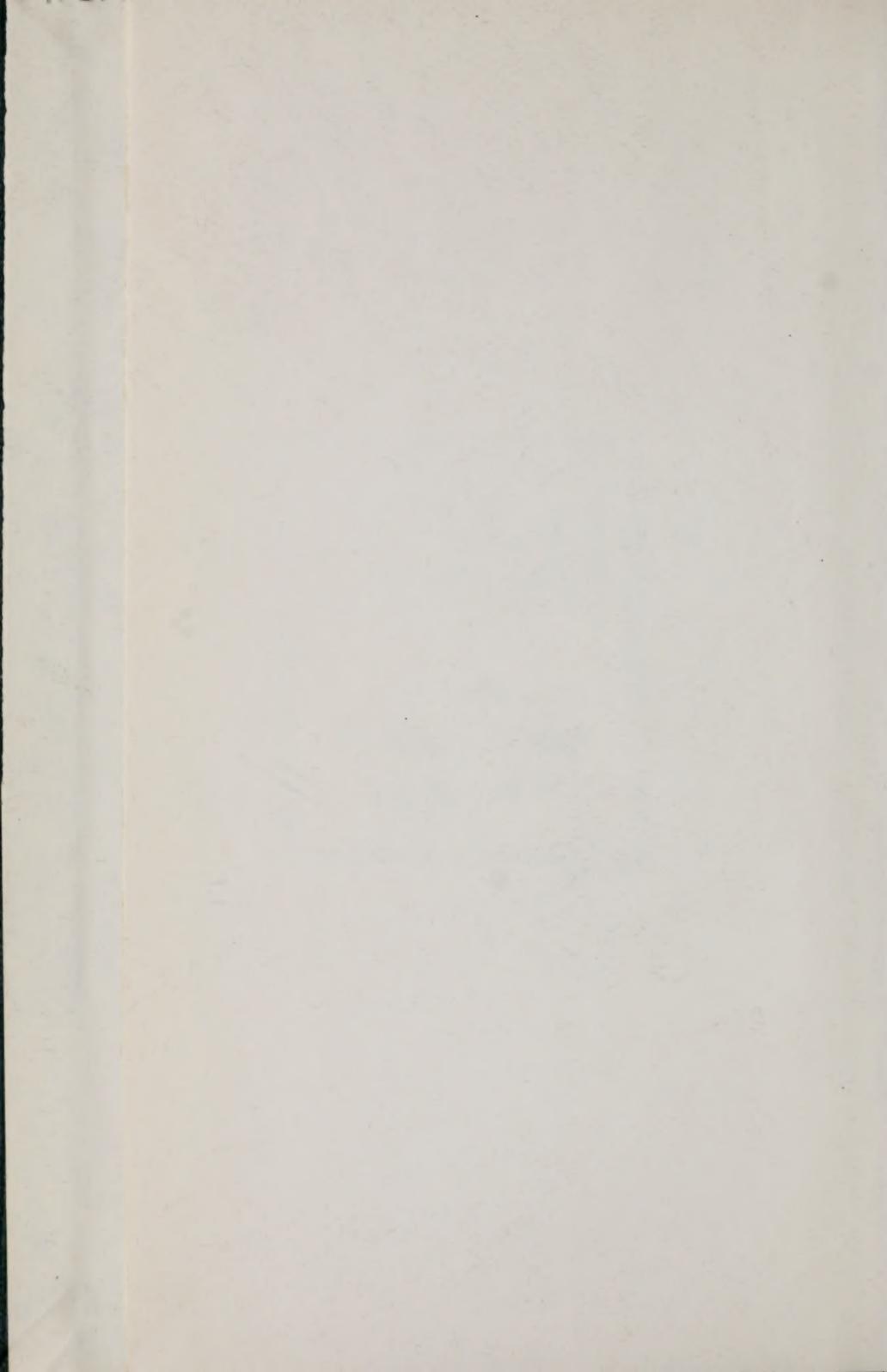


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ENTOMOLOGIST'S
MONTHLY MAGAZINE:

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CONDUCTED BY

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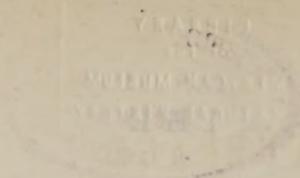
VOL. V.

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

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

LONDON:
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1868-9.



ENTOMOLOGISTS
MONTHLY MAGAZINE

H. C. KRUGER, M.D., F.R.S. E. C. RYK
H. MACHILLAN, F.R.S. H. T. STURROCK, F.R.S.

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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.

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THE
Entomologist's Monthly Magazine
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 letioribus. 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.

Trifida.

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 superiorly 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 LEUCANÆ. Alæ anticae 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 griseæ, fimbria extima alba spatio medio levissime rubricante, macula reniformi vix conspicua pallidiore, 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 *Apamidæ* 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. bicomma, sed paulo minor. Alæ anticæ cinereæ, nigro-
nebulosæ, spatio terminali excepto, lineis undulatis et angulatis nigris inter-
ruptis, 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 concolorous, 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 antice griseo-violaceæ, costâ limboque pallidioribus, strigis angulosis nigris, macula reniformi albida arctata, lineam bifuscatam longitudinalem juncante, 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 antice 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 yellower. 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 of the hind legs with a broad blackish ring, and also a small dark ring on the hind tibiæ. *Confusus* has the same parts wholly yellow, with 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 debiscent 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.

ON SOME SPECIES OF *TRICHOPTERYGIA* NEW TO THE BRITISH LIST.

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

The season of 1867 proved that our indigenous *Trichopterygia* are not 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 HALIDAIL, 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^{no} 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-excisus, atque confluentibus.

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

Melasternum 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 perbrevibus, 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 choleric, 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 abnormities 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 acetous.

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 ichneumons, 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 *oidium*, 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 *Tinea*, 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 lacinia 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 laciniae 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 laciniae 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. *flavoquttatus*, 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 Benton, 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 dichrous.—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 Crasus 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 *Crasus 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 Eupithecia 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. froxinata*—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 Jacobææ*, 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, *Teniocampa miniosa*, 3 at sallow. May 4th, *Macaria notata*, the only specimen I saw this year; 8th, *Eupithecia dodoneata*, 1 specimen. June 1st, *Cidaria picta*; 9th, *Pterophorus acanthodactylus*; 12th, *Cymatophora or*, 1 at sugar; 13th, *Aplecta tineta*, 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 Phlaeodes 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 *Phlaeodes crenana* emerged from it. I believe this insect is generally regarded as a sallow-feeder, and it is just possible that the individual in question may have been so, for there were sallows 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. urticae*; 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 *Toniocampæ*: 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. urtica* 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.

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

Superabundance of Abraxas 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 Guayaquil, 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 *Ichneumonidae*, and twelve years ago he prepared a Catalogue of the British *Ichneumonidae* 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 *Elatерidæ* 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 Jacquiniti*.

Erratum in Vol. iv.—In Messrs. Douglas & Scott's paper on New British *Hemiptera* at p. 271, *dele* 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 Rasheiyā 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* (Stål) *ornatula*, H. Sch. Plains of Jordan, in April.

Section COREINA.

14. *Palethrocoris disciger*, Kol. Plains of Jordan, in April.
15. *Cercinthus* (Stål) *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. *Derocoris scarpunctatus*, Fab. Mount Gerizim, Hebron, plains of Jordan, and other places, in April.
33. *Derocoris amœnus*, 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 œneocolle*, 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 STÅLI, 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. *Tibiae* 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*, Lsp. 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.

Oratus, testaceus, opacus, supra et infra dense leviter et regulariter rufopunctatus; capite sphaerico-triangulari; antennis fuscis, tuberculo neonon 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 $\frac{2}{3}$ 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* pitehy-red, shining. *Rostrum* pitehy-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. *Tibiae*, 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 Webbiiana*, *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 Kunawur, 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. urticae* is in Europe.

ARGYNNIS JAINADEVA. } The Cashmere specimens do not in any way
 ,, KAMALA. } differ from those taken in the Simla, Kunawur, 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 nervule, 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

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 NYCUA. 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 anticæ cœruleo-griseæ, 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. corticææ. Alæ anticæ griseæ, lineis mediis distantibus, macula orbiculari elongata, renigeram fere attingente, claviformi longa: posticæ griseæ, fimbria albida; subtus albideæ, lunula cellulari, lineaque media, fuscis.

I have seen only one specimen in rather poor condition. It is rather smaller than *corticææ*. 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 stignas 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 pulverææ, griseo-subvirescentes, punctis terminalibus nigris, subtus albide, litura mediâ nigricanti: posticæ griseæ, fimbriâ albula, 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 subcostal 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 subterminal 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, costâ, 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 \equiv 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, costâ, lineolis, margineque nigro-punctatis, maculis distinctis: posticæ fuliginosæ, fimbria alba: subtus albidæ, 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-varix, 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-testacæ, 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-paleacæ, 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, albidae, sericeae: anticae 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 paleacea, 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 pusilla, 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 *Phosphanus 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. brunnipis*, from which it may readily be distinguished by the thin scattered grey hairs on its elytra. It is a little larger than that abundant form 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 *Caliodes 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*, *duplthalmus* (now almost extinct) and *cicindeloides*,—the last-named in myriads. *Evæsthetus læviusculus* and *ruficapillus*, *Stilicis geniculatus* and *orbiculatus*, *Tachyporus solutus* and *scitulus*, *Myllæna brevicornis* and *minuta* (hard to get and harder to set), the common marsh *Quedii* and *Trogophlæi*, *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*, *Chetarthria* and *Cyclonotum* in swarms, *Simpliocaria*, *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 carcase above mentioned also contained several of the pretty *Nitidula quadripustulata*, with other commoner carrion-feeders. On the sallows I found *Erirehinus salicis*, plentifully; replaced in a week by *Elleschus bipunctatus*. *Apion minimum* and *Epuræa 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 *Alcochara 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 *Plinius 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 lines) 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 Dianthœcia casia.—In the beginning of June I visited the Isle of Mau, 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 Dianthœcia 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. fuscelina*, *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 *fuscelina* 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 *fuscelina* 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*, *exiguata*, *minutata*, *assimilata*, and *absynthiata*.

