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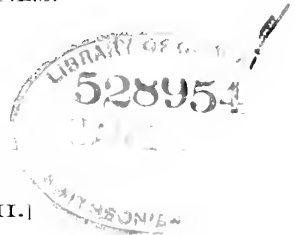
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“J’engage donc tous à éviter dans leurs écrits toute personnalité, toute allusion dépassant les limites de la discussion la plus sincère et la plus courtoise.”—*Laboulbène*.

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-

## E R R A T A .

- 
- Page 18, line 13 from top, *for* "High Beech" *read* "High Beach."  
 ,, 41, bottom line, *for* "hottentata" *read* "hottentota."  
 ,, 57, line 6 from bottom, *for* "entirely" *read* "easily."  
 ,, 58, ,, 4 ,, bottom, *for* "sufficiently" *read* "sufficiently."  
 ,, 59, first line of footnote, *for* "D. and R. F. Scharff" *read* "Dr. R. F. Scharff."  
 ,, 60, line 13 from top, *for* "casual" *read* "causal."  
 ,, ,, 17 ,, top, *for* "Stilopyga" *read* "Stylopyga."  
 ,, 76, ,, 17, 18 from top, *for* "filipes" *read* "pilipes."  
 ,, 101, ,, 7 from top, *delete* "sp. n."  
 ,, 223, ,, 18 ,, top, *after* "lycoides" *add* ", n. sp. [Brazil]."  
 ,, 229, ,, 11 ,, bottom, *for* "and a" *read* "and."  
 ,, 253, ,, 8 ,, top, *for* "xx" *read* "x."
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THE  
ENTOMOLOGISTS  
MONTHLY MAGAZINE.

EDITED BY

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VOLUME LIII.

[THIRD SERIES—VOL. III.]

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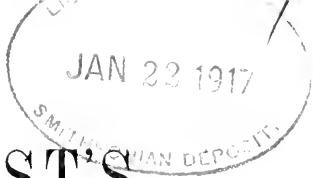
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THE

# ENTOMOLOGIST'S

# MONTHLY MAGAZINE:

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VOLUME LIII.

[THIRD SERIES, VOL. III.]

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NEW XYLOPHILIDS FROM AUSTRALIA, INDIA AND BORNEO.

BY G. C. CHAMPION, F.Z.S.

My friend Mr. H. J. Carter has recently sent me for determination four Xylophilids from the neighbourhood of Sydney: three of them are new, the fourth having been described by Blackburn; one of the former approaches a Bornean form figured in the 1915 volume of this Magazine. These insects arrived too late to be dealt with in my paper published in Part I of the Trans. Ent. Soc. London, for 1916, in which several other Australian and Indian *Xylophili* are described.

Mr. E. A. Butler has also brought me two *Xylophili* from S. India: one, from Mysore, is apparently a ♂ of *X. armipes* Fairm. (it having the anterior tibiae very sharply toothed at about the middle), the other being new. An interesting novelty found by Wallace in Borneo has also been unearthed at the Oxford Museum.

1.—*Xylophilus octomaculatus*, n. sp.

Moderately elongate, robust, rather broad, shining, clothed with decumbent, greyish hairs; black, the antennae obscure ferruginous (except at the base), the prothorax in great part rufescent, the palpi, tarsi, and elytral markings testaceous, the latter consisting of a humeral spot, an elongate, posteriorly acuminate patch between it and the suture, an oblique oval spot on the inner part of the disc below this, and an anteriorly angulate, transverse, sub-apical fascia (this latter extending forwards towards the median spot, but not quite reaching the suture), the coxae and the femora to near the tip obscure testaceous; the head and prothorax closely and rather finely, the elytra coarsely, punctate. Head very broad, narrowly extended on each side behind the eyes, the latter

extremely large and emarginate; antennae moderately long, not very stout, joints 4-10 slightly decreasing in length, 10 sub-transverse, 11 stout, acuminate-ovate. Prothorax much narrower than the head, transversely sub-quadrate, narrowed anteriorly, without definite foveae. Elytra rather long and broad, wider than the head, sub-parallel in their basal half, with a long, deep, oblique depression on the disc anteriorly, the groove extending forwards between the two basal spots, the inner one appearing to be placed upon an elongate callosity. Legs long [posterior pair wanting]. Length 3 mm. (♀?).

*Hab.*: NEW SOUTH WALES, Illawarra (*H. J. Carter*).

