombe are very much exposed to the sun's rays (being famed for the production of the earliest crops of potatoes in the West of England), I am half inclined to call this a second brood induced by locally exceptional heat: of course I do not venture to speak so decidedly on such slender evidence; only, having heard a similar opinion expressed once or twice before, I now put it forth to invite criticism on it.—J. HELLINGHAM, Exeter, March, 1870.

Remarks on the habits of Liparis salicis.—Mr. G. T. Porritt, of Huddersfield, has kindly communicated to me the result of his experience in breeding *Liparis salicis*, which by no means agrees with the statement of Von Prittwitz and Rössler that this species hibernates in the egg. Mr. Porritt has always found that the eggs are laid in July or August, that the larvæ are hatched in about three weeks, and then feed and grow very slowly indeed until the approach of winter, when each spins for itself a small white cocoon, in which it spends the whole of the winter coming forth and re-commencing to feed as soon as the willows and the poplars come into leaf in the spring. This, at least, is the habit of the species in the north of England, and it may be only a proof of the inveterate insularity of the British (moth) refusing to adopt continental ways; but Mr. Porritt suggests, that the fact of the parent moth covering its eggs thickly with a crystal-looking substance may have led to the supposition that they were intended to be thus protected throughout the winter; and this supposition may have been strengthened by the discovery of the young larvæ in the spring still so very small, that they might be thought to have been lately hatched.

Can any one help us to settle the why and wherefore of this difference between the Continental and English observers in their accounts of *Liparis salicis*?

Mr. Porritt also mentions (as exceptional facts) that he once had a brood of *Polia chi*, which were hatched two or three weeks after the eggs were laid: and that on another occasion he bred *Orgyia antiqua* from eggs deposited in the previous part of the same season.—ID.

* * * Von Prittwitz remarks that *L. salicis* occurs in Silesia in immense swarms; referring also to a recorded observation of Zeller's of its having occurred as late as October.

Ratzeburg (Forst-Insekten) says that ordinarily the eggs do not hatch till spring, but that some occasionally do so in the autumn.

Boisduval relates that "the little caterpillars emerge from the egg at the end of April. The eggs are covered by a shining white plaster, which may be trivially compared with spittle. In localities where the species is common, it is possible to greatly diminish its numbers by picking off these shining masses, each of which encloses an almost entire brood."

ording to these remarks, we think it possible that the habits of the British as related by Mr. Porritt, differ somewhat from those of the species as on the continent; yet Ratzeburg shows that the rule of hybernating in is not invariable. Perhaps observers in other parts of our kingdom will their experiences with this insect.—Eds.

marks on *Cirrhædia xerampelina*, especially with regard to its winter con-
 -On perusing Mr. Hellins' list of *Macro-Lepidoptera* that hybernate in the te (see p. 222), I find one or two species mentioned therein which do not pass the winter in that state in some places, though I am told they do so in
 Avoiding those species that have already been the subject of controversy, say that, in the Isle of Man and Denbighshire, North Wales, *Cirrhædia elina* appears in the imago-state in July and August, the eggs hatch in the a, and the larvæ grow to about three-eighths of an inch long before the e, then making slight silken hybernacula amongst the moss and lichens. may be taken now (March) by those who know their habits; and at this season m three-eighths to half-an-inch long, stout, grey, irrorate, and rather rugose lose, the face black, the anterior segments with black horny plates. In April wake on some warm day, begin to eat ravenously, and seem to swell out and d rather than grow, and so rapidly as to make the increase in size almost e to the observer. Should the weather change to cold, they again become ant, but if not, they soon go down and make a slight cocoon, in which they n a long time before assuming the pupa-state. About June they will be found ysalis, or oftener dead, which latter I have seen to be the case both in con- ent and at large. Isle-of-Man specimens vary from bright yellow with faint al band, to rich dark brownish-ochreous, the central band only indicated by two narrow lines. I have seen French examples unicolorous like this latter form, ll the Welsh specimens are richly coloured, and the veritable *centrago* of orth. With regard to *O. upsilon* I have repeatedly taken its larvæ at sugar in l and May, almost full-fed, but this is no proof to my mind that it is always, at places, and under all circumstances, in the same condition at the same time; her do I doubt that in some places *C. xerampelina* deposits its eggs in August, ch hatch in the following April, as stated at p. 222, though I have never found a do so.—C. S. GREGSON, Fletcher Grove, Stanley, Liverpool, March 2nd, 1870.

What are *Perla bicaudata* of Linné and *P. maxima* of Scopoli?—An attempt to a more definite knowledge of our *Perlidae* for the forthcoming Catalogue of British *Proptera* has resulted in the conviction that this family must at present remain a very unsatisfactory condition, and with, so far as I can see, no immediate aspect of amendment. Yet, some interesting questions have occurred to me; and, ong others, those of the identification of *Phryganea bicaudata* of Linné and *P. maxima* of Scopoli. The name *bicaudata* has been applied by different authors almost all of the larger and more common European species, the description ring no certain clue to what was intended. In 1839, Mr. Newman, who formerly dded these insects assiduously, in his "Synonymy of the Perlites" (*Mag. Nat. ist.*, N. S., vol. iii.), identified it with the largest European species, now generally own as *P. bipunctata* of Pictet, adding the remark—"that Fabricius and all

"subsequent authors have entirely mistaken the *Phryganea bicaudata* of Linné will be perfectly evident to any entomologist who will take the trouble to examine the Linnæan specimen, now in possession of the Linnæan Society. Notwithstanding this assertion, Pictet in his "Perlides" did not feel justified in considering the matter as settled, and named the species "*bipunctata*." I have examined the Linnæan Cabinet, and find therein no insect that has any claim to be considered a type of *bicaudata*. It is true there is a label "*bicaudata*," but in the handwriting of Sir J. E. Smith and not of Linné. In fact, it is one of the numerous cases in which the insects added by Smith, and labelled by him, have been mistaken for actual Linnæan types. The insect is very old, and I will not affirm it is *bipunctata*, but by the side of it (without labels) stand an imago and larva certainly of the same species. Hence the name *bicaudata* remains as unsettled as ever, and will probably sink quietly into oblivion, unless some Swedish entomologist can succeed in reinstating it. I may add, that *bicaudata* of Zetterstedt (Ins. Lapp., 1058), Linné's fellow-countryman, is evidently *Dictyopteryx microcephala*, Pictet.

And now, as to *maxima* of Scopoli (Ent. Carn., p. 269; 1763), a name that has also been variously applied. Herr Brauer in his "Neuroptera Austriaca" gives it as a synonym of *abdominalis*, Burm., without according to it the right of priority, thus indicating doubt. Scopoli himself cites *bicaudata* of Linné, and yet applies a new name. That *maxima* is really the species described by Pictet as *bipunctata* appears to me most probable from his description of the imago, and absolutely certain from that of the larva, for he had bred the species. I have no hesitation therefore, in adopting Scopoli's name. The species occurs in all the mountainous regions of central Europe, and surpasses any other in size. As British, I have never present seen only a Leachian example in the British Museum, labelled "Dartmoor," and some smaller and somewhat doubtful specimens in the Entomological Club collection, probably taken by Mr. Newman at Leominster, but think it probable that other examples are extant, and that the insect referred to by Curtis as *grandis* is the same species.—R. McLACHLAN, Lewisham, January 8th, 1870.

Entomological Society of Newcastle-on-Tyne.—We are requested to notice that on the 1st of February, a meeting was held at Mr. Johnson's, 48, Dean Street, for the purpose of establishing a Society in that town, when about 20 Members joined. The Secretary is Mr. Hamilton, of 13, Union Street. We believe the Society consists chiefly of working men, many of whom are beginners, and they would be very grateful for larvæ or eggs of *Lepidoptera*. From the best source, we hear that the taste for Entomology and Natural History in general is gradually springing up at Newcastle.—[Eds.]

ENTOMOLOGICAL SOCIETY OF LONDON, 21st February, 1870. A. R. WALLACE Esq., F.Z.S., President, in the Chair.

M. M. Schiölte, of Copenhagen, and von Siebold, of Munich, were elected Honorary Members, and Messrs. G. T. Porritt, of Huddersfield, and B. J. Lucas, of Tooting, Subscribers.

Mr. Hunter exhibited a *Plusia* from the New Forest, which he thought might be *P. ni*, recently introduced into our lists (*interrogationis*? Eds.).

Mr. Müller exhibited a dipterous gall on the flowers of *Tanacetum vulgare* sent to him by Mr. D'Orville, of Exeter. This gall consisted of hypertrophied disc florets, which were raised far above the level of the others.

Mr. Pascoe exhibited *Nepharis alata*, of Castelnau, from King George's Sound, and remarked that it was identical with the recently described (Tr. Ent. Soc. N. S. W.) *Hiketes thoracicus* of King.