In May, two lovely specimens of *H. contigua* made their appearance, and *C. reclusa* came out freely. About the same time I bred *D. copsisicola*, *cucubali*, *conspersa*, and *carphophaga*, 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. unca* 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 ichneumonids, 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. Kilmumella*, *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. Verhuelleta* and one of *D. marginepunctella*, a dozen beautiful *N. viridata* and *E. octomaculalis*, *A. derivata*, *C. miata*, *E. virgaureata*, *exiguata*, 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. sicilana*. 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 *Lepidoptera*. 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 *Cœnonympha 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. Keays 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 Christiannana*; 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 *Anthocaris 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. $2\frac{1}{2}$ — $3\frac{3}{8}$ ''; 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. $1\frac{3}{5}$ ''.

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. 1½—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—1¾".

♂. 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. $1\frac{1}{4}$ — $1\frac{3}{5}$ ''.

♂. 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, 2b); 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 CYPRÆOFILA, 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 $\frac{1}{16}$.

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: antice 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 viæ L. salicata, 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 pectinatae.

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-discali 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 vix 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 vix 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 pectinataæ.

Size and aspect of *munitatæ*. 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.—LASIOCORIS 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 æniceps* 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-Trachyphlœoid *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 *Otiorhynchidæ* 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 Phosphænus 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 eriguis*. *C. geranii* I have never found in East Kent.

I 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:—*Ceuthorhynch(ide)us punctiger* and *Chevrolatii* (=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 cracca*, 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. ewigata*.—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, $\frac{1}{2}$ 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, $\frac{9}{16}$ inch, when at rest $\frac{3}{4}$. 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 *albicolon*, *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 on 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 albipunctata* 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, *Taniocampa 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.

Collix 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. syringaria*; 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 nigrocineta.—I had the good fortune, this afternoon, again to find the larva of *P. nigrocineta*.—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, 6th 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 larva 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 *Elachista*: 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 *artemisiella*, *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 *cinerea* not being, I believe, caught every day.—ID.

Note on Hadena 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, Torella, 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," but 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 russula*, all apparently fresh from the pupæ : they were easily caught, flying very lazily. *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 falcataria* and of *Hepialus vellela*, 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 *Thyatira batis* and *derasa*, *Neuria saponaria*, and two *Hadena contigua*. One tree literally 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 WM. H. EDWARDS. Philadelphia : the American Entomological Society. London : Trübner & 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 *Thecla*, &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

Scrubs, 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 *Saturnidæ*, 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 *Cænis 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. *Cænisis*, p., Pict.

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

Distrib.—Egypt.

The type of this genus differs from *Cænisis* 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 *C. 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.

† *Campeurus* (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 *Polymitarcys*.

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 thrice 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 neuriation 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 lamellæ 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; 2 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 *Betis*, 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.

* *Kolobouros* (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-

sist, 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, Polymirtarcys, Palingenia, Pentagenia, Hexagenia, Ephemera ; Potamanthus, Leptophlebia, Ephemerella, Oloëon, Baëtis ; (Leptophlebia), Bætisca, Coloburus, 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 paleacæ, 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-limbatis: 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 discoidal, 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-albidæ, 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, on 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 strigaeque 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; on 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, lineis 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 lineo-laque 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 impuratæ. Alæ cano-griseæ, fimbria concolori: anticæ 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, *bisetata*, *scutulata*, and *interjectaria* (as we must now call what used to pass in this locality for *osseata*), 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 *Subsericata*, standing so close to one another in our lists, but I have not thought myself at liberty to insert the *s* 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 *Holosericeata*; the synonyms stand thus in Dr. Staudinger's 'Catalogue: 'No. 78, *Holosericata* Dup. iv., p. 109, pl. 59, 7. Gn. I. 468, *Holosericearia* 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

dashes, which in the first variety, outlined the Λ s, could still be traced. 3. 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 fine, loose soil.

Exeter: July, 1868.

Localities for Mesites Tardii.—From the editorial note appended to Mr. Wilkinson'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, Devizes.

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 doing 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 sitting-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; where 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 on 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 Mount Edgcombe, 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, *Agriilus 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. vitellina* 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, *Phyllopecta*, 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. *Oxyptoda 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, Thornhill, Dumfries, August 3rd, 1868.

Occurrence of Attagenus megatoma, 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 Germingiana* 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* (extremely

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*, *Platypteryx lacertinaria*, *Drepana falcataria*, *Antithesia corticana* and *prælongana*, *Anchylopera ramana*, *Phlæodes immundana*, *Mixodia palustrana*, *Lithocolletis viminetorum*, &c. Higher up, where the ground was covered knee-deep with heather, *Euthemonia russula* flew madly about, with occasional specimens of *Arctia plantaginis*. *Eudorea atomalis* and *murana*, *Antithesia similana*, *Anchylopera unguicana*, *Eupæcilia 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 assimilella* was there in profusion, as also *Cemiostoma spartifoliella* and *Dicrorampha plumbagana*,—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 flitting along in the twilight, it greatly resembled *Rumia crategata*.

Fir woods contained their usual inhabitants, *Ellopia fasciaria* and *Macaria liturata*, 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 pulchrina* and *Abrostola urticae* were common; but the rest formed a party more numerous than select.

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

The principal larvæ that occurred were *Cheimatobia boreata*, *Thera juniperata*, and *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 myrica*?" 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 Eralebella*, &c., &c.

May 15th and 16th, Norfolk. *Meliana flammea*, *Coccyx distinctana*, *Con. Smeathmanniana*, and specimens of what may turn out to be a new species of *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*, *Spilodes sticticalis*, *Eup. notulana*, *Ser. ? herbana*, *Gel. lathyri*, and *Gel. pictella*, &c., &c.

June 13th and 15th, Folkestone. *T. chrysidiformis*, *T. Bondii*, *Eud. ingrattella*, *Ser. euphorbiana*, *C. microgrammana*, *A. decemguttella*, *Eup. rupicola*, larvæ of *G. 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*, *Collia sparsata*, *Nascia ciliaris*, *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 luctuosa*, 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 Daplidice*, 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 *Daplidice* 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 Agrotora 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. BASKEN 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 desposited 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 Petunias. 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 23rd 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 9th, 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 to 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*, Engramelle.—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 one at least of its natural pabula, and so kept alive nearly twenty larvæ; of the other species it was but a scanty remnant that appeared in the winged 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 from 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 -- 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 blackish-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 these spots are altogether whitish; immediately below comes another velvety 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 out June 14th to 27th, 1868.

The larvæ fed at first on withered leaves, especially delighting to riddle decaying willow leaves full of holes; but I saw them also eat a 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 a 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 still 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 sallow leaves, green or decaying; and last spring I managed to retain one even until the new sallow leaves were out again, but it would not resume feeding after hibernation, and so died; it was then quite half-an-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 nineteen survived to spin up; the moths out June 19th—30th.

The food chosen at first was a sallow 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 sallow 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 upon the lichens that grow on the boles of oak trees.

The eggs of *miniata* are very different from the usual round pearly beads 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 fellows, with a quantity of fine hair on their backs; and although after the last moult their plumes became denser and darker than before, yet a description of the last stage is applicable throughout.

When full-grown, the length is a trifle over half-an-inch, the hairs 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 tufts 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 freckled 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 lichens 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 four white lines separating the black dorsal, intermediate, and broader sub-dorsal stripes; and this pattern is interrupted at the 4th, 8th, and 12th segments by dark brownish-black patches covering the back, and on 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 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 streak 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 brownish-grey hairs, the first of each dorsal pair being small in size, and the second behind very large, so as to project beyond the sub-dorsal stripe, 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 similar 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 pupa 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 indistincto, corio valde abbreviato, postice rotundato, margine antico posticoque 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 darker; 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, not 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. *Coxæ*

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. *Connevirum* yellow.

Taken at Nazareth at the roots of a dwarf thorny plant, where it was 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 *Hemiptera* has been always at our service.

NOTE.—At page 37, for *Pithanus Flori*, read *Pithanus Marshali*.

FAMILY DERÆOCORIDÆ.

33.—Species DERÆOCORIS AMENUS, Doug. & Scott.

♂. *Stramineus et niger, dilute pubescens; capite nigro, linea media in maculam parvam postice crescente straminea; antennis piceis; pronoto nigro, collari nec non fascia pone callum, stramineis; corio dilute stramineo, vitta magna triangulari maculaque interiori piceo-nigris; cuneo late stramineo, apice anguste nigro, membrana piceo-nigra, extus saturatori; sterno piceo-rufo; pedibus rufobrunneis, fulcris, nec non femorum apice, piceis; tibiis luridis, basi apiceque piceis; abdomine subtus stramineo, segmentibus ultimis nigris.*

Long. $3\frac{1}{2}$ lin.