One specimen, labelled as not represented in Mr. A. M. Lea's collection. Readily distinguishable by the sharply defined, peculiar elytral markings. The posterior legs (wanting in the type) may be armed in some way in the male; but beyond the simply clavate femur, they exhibit nothing unusual in the same sex of the allied *X. abnormis* King (= *major* Pic).

2.—*Xylophilus flavescens*, n. sp.

Moderately elongate, shining, testaceous, the eyes black, clothed with short pallid hairs, closely, finely, the elytra more coarsely punctate. Head broad, transversely sub-quadrate, well-developed behind the eyes, the latter deeply emarginate, large, and separated by about half their own width (as seen from above) in ♂, smaller and more distant in ♀; antennae (♂) rather long, stout, joints 3-10 subequal in length, as long as broad, 11 obliquely acuminate, (♀) much shorter and less thickened, joints 8-10 transverse. Prothorax transversely sub-quadrate, convex, unimpressed on the disc, narrower than the head. Elytra wider than the head, moderately long, gradually narrowing from a little below the base in the ♂, sub-parallel in their basal half in ♀, obliquely depressed on the disc anteriorly in ♂, obsoletely so in ♀. Legs (♂) rather stout, long, anterior tibiae slightly curved, posterior femora thickened, arcuate, broadly sulcate and set with short hairs along their entire length beneath, posterior tibiae widened from about the middle to the apex, appearing sinuous within, basal joint of posterior tarsi feebly curved; (♀) shorter, the posterior femora and tibiae simple.

*Hab.*: NEW SOUTH WALES, Sydney (*H. J. Carter*).

One male and two females. An oblong, testaceous, rather coarsely punctate, shining insect, with stout antennae, an unimpressed prothorax, and a broad pubescent pad along the entire length of the posterior femora beneath in the male. Near *X. nigronotatus* Pic, from Ceylon, the elytra a little longer and immaculate, the head more developed behind the eyes, the posterior legs of the ♂ more elongate, with the femora less clavate and the tibiae widened within. The Australian forms included under *Syzeton* by Blackburn and Lea are allied insects; but there is nothing to distinguish them generically

from various other *Xylophilus* from other parts of the world. *S. immaculatus* Lea must be a different species.

3.—*Xylophilus sexfasciatus*, n. sp.

♂. Oblong, convex, shining (when denuded); the antennae, palpi, prothorax, and legs, and the elytra with a humeral spot, two common transverse fasciae (one before, the other beyond, the middle, neither reaching the outer margin), and the apex, testaceous or rufo-testaceous, the head, the rest of the elytra, and the under surface piceous or dark brown; variegated with close, fine, sericeous pubescence, which is almost wholly greyish, except on the infuscate portions of the elytra; closely, finely, the elytra a little more coarsely, punctate. Head not wider than the prothorax, the eyes small, distant, entire; antennae slender, rather short, joints 8–10 stouter than those preceding, sub-triangular, as broad as long, 11 obliquely acuminate. Prothorax convex, transversely sub-quadrate, unimpressed. Elytra oblong, wider than the prothorax, sub-parallel in their basal half, transversely depressed below the base. Legs long, slender; posterior femora moderately thickened, angularly dilated and flavo-ciliate towards the base beneath; basal joint of posterior tarsi feebly curved, barely half the length of the tibiae. Length (with head deflexed) 1½ mm.

*Hab.*: NEW SOUTH WALES, National Park, Sydney (*H. J. Carter*).

One male, in perfect condition. This minute species could be placed under the section *Syzetonellus* Blackb., type *S. alpicola*.\* It is, however, more nearly related to *X. egregius* Champ., from Borneo (*cf.*, Ent. Mo. Mag., LI, p. 287, pl. 20a, figs. 3, 3a, ♂). The elytra have three dark and three light transverse fasciae, and a pallid humeral spot. The angular, ciliate dilatation of the posterior femora is placed much nearer the base than the tooth in *X. egregius* (♂), and affords an example of yet another modification of the ♂ femoral armature.

4.—*Xylophilus gracilipes*, n. sp.