Discussion took place on a question of nomenclature, raised by Mr. Pascoe. He remarked that Dejean, in 1834, proposed the generic term *Diurus*, but gave no description. This genus had been generally adopted, and even figured by Westwood, though his description had actually been published until 1862, and then by Mr. Pascoe. But, in 1852, Motschulsky had described another genus under the hybrid name *Diurus*, recently corrected to *Diurus* by Gemminger and von Harold. Mr. Pascoe therefore enquired whether it would not be better to impose a new name in place of Dejean's. The opinion of the meeting seemed to be that, having regard to the peculiar circumstances, it would be inadvisable to adopt that course.

Mr. Butler read a paper "on some Butterflies recently received by Mr. Swanzy from West Africa."

18th March, 1870. F. P. PASCOE, Esq., F.L.S., Vice-President, in the Chair. The Rev. R. P. Murray, of the Isle of Man, and M. J. C. Puls, of Ghent, were the only Members.

Professor Westwood exhibited a series of specimens of Locusts from the Hope Islands, in connection with the question raised at previous meetings as to which was the real *migratoria* of Linné. It appeared that there were two closely allied European species, differing in the form of the pronotum. These had been described and figured by Fischer (Orthop. Europ.) as *migratoria*, L., and *cinerascens*, L., with which latter *Christii* of Curtis was identical). The specimens bearing the name *migratoria* in his possession were mostly very old, one, perhaps, having been sent to Donovan; they seemed to be Fischer's *cinerascens*, but Professor Westwood thought that these should really bear Linné's name—certainty being unobtainable, tradition should supply its want.

Mr. Smith held the opposite view, and had communicated with Professor Stål, of Stockholm, who informed him that Fischer's *migratoria* was the only species known, to his knowledge, had been taken in Sweden (Neither of these must be confounded with the recently exhibited *peregrinum*.—Eds.).

Mr. Stainton exhibited a bred specimen of *Cosmopteryx Lienigiella* from larvæ bred from the Island of Oesel. He had also bred a British example from a larva bred near Cambridge.

The Rev. H. S. Gorham exhibited (through Mr. Janson) an example of *Sunius cinctus*, a species new to Britain.

Mr. Müller exhibited a large gall, like an acorn or olive, on the leaves of a species of *Gnetum* from India.

Mr. Janson exhibited a collection of Butterflies sent by his son from Nicaragua.

Dr. Wallace exhibited *Herminia derivalis* and a variety of *Melitæa Athalia* bred by Mr. Harwood, of Colchester.

Dr. Wallace also exhibited a collection of silk-producing *Saturniæ* and their cocoons, with specimens of manufactured silk; and urged upon the meeting the necessity of extending this branch of industry in this country. He had found *Pernyi* ♂♂ united, and had also found ♂ *Pernyi* in copulâ with ♀ *Cecropia*, *Pygphemus*, and *Yama-mai*. Eggs produced from the union of *Pernyi* and *Yama-mai* had proved fertile; the cocoons and larvæ were more like those of the ♂ than of the ♀.

Professor Westwood read "Descriptions of new species of *Pselaphidæ*."

DESCRIPTIONS OF NEW GENERA AND SPECIES OF HETEROMERA.

BY F. BATES.

Family *TENEBRIONIDÆ*.

SUB-FAMILY TENEBRIONINÆ.

EXERESTUS, *n. g.*

Mentum concave on its outer face, transverse, truncated in front, the sides a little rounded anteriorly, thence slightly contracted to the base: *labium* prominent, transverse, rounded in front and notched in the middle: last joint of *labial palpi* briefly securiform: inner lobe of *maxillæ* not (or obsoletely) armed at the tip, densely clothed with long, setiform hairs: last joint of *labial palpi* broadly securiform: *mandibles* notched (at the outer side) at the end: *labrum* very prominent, vertical, transverse, the angles rounded, sinuous in front: *head* very large and very long (over 3 lines); widest—and much prolonged—behind the eyes, somewhat abruptly terminating in a short, thick neck: *epistoma* strongly declivous—or bent down in front, elongate-trapeziform; a broad, deep, semi-circular notch in the fore margin revealing the membrane attaching it to the labrum; faintly separated from the front by an arched impression, which is interrupted in the middle: *eyes* small, transverse, very narrow, scarcely notched in front, very distant ($1\frac{3}{4}$ lines) from the prothorax; a slight, angular depression at the posterior corner of each eye, and another, much larger, deeper, and oblong, in front; these depressions give slightly the appearance of a supra-orbital ridge interrupted in the middle: *antennæ* shorter by one-fourth than the head and prothorax; depressed; joint 3 nearly as long as 4 and 5 united; 4—8 sub-equal, sub-obconic; 9—10 shorter; the terminal joint is wanting in the only example I possess of this genus: *prothorax* scarcely wider than long, somewhat convex; narrowed in front and behind; slightly rounded at the sides—which are margined and crenulated; truncated in front—which is faintly margined at each side only; the fore angles rounded and depressed; base sub-sinuous, finely margined, the angles small but distinct and forming right angles: *scutellum* strongly transverse and convex; *elytra* oblong-ovate; scarcely broader than the prothorax at the base—which is margined and almost squarely truncated; convex; gradually declivous behind, the apex sub-acute: *epipleural fold* entire behind; mounting to the shoulders, where it forms a prominent angle; gradually narrowing from base to apex: *legs* rather long; femora a little swollen in the middle and compressed; the four front tibiæ slightly curved at the end; the hind a little sinuous; all provided with two short, acute spurs and tomentose within, at the extremity: the 1st joint of the posterior tarsi elongate: *intercoxal process* rather broad, rounded in front: *metasternum* somewhat short: *mesosternum* declivous, strongly concave in front: *prosternal process* not prominent, rounded behind: body wingless.

A genus remarkable by the form and size of its head—the cheeks* being enormously extended in length; the declivous epistoma (placing the labrum in a *vertical* position): the small, narrow eyes—so distant

* I use the word *cheeks* for the sides of the head behind the eyes: it is frequently, but most improperly, used for that projecting portion, in front of the eyes, which partly surrounds the base of the antennæ (=antennary orbits).—F. B.

prothorax. The metasternum—so much shorter than usually in this sub-family, would seem to connect it with the *Cælo-* (through *Polypleurus*); but it unmistakably belongs to the present family, the remarkable notch in the anterior margin of the episternum (Pl. II, fig. 1a) clearly connecting it with *Zophobas*. Perhaps the most angular feature is the absence of the long hook, or claw, to the base of the maxillæ.

E. JANSONII, *n. sp.* (Pl. II, figs. 1 and 1a).

Length 12 lines.—Elongate; entirely of a dull black, with a slightly bluish tinge to the head and prothorax impunctate; on the latter a transverse, sinuous impression at the middle, near the base, and one or two others smaller, near the hind margin of the elytra, each with (besides a short sutural sulcus) nine well-marked longitudinal striae; these are regularly and closely impressed with rather large, rounded tubercles, which nick their sides; the intervals—save the first—are narrow, confluent and impunctate; the 1st is joined to the 7th near the apex, the 2nd to the 6th, the 3rd to the 5th, enclosing the 4th; the 8th is shortened behind, and—save the 5th and 7th—joined on to the 6th a little before attaining the shoulder: the legs, &c., glossy black; the abdomen very faintly longitudinally striated, and sparingly and minutely punctulate.

Hab. Nicaragua, Chontales.

Discovered by Mr. E. Janson, Jun., to whom I dedicate it.

HIPALMUS, *n. g.*

From *Zophobas* the present genus differs in having the last joint of the labial palpus briefly securiform; the eyes smaller and much narrower; the antennæ shorter and stouter, with joints 9—10 transverse, 11 obliquely truncated, the outer apical joint produced; the prothorax relatively shorter and broader, the lateral margins relatively flattened: the elytra relatively shorter, ovoid, much more convex, widest behind at the middle, somewhat abruptly declivous behind, and more pointed at the apex: the legs relatively stouter, the tibiæ scarcely perceptibly curved: the metasternum much shorter, being no longer than the 1st abdominal joint in its shortest diameter: the intercoxal process relatively broader and more rounded anteriorly: the meso-episternal process much more strongly produced and pointed behind; and the meso-episternum sub-horizontal. The body is apparently wingless.

The majority of the above characters were pointed out by M. Serville (Genera, v, p. 378, note) when stating the advisability of separating it into a distinct genus. The more convex form and the elytra relatively gradually widened from the base to beyond the middle, and abruptly declivous behind, give quite a different facies to that of *Zophobas*, to which, however, the present insect must be closely related, notwithstanding its short metasternum. There is a peculiarity in the mentum (compared by the present genus with *Zophobas*), which has its outer

face more or less strongly carved out, or excavated, anteriorly and the sides, leaving at the middle a more or less cone shaped, outward projecting piece (with usually its apex *broadly* rounded), having somewhat the appearance of a secondary or double chin.