♂. Pale yellow and black, somewhat sparingly clothed with short, depressed, 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.

Thorax—*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 the apex. *Tibiae* dusky yellow, with short, somewhat spinose, black hairs; base 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 GRYPCORIS, Doug. & Scott.

Corpus elongatum. Caput, oculis inclusis, triangulare, lobo medio longo, ante clypeum convexum valde producto. Antennæ corporis longitudine, articulo secundo clavato, primo triplo longiore. Rostrum inter coxas posticas extensum. Pronotum elongatum, collari angusto, callisque duobus instructum, lateribus anticè constrictis, angulis posticis acutis, elevatis. Scutellum triangulare, sub-equilaterale. Elytra maris abdomine longiora. 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 eyes. *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, 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 margineque postica piceo-nigris; scutello dilute ochraceo nitido; clavo fusco, nervo stramineo; corio dilute griseo-ochraceo, vitta juxta clavum fusca; cuneo dilute ochraceo, apice anguste nigro; membrana fusco-nigra; sterno 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.

Rostrum reddish-yellow; 3rd and 4th joints piceous.

Thorax—*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. *Meso-sternum* somewhat fuscous in the centre. *Legs* ferruginous. *Thighs*, 1st pair with two longitudinal rows of brown spots on the inside; 2nd same as the 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 stoutish, 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.

?	Ranunculus bulbosus, Linn.	?	Silene nutans, L.
	Papaver dubium, L.	*	Althæa rosea.
	rhæas, L.		Tilia intermedia, D. C.
!	Barbarea vulgaris, Br.		grandifolia, Ehrh.
	Brassica oleracea, L.		Acer campestre, L.
	rapa, L.		pseudo-platanus, L.
	Sinapis arvensis, L.	*	Æsculus hippocastanum.
!	Reseda lutea, L.	!	Geranium sanguineum, L.
	Viola odorata, L.		Rhamnus catharticus, L.
	canina, L.	!	Sarothamnus scoparius, 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.
! *Circæa*, 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.
? *Taraxacum 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.	* Abies communis, L.
cinerea, L.	? Juniperus communis, L.
aurita, L.	Taxus baccata.
caprea, L.	! Juncus, spec.
repens, L.	? Triticum repens, L.
herbacea, L.	Pteris aquilina, L.
! Pinus sylvestris, 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 œconomy 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 female 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 blockaded 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 gets 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 female always does so. The dead beetles may still be found lying in the burrows after 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 egg 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 a 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 $\frac{3}{4}$ of 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. It 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 damped-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*, *Sinodendron*, &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. Denny'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 *Clytus* 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 mutantur 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, 5th September, 1868.

Sialis fuliginosa in Worcestershire.—I have three specimens of a *Sialis* which accords 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 in July, I beat from an alder on the banks of the Dee a single specimen of this rather 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 invariably where water was running rapidly beneath the bushes.—PERCY C. WORMALD, 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—not of myself only, but of several of my friends.

We never had any difficulty in getting the ♀ to lay its eggs, or the young larvæ 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

a 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 branches 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 rows 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 sustenance, 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 spikelets, 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, Emsworth.

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 of 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 have 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 the other 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 *V-aureum*—thus $\curvearrowright \bullet$ or $\bullet \curvearrowleft$, 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 are much as with *gamma*, but blacker in hue: the palpi are smaller, the antennæ finer; and in the abdomen of the ♂ we find still better characters; here the dorsal tuft 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 patch.—H. G. KNAGGS, September 9th, 1868.

Further notes on Plusia ni.—Having captured a specimen of *Plusia festuca* 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 *festuca*, which I captured; and the *Plusia* sent to you through our friend Mr. Hellins was captured that same evening. The flight of *festuca* is so different from that of *gamma*, that by carefully watching I can generally distinguish them on the wing, and I captured the stranger, taking it to be a *festuca*; 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. festuca must this year have been double-brooded, as I had two in my garden in June.—H. D'ORVILLE, Aplington, 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, I 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 be-

fore their usual time. Altogether, I think we may consider it a very good season if we take as a criterion the occurrence of such rarities as *A. Lathonia*, *P. Daplidice*, *D. lineata*, *D. Barretti*, &c., and the abundance of those generally scarce insects, *A. 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 11th 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 *V. 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*, *A. 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 fraxini*—unfortunately it is in a very dilapidated state. I took it at sugar in East-hand 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, 130, 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 yet 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. BARRETT, 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. PUREY, 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 met with *Spilodes sticticalis*, and a few pupæ of *Cymatophora ocularis*.—W. H. HARWOOD, St. Peter's, Colchester, 16th September, 1868.

Abnormal brood of E. russula.—Some of the larvæ from a batch of eggs of this insect, 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, Grantsfield, 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.—F. BUCHANAN WHITE, M.D., Achilty, Rosshire, September, 1868.

New locality for Scoparia angustea, Steph. ; &c.—During the past week I have met 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 heads 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 fence 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 July, 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. ambigualis*. Dr. Knaggs informs me that it is identical with specimens in his possession received from Dr. Staudinger, under the above name.—GEORGE J. HEARDER, 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.—H. 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 *Halio vauaria*. 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 a 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 in November, 1863, by Mr. G. R. Waterhouse to Herr Kutschera of Vienna (and recently returned with certain remarks, of which a notice from the pen of the former gentleman will appear in our next Number), was 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 evidentè 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 tarsorumque apicibus picescentibus.

Long. corp. 1 $\frac{1}{8}$ —1 $\frac{1}{3}$ 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 evidently 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 Magog," Cambridge. One of my Mickleham examples, given to him by me, has been sent by him to M. Allard, 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 R. 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. *Syrphus 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, margine 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 \times -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

apicali sub-rhomboidali, fuseo-marginata; pedibus testaceis, tibiis anticis lineis maculisque fuscis, necnon ante medium dente longo instructis.

Long. 6 lin.

Linear, subcylindric, pale yellowish-brown.

Head—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. *Antennæ* 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 in April amongst water weeds on the edge of the stream running from Elisha'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 anticæ 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 anticæ incrassatis, femoribus tibiisque posticis valde elongatis, tarsi 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 posticis 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. HISLOR, 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 *Hylesinus 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 angles 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 this 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 sort 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 *G. 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 *Hydropori*.

On the slopes of the same hill I took *Tarus vaporariorum*, *Synuchus nivalis*, *Trechus obtusus*, *Calathus micropterus*, and *Otiorhynchus 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. cracca*, 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 bottoms 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 *Conferva*. 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 again finding it the other day in the same place, in some plenty. There are no ants' 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 pieces of wood, accompanied by *Elmis Volkmani*, *parallelopipedus*, and *æneus*, and *Hydrana pulchella*.—ROBERT LAWSON, 58, St. Thomas Street, Scarborough, October 12th, 1868.

Query respecting Bedeguar galls.—There being reasons for supposing that other roses (especially cultivated varieties) besides the dog-rose, sweetbriar, and *Rosa spinosissima*, 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 13th, 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 should 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.—R. McLACHLAN.]

Enoicyla pusilla, the terrestrial Trichopterous insect, bred in England.—At page 43 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 *E. 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 moss 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 friable earth, or moss, if the earth is not suitable, but only to a slight depth. Some imagos appeared early in October, though at that time some of the larvæ had not turned to pupæ. 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 porrected 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* (E. 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. PRYER.

Dipterous larvæ voided by the human subject.—The enclosed larva was sent to 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 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 we submitted it, 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 occurrences 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 "Myasis" is used to denote the supposed disease occasioned by Dipterous larvæ 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-capital 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" the 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 unmistakable 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, broadly 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 whence

it could have fallen. There was no lime tree, I may observe, within twenty yards of 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. Buckler'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 carriage 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. Buckler writes me word that, on its arrival at Emsworth next day, it had half buried 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 refection 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 homeless 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 *Zoologist*, *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. Firby, 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 at 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, hazel, hawthorn, beech, lime, Spanish chestnut, horse-chestnut, sycamore, black poplar, willow, and bramble; apparently showing a general preference for the four first named. It has also been picked up upon buckthorn, holly, dock, and grass; 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 them.

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 of proceeding, at least in a state of captivity. Thus (premising that rotten wood for the formation of its cocoon seems generally to have been regarded by its captors

as a *sine quâ non*) we find Mr. Hawley's capture, already referred to, gladly availing 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). Other four, taken near York, 1856—1858, all turned pupæ, in Mr. Anderson's words, "on or under the earth without the least appearance of a cocoon" (Zool., p. 6284). A bark wigwam was the selected resting-place of one which fell to Mr. Barrett's lot (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 sandy 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 hollowed. 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 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 capture 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 had 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 Lickey 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 on

Rosaceæ and *Coniferæ* alike? *Zelleria hepariella* seems, like this latter insect, to affect 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 last, 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 all had very powerful voices, and we were once awoken in the night by their loud “squeaking” 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 dwarf 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, at 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 it was regaling itself 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.—GEORGE F. 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—*Eupithecia subumbrata* (2). Cheshunt—*Deilephila lineata*, August 25th; *Acentropus niveus*; *Achroëa grisella*, by mothing; *Hyponomieuta rigintipunctella*, bred; *Depressaria capræolella* (15) February 28th to April 15th; *D. pastinacella*, at light; *Gelechia rhombella*, common on apple trees; *Laverna decorella*, in thatch; *Phyllocnistis suffusella* and *saligna*; *Coleophora argentula*, 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 few species which occur in Worcestershire are not indicated as occurring in sub-province 14, of which this county forms part. There are also a few I have captured here which are indicated with a mark of doubt, and one which is said to rest on only one authority. These species I give as follow:—

L. lurideola (*complanula*), common; *A. interjectaria*, not rare; *A. inornata*, I have taken four; *E. consignata*, one; *E. linariata*, two; *E. dondonæota*, 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 *Hypoæxanthe* 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 others 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 imago. He fed the larvæ, I think, on birch, and at his death the pupæ were handed over to

me. 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. COURTICE, 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 cold 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 forwards 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 fed 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 other pabulum, I gathered some bunches, and, saturating asponge, 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 boughs 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. CRUTWELL.