♂. Short, rather broad, somewhat convex, dull (till denuded), thickly clothed with very fine, sericeous, adpressed, cinereous pubescence; nigro-piceous, the anterior portion of the head, joints 2 and 3 of the antennae, and the prothorax rufescent; the elytra with a very large humeral patch (occupying about the basal third, but not reaching the suture), and a common, transverse, indeterminate, ante-apical fascia on the disc, testaceous; the basal halves of the tibiae, and the first joint of the intermediate and posterior tarsi, also testaceous; densely, minutely, the elytra more distinctly, punctate. Head broad, somewhat rounded at the base, obliquely narrowed and feebly developed behind the eyes, the latter small, slightly sinuate in front; antennae rather stout, moderately long, joints 2 and 3 very small, 4–10 widened, sub-triangular, about as long as

\* A male of this species from Sydney, sent me for identification by Mr. Carter, has the posterior femora strongly clavate, and the posterior tibiae dilated. In Mr. Bryant's collection there is a male of another Australian *Syzetonellus*, determined by Pic as a var. of his *S. sublongatus*, with the posterior legs formed very much as in *S. alpicola*.

broad, 11 obliquely acuminate. Prothorax narrower than the head, sub-quadrate, unimpressed. Elytra short, broad, rather convex, unimpressed, slightly rounded at the sides. Legs moderately long, slender, the posterior femora not much thickened; anterior tibiae slender, slightly bowed inwards at the tip, and armed with a conspicuous tooth at the inner apical angle; basal joint of posterior tarsi curved, fully half the length of the tibia. Length (with head extended) 2, breadth  $\frac{2}{3}$  mm.

*Hab.*: S. INDIA, Chikkaballapura in Mysore (*T. V. Campbell*).

One male, in good condition, recently received by Mr. E. A. Butler and presented by him to the British Museum. Not unlike *X. nilgiriensis* Champ., but with broader, more distinctly punctate, fasciate elytra, longer, stouter, almost black antennae, darker legs, etc. The imperfectly diagnosed *X. bipartitus* Pic, from Mahe, Malabar, may be an allied form.

5.—*Xylophilus latimanus*, n. sp.

♂. Oblong, robust, convex, widened posteriorly, shining (when denuded); piceous, the humeri reddish, the palpi, joints 2-4 of the antennae, anterior legs, intermediate trochanters, tibiae (in part), and tarsi, and joints 2-4 of posterior tarsi, testaceous; thickly clothed with fine, adpressed, sericeous, glaucous-grey pubescence, the elytra with a broad, common, transverse, fuscous median fascia; densely, finely punctate, the punctuation a little coarser on the elytra. Head broad, transverse, obliquely narrowed and considerably developed behind the eyes, the latter moderately large and separated by about their own width as seen from above; antennae rather elongate, slender, joint 3 longer and narrower than 4, 4-10 triangular, longer than broad, 11 obliquely acuminate. Prothorax about half the width of the elytra, as long as broad, sub-quadrate, slightly narrowed posteriorly and (as seen from above) obliquely narrowed in front; shallowly, transversely grooved across the middle, and with a transverse arcuate depression before the base. Elytra broad, widened to the middle and arcuately narrowed thence to the apex, the transverse post-basal depression deep. Legs elongate; anterior tibiae stout, curved; anterior tarsi with joint 1 as broad as the tibia, as long as 2 and 3 united, 2 short, rather small, 3 broad; intermediate tibiae compressed and slightly thickened towards the apex, appearing feebly sinuate within; posterior femora moderately incrassate, curved, simple; posterior tibiae compressed, and widened from near the base; joint 1 of posterior tarsi strongly arcuate, about twice as long as 2-4 united. Length 2½, breadth 1 mm.

*Hab.*: BORNEO (*Wallace, in Mus. Oxon.*).

One male, acquired in 1859. This insect has the general shape of *X. populneus* and its allies, but it is not very closely allied to any species known to me. The basal joint of the anterior tarsi is elongated and dilated as in many *Macratrīae*.

Horsell:

November, 1916.



DESCRIPTIONS OF TWO NEW SPECIES OF *CETONIIDAE*

BY OLIVER E. JANSON, F.E.S.

*Mycteristes tibetanus*, n. sp.

♂. Elongate, sub-depressed; brassy green, shining; prothorax bronze-green, opaque; elytra changing to reddish-testaceous in certain lights; pygidium bronze-brown, opaque; base of head with the outside of the horns, tibiae and tarsi bright coppery red; clypeus, extreme lateral and basal margins of the prothorax, scutellum, base of elytra and parts of the under-side tinged with coppery red.