The type of the genus is the *Tenebrio costatus* of Guérin, which I briefly re-characterize (Pl. II, fig. 2).

HIPALMUS COSTATUS (*Tenebrio*), Guérin, Voy. de l. Coq., Entom. p. 97, Ins. pl. 4, fig. 5 (*Zophobas sulcipennis*), Dej. cat., p. 226.

Length $8\frac{1}{2}$ to 9 lines.—Entirely of a dull black with—on the elytra, a slight bluish bloom: head very coarsely rugose-punctate: thorax with a few large scattered punctures, mostly distributed on the disc; a small fovea at each side somewhat anteriorly; another, much stronger and transverse, at the middle, near the base, and one, more rounded, at each side of the latter; these basal foveæ or depressions form between them two short lobes which are squarely truncated behind and *within the margin*: elytra each with eight well-marked costæ, the alternate ones being more elevated; the 2nd more especially so at the base, where it is united with the 4th, and also with a short, oblique, sutural one; the intervals between these costæ are concave, and each has a regular row of somewhat transverse punctures; both costæ and intervals are sparingly and minutely punctulate under-side, legs, antennæ, &c., concolorous.

Hab. Peru.

SUB-FAMILY CNODALINÆ.

NAUTES* ÆNEUS, *n. sp.*

Length $3\frac{1}{2}$ lines.—Entirely of a rich, metallic olive-green; moderately convex; head and prothorax sparingly and finely punctured; the former without any impressed lines or foveæ on the crown between the eyes; the latter with two shallow basal foveæ, and several others, more obscure, at the sides: scutellum smooth; elytra finely striated, the striæ faintly and remotely punctured; the 1st and 9th (which is altogether marginal, and almost lost in the reflexed edges of the elytra) are joined together near the apex; the 5th and 6th are united at about two-thirds their length, and from the point of union is sent forth a single stria which is united to the 2nd, 3rd, and 7th further on, or nearer to the apex; the 4th is a little shortened behind, and the 8th is strongly abbreviated at both ends; intervals flat and smooth: under-side, legs, and antennæ pitchy-black, the latter with a slightly reddish tinge: abdomen longitudinally wrinkled.

Hab. Nicaragua, Chontales.

Discovered by Mr. E. Janson, Jun.

Smaller than *N. fervidus* (Pascoe, l. c., p. 476), and without the two well-marked, oblique impressions between the eyes; the prothorax more abruptly narrowed anteriorly, the sides more strongly margined and thickened at the edge, the punctuation much finer; the colour quite different, and the whole insect relatively broader and less convex.

* (Dej.) Pascoe. Journal of Entomology, ii, p. 475.

NAUTES OVATUS, *n. sp.*

Length $4\frac{1}{4}$ lines.—Ovate, convex; shining; of a rich purplish-brown with green and purplish-coppery reflections; epistoma broadly emarginate anteriorly separated from the front, and—together with the latter—rather punctured: prothorax somewhat closely punctured, the punctures more on the disc; lateral margins thickened; broadly lobed at the middle of the angles moderately prominent: scutellum punctured at the sides: elytra deeply striated, the striæ faintly punctured, or nicked at the sides; intervals convex, sparingly punctured: under-side shining reddish-brown, the legs a darker: metasternum with a few punctures at the sides: abdomen strongly longitudinally wrinkled.

Habitat. “Colombia.”

The above description applies to a specimen (labelled “*Nautes Dej.*, nov. g., Colombia”) formerly in the collection of Dejean; it being one of the new genera proposed by him since the publication of his last catalogue; another example (both form part of the collection of Laferté) is a trifle more bulky— $4\frac{1}{2}$ lines; a little duller in color, the green, &c., reflections being less apparent; the punctuation of the prothorax finer; and the legs and antennæ a shade redder.

NAUTES ELEGANS, *n. sp.*

Length $2\frac{3}{8}$ lines.—Elongate oval; but little convex; entirely of a glossy dark green with a slight golden tinge; head rugosely punctured, epistoma broadly emarginate anteriorly, confounded with the front: prothorax rather closely—save on the disc—punctured; the sides moderately margined and but little thickened at the edges; the fore angles produced; the base moderately bisinuate, lobed in the middle, having the usual basal foveæ, and another, fainter and oblong, between the angles and exactly in the middle of the base: scutellum slightly punctured at the angles: elytra but little convex, more gradually attenuated behind than in the middle; deeply striated, the striæ finely and remotely punctured, or finely punctured at the sides; the intervals sub-convex at the sides and apex, flat on the middle, slightly and transversely rugulose: under-side, legs, &c., shining reddish-brown.

This species forms part of the coll. Laferté; it stands labelled “*Nautes elegans*, mihi, col. Dupont,” but, unfortunately, no clue is given as to its habitat.

NAUTES EXIMIUS, *n. sp.*

Length $3\frac{1}{2}$ - $3\frac{7}{8}$ lines.—Oblong; convex; head and prothorax slightly rugged, of a coppery-brown variegated with patches of vivid green, somewhat iridescent; epistoma squarely truncated anteriorly, separated from the front by a broad, well-marked, lunate impression; head rather coarsely punctured, especially between the angles: prothorax punctured, the punctures larger and more crowded at the sides;

strongly bisinuous at the base, the median lobe squarely truncated behind angles much produced; broadly channelled at the sides, which are margined edges a little thickened, and crenulated anteriorly, one crenulation—just before angle—being particularly well-marked, forming a positive triangular excision. Elytra golden-green: elytra convex; the humeral angle very prominent; each nine (besides the usual short scutellar one) rows of close set, large, oblong punctures or foveæ, which are connected together, in line, by narrow lines or striæ; posteriorly and at the sides these punctures become more crowded and confused, running more or less into each other and forming veritable sulci, with narrow, convex spaces between them; the intervals down the middle nearly flat and—apparently—smooth. It is somewhat difficult to catch the exact colors of the elytra owing to a metallic iridescence, but in a certain light the space, or interval, down each side the middle and the intervals 3, 4, 7 and 8 appear vivid green, whilst 2, 5, 6 and 9 appear copper-brown, under-side and legs shining, reddish-brown tinged with golden-green; joints of the abdomen coarsely longitudinally wrinkled and punctured; femora and tibiae closely punctured, the latter golden-brown; antennæ and tarsi reddish-brown.

Hab. Nicaragua. Chontales.

The present species exhibits a considerable departure from the type, but its differences are not such, I conceive, as to warrant an erection into a distinct genus. The main points of departure from the type are: the head shorter, the epistoma strongly and distinctly separated from the front; the last joint of the labial palpi* shorter, more produced and rounded on the inner side, thicker (a transverse section showing almost a perfect oval); the strongly produced anterior angle of the prothorax, the lateral edge in part crenulated, the median basal lobe squarely truncated behind; and the totally different stylus sculpture on the elytra. Also one of the novelties discovered by Mr. E. Janson, Jun.

TARPELA, *n. g.*

Characters of *Nautes* (especially of the preceding species): dorsal surface in having the *mesosternum declivous* and *broadly excavated in front* and the *prothorax horizontal*, and sharply triangularly notched in front as in *Nautes*; the *prosternum bent down behind the anterior coxæ*, then expanded and terminating in a broad point; the form narrower, more elongate, more parallel-sided, more depressed; the prothorax squarer, the anterior angles very strongly produced—extending nearly to the upper edge of the eyes; and the lateral margins strongly crenulated.

T. BROWNII, *n. sp.* (Pl. II, fig. 4.)

Length 3 lines.—Oblong; scarcely convex; brown with a slight golden tinge.

* Probably only a character of the ♂.—F. B.

any metallic lustre; head and prothorax punctured, the punctures larger on the latter; epistoma separated from the front by a well-marked lunate suture: prothorax sub-quadrate, but little convex, a little wider than long, sides rounded anteriorly, the fore angles very strongly produced and pointed, very rounded at the sides—which are not margined, the edges neither reflexed nor crenulated, but strongly crenulated; base strongly bisinuate, the angles obliquely—produced, overlapping the humeral angles of the elytra; two foveæ, each side the middle, near the base, connected by a rather broad, transverse, slightly outwardly curved impression: scutellum smooth: elytra but little wider than the prothorax at the base, but little convex, sub-parallel, or very slightly widened to three-fourths their length, thence narrowed to the apex; each elytron with nine rows of well-marked, oblong punctures, the intervals—except at the apex, where they are a little transversely wrinkled, flat and smooth; under-side and legs brown; sterna and abdomen strongly and closely punctured; tibiæ finely punctured: antennæ blackish-brown.

b. Nicaragua (Chontales); discovered by Mr. E. Janson, Jun. I name this species to Edwin Brown, Esq., of Burton-on-Trent.