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 der Koleopteren" deserves also special mention; and a list of his smaller papers will 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*, as shown, for instance, by recent papers on Swiss *Andrenidæ*, etc., in the "Mittheilungen der Schweiz. Entom. Gesellschaft."

But to my own mind, leaving literary attainments and professional activity—on 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 year after year brought to bear upon the discharge of his entomological lectureship in the Basle University.

The study of insects is not attractive to the many; the smallness of the objects deters 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 chair, 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 often prevented Dr. Imhoff from communicating, himself, the results of his life-long labours and ripe experience to the entomological world; but the initiated can plainly 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 last, 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 to the extreme as he was, he did go more than once so far as to observe to the writer, that although quite unprepared to fall in with Darwin's notions, he yet did not 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; but 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 eight 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-Treasurer of the Society, and, if conducted with spirit, should do much towards 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 *phleas*," 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

unsightliness 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-keepers, adopted there.

We hope again to have occasion to notice this useful publication.

CATALOGUS HYMENOPTERORUM EUROPE, auctore L. KIRCHNER. Herausg. von der K. 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 after 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 splendidulus*, Gr. (an *Ichneumonoid* form), is given as a synonym of *Pterocormus means*, 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. But 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. abdominator*, 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 *Phygadeuon 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*; he 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 langsrunzlig," for the first segment of *A. hemiptera* is most distinctly wrinkled longitudinally. One of 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 semiannulatis; abdomine picescente, segmentis 1^o apice, 2^{do} disco, plus minus

dilutioribus; alis metathorace longioribus, fusco-hyalinis, stigmatate et 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 sheaths 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 a 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^{is} et sequentibus fusciscentibus; 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 narrowed 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.

Second and following segments glabrous, shining, the 2nd testaceous, the 3rd 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 also invades 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 brevis apice infuscatis, bis albido maculatis, vel completis, fuscis, fasciis 2 albidis; stigmatе albo nigroque; nigra; antennarum 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 areated, 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 it, and a large indeterminate apical spot, or fascia, whitish. The neuration is that of *Hemiteles*, to which genus the insects would be referred, if 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*:—

I. 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. HABROPELTE, Thoms., Öfv., 1858, 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.

Sp. 10. ALUTACEUS, Thoms., Öfv., 1858, p. 296.

Sp. 11. CRASSICORNIS, Boh., Handl., 1831, p. 331 = *sulcatus*, Nees, Mon., ii, p. 277.

Sp. 12. RUFIPES, Nees, Mon., ii, p. 277.

Sp. 13. MEGASPILUS ATELOPTERUS, n. sp.

M. piceo-testaceus, capite et thorace nigris; antennarum articulis 2 primis piceo-testaceis, 3—7 rufo-nigris, cæteris nigris, scapo capite longiore; fronte et thorace alutaceis; alis angustis, fere halteriformibus, abdominis basin paulo excedentibus; pedibus cum coxis piceo-testaceis; abdomine thorace latiore et longiore, basi striolato. ♀ Long. $\frac{3}{4}$ lin.

Front broadly excavated above the antennæ, and with a small fovea below the foremost ocellus. Antennæ stout, sub-clavate, nearly as long as the body, the two apical joints sub-equal. Disc of the mesothorax sub-rufescent. Scutellum large, depressed, somewhat shining. Abdomen glabrous, sub-pellucid, pale pitchy, ovate, depressed at the base, at the apex sub-compressed, acuminate, and recurved. First segment occupying two-fifths of the length of the abdomen; the 2nd and following gradually shortened to the apex. Hinder femora and tibiæ incrassated. Head deflexed, vertex transverse, as broad as the thorax.

In a wood near Milford Haven; August. Distinguished from large individuals of *M. thoracicus*, Nees, by the stouter antennæ, with the 2 apical joints sub-equal; by the broader and entirely pale abdomen, etc.

There are several more species of *Megaspilus*, not yet known to me by name.

- ii. Mesothorax with one dorsal line. Wings ♂ with a linear stigma; ♀ apterous.

Gen. LAGYNODES, Först., Hym. St., ii, p. 98.

Microps, Hal., Thoms.

Sp. 1. 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 margined.

Gen. CERAPHRON, Jur.,—Först., Hym. St., ii, 98.

Calliceras, Nees, Thoms.

Sp. 1. BISPINOSUS, Nees, Mon., ii, p. 280.

Sp. 2. 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 ; scutellum 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 ; it 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 8th, he tried a further 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 one

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; none 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 four 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 27th, 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 a 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.?
ampelophaga .....	.....	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.
sp.....	ericeti	Allard.
sp.....	longicollis	Allard.
oleracea	pusilla	Dufts. (<i>helianthemis</i> , Allard, non <i>oleracea</i> , Auctorum).
sp.....	montana	Foudras (<i>cognata</i> , Kutschera).
	HERMÆOPHAGA.	
mercurialis.....	.....	Fab.
	CREPIDODERA.	
transversa .....	.....	Marsham.
ferruginea .....	.....	Scop.
rufipes.....	.....	Linn.
	CREPIDODERA (<i>Chalcoides</i>).	
nitidula .....	.....	Linn.
helxines .....	.....	Linn.
aurata .....	.....	Marsh., Foudr. (<i>versicolor</i> , Kutsch.). N.B.— <i>fulvicornis</i> , Fab. may be identical with <i>C. aureola</i> , Foudr.
sp.....	chloris	Foudr.
	CREPIDODERA (<i>Hippuriphila</i>).	
Modeeri .....	.....	Linn.
	CREPIDODERA (<i>Epitrix</i>).	
pubescens .....	.....	Ent. H.
atropæ.....	.....	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. <i>semiænea</i>	Fab.
obtusata .....	.....	Gyll.
chrysanthemii .....	.....	Ent. H.
Matthewsii .....	.....	Curtis.
	BATOPHILA.	
rubi .....	.....	Payk.
ærata .....	.....	Marsh.
	PODAGRICA	
fuscipes .....	.....	Fab.
fuscicornis .....	.....	Linn.
	SPHÆRODERMA.	
testacea	cardui	Gyll.
centauræ	testacea	Fab. N.B.—Although the two types of <i>Sp. testacea</i> in the Bankian 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>thorace et elytris levissimis</i> ," which character certainly cannot be applied to <i>Sp. cardui</i> .
	APHTHONA.	
Intescens .....	.....	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>cyanella</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>Aphth. ovata</i> of Allard and Foudr.
atro-cærulea	cyanella.....	Redt. (<i>atro-cærulea</i> , Allard; <i>euphorbiæ</i> , Foudr.).
hilaris .....	.....	Steph., Allard.
herbigradus .....	.....	Curtis (<i>campanulæ</i> , Redt. in Coll.)
PHYLLOTRETA.		
nodicornis	antennata	Ent. H. (<i>nodicornis</i> , Marsh.).
lepidii .....	.....	Ent. H.
melæna .....	.....	Illig.
pæciloceras	obscura	Illig., Foudr. (<i>pæciloceras</i> , Comolli, Allard).
atra .....	.....	Payk.
punctulata .....	.....	Foudr., Allard.
vittula .....	.....	Redt.
undulata .....	.....	Kutsch. (<i>flexuosa</i> , Foudr., Allard.)
nemorum.....	.....	Linn.
tetrastigma.....	.....	Comolli.
sinuata .....	.....	Redt.
ochripes .....	.....	Curtis (<i>excisa</i> , Redt., Foudr., Allard)
brassicæ .....	.....	Fab.
PLECTROSCELIS.		
concinna .....	.....	Marsh.
CHÆTOCNEMA.		
Sahlbergii	subcærulea*	Kutsch. (non <i>Sahlbergii</i> , Gyll., Foudr., Allard).
aridella .....	.....	Payk.
confusa .....	.....	Bohem.
THYAMIS.		
holsatica .....	.....	Linn.
dorsalis .....	.....	Fab.
quadripustulata .....	.....	Fab.
anchusæ .....	.....	Payk.
sp.....	absinthii.....	Kutschera.
obliterata .....	.....	Rosenh., Allard, Kutsch. (<i>pulex</i> , Foudr.).
parvula .....	.....	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 Wimbledon Common, in the month of June, 1857.—G. 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.).
minuscula	membranacea	Foudr., Kutsch. (<i>teucris</i> , Allard, non <i>minuscula</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.	
atricapilla .....	.....	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.).
melanocephala .....	.....	Gyll. (<i>atricapilla</i> , Dufts., Redt. 2nd Ed., Foudr.).
PSYLLIODES.		
dulcamaræ .....	.....	Ent. H.
chalcomera .....	.....	Illig.
napi .....	.....	Ent. H.
hyoscyami .....	.....	Linn.
chrysocephala.....	.....	Linn.
chrysocephala, var. 2	nigricollis	Marsham.
sp. 6 (from Lundy	.....	Kutschera.
Island).....	luridipennis	Illig.
marcida .....	.....	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.
cupronitens.....	cuprea	
picipes	instabilis	Foudr., Allard, Kutsch. (non <i>picipes</i> , Redt., Foudr., Allard).
attenuata .....	.....	Ent. H.
atricilla	affinis	Payk., Ent. H.
luteola .....	.....	Müller.
picina .....	.....	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.		
graminis	orbiculata	Marsh., Foudr., Kutsch. (<i>graminis</i> Ent. H., Dufts.; <i>ciliata</i> , Oliv., <i>hederæ</i> , Ill.).
splendida .....	.....	Allard, Kutsch.; <i>globosa</i> , Foudras.
MNIOPHILA.		
muscorum .....	.....	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 *Læmophlæus*, 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 (e. 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 *Bupestris*, in his break-neck attempt to scale the Touqueroue glacier leading up to Mont Perdu.—T. A. MARSHALL, Milford, October, 1868.