Head short and broad, the lateral margins reflexed and produced into two nearly straight porrect horns, which are strongly carinate on their upper-side and separated at the base by a deep notch; on the inside they are connected by



*Mycteristes  
tibetanus*,  
n. sp.

an obtuse curved carina which forms a basal limit of the clypeus, and at their apex they are abruptly bent inwards; the clypeus is short, rounded, polished, and has two feeble prominences on the front margin; the forehead is strongly concave and has a sparse hirsute puncturation; the base and the outside of the horns are strongly punctured. Prothorax somewhat heptagonal, with a short basal lobe; slightly broader in the middle than long, convex, very finely and densely punctured at the sides and more sparsely on the disc. Scutellum large, with hirsute punctures at the base and apex and two slight, dull green, discal depressions. Elytra depressed,

much wider than the prothorax at the base, narrowed behind and separately rounded at the apex, each with two very feeble discal carinae, and a broad, shallow basal depression bounded outwardly by a short humeral carina; the entire surface, with the exception of the carinae and apical tubercles, covered with a fine strigiform puncturation, which is denser in the depressions, and with sparse yellowish-grey adpressed setae. Pygidium concentrically strigose, sparsely setose, and with a slight median impression towards the apex. The under-surface and femora closely strigose and rather densely clothed with long yellowish-grey pubescence, metasternum and abdomen closely punctured on the central part, the latter with a lightly impressed median line; mesosternal process small and linear; tibiae carinate and punctured, the anterior pair with a very small marginal tooth about one-third from the apex. Length (excluding the horns) 20 mm.

*Hab.*: S. E. TIBET, Vriantang (coll. Janson).

This very remarkable and distinct species approaches *khasiana* Jordan, in having two cephalic horns, but these are of a quite different form, and arise from the sides instead of from the apex of the head, as they do in that species. In this respect *M. tibetanus* bears more similarity to *Prigenia vollenhoveni* Mohm., and it seems very doubtful if the latter genus can be maintained. The great diversity of the male armature in this group should evidently be regarded, as it is in *Ontho-*

*phagus*, *Bolbocerus*, and other genera, as a specific rather than a generic character.

*Ischiopsopha violacea*, n. sp.

Elongate and depressed above; deep violet-blue, very shining, darker and inclining to black in some lights, antennae, palpi, tarsi and apex of the tibiae of a greenish tinge.

Head slightly widened in front, the side margins a little raised in front of the eyes, the puncturation very sparse at the base, closer on the disc, and becoming finer and more dense towards the apex, the clypeus very deeply notched and with the lobes sub-acute. Prothorax convex in front and somewhat flattened behind, very broad and almost as wide in the middle as at the base; strongly narrowed in front, the anterior angles produced and acute, basal angles rounded, basal lobe large and slightly emarginate at its apex, the disc and basal surface smooth, remotely punctured in front and towards the sides, the punctures closer and inclined to form striae towards the anterior angles, the lateral margins narrowly raised. Elytra sub-depressed, slightly narrowed to the middle and rather more strongly so behind, separately rounded and slightly reflexed at the apex, abruptly and strongly deflexed at the sides, the basal third or fourth either quite smooth or with indistinct rows of remote punctures merging posteriorly into a transverse striation, which becomes denser behind, but ceases at the apical callus. Pygidium transversely arcuate and sharply carinate at the apex, upper surface closely strigose, under-side concave and feebly strigose. Under-side of the body strigose on the pro- and meso-sternum, front of the meta-sternum, hinder part of the posterior coxae, and sides of the first abdominal segment; the rest of the surface smooth or very remotely punctured, a very finely striated stridulating convexity at the sides of the second, third and fourth abdominal segments, the first four segments with a large chalky-white spot on the exposed upper-sides; meso-sternal process long and gradually narrowed to the apex. Legs strigose and punctate, anterior tibiae in both sexes with two marginal teeth and the produced apex all acute, the four hinder tibiae with a thin fringe of black hair. Length 28-30 mm.

*Hab.*: LOUISIADÉ ARCHIPELAGO, Mount Rossel, 2100 ft. (coll. Janson).

This fine species most nearly resembles *I. durvillei* H. and J. in coloration and sculpture, but is of a more elongate and parallel-sided form, has a longer and narrower sternal process, and conspicuous stridulating prominences on the abdomen in both sexes; the elytra are also more strongly and abruptly deflexed at the sides, although not so sharply as in *I. virens* H. and J. The dozen specimens received from Mr. Meek show no variation in the peculiar coloration of the species.