TARPELA OBLONGOPUNCTATA, n. sp.

Length 3 lines.—Head and prothorax brown, slightly bronzed, closely and finely punctured, the punctures well marked: prothorax a little convex, base moderately sinuate and somewhat strongly margined, hind angles not quite so produced as in the preceding species: elytra shining green with purplish-coppery reflections, with a brilliant, purplish-coppery stripe down by the suture; somewhat convex and more expanded at the sides than in *T. Brownii*; each with nine rows of punctures, which become much stronger and less approximate at the sides; under-side finely punctured, nearly flat on the middle, transversely irregular, or reticulate-wrinkled at the sides and apex; the 3rd and 7th intervals, for a short distance from their junction near the apex, are somewhat abruptly elevated, forming two tubercles, which converge to a point behind, at their junction: under-side reddish-brown, the abdomen being also finely longitudinally wrinkled; legs, tarsi, &c., a little paler; tibiæ densely punctured; two last joints of the antennæ brown.

b. Mexico.

The present species forms part of the collection Laferté.

ELOMOSDA, n. g.

mentum flat, subquadrate, transverse, angles rounded, very deeply and broadly rounded anteriorly,* leaving the *labium* entirely exposed: the latter prominent, and very cordiform: *labial palpi* moderately separated at base; last joint a little wider than sub-cylindrical, the apex broadly truncated: inner lobe of *maxillæ* unilobed, the last joint of *maxillary palpi* somewhat broadly securiform: *mandibles* broadly truncated at the extremity; *labrum* prominent, faintly sinuous in front,

* Or, perhaps, it would be better to say, the anterior half membranaceous.—F. B.

the angles broadly rounded, the membrane* attaching it to the epistoma and prominent: head rather short, sub-vertical, slightly narrowed behind the front, the sides sub-parallel, separated from the front and from the antennae by a strongly marked semicircular impression: eyes somewhat prominent, truncated in front; a deep sulcus immediately within, and extending back beyond the posterior angle of, each eye, gives somewhat the appearance of a supra-orbital ridge. *Antennae*—♂—elongate, slender; joint 3 a little longer than 4—7 sub-equal, elongate-obconic and slightly nodose at the tips: 8—10 a little longer than 11, gradually widening from base to apex, and—together with 11—studied with sensitive pores; 11 nearly twice the length of 10, a little curved and directed towards the apex (sub-fusiform) which is obtusely pointed: in the ♀ the antennae are shorter by one-third, the last joint is sub-cylindrical and rounded at tip. *Thorax* sub-quadrate, a little narrowed anteriorly (especially in the ♂), sides separated from the flanks by a very fine raised line; truncated in front, the angles rounded and bent down, very finely margined at each side (but not in the middle); base subsinuuous, strongly margined and somewhat thickened; the angles small but prominent and acute: *scutellum* moderate, triangular, the base curved: *elytra* elongate, convex, gradually declivous behind, truncate (not margined) at the base, which—including the shoulders—is about as wide again as the thorax: shoulders prominent but rounded; sides sub-parallel to three-fourths length thence obliquely narrowed to the apex, which is sub-acute: *epipleura* sinuuous, broadest at the base, terminating a little beyond the last abdominal sternite. *Legs*—♂—long; femora strongly clavate and much attenuated at the base: tibiae moderately curved, compressed; intermediate arched, and somewhat thickened at the end: hind nearly straight: two short, stout spurs may be seen to the anterior tibiae only: in the ♀ the legs are shorter; the fore tibiae scarcely, the intermediate but very moderately, curved: *tarsi* somewhat villose beneath, elongate, especially the intermediate and posterior; the 3 first joints of the anterior (and intermediate in a lesser degree) a little expanded, especially in the ♂; the penultimate joint all small; the last (especially the intermediate and posterior) elongate: *intercoxal process* moderately broad and gradually arched to the apex: *metasternum* elongate, its episterna parallel and slightly concave; its epimera very distinct; *mesosternum* horizontal, broadly and deeply notched for the reception of the *prosternal process* which is strongly produced and pointed behind.

A genus strongly recalling by its facies certain members of the subfamily *Helopinæ*; and which, but for its elongate metasternum, I should be inclined to place near the genus *Hegemona*. Its clavate thighs and long, slender antennae are quite exceptional in the present sub-

* Le Conte calls this membrane the *clypeus*; Pascoe considers it the *epistoma*; the epistoma of Lacordaire—the clypeus of Pascoe. This membrane in the majority of the *Heteromera* is not seen, but may be very apparent in one genus and totally invisible in another closely related to it; in the genus *Oplocephala*—and others—it is plainly visible in some species and not at all in others. Le Conte makes use of this character to detach from the *Ulominæ* certain forms which he places in his new "Tribe" the *Hypophlæini*; in this tribe he also places his genus *Evoplus*; it seems to me perfectly impossible to dissociate this genus from *Oplocephala*, for not only are the majority of its characters the same, but in *habit* it is precisely similar (it is confounded with it by French Entomologists, under the name of *Oplocephala 4-cornis*, Chev.), and moreover, it has the intermediate coxal cavities open externally, plainly revealing the trochantin.—F. B.

y; and the deep furrow bordering, and extending posteriorly and, the eyes, within, recalls a similar feature in several genera of *Trichoninæ*. It must, I think, be placed near *Camaria*, one species of which, *C. spectabilis*, Pascoe, has the antennæ much longer and more slender than ordinary.

E. BELTII, *n. sp.* (Pl. II, fig. 3, ♂).

Length $9\frac{1}{2}$ to $10\frac{1}{4}$ lines.—Metallic bronzed: head and prothorax bronzed-green; prothorax sparingly and finely punctured, the latter very minutely punctulate: head bronzed-green, with purplish reflections down the intervals, and rich, golden-brown down the striæ; oblong; very convex; sub-parallel to three-fourths their length, thence obliquely contracted to the apex: each with nine well-marked striæ, the intervals closely and finely punctate: intervals very convex, not, or obsoletely, marked: the 8th (or outer) interval extending to the apex; the 1st and 2nd intervals running into, the 8th: the 3rd, 5th, and 7th connected posteriorly, the 4th and 6th; the 6th is interrupted at about half its length by the coalescence (at this point only) of the 5th and 7th: under-side and legs dark green with slight purplish and coppery reflections; tarsi black with a purplish tinge; palpi, &c., and the seven first joints of the antennæ pitchy-black.

Hab. Chontales, Nicaragua.

I dedicate this fine species to Mr. Belt, who discovered it.

Stockdale Terrace, Leicester, *February*, 1870.

TWO DAYS' COLLECTING AT RANWORTH.

BY CHARLES GOLDING BARRETT.

July 31st, 1869, is a memorable day to me, as the date of my first introduction to fens and fen collecting. On that day Mr. De Grey paid our first visit to Ranworth, and to his kind instructions I owe it that I had any success in collecting; for, as those who share my youthful ignorance will *not* be aware, the ordinary conditions of successful collecting are so entirely absent in the fens, that, at first, one is almost tempted to stand still in despair, and wonder how it is possible to find anything in such a dreary expanse.

The perfectly level surface presents no shelter from the wind, and in so wet a place is almost constantly blowing; the stunted bushes scattered here and there scarcely rise above the level of the fens; and only in one or two spots where the alders and willows have been allowed to grow so thickly together as to form a thin cover (locally called a carr), is there any real shelter;—and here many insects congregate. Most insects, however, peculiar to the fens do not frequent the open fen and hide during the day among the long grasses and plants which cover the surface in rank luxuriance.

Considering, therefore, that over the greater portion of the there are no sheltered spots in which insects can congregate and therefrom disturbed,—that any hurried or incautious chase after when trodden up, is extremely likely to result in a plunge to the in water having a bottom of unfathomable mud (a mud not likely disturbed by anyone troubled with sensitive olfactory nerves),—and from the soaked and spongy nature of the soil one's boots are generally kept full of water, it will be readily seen that fen collecting possesses difficulties in some degree commensurate with the value of its results.

It would be pleasant, were I capable of doing it justice, to describe upon the *flora* of the place, so totally different to anything to be found under ordinary conditions: *e.g.*, the exquisitely lovely grass of Parnassia (*Parnassia palustris*), and the scarce and handsome marsh-fern (*Peucedanum palustre*), the food plant of *Papilio Machaon*; *Cladonia mariscus* ten feet high or more in the drains; *Typha angustifolia* plentiful as its congener; the delicate marsh-fern (*Lastræa theteris*), so abundant that in many places it is impossible to avoid constantly treading upon it (and that it is even *mowed* down for packing purposes); and the usually insignificant Adders' tongue (*Ophioglossum vulgatum*) growing a foot high among the long grass and *Carex*, &c.