Lithobius forcipatus mothing.—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. 9th, 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 GAVILLER, Manor Road, Stamford Hill, 21st October, 1868.

Occurrence of Acherontia Atropos at Dumfries.—On the arrival of the mail train on 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, Crichton Institution, Dumfries, October 5th, 1868.

Sphinx convolvuli and Acherontia Atropos at Folkestone.—I had a fine specimen of *S. 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. I 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 respiration 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*, somewhat 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 a 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, as it was just getting dusk (6 p.m.) when he found it.—FREDERIC ENOCK, 75, Rylands 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

ago, 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 inside a cottage on Haworth Moor, near York, and was taken to Mr. Dosser, who got 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 artist 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 with—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. HOPLY, 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 worn, example was taken at the same place, by my brother, on or about October the 5th. A third, supposed to be seen by my brother and myself in the same place, escaped.—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, *Cherocampa 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 fluctuosa*, 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, *Agrotora 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 niezac*, *Cidaria silacea*, *Macaria notata*, and *Ennomos fuscantaria* (22nd); also several *Eupithecia succenturiata*, *Eupithecia centaureata*, *Tethea subtusa*, *Ptilodontis palpina*, *Notodonta camelina*, *Platypteryx hamula*, *Pyrausta purpuralis*, *Paraponya 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 *Melitæa 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 27th, and that in a few days afterwards it was common, and by August 7th so worn out 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 date 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 as 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 for 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 one or two clover or lucerne fields for hours and, indeed, days together, and fly, as it can, 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.* hot and dry summer, feed up rapidly, escaping their worst enemy in this climate—mould, 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 those coast districts in which the insect usually occurs.

Thus I am compelled, contrary to my will and usual practice, to offer a theory in 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 said that he disturbed it from a small hollow, and that its wings were not sufficiently hardened to enable it to fly far, so that it flew heavily very short distances and was soon caught; and the appearance of the specimen, its exquisitely perfect condition, and 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 Lycaena 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 *Lycaena* 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 of 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 brakes 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 quits 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 root as before, but attacking the young shoots of the fern; the parts bitten are oval 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 from 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, becoming 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 upper 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; and a little further back, on each side, is a drop-shaped plate, and just above the legs an oval or circular one; all of these plates, besides one on the anal tip, are dark 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 circle 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 in 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 urticana*!! 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 can now be had separately, as can the two others concerning the *Vertebrata*, *Crustacea*, and lower animals respectively. As it is, the present part extends to 300 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 one 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 filipendule* 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 *Hampsteadiensis*, why should he have the right to bind me 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 ask us 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 *Argyrotoaa*. *Argyrotoza*, however, was not a printer's but an author's error. Stephens made the same substitution of *z* for *w* in other cases, e. g., *Lozotænia*, 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 Yarrelli*, 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 *Psocus* 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 illuminator 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 illuminator." 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; *spini-corporus*, not *spinosi-corporus*. 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 *Dipsocóris* 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, *Cerathothorax* 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. *enigmatis*; *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 some 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*, nor do I know on what ground Mr. Marshall adopts this derivation. It is not justifiable to impute error on conjecture, if any explanation not involving error is forthcoming. If *Arma* can be explained, we ought not to resort to *Harma*; and at least two derivations may be suggested for *Arma* without the 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 *Hoppi*, *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, at 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 oblique lateral lines, and broad purplish-red lateral swellings.”

It is owing to the kindness of my friend, Mr. Henry Doubleday, of Epping, 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 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 his 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 imagos, 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 hibernation (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.
5. *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.
6. *Vitripennis*, Meigen, Sys. Bes., iii, 308; 50 (1822). I must say, I

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, 163), 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*.

11. *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* (*CÆCILIUS ATRICORNIS*)
INHABITING BRITAIN.

BY R. M'LACHLAN, F.L.S.

CÆCILIUS ATRICORNIS, n. sp.

Rufo-flavus, nigro-variatus. 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, genibus picescentibus, tarsorum articulo ultimo nigricanti. Alæ hyalinæ, 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.

2. *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.

3. *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.

4. *Corylophus sublævipennis*, Duv.

This species was captured last autumn by Mr. Crotch and myself, under some flood 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 *Tenioecampa cruda*—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 Cataloge. 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 finds a new genus, *ABIDIUS* (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 alias*) 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) *Myrmecowenus*, 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 one 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 *Hylurgus pilosus*, rare as a British insect. Odd specimens occur; but as no one in this country has remarked upon 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 faggots 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) section of ivy so treated is a favourite habitat of *Hylurgus 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 frass. The larvæ eat galleries at right angles to this, and sometimes travel as regularly and symmetrically as those of *Hylesinus fraxini*. When examining ivy for the beetle last spring, I found several shallow grooves, usually on smaller stems not 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. frazini* 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. *Dembidium paludosum* and *punctulatum*, *Bledius longulus*, and *B. subterraneus*, in profusion, banks of the Bollin. *Clivina collaris*, on all our river banks. *Gymnetron beccabungæ*, 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, *Longicornis* or *Lamellicornis*.—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. chrysanthemi*, Chatmoss. *Corymbites pectinicornis*, damp meadows, Bollin. *Sitones cambricus*, sparingly distributed in sandy places. *Donacia dentipes* and *D. sagittaria*, 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. *Clythra 4-punctata*, beaten off hazel, with *Acalles misellus*, *Orchesia minor*, *Telephorus 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 *Xylosterus quercus*, on felled oaks. A single specimen of *Quedius scitus*, and *Bolitochara lucida*, 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 agaricola*.

At Cleethorpe.—*Cicindela maritima*, sparingly. In mud, between tide marks, *Bledius tricornis* and *bicornis*, both commonly. *B. arenarius* in immense numbers, accompanied by *Diglossa mersa*. A single specimen of *Aphodius villosus* occurred to me in dung.

At Clifton, a few miles from Manchester, *Donacia bidens* and *sparganii* have been met with in some numbers; and, at Stalybridge, *Aphodius fætidus* and *Nebria Gyllenhalii*.

Telmatothiles Schönherri and *Erirhinus 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 eggs were procured, but, owing to my want of knowledge in rearing the young larvæ, only one lived into the pupa stage. *E. Blandina*, *H. Semele*, *C. Davus*, *C. cardui*, *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* abounded 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. stelarum* was observed on several occasions in similar localities. *A. betularia* and *O. bidentata* both very frequent. All the British species of *Hepialus* were taken, five specimens of *H. velleda* occurring at rest in the crevices of birch trees in Altyre Woods. *C. ligniperda* larvæ abundant all over the country, doing great

mischievous 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. quercus* 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 frequent 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; *litterosa*, 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; *corticæ*, 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; *pracox*, 7th August

rare at rest. *N. pyrophila*, 1st July, rare. *T. janthina*, 25th July, not uncommon, lime 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 box 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; *promuba*, 23rd June, very abundant at sugar. *N. glareosa*, 26th August, several at a birch tree infested with *Cossus*; *depuncta*, 24th July, not uncommon at sugar; *augur*, 1st July, frequent at sugar; *plecta*, 21st June, rare, flying over grass. *C. nigrum*, 22nd June, not uncommon at sugar; *triangulum*, 4th July, rare at sugar; *brunnea*, 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; *umbrosa*, 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; *xanthographa*, 20th July, swarming at sugar, and varying much in colour and markings. *T. piniperda*, 28th March, very abundant at willows, ranging in colour from brick red to grey and light green: pupæ under moss at pine trees. *T. gothica*, 26th March, common at willows, also at sugar; *rubricosa*, 17th April, not common, on 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 variable; *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. trapezina*, 23rd July, swarming at sugar. *D. capsicola*, 29th June, not uncommon, hovering over *Lychnis vespertina*, in the capsules of which the larvæ abounded. *D. cucubali*, 19th 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. oxyacanthæ*, 8th Sept., frequent at sugar. *A. aprilina*, 16th Sept., frequent at sugar. *P. meticulosa*, 23rd Sept., frequent at sugar. *E. lucipara*, 1st July, rare at sugar. *A. occulta*, 15th August, rare at sugar; *nebulosa*, 13th August, rare, 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, sugar; *thalassina*, 22nd June, not common at rest and at sugar. *C. vetusta*, 22nd 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 occurred in the spring at sugar and willows. *X. rhizolitha*, 28th Sept., rare at sugar. *C. umbratica*, 1st July, rare over *Lychnis vespertina*. *A. myrtilli*, 8th June, common flying over heaths: the larvæ very common. *B. parthenias*, 5th April, very abundant in Altyre Forest flying over the birch trees; *notha*, 16th April, same locality as the above, but not so frequent. *A. urticæ*, 26th June, flying over rasp. *P. chrysitis*, 16th July, rare flying over flowers; *festuca*, 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. aenea*, 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 illuminaria.—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 *illuminaria*. 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 at

Pembrey. 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 sand, 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. lutulenta*, 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 also 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 shaken out of that plant in the day-time, and is found at rest on it at night. Time—the 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 this year, *E. irriguata*, *Macaria alternata*, *Phycis abietella*, &c.; *Heliothis dipsacea* was bred on June 4th from a pupa found in October, at Charmouth, amongst melilot.—CHAS. W. DALF, Glanvilles Wootton, Sherborne, November 12th, 1868.