Cestria, Claremont Road,

Highgate, N.:

December 13th, 1916.

## NOTES ON THE COLEOPTERA RECORDED FROM "RESIN ANIMÉ"

BY THE REV. F. W. HOPE.

BY G. C. CHAMPION, F.Z.S.

In the *Magazin de Zoologie*, 1842, pls. 87-89, the Rev. F. W. Hope described and figured three beetles found in "Resin Animé," no localities being given for any of them, nor any particulars as to the source of the resin itself, except the statement that one of the insects, *Monomma resinorum*, was perhaps from Mauritius—*Hab.: Forsitan in "Insula Cernensi."* A whole coloured plate was given for each beetle, all drawn by Westwood, and details of structure added. These *Coleoptera* have never been identified with existing forms, and are, in fact, omitted from the Munich Catalogue. A special search for them, or rather for the pieces of resin in which they are contained, has recently been made in the University Museum at Oxford, at my request, but only one [*Calcar (?) inhumatus*] can be found. The genus of this latter can now be definitely stated, and some remarks on the three insects may be of interest.

1.—*Monomma resinorum*, pl. 87. There can be no doubt as to the correct determination of this genus, *Hyporrhagus* being confined to America. The unusually large, shallow, seriatly-arranged foveae on the dorsal surface of the elytra, if not unduly magnified, as seen through the medium in which the insect is immersed, should render the identification of the species possible. Numerous very similar forms are found in Madagascar, S. Africa, the Philippines, Seychelles, etc.; but I have not come across one with the elytral foveae so large at the base. The structural details given by Westwood on this plate, as noted by him in pencil in a copy of the paper in the Hope library, were taken from other specimens in the Museum, one of which is there ticketed "Mad." (= Madagascar).

2.—*Megalocera rubricollis*, pl. 88. Hope did not mention the family to which this insect was to be referred, though a new generic name was used for it. To judge from the figures, *M. rubricollis* looks like an Oedermerid, but the very strongly serrate antennae resemble those of some of the Lagriids, among which Lacordaire placed the genus. The elytra are shown as strongly striato-punctate; the prothorax oblong-cordate, with acute, outwardly-directed hind angles; the intermediate tarsi 5-jointed (6 joints are clearly shown in the main coloured figure), and the posterior tarsi 4-jointed, both with broadly lobed penultimate joint; the apical joint of the maxillary palpi oblong-ovate, with

truncated apex. In the Fry collection at the British Museum, a Brazilian Lagriid, identified by him as *Lagriia collaris* Olivier, an insect roughly figured by that author, and no locality given, is placed under the generic name *Megalocera*; but it cannot be congeneric with Hope's species, and the identification with that of Olivier is incorrect.

3.—*Calcar* (?) *inhumatus*, pl. 89. There are two specimens of this insect preserved in one piece of resin, placed on the same line, whether viewed vertically or horizontally. One of them is in perfect condition, and shows, when examined at a particular angle, the stout triangular tooth at the apex of the anterior femur beneath, a character overlooked by both Hope and Westwood. This structure, combined with the form of the head, at once indicates the genus *Gonocnemis* Thomson (1858), which is placed by Lacordaire in his section "Meganthides" of the *Tenebrionidae*, numerous in species in Tropical Africa, east and west. It is not improbable that *C. inhumatus* could be identified amongst the material in the British Museum or elsewhere, if removed from the resin and cleaned.

From a study of these three beetles, it can be safely assumed that they are all E. African. "Resin Animé" is a recently-formed product, akin to gum copal, and the insects found in it may be referable to existing forms.

Horsell, Woking:

December 11th, 1916.

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[The name "Gum Animé" was originally applied to the resin of the Tropical American tree, *Hymenaea courbaril* (Nat. Order *Leguminosae*), and has been transferred to the product of the allied African *Trachylobium hornemannianum*. The latter resin is better known under the title of "Copal," as a basis for the finest kinds of varnish, and the most esteemed quality comes from East Africa, where it is found in a sub-fossil state over a large extent of country, the recent resin being of comparatively little value. At Zanzibar and other ports on this coast, pieces of "Copal" enclosing *Coleoptera* and other insects, often in a beautiful state of preservation, are commonly sold as "curios." The resin in which the Hope specimens are contained appears on examination to be true African "copal."—J. J. W.]