But I have to detail our operations on July 31st. It was rather late for some of the best insects, but by beating in a carriage obtained a few *Lithosia griseola* and *stramineola*, and one or two *mercerda* as well as *Scotosia rhamnata*; and the fortunate capture of the little *Bohemannia quadrimaculella* kept us working the alder bushes for some hours. It was, however, excessively scarce, and so lively as to be in no small degree trying to the patience, but we secured about a dozen. This was one of those days on which insects seem endowed with preternatural activity, while the eyes and hands that should secure them are unequal to the task.

As it got late in the afternoon a few more specimens of *Sericopoda abscissana* turned up on the open fen with *Phoxopteryx siculana* and *Coleophora discordella*, and *Gelechia atrella* was common, and about as easy to catch as a flash of lightning.

Towards sunset, insects were stirring in greater plenty, and were much more steady in their movements.

Acidalia immutata and *Scoparia pallida* were common enough, and *Crambus uliginosellus* and *selasellus* not scarce, and with early dusk *Nonagria despecta* made its appearance in abundance, buzzing about the bushes in the style of a *Miana*, and accompanied by *Pioneer stramentalis*, *Herminea cribralis*, and *Chilo phragmitellus*.

Later at night we devoted ourselves to working for *Lithosiæ* at the carr, *griseola* and *stramineola* being then common, but *muscerda* scarce. Stray specimens of *Celæna Haworthii* and *Hydrelia* also turned up.

On a second visit on August 14th, many of the same species were the *Lithosiæ* not quite over; of *muscerda*, even three specimens were due to Mr. De Grey's superior luck (I did not see one); and *theclia tenuiata* had become quite common among the shallows, the also *Depressaria conterminella*, *Yeatiana*, &c., were not scarce.

The two species of *Hyphenodes* were occasionally to be disturbed among the long grass, and usually had the wit to fly across the carr to inaccessible places, and *Peronea Shepherdana* and *aspersana* were fished out from among *Spiræa ulmaria*. *Elachista cerussella* and *Plum* also occurred rarely among the herbage, and I had the good fortune to turn out one specimen of *Gelechia muscosella*, the novelty discovered a few weeks before by Mr. De Grey, at Wicken fen.

A *stramineola* ♀, fished out of a drain on this occasion, obligingly furnished a batch of eggs, which, under the fostering care of Mr. Hellins, I hope, help to solve the vexed question of the distinctness of this species from *griseola*, especially as Mr. De Grey had, I believe, the good fortune to secure eggs of both species (or varieties).

One curious and rather unexpected morsel of evidence has occurred recently. Among the specimens of *stramineola* taken, were several varieties showing more or less of the ground colour of *griseola* in irregular patches, forming apparently regular connecting links, but these specimens were all faded so much that already they hardly differ from normal *stramineola*, while the typical *griseola* by their side are just as when first taken.

I omitted to mention, that, on our first trip, a rough piece of ground by the road side attracted our attention, and, alighting, we proceeded to investigate it. Among the short heath Mr. De Grey very opportunely secured *Sophronia parenthesella*, and we found *Pterophorus teucrii* common among *Teucrium scorodonia*.

On a second visit a few days after, I found this plume in great abundance, though worn, and secured a few specimens of *Ebulea ascalis* and *Sophronia parenthesella*. A thunder storm was impending; and the plumes, apparently delighted with the prospect, were flying over the *Teucrium* like *Tipulæ*.

DESCRIPTION OF AN UNDESCRIBED SPECIES OF DIURN.
LEPIDOPTERA FROM TROPICAL AFRICA.

BY PROFESSOR J. O. WESTWOOD, M.A., F.L.S., &c.

JUNONIA WESTERMANNI, *sp. n.*

Mas.—*Alis suprà nigris, apicem versus magis fuscis; omnibus plagâ magnâ ovatâ fulvâ pone medium, posticis maculâ oblongâ sub-costali læte cœruleâ; anticis infrâ pallide fulvis, margine postico (ad angulum apicalem et postico dilatato) fusco, lituris 5 undatis nigris intra cellulam discoidalem maculâ duabus sub-mediis punctoque sub-apicali nigris: alis posticis albido-griseis, marginibus postico obscuriori, puncto ad basin cellule serieque punctorum 5 sub-marginibus nigris, strigis nonnullis fuscis per medium alæ irregulariter extensis.*

Expans. alarum anticarum unc. 2. Habitat in Guinea (D. Westermann).

In Mus. Hopeiano Oxoniæ, Dublinensi, &c.

Specimens of this lovely insect were taken in Guinea by the celebrated entomologist, Herr Westermann, of Copenhagen, by whom the species was communicated to the Rev. F. W. Hope, M. Boisduval, and other entomologists, and the specific name adopted above was proposed for it by the last named author; but no description had hitherto appeared of it. These were the only specimens hitherto known of the insect in British or Continental collections. I have, however, just received an interesting communication from Mr. W. Kirby, the indefatigable Keeper of the Royal Dublin Society's Natural History Museum, from which it appears not only that specimens of the male supposed to have been collected at Cape Coast are contained in that collection, but that he has also discovered in it a specimen which he considers to be the female. It is without a label, but pinned in the same way as the others, "from which it differs strikingly on the upper side. It is brown above, the base darker, the whole of the centre of the hind-wings filled with a broad orange band (much duller than in the male), which extends to the adjacent portion of the fore-wings, curving inwards across the cell, where it becomes much more obscure. The orange band of the hind-wings seems to have been edged with lilac-blue, and there are traces of detached bright blue scales in the cell of the fore-wings. There is a row of five black spots towards the edge of the orange on the hind-wings (visible on the under-side in the male also), and continued, in the female, on the fore-wings, although the only conspicuous spot is one near the hinder angle of the fore-wings. Beneath, the female chiefly differs in wanting nearly all the dark markings, and in the orange markings being more suffused, and not sharply defined as in the male."

Oxford: 9th April, 1870.

CHARACTERS OF A NEW GENUS AND DESCRIPTIONS OF NEW SPECIES
OF *ALEOCHARIDÆ* FROM BRITAIN.

BY D. SHARP, M.B.

ACTOCHARIS (Janson *in litt.*), *gen. nov.*

Maxillæ malis elongatis, angustis, interiore spinulis validioribus instructâ, apice uncinatâ.

Palpi maxillares articulo tertio magno, sub-ovali, quarto subulato.

Ligula triangularis, apice bifidâ.

Palpi labiales bi-articulati, articulo secundo primo paulo brevioribus et angustioribus.

Antennæ breves, antici intermediique 4-, postici 5-articulati, omnes articulis primis æqualibus.

Species obsoleti.

Corpus elongatum, lineare, depressum. Caput elongatum, oculi minores, nullo modo prominuli, pigmento nullo. Maxillæ malis elongatis, sub-æqualibus; interiore intus basi ciliatâ, apicem versus spinulis fortioribus instructâ, apice uncinatâ; exteriore apice pubescente. Palpi maxillares malâ interiore paulo longiores, articulo secundo tertio vix brevioribus sed multo angustioribus, hoc magno, sub-ovali, quarto subulato, præcedente brevioribus. Ligula lata, triangularis, apice bifidâ. Palpi labiales articulo primo sat elongato, secundo illo angustioribus, et paulo brevioribus. Antennæ sat validæ, apicem versus vix incrassatæ, articulis 3—10 sub-trans-

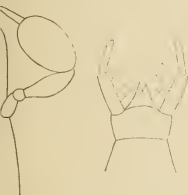
tertio cæteris minore. Thorax haud transversus, basin versus angustatus. Anteriora thorace breviora; alæ nullæ. Abdomen basi quam apice angustius. Pedes breviusculi. Tarsi breves, anteriores et intermedii 4-, posteriores 5-articulati: articulo basali sequente haud multo longiore.

The tiny insect for which this genus is established is, as will be seen from the characters given above, a most anomalous little creature.

Its appearance and characters leave no doubt that it must be placed among the true *Aleocharidæ*, though in the elongate lobes of the maxillæ it clearly approaches the *Myllænæ*, and by the great size of the basal joint of the maxillary palpi, as well as by the two-jointed labial palpi, it approaches the *Gyrophænæ*. On the whole I think it is best placed near the *Gyrophænæ*, which approaches *Actocharis* in more than one respect, as regards the structure of the trophi.

ACTOCHARIS, *sp. n.*

Species angusta, linearis; testacea, abdomine, apice excepto, fusco; omnium dense obso-



Maxilla and labium
of *Actocharis Readingii*.

letissimeque punctata pubescensque; capite plano, thorace longiore, antice angustato; thorace basin versus angustato, latitudine longiore, medio late longitudinaliter impresso; elytris thorace brevioribus.