Larentia salicata in North Devon.—Among some insects taken by my young friend Master Arthur Chandler, at Challcombe, 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 below Bishopstowe, and there is scarcely a plant but has been attacked by the larvæ; the white patches caused by them in the dark green leaves of the plant are quite 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 Coccya 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 *Coccya 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 willows 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 willows, 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 dates, and were all laid singly, on the underside of a leaf, or under any little projection in 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, bad luck pursued nearly one-third, either before or just after the hatching of the larvæ, I 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 by 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 $\frac{3}{8}$ 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 nigrity 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, mealy 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 of a square form; the head is intensely black; the region of the back is curiously freckled 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 of 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 HELLINS, 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 larvæ 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*, *Dasystema*, *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? 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 claimants 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, College, 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 nigrocineta*, 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 *Enoclyta 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 frazini*, 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 lower 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 Midhurst, 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 unequally respresented.

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 Iris*, *Limenitis Sibylla*, *Leucophasia sinapis*, and *Nemeobius Lucina* being about the best species. *Colias Edusa* is of uncertain appearance, and never very common. *Arge Galathea* and *Lycana 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 found, 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 sallow 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 *complana* 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, oddly enough, *centaureata* is one of the scarcest, for until this season, when one specimen occurred, it seemed to be entirely absent. *Epione 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 straminata* and *immutata*, *Lobophora sexalata* and *viretata*, and *Camptogramma 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 *donea*, 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*, are

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 *Nonagria*.

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 saponariæ*, *Caradrina alsines*, *Tæniocampa leucographa* and *miniosa*, *Dasy-campa rubiginea*, *Hoporina croceago*, *Dianthæcia conspersa*, *Hadena contigua* 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 *Hypenodes* 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 lemnalis*, *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*, *adipellus*, *hamellus*, *latistrius*, *uliginosellus*, and *selasellus* being of the number. Of the remainder of the group the best noticed were *Cryptoblabes bistriqæ*, *Phycis abietella*, and *Oncocera ahenella*; 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 quer-cana*, *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*, *Ohrosis Audouinana*, *Argyrolepis Baumanniana*, *Dubrisana*, *enicana*, 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*, *sororoculella*, *basaltinella*, *rhombella*, *Lyellella*, and *vorticella*, *Macrochila fasciella*, *Butalis senescens*, *Pancalia Latreillella*, *Röslerstammia Erælella*, *Glyphipteryx oculatella*, *Echmia dentella*, *Tinagma resplendella*, *Gracilaria*

falconipennella, *populetorum*, and *phasianipennella*, *Coriscium citrinellum*, *Coleophora Wöckella*, *genistæ*, *inflata*, *apicella*, *fuscocuprella*, and *badiipennella*, *Batrachedra pinicolella*, *Chauliodus Illigerellus*, *Laverna lactiella*, *Raschkiella*, *decorella*, *subbistrigella*, and *rhamnella*, *Elachista magnificella*, *gangabella*, *rhynchosporella*, *triatomea*, and *ochræella*, *Lithocolletis irradiella* and *comparella*, *Cemiostoma Wailesella*, *Opostega crepusculella*, *Nepticula intimella* 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 *Hepialus vellea* and *Abraxas ulmata*, both rare; *Tortrix viburnana*, *Penthina sauciana*, *Mixodia Schulziana*, *Phoxopteryx unguicana* and *myrtilana*, *Coccyx vacciniana*, *Stigmonota coniferana*, *Butalis incongruella*, *Glyphipteryx Haworthana*, *Elachista kilmunella*, and *rhynchosporella*, *Lithocolletis irradiella*, *Cemiostoma Wailesella*, and *Pterophorus Loewii*.

There are also a few apparently wanderers from the chalk, *Arge Galathea*, *Lycæna Corydon*, *Argyrolepis Dubrisana*, and *Chrosis tessera*.

Of insects rare here that might reasonably be expected to be common, the following are noticeable:—*Argynnis Aglaia*, *Sesia tipuliformis*, *Liparis salicis*, *Anthrocera filipendulæ*, *Nola cucullalis*, *Eupithecia centaureata*, *Hydræcia micacea*, *Noctua glareosa*, *augur*, and *rubi*, *Hadena oleracea*, *Brephos parthenias*, *Catocala nupta*, *Nænia typica*, *Hydrocampa lemnalis*, *Botys verticalis* and *urticalis*, *Ebulea sambucalis*, *Cartella bilunana*, *Tinea granella*, *Swammerdamia cæsiella*, *Acrolepis granitella*, *Chauliodus chærophylllellus*, and *Lithocolletis spinolella*.

And of those conspicuous by their apparent absence I may mention, *Smerinthus tilieæ*, *Nemeophila plantaginis*, *Gastropacha quercifolia*, *Gortyna flavago*, *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*, *Eupæcilia roseana*, *Argyrolepis badiana*, the whole of the species of the genus *Cochylis* (except *inopiana*, which occurs among fleabane), *Tinea biselliella* (happy Haslemere!), *Plutella porrectella*, *Gelechia fraternella*, *Batrachedra preangusta*, and *Cemiostoma scitella*, not one of which I have ever met with in either larval or perfect state.

- | | | | |
|---|-------------------------------------|---|-------------------------------------|
| ? | <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 Gyrimus æneus, Steph.—In the "Entomologist's Annual" for 1869, p. 23, Mr. Rye has noticed *Gyrimus 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. Suffrian, 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 *Gyrimus 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, Patney, 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. aquatica* of Waterh. *Cat. (Comari, Ahrens, Suffr.)*, and the latter is the universally recognized *D. sericea* (*Protous, Steph.*). *D. aquatica* 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 *aquatica* 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' *aquatica*.

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 cruz*, *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*, *cruz*, *terminatus*, and *alliaris*, *Cassida hemisphærica*, *Mantura Matthewsii*, *Gymnetron melanarium* and *E. noctis*, *Phyllotreta nodicornis* and *P. ochripes*, *Crepidodera ventralis*, *Thyamis gracilis*, *Coccinella 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. *Erirhinus agnathus*, on shallows.

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 spin-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. Wratisslau 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.—R. 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. cratægata*, *L. pectinataria*, *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 *Lotus 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 pounced 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, Saffron 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 *Alexis*, *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 *Dahlîi*, *Orthosia macilenta*, *Citrædia xerampelina*, *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 $1\frac{1}{8}$ inch in length; *cespitis* $1\frac{1}{4}$, and *graminis* $1\frac{3}{8}$,—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 begun 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 cast 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 the 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 *Hypermezia angustana* and *Argyresthia pygmælla*, and a fine *Ptycholoma Lecheana*; from the 20th to the end of the month, several *Penthina capreana*, *Tortrix crataegana*, *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*, *Dasysterna*, *Dactylosternum*; *Barynotus*, *Aloconota*, *Cyclonotum*; *Stylosomus*, *Egosoma*; *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 *Egosoma* 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; *Dasystema*, *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 *Egossoma* 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 *Cestrus* 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 "spine-body," 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.	Lampyrus.....	Glow-worm.

b. Simple or compound substantives taken figuratively:—

Ctenidium	little comb.	Scymnus.....	a whelp.
Micrornix	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.
Hypophloeus.....	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 *Micrornix* 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 urticae* 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 *Vespidae*, and was inclined to refer it to the *Ichneumonidae*, 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 *Ichneumonidae*.

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 *Buprestidae*."

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 discalibus (quorum unum in medio, alterum basin versus situm) punctisque circum marginem apicalem, saturatioribus: posticæ punctis præter disco-medianum fere obsoletis. 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

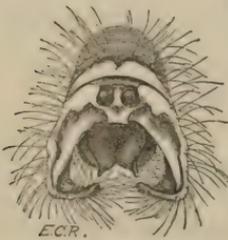
* *Euptilon*, which is founded on a figure in Drury, and is represented with pectinate antennæ, is most probably mythical.—R. McL.

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 *Dilatator*,
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 parciusque 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. B.

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 *EUPÆCILIA*.

BY CHAS. G. BARRETT.

Although my friend Mr. McLachlan, in concluding his valuable paper on the genus *Eupæcilia*, 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 doubtingly 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 cœneum* 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. *Hydrena 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 deposited 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. *Oxygoda 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? *Gyrophana Poweri*, Crotch, *Stenus annulatus*, Crotch, *Lathrobium Jansonii*, Crotch, and *Homalium crassicornis*, 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. iopteron* in Steph. *Coll.*

Staphylinus ochropterus, Germar (a synonym of *chalceocephalus*, Fab.) is attributed to England. *Ocyopus 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' *leviusculus*.