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OCCURRENCE IN ENGLAND OF *PARORNIX FINITIMELLA* Z.,  
A SPECIES OF *GRACILARIADAE* NEW TO THE BRITISH LIST.

BY F. N. PIERCE, F.E.S.

*PARORNIX* Spuler, 1910 = *Ornix* Tr., 1833 = *Ornix* Zeller, 1839  
—*finitimella* Zeller, Stett. Ent. Zeit., 1850, 162.

*Parornix finitimella* Zeller.

Genitalia. ♂. Valva pedunculate, the base being greatly extended, rounded above, pointed below, and narrowing before expanding into a somewhat ovate valva, *sharply pointed ventrally*; sacculus broad, quickly tapering to a point, free. Uncus not produced, the soft upper tegumen bearing in its place two or three hairs. Aedoeagus sigmoid, pointed at its apex. Saccus produced from two emarginations of the lower tegumen. Eighth segment produced ventrally in a long rounded flap, which *in situ* covers the internal part of the genitalia.

♀. Ovipositor not lobed, clothed with short spines. The rods of both eighth and ninth segments *very short*. Ostium *without* thickened ductus bursae, protected at either side by a stout projecting plate. Ductus bursae weak, long, ornamented with rounded spots before reaching the bursa. Bursa with two scobinate signa at its junction with the ductus.

*Type*: ♂, Zeller Coll., Mus. Wlsm., in British Museum; taken at Glogau, July 25th, 1842.

*Hab.*: GERMANY, Glogau (Zeller), ♂; Jena (Zeller), ♀. ENGLAND, Mucking, Essex (Burrows, 1916), ♂; Colchester (Harwood), ♂ (*ex Finchan Coll.*) 2 ♂♂, 2 ♀♀; Essex (Whittle) 2 ♂♂, 2 ♀♀; Hartlepool (John Gardner), 10 ♂♂, (?) Locality (Pierce Coll.), 2 ♂♂, 1 ♀.

This species has been found in collections mixed in series of *P. anglicella* and *P. torquilella*. Through the kindness of Mr. J. Hartley Durrant I have been allowed to examine the genitalia of the series in the Zeller collection. This consists of six specimens, comprising three species:—

- |  |   |
|--|---|
| 1. ♂— <i>finitimella</i> Type.   | 4. ♀— <i>avellanella</i> .              |
| 2. ♂— <i>sp.</i> (?) new to me, probably<br>a known Continental species. | 5. ♀— <i>sp.</i> (?)                    |
| 3. ♂— do.  | 6. ♀—probably ♀ of <i>finitimella</i> . |

There is no mistaking the type, as it is carefully labelled with the exact date and locality referred to by Zeller.

Stainton, in his "Natural History of the *Tineina*," Vol. VIII, 1864, p. 296, in speaking of *P. anglicella* 52 years ago, says "perhaps these specimens bred from sloe, should be referred to *finitimella*."

But apparently this has not been proved until now. The projecting point on the ventral edge of the valva should enable anyone to separate the male *finitimella* from any of the existing British species.

I am also greatly indebted to Messrs. Alfred Sich and E. Meyriek for their kind help; to John Gardner, A. C. Vine, B. S. Harwood, T. Ashton Lofthouse, W. Mansbridge, F. G. Whittle, and the Rev. J. W. Metcalfe for loan of specimens; and, lastly, to my old friend, the Rev. C. R. N. Burrows, for sending me the poor little scaleless specimen he captured in his garden, which has led to the discovery that *P. finitimella* really occurs in England.

The Elms, Dingle, Liverpool:

November 19th, 1916.

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ON A NEW SPECIES OF *PSAMMOCHARES* (OR *POMPILUS*)  
IN ENGLAND.

BY R. C. L. PERKINS, M.A., D.Sc.

In the summer of 1897, I captured, in the Forest of Dean, a black *Pompilus*, superficially like *P. nigerrimus* Scop., but which on examination proved to be an extremely distinct species. Not long afterwards, I sent the insect, a ♂, to Mr. Edward Saunders, who informed me that he knew nothing like it. Still, he did not care to describe it. This specimen, with a description, which I drew up, passed to the Cambridge Museum with my earlier collections, but some time since, Mr. Hugh Scott allowed me to take it away for comparison with the European species in the British Museum, and for the purpose of publishing the description, if new.