Mas abdomine segmento sexto elongato, late longitudinaliter impresso, apice circulariter emarginato. Long. $\frac{3}{4}$ lin.

This species was taken several years ago by Mr. Reading, subsequently by Mr. Wollaston, at Plymouth: I am sorry that I am unable to give particulars as to its habits, but these are I believe very remarkable, and similar to those of *Æpys*.

OCALEA LATIPENNIS, sp. n.

Nigro-fusca, sub-nitida, antennis apicem versus fuscis, basi, palpis, pedibus rufis, elytris fusco-brunneis, capite prothoraceque subtiliter minus crebre, elytris crebrius subtiliter punctatis.

Long. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.

Allied to *Ocalea castanea*, Er., but rather larger, darker in colour and with much broader elytra. The antennæ are slightly longer and more slender than in *O. castanea*, and not quite so much thickened towards the apex; they are reddish-yellow at the base, more or less infuscated towards the apex; the length of every joint is distinctly greater than the width. The mandibles and palpi are yellowish, the apical joint of the latter slightly infuscated. The head is black, narrower than the thorax, sparingly and finely punctured. The thorax is black, about as long as broad, the sides much rounded in front, the posterior angles obtuse, but more markedly narrowed behind, the posterior angles obtuse, but more markedly than in *O. castanea*; it has an impression at the base in front of the scutellum, from which proceeds an indistinct, fine longitudinal channel. The upper-surface is finely but not closely punctured. The elytra are of a brownish or pitchy-brown colour, nearly one-half broader than the thorax, finely and very closely punctured, and delicately and densely pubescent. The abdomen is sparingly and finely punctured, a little yellowish at the apex. The legs are yellow, long and slender.

Found in Scotland, only on the banks of the rivers, in company with *Homalota currax*, &c. Communicated to me some years ago by Mr. Hislop. I have found the species very rare. Banks of the Nith and Avon.

ALEOCHARA FUNGIVORA, sp. n.

Nigra, nitida, pedibus rufis, antennarum basi obscure rufis, elytris brunneis, thoraci latitudine æqualibus, crebre punctatis; abdomine apicem versus sub-angustato, supra basi haud crebre, apicem versus parce punctato.

Long. 2— $2\frac{1}{2}$ lin.

Allied to *A. mycetophaga*, Kr., especially by the structure of its antennæ, but not so brightly coloured, with the abdomen less narrowed towards the apex and more sparingly punctured. The antennæ have two or three basal joints obscurely yellowish, the others pitchy; the fourth joint is about as long as broad, the fifth to the tenth transverse, each one a little broader than its predecessor, the eleventh rather stout, pointed, about as long as the two preceding. The head is black, shining, sparingly and finely punctured, and the palpi yellowish. The thorax is a little narrower than the elytra, its breadth and a half times its length; it is rounded at the sides and narrowed towards the front, tolerably distinctly but not closely punctured. The legs are about as long as the thorax, of an obscure red or brownish colour, rather closely and distinctly punctured. The abdomen is black shining, obscurely reddish at the extremity, rather narrowed towards the apex, segments 2—5 transversely impressed at the base, and the impressions closely and distinctly punctured, otherwise sparingly punctured. The legs are reddish.

Three specimens found in fungus at Eccles.

Obs.—This species, as well as *A. mycetophaga*, is distinguished from *A. peipennis*, Kr., and *mærens*, Gyll., by its shorter and more clavate antennæ.

PODA LONGIPES, Muls., Op. 12, p. 103.

This species closely resembles *O. vittata*, from which, however, it differs very decidedly in the much longer intermediate joints of its anterior tarsi, and also in the larger terminal joint of its antennæ. *O. metatarsalis* of Thomson (Sk. Col., ix, p. 246) must be very closely allied to this species, if not identical with it.

I have seen but a single specimen, which I captured at Aberlady, Edinburgh.

MUSA DENTICULATA, *sp. n.*

Sub-depressa, nigra, antennarum basi pedibusque testaceis, femoribus posticis maculatis, elytris fusco-testaceis: thorace coleopteris angustiore, transversim convexo, basi sinuato, angulis posticis fere rectis; abdomine confertissime subtilissimeque punctulato.

Long. $1\frac{1}{3}$ — $1\frac{1}{2}$ lin.

Abdomine segmento septimo suprâ ante apicem tuberculis duobus, apiceque spinâ laterali introrsum curvatâ, dentibusque inter spinas laterales tribus bifidis, externis bifidis, insignis.

Antennæ yellowish at the base, pitchy towards the apex, third joint thinner and rather shorter than the second, joints five to ten

transverse. Head not much more than half as broad as the thorax, rather closely and finely punctured. Thorax transversely convex, considerably narrower in front than at the base, not quite twice as long, the base on each side sinuate, so that the posterior angles are nearly right angles; closely and finely punctured, a little shinier than the thorax; elytra yellowish, closely punctured, the punctuation slightly coarser than that of the thorax; abdomen narrowed towards the apex, all segments very closely and finely punctured. Legs yellowish, the anterior thighs a little darker.

This very large *Placusa* is less depressed than most of the other species, and is very remarkable by its male characters. It appears to be generally distributed in England and Scotland, but very rare. I have found it at the overflowing sap of birch trees, at Hampstead, Rannoch, and in Strathglass.

OLIGOTA RUFICORNIS, *sp. n.*

Nigra, antennis pedibusque rufo-testaceis, ano ferrugineo; antennarum articulis ultimis tribus abrupte crassioribus; prothorace fortiter transverso, elytris hoc sesquialtero longioribus.

Long. $\frac{3}{8}$ lin.

Closely allied by the structure of the antennæ, and the colour of the legs and antennæ, to *O. pusillima*; but larger, especially broadened with the thorax more transverse, the elytra longer and broader, only a half times the length of the thorax, and the abdomen a little narrowed towards the apex. Equally closely allied to *O. atomaria*, but a little larger, and distinguished therefrom by the bright colour of the antennæ and legs, as well as by the broader club of the former. Very common in the neighbourhood of London, among the refuse of hay-ricks.

Eccles, Thornhill, Dumfries.
March, 1870.

Additions, &c., to the list of British Coleoptera.

Meligethes brunnicornis, Sturm; Erichs., Ins. Deutschl., iii, p. 184. Determined by M. Ch. Brisout de Barneville as British, on the authority of specimens sent by Mr. Crotch and myself. The species is apparently widely distributed and not uncommon, and may be readily distinguished from *M. difficilis* by the closer punctuation of its elytra and its lighter-coloured antennæ and legs.

M. ochropus, Sturm, Er., must, I think, be erased from our lists. It was introduced by my friend Mr. T. J. Bold (Ent. Mon. Mag., iii, p. 47) upon a specimen of *M. brunnicornis*, as I have satisfied myself by examination; and the insects which I had myself attributed to it with doubt are also to be referred to that species. Mr. Crotch's *ochropus*, named *morosus* by M. Brisout, is in my opinion also *brunnicornis*: it certainly does not agree with the description of *morosus*.

M. viduatus, St.; Er., l.c., p. 185. Also determined as British by M. Brisout specimens sent by Mr. Crotch and myself. It may be known from *M. ularius* by its lighter antennæ, the more rounded sides of its thorax (which is very so closely punctured), its more abruptly broadened hinder tibiæ, and its broader anterior tibiæ, the apical teeth of which are sharper and longer.

M. pedicularius, (Gyll. ?) Er., l.c., p. 186. In the collections of Messrs. Crotch and Dr. Power. Determined by M. Brisout. The anterior tibiæ are very widely widened, with the entire outer margin toothed, the denticulations being larger towards the apex, the last but one most prominent.

M. bidens, Brisout, Gren. Cat. et Mat., p. 52. The *M. pedicularius* of Wat. must be referred to this species. It differs from the *pedicularius* of Erichson being rather smaller and narrower, less convex, duller and more finely and more regularly punctured (the punctuation at the base of the elytra being very delicately and inversely rugulose), and in having its anterior tibiæ much more widened towards the apex, which is armed with (usually) only two well defined teeth. This species is common at Mickleham, on *Teucrium scorodonia*.

M. ovatus, St.; Er., l.c., p. 198. Determined as British by M. Brisout from specimens sent by Mr. Crotch and myself. It is very like *M. viduatus* (though allied with *M. flavipes*), but of a shorter ovate form, with the thorax more greatly narrowed in the apical third, and the tibiæ broader,—the armature of the anterior pair being less defined.

M. bidentatus, Brisout, l.c., p. 61. Determined by M. Brisout from two specimens in Mr. Crotch's collection. The species is allied to *M. erythropus*, but is rather wider and more convex, with closer punctuation, wider tibiæ, and a bilobate projecting transverse keel at the extremity of the last abdominal segment of ♂.