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. *Scydmaenus 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 *chryseloides*; most likely through a misunderstanding of the remarks of that author, who says there are forms of *chryseloides* 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 striæ 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 *tenella*, 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, Ynisgerwn, Neath, *February 8th, 1869.*

Late appearance of Hybernica 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 *Chalcharma*,* "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 *Chalcharma* 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 *Micromix*† 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:—

Micromix (Bird) is a substantive.

Every substantive has a gender of its own.

Therefore *Micromix* (Bird) has a gender of its own.

Every substantive contains its own subject.

Micromix (Moth) does not contain its own subject.

Therefore *Micromix* (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 *Micromix* would be preferable." I thought the reference to the Lepidopterous genus *Ornix* was sufficient to show why I took the form *Micromix*. 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 name 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 *Cheropotamus* is to be changed, *Hippopotamus* ought to go also; if *Cheropotamus* is not to be inverted, why should *Corimelæna* 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 *dicerus Selene*, the two-horned moon, *dicerus* is no doubt an adjective; but as the name of a genus of *Cetoniidæ*, *Dicerus** 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 *Hippus* 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, *Ourapterya* was changed into *Uropterya*, 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. *Metasternum* 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. tilix* 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.

ORTHOXYLUS 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. *Tibiæ* 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 ras-trate; *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, *scapulæ*, *pleuræ*, and *parapleuræ*, pale yellow. *Legs* brownish-yellow; *palæ* of the ♂ short, broad, roundly cultrate; 2nd pair, *tibiæ* 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 *parapleuræ* ochreous. *Legs* pale yellow; *palæ*, ♂, short, roundly cultrate; 2nd pair, apex of *tibiæ* 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 *parapleuræ* pale yellow, black inwardly. *Legs* yellow; *palæ* of the ♂ rather broad, roundly cultrate; 2nd pair, *tibiæ* and *tarsi*, at the apices black; cilia of the posterior *tarsi* brown.

Abdomen black.

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 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 *parapleuræ* pale ochreous. *Legs* pale ochreous; *palæ*, ♂, narrow, roundly cultrate; 2nd and 3rd pairs, *tibiæ* 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. 98, 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; *scapula*, *pleura*, and *parapleura* black inwardly, more or less broadly pale yellow outwardly. *Legs* yellow or brown, anterior *thighs* with a fuscous blotch at the base; *pala* in the ♂ short, roundly cultrate, in the ♀ narrower, longer, and more acute.

Length $2\frac{1}{4}$ — $2\frac{3}{4}$ 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. $6\frac{1}{2}$; ♀ $3\frac{3}{4}$, 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 $\frac{1}{3}$ 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 argentâ, punctisque costalibus nigris; areâ apicali olivaceo-viridi, maculas octo marginales, sub-argenteas, inæquales, limitante: posticæ olivaceo-virides, maculis plurimis inæqualibus argenteis ornatæ: 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 *Simptonia*.—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 æneo-fuscum, 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* suprâ 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 $\frac{1}{8}$ 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 (*Aphodian*?) 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 Ctenicercus 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 MULLER, 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*, Pictet (*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 $1\frac{3}{8}$ 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; *Exapate gelatella*, ♀, December 15th, ♂, January 7th; *Gracilaria elongella*, December 30th; *Hybernia leucophæaria* 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. Tincina, 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*, *Macaria 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 *Noctuidina* visited the sugar, as well as 13 other species of *Lepidoptera* (including *Orgyia 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 *Geometrae* 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>Geometrae</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 urticae*, 2nd brood July 9th. *Pyrameis Atalanta*, not very common. *Pyrameis cardui*, June 22nd; hibernated larvæ, in July. *Satyrus 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 8th (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 carpini*, imago and larvæ, *Rumia cratægata*, *Venilia maculata*, June 4th. *Metrocampa margaritata*, June 12th; *Ellopia 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 willow. *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. unanimis*, 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 vacciniæ*, September 25th. *Xanthia ferruginea*, September 22nd. *Euperia fulvago*, July 31st. *Dianthæcia capsicola*, 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. *Agriopsis 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 urticae*, June 23rd. *Plusia chrysitis*, July 6th. *P. festucae*, *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. *Hyphenia 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. *Melisa sociella*, July 8th. *Haliopsis prasinana*, June 8th. *Sarothripa rewayana*, 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. ochromelena*, June 3rd. *P. sauciana*, *Pardia tripunctana*, June 8th. *Sericoris micana*, *Mixodia Schulziana*, *M. palustrana*, June 26th; no fir trees within a mile or two of this reputed-fir-haunting species' localities. *Orthotænia antiquana*, *Cnephasia musculana*, June 3rd. *Phoxopteryx unguicana*, June 2nd. *P. unca*, *P. myrtilana*, *P. ramana*, *Hypermercia angustana*,

* May 9th, at Perth.

Pædisca solandriana, July 18th. *Ephippiphora bimaculana*, August 15th. *Ooccyx ustomaculana*, *Dicrorampha plumbagana*, June 3rd. *Grapholita ulicetana*. *G. Scopoliiana*, *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 urticae*, *Pygæra 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 *PSEUDOXYCHEILA*).

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 *Otenostoma*; the true *Cicindela* 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 *Otenostomæ* 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 *Cicindela* 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 *Otenostoma*, 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. Batesi*) 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 *Odontocheilæ* 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 suprâ creberrime subtiliter punctato-rugosis,

rubro-cupreis, lateribus viridi-æneis; capite inter oculos strigoso; elytris ut in O. cayennensi grosse creberrimeque punctatis, fusco-cupreis, lateribus viridi-æneis et cupreis, macula alba unica marginali; labro rufo; pedibus rufis, tibiis posticis pallidioribus, tarsis anticis late 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 *O. 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, mihi*; *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, triangulâri; suprâ vix inæqualibus, creberrime punctato-rugosis, rugis suturam versus 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.

PSEUDOCHEILA TARSALIS, n. sp. *Saturate-cærulea, elytris plaga magna atro-velutina, maculam parvam transversam pallide-ochraceam includenti ornatis; (♂) apice prolongatis, suturá in dentem latum recurvum productá; 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 irrecongnisable 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).

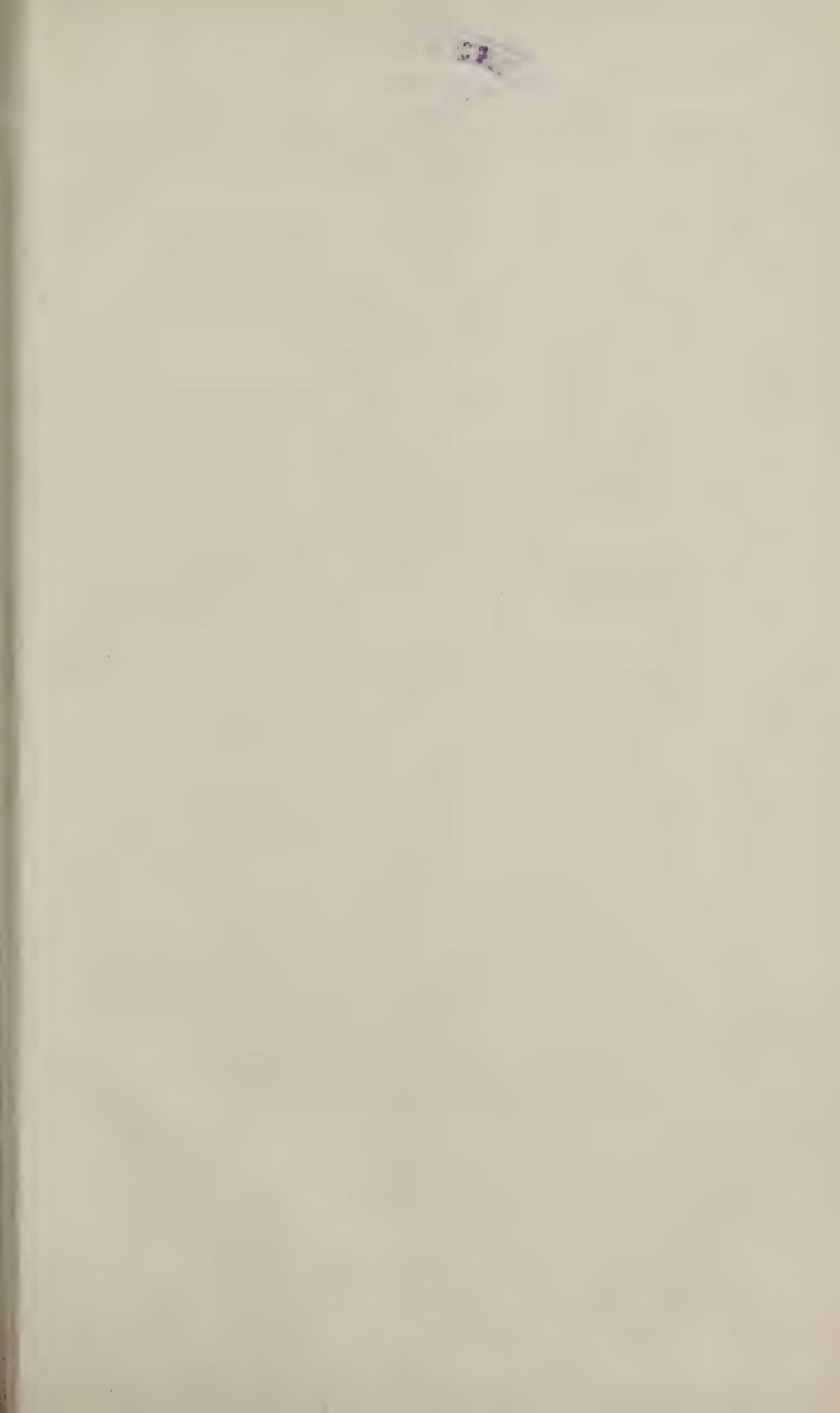
And again in group IV.