As it happens, the British Museum has lately acquired a pair of this same species, bred from cocoons found in Middlesex by Mr. K. G. Blair, who has supplied the following note:

“On May 5th, 1912, at Stanmore, I found, on splitting some dead thistle stems of the previous year, two series of Hymenopterous cocoons. These were elongate-oval, about 9 mm. long and 3.5 mm. broad near the broader end. They are of a brownish testaceous colour, with a darker tip to the narrow end. The tip appears to be composed of débris, and not to form part of the cocoon itself. There were seven or eight of the cocoons in each stem; the burrow, as is usual with insects of this family, being stored with spiders (*Clubionidae*). The insects emerged on June 2nd, exit from the cocoon being effected by cutting off a lid at the broader end.”

The following description of the ♂ was drawn up from the Forest of Dean specimen.

*Pompilus cardui*, sp. n.

Male with the pronotal emargination distinctly less sharply angular than in *nigerrimus*, and the propodeum with longer and more conspicuous hairs. Front wings with the third transverse cubitus not meeting the second at or before its apex, but received in the radius well beyond the second. Inner calcar\* of the middle and hind tibiae shorter than in *nigerrimus*. Fourth and fifth ventral segments of the abdomen distinctly depressed and bearing a dense and special clothing of hairs, so as to be quite unlike the preceding segments; the fifth conspicuously emarginate at the apex. The eighth segment is wide and flattened, ciliated at the apex, and obsoletely or obscurely carinated in the middle, at least in some aspects. Tarsal spines feebly developed, so that the species probably nests in holes under bark of dead wood rather than in the soil.

The female is far more similar to *nigerrimus* than is the ♂, but it may be distinguished by the less sharply angular emargination of the pronotum, as in the other sex, and the spines of the middle and hind tibiae and metatarsi are less conspicuous and much shorter. The neuration is similar to that of the ♂, but I have seen aberrant ♀♀ of *nigerrimus* hardly differing in this respect, and while the latter usually has the propodeum less hairy, I cannot at all satisfy myself that it is so in all examples.

Freshly emerged examples have the wings comparatively subhyaline with a well marked dark border apically, but in older ones they become dusky throughout.

It is very remarkable that this species, the ♂ of which could only by carelessness be confused with any of our other black-bodied species, should not have been previously noted in this country. It is, of course, quite possible that it may be identical with some described Continental species, but I cannot identify it with any certainty, nor have I found it amongst the European black-bodied species in the British Museum, most of which are unnamed.

*Hab.*: GLOUCESTERSHIRE, Forest of Dean, ♂; MIDDLESEX, Stanmore, ♂ ♀, bred by Mr. K. G. Blair.

Paignton:

November, 1916.

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\* Since the above was written, I find that in some examples, which apparently are *nigerrimus*, the calcar varies in length, sometimes extending all but to the apex of the metatarsus, but in others, falling considerably short of this!

*NOMADA BUCEPHALAE* n. n. FOR *N. LATERALIS* SM. (NEC PANZ.),

AND NOTES ON *N. CONJUNGENS* H.-SCH.

BY R. C. L. PERKINS, M.A., D.Sc.

After a careful study of Panzer's figures, I am satisfied that his *N. lateralis* is quite distinct from the species called by the same name in F. Smith's works, and in all probability it was the well-known parasite of *Andrena praecox*, which Kirby had previously described as *N. xanthosticta*, and Smith subsequently as *N. bridgmaniana*. *N. lateralis* Sm., which is a distinct species and not a variety of *N. ruficornis* as E. Saunders supposed, may be called *N. bucephalae* after its special host *Andrena bucephala*.

Recently, through the kindness of Prof. E. B. Poulton, I have been able to examine some of the more difficult species of British bees in the Hope department of the Oxford Museum. In sorting out the various forms mixed up under the names of *N. ruficornis* L., *flavoguttata* K., and other species, I found a series of about a dozen examples of *N. conjungens*, the females mostly placed under *flavoguttata*, but the three males under other names. I had previously discovered this species amongst some unmounted insects in Devonshire, taken at the beginning of June, 1916, but not by myself. It is probable, therefore, that this *Nomada* will be found in most localities where *Andrena proxima* occurs regularly.

I have also since examined the single male example in the British Museum collection referred to by Mr. Morice (Ent. Mo. Mag., LII, p. 227) which entirely agrees in all important points with the British specimens at Oxford, these latter being from the Chitty collection.

Mr. Morice