M. ebeninus, Crotch Cat.=*lugubris*, Sturm.

M. obscurus, Crotch Cat., is now referred by M. Brisout to *M. palmatus*, Er. This insect is not uncommon at Mickleham, and is, I think, the *distinctus* of Wat.

It does not seem to me to agree precisely with the descriptions of any of the species.

M. marrubii, Bris., Crotch Cat., still unique (I believe) as British in Mr. Crotch's collection, is allied to *M. serripes*, but is larger, with stronger punctuation, a larger thorax, and the armature of the anterior tibiæ stronger and less regular.

I intend to communicate a further series of types to M. Brisout, and will publish the result of his investigation.

Lathridius constrictus, Gyll., Ins. Suec., iv, p. 138. I have a single British specimen of this curious insect. It is allied to *carinatus*, but is rather smaller, narrower, and of uniformly lighter colour, with the thorax especially longer and narrower, and divided as it were into two lobes, of which the anterior is much the larger, and very rounded at the sides, with no trace of any angle in front. The pointed club to the antennæ, on which Thomson founded his genus *Covinomus* (Kraatz, Berl. Ent. Zeit., xiii, p. 129), readily separates these two species from their allies. *L. constrictus* is sunk in De Marseul's Cat. (L'Abeille) as a syn. of *L. carinatus*, Först. (the latter name again appearing by itself at the end of the genus!); according to Kraatz, l.c., it is *carinatus*, Gyll., that is identical with Förster's species. Mannerheim attributes *L. constrictus* to Britain, evidently through his

erroneous attribution of Marsham's *ruficollis* to it as a synonym. *L. rugicollis*, *C. hirtus*, Schüpp., and *rugosus*, Hbst., are also erroneously attributed to Britain by Mannerheim, apparently through Stephensian blunders (though *rugosus* has subsequently been found in this country). The same observation applies to *Corticaria longicornis*, Hbst. (not in Wat. Cat. syn.), *linearis*, Payk., and *similata*, Schüpp. E. C. RYE, 10, Lower Park Fields, Putney, S.W., April, 1870.

*Note on the Heteromorous genus Platesthes, G. R. Waterh. (Ann. & Mag. Nat. Hist., 1845, vol. xvi, p. 317).—*M. Lacordaire, in his "Genera des Coléoptères," Tom. v, p. 215, says that the insect which Mr. Waterhouse describes (*silphoides*) is the same as that described by M. Guérin Ménéville under the name *Praocis depressa* in the Revue Zool., 1841, p. 215. This is, however, a mistake; I have both insects before me, and they evidently belong to quite distinct species, although they belong to the same genus. The description of *Praocis depressa* will apply to *Platesthes silphoides* in every point, except that in *depressa* the elytra are said to be a little longer than broad, whilst in *P. silphoides* they are decidedly longer. The thorax in *silphoides* is very nearly as broad as (sometimes broader than) the elytra, the disc being very thickly and strongly impressed with almost confluent punctures, but in *depressa* the thorax is decidedly narrower than the elytra, the disc being sparingly and not deeply punctured. The elytra in the specimens of *depressa* in the British Museum collection are inclined to fuscous.

The dimensions of the two species are as follows:—*P. silphoides*, long. $5\frac{1}{2}$ lin., lat. $2\frac{3}{4}$ lin.; *P. depressa*, long. $5\frac{1}{4}$ lin., lat. 3 lin. Both insects are from S. Patagonia.—CHAS. O. WATERHOUSE, British Museum, March 21st, 1870.

Note on Cleonus sulcirostris.—I took a specimen of this beetle to-day, upon a dwarf-willow on the sand-hills here, and note the circumstance, as the insect lives in thistles, so that willow would seem an unnatural habitat for it.—E. KOPPEL CURZON, Shortlands, Bridgend, S. Wales; 9th April, 1870.

Early occurrence of Lycæna Argiolus.—To-day (exceptionally warm and sunny) I took a fine ♀ of this species. We consider here that last year the season was fully a month in advance, as compared with this; yet the earliest date upon which I then saw *Argiolus* was April 24th.—ALEXANDER NASH, Hardwicke, Gloucestershire, 4th April, 1870.

Note on Saturnia carpini.—One ♀ of this insect appeared on March 31st, and one ♂ this day (April 5th). Both had been two years in pupa.—ID.

On the egg-state of Cirrædia werampelina.—At p. 135, vol. iv of Ent. Mag., I have given an account of all I ever had to do with this species, in the view of investigating its earlier stages; but, although I cannot say much from my own knowledge, I possess a good deal of information about it, given me by the late Mr. Edmunds, of Worcester. He claimed to speak from much experience in rearing it, and gave this as the result of his investigations—that he found if the eggs were kept at no higher temperature than that prevailing out-doors, the larvæ would

ch till spring; and he considered the proper food to be the flower buds of which we all know unfold some considerable time before the leaf buds. With information before me, I had no hesitation in placing *aerampelina* in my list 22; but it certainly seems that the eggs require to be kept in the cold, for a very little extra warmth will cause the larva to be developed during the winter.—J. HELLINS, Exeter, April 5th, 1870.

Depressaria pallorella and *Gracilaria populetorum* at Witherslack.—Last winter, I met with both these rare species at the above locality; and, as *D. pallorella* is an Isle of Wight species, and *G. populetorum* seems to occur chiefly in the West of England, I thought it might be interesting to record a fresh locality. My friend Mr. Bond has seen both specimens, and to him I am indebted for their names.—W. HODGKINSON, 15, Spring Bank, Preston, April 10th, 1870.

Notes on *Depressaria Weirella*.—I see by the "Annual" the larva of this species has been separated from that of *applanata*; it seems curious, but I do not breed *applanata* for a dozen of *Weirella*; perhaps no one thinks it worth while to rear the green larvæ home, being afraid of being troubled with a lot of such a species as *applanata*; it was so with me, as I had an idea that *Weirella* was dark like that of *pimpinella*, until I saw in Stainton's "Manual" that the larva was green: now I can get plenty of *Weirella*, but they are very local.—ID.

Notes on the luminosity of *Fulgora*.—The luminosity of the tribe *Fulgorites* has at various times been the subject of discussion among entomologists, I think it would be as well to preserve all reference to the subject in entomological publications, and accordingly reproduce the following notice from the History of Entomology by the Abbé Don F. Ignatius Molina, vol. i (1809), page 173:—"The glow-flies that I have seen were in general similar to those of Italy: but one night, in passing a little wood, I observed three insects, as large as the Death's-head-fly (*Sphinx atropos*), which gave a very bright light. My attempts to take them, however, were fruitless, and I was never afterwards able to discover any of them. I am of opinion that they were a species of lantern-fly." Could these have been *Fulgora laternaria*? their size would lead one to think this. —FREDK. SMITH, British Museum; 31st March, 1870.

ENTOMOLOGICAL SOCIETY OF LONDON, 21st March, 1870. H. W. BATES, Esq., Vice-President, in the Chair.

Mr. Vaughan exhibited examples of *Dianthæcia conspersa* found by Mr. Henry Bond in Devonshire. These were remarkable as being varieties which, in some respects, approached *D. Barrettii*, but perfectly distinct therefrom. The Lepidopterists present had no difficulty in separating the two forms, although mixed in Mr. Vaughan's box.

Mr. Bond exhibited *Psyche betulina*, Zeller (= *anicanella*, Br.), found by Mr. Bond, at Hampstead.

Mr. Smith exhibited an extraordinary larva from Monte Video, completely covered with clavate hairs, resembling those of *Acronycta alni*, but in extreme size.

Mr. Stainton exhibited *Cosmopteryx Lienigiella*, bred from English larvæ.

With reference to a query as to whether *Argynnis Niobe* and *Adippe* might be one species, with dimorphic larva, Mr. Stainton mentioned the dimorphic form of that of *Acherontia Atropos*, though not as tending to prove the identity of two species of *Argynnis*. Mr. Butler was still inclined to believe in the perfect identity of the two species, though confessedly he knew nothing of the larvæ. He had seen the two forms dallying one with the other in the Alps.

Mr. Kirby communicated "Notes on Butterflies described by Linnæus."

4th April, 1870.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

H. W. Freeland, Esq., of the Athenæum Club, was elected a Member.

Mr. A. P. Falconer sent for exhibition a mole-cricket, found in a boat between Philæ and Alexandria. This was identified as most probably *Gryllotalpa Cophocera* De Haan, according to Scudder.