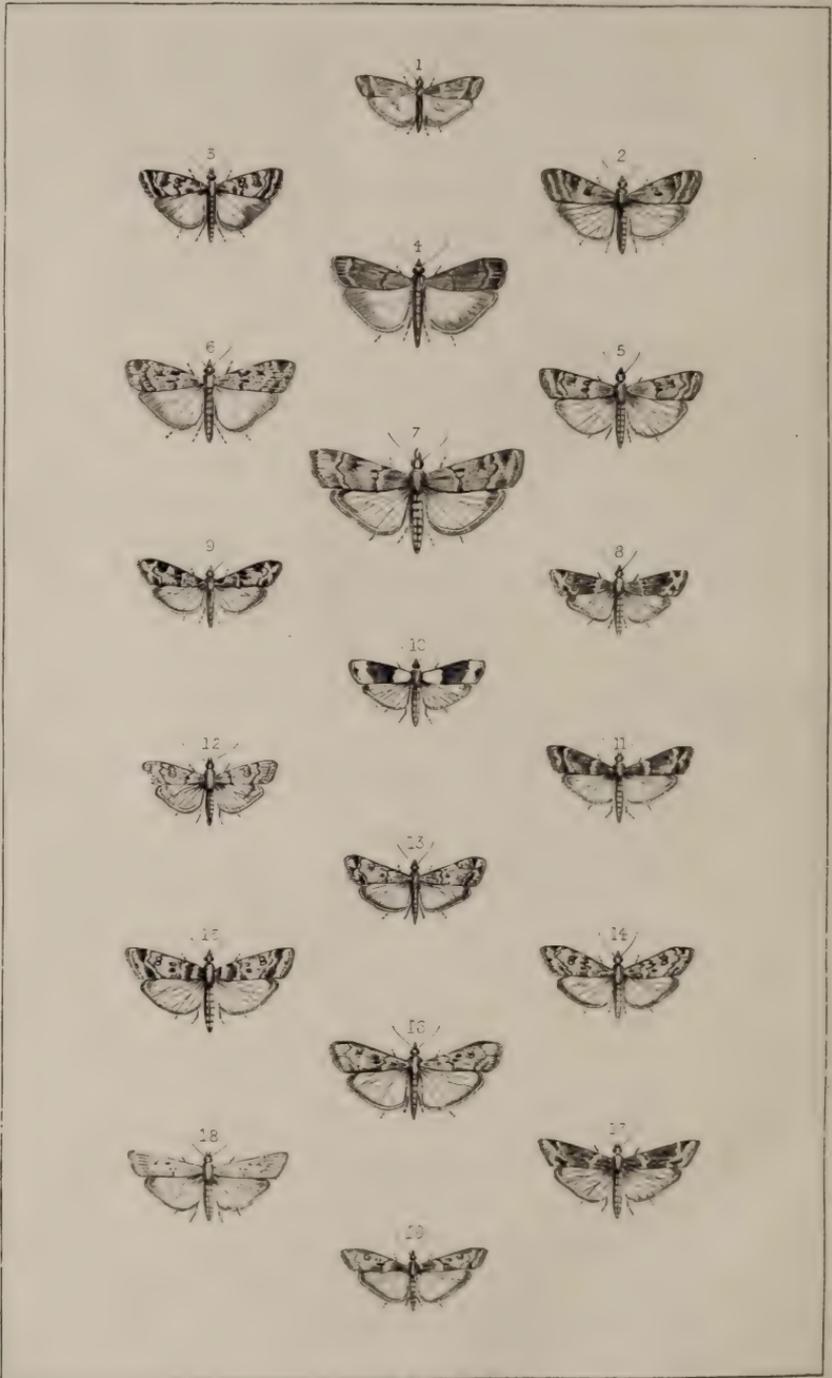
k. Orbicular dot-like (pl. fig. 18).

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.

- | | |
|-----|--------------------------------|
| 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. |

Fig. 11. *Scoparia mercurella*, Linn.

- | | |
|-----|---------------------------------|
| 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; *scapulæ*, *pleuræ*, and *parapleuræ* pale yellowish outwardly. *Legs* brownish; *thighs* paler at the base; *pale* 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*, *coxae*, *scapulae*, *pleurae*, 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 3½ 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 scapulae and pleurae black, the anterior tibiae swollen, the hairs of the posterior tibiae (? 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 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.

Cilia 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 *Cilia 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 Staudinger 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 stage.
- „ *rapæ* (L.).—Abundant.
- „ *napi* (L.).—Not common.
- „ *Daphnice* (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 rhamnii* (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 Phlæas (L.)—Very abundant; February and March.

Lycæna 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.

Cænonympha 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.

HETEROCEERA.

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-Gharbeea, 30 miles S. of Tangier, but, unfortunately, I had no opportunity of rearing them to the imago state.

NOCTUÆ.

Agrotis rorida (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.—Trovev 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, Standinger, 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. Standinger 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, Mountfield, 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.

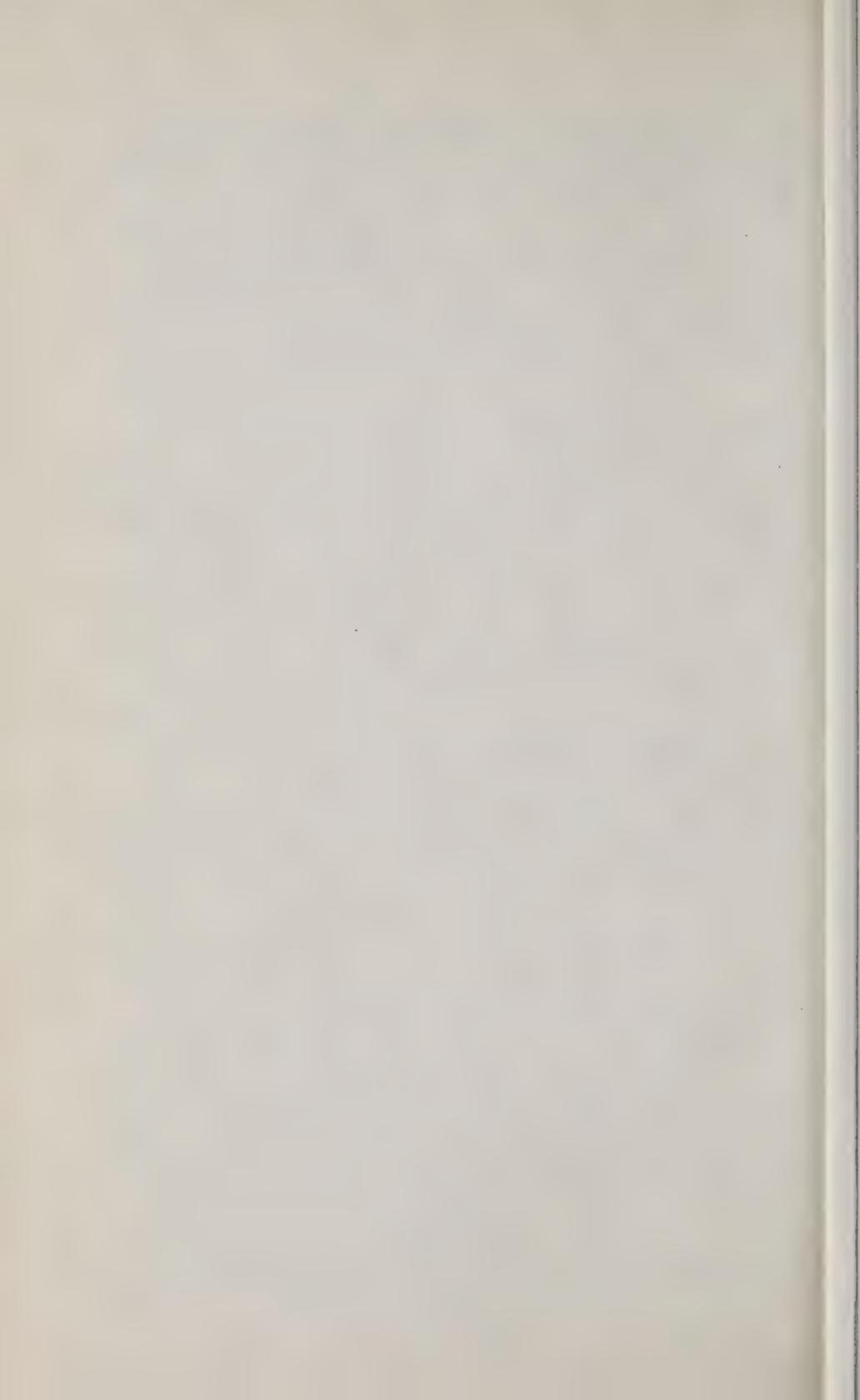
Mr. Druce exhibited two males of the very rare and magnificent *Papilio Zalmoxis* from Old Calabar.

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.



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