Mr. Jenner Weir (for Mr. Vogan, present as a visitor) called attention to the enormous harm done in granaries by weevils. Out of 74 tons of wheat vouchsafed by Mr. Vogan, 10 cwt. of weevils had been sifted at one time; in 1868, 145 tons of maize were stored, and in August, 1869, 6 cwt. of weevils were separated therefrom, and in December, 1869, 29 cwt. more. In both instances the depredator was *Sitophilus oryzae*.

Mr. Vogan asked for information respecting the earlier stages of the insect, and if it were probable that it would attack standing or newly-ripe corn. It was the general opinion of the meeting that it only infested dry cereals, in which it continued to breed 'in and in.' Mr. McLachlan referred to the fact of ship-biscuits being extensively attacked by *Sitophilus*; and in this case the only remedy consisted in re-baking. It was urged that, in the case of corn, this process would utterly destroy its value.

Mr. Vaughan exhibited a box of bred examples of *Dianthæcia carpophaga* from Croydon, the specimens shewing very considerable variation in colour.

Mr. Müller remarked that he had received a letter from Mr. Bassett Waterbury, U. S. A., confirming his observations as to the odour emitted by *Cynipidæ*.

Mr. Smith exhibited *Masoris vespoidea* of Cresson, and *Pterochilus 5-fasciatus* of Say, both from the Rocky Mountains.

Mr. Weir exhibited a collection of *Argynnis Niobe* and *Adippe*, typical forms and varieties, with a view of proving the perfect specific right of the two species as opposed to the views held by Mr. Butler.

Mr. Dunning read an extract from the Journal of the Society of Arts, respecting the spectrum produced by the fire-fly of New Hampshire. This was perfectly continuous, without traces of lighter or darker lines, extending from a little above Frauenhöfer's line C in the scarlet to about F in the blue, gradually fading at the extremities.

Mr. Crotch communicated notes on British species of *Dasytidæ*, and exhibited British examples of *D. plumbeus* (Müller), *D. ævatus* (Stephens), and *Dolichos protensa* (Gené).

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HEMIPTERA-HETEROPTERA.

GENUS.

STETHOTROPIS, *Douglas & Scott*

SPECIES.

Conostethus griseus, *D. & S.* (England)

Corixa alpestris, „ (Scotland)

Boldi, „ (*Northumberland*)

cognata, „ (*Scotland*)

socia, „ „

sodalis, „ (*Northumberland*)

Nysius Scotti, *E. Saunders* (England)

Stethotropis incana, *D. & S.* „

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CENTROPTILUM, <i>Eaton</i>
CLIMACIA, ... <i>McLachlan</i>
HYPOSMYLUS, "
NEURONEMA, "

SPECIES.

Chrysopa exul,.....	<i>McLachlan</i> ,.....	(<i>St. Helena</i>).....
<i>nigra</i> ,	"	(<i>Cape de Verdes</i>)
<i>punctinervis</i> ,	"	(<i>Texas</i>)
<i>Drepanepteryx</i> <i>berthoides</i> ,	"	(<i>Australia</i>)
<i>Hemerobius</i> <i>perparvus</i> ,	"	(<i>Texas</i>)
<i>Nothochrysa</i> <i>evanescens</i> , ...	"	(<i>Sarawak</i>).....
<i>ferruginea</i> ,.....	"	"
<i>Osmylus</i> <i>inquinatus</i> ,	"	(<i>Ceram</i>)
<i>interlineatus</i> ,	"	(<i>Natal</i> ?)
<i>Langii</i> ,	"	(<i>Northern India</i>)
<i>lineatocollis</i> ,	"	"
<i>multiguttatus</i> ,.....	"	(<i>Trebizond</i>)
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<i>Victoria</i> ,	"	(<i>Bolivia</i>)

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<i>Cis</i> <i>vestitus</i> , <i>Mellié.</i>
<i>Cryptophagus</i> <i>fumatus</i> , <i>Gyll.</i>
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EXPLANATION OF PLATES.

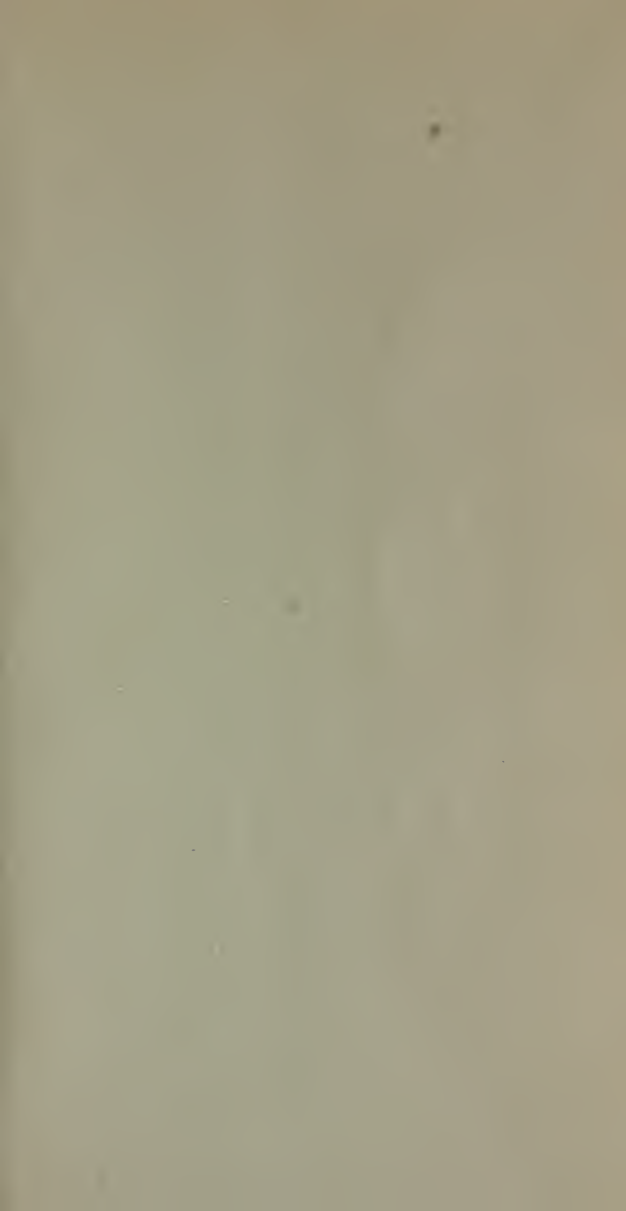
Plate 1.—Fig. 1,	Euptychia Fetna,	Butler.....
2,	Labè,.....	”
3,	Gulnarè, ...	”
4,	Maimounè, ..	”
5,	Jaresia,.....	”
6,	muscosa, ...	”
7,	Oreba,	”
8,	Nymphidium Lilina, ...	”
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2,	Hipalmus costatus, Guérin
3,	Elomosda Beltii, ♂, F. Bates
4,	Tarpela Brownii, F. Bates

WOOD-CUTS.

Actocharis Readingii, Maxilla and labium of	... ..
Anacæna globulus, Maxilla and labium of	... ..
Asiraca clavicornis and details	... ..
Climacia areolaris, Anterior wing of	... ..
Enochrus bicolor, Maxilla and labium of	... ..
Epherina longicornis, Head and tarsus of...	... ..
Helochares lividus, Maxilla and labium of	... ..
Hydrobius fuscipes, Maxilla and labium of	... ..
Idaspora terrea, Head and funiculus of antenna of	... ..
Paracymus æneus, Maxilla of	... ..
Philhydrus melanocephalus, Maxilla and labium of	... ..
Phlyda periteloides, Head and funiculus of antenna of	... ..
Sthethotropis incana, Details of	... ..
Titinia ignara, Head and funiculus of antenna of	... ..

ERRATA.

Page 2, line 20, between “veins” and “totally,”	insert “almost perfectly paral
” 31, ” 31, for “fnciformis”	read “rnficornis.”
” 59, ” 8, ” “the,”	” “thin”
” 67, ” 4, ” “Dallymount,”	” “Dollymount.”
” ” ” 33, ” “Armamoe,”	” “Annamoe.”
” 68, ” 24, ” “DESINE,”	” “DEIONE.”
” ” ” 37, ” “Oaklands,”	” “Oatlands.”
” 83, ” 15, ” “dark”	” “Clark.”
” 216, ” 22, ” “pinicolana,”	” “bimaculana.”
” 224, ” 30, invert the ♂ and ♀ signs;	and in last line, dele ♀.
” 225, line 18, for the first ♀,	read ♂; and in line 29, dele ♀.
” 231, ” 16, for “Polistichus,”	read “Polystichus.”
” ” ” 20, ” “margipellens,”	” “margipallens.”
” 256, ” 7, ” “BIPUSTULATUS,”	” “BIPUSTULATA.”
” 268, ” 10, instead of “last joint of labial palpi broadly securiform”	read “la
	[joint of maxillary palpi broadly securiform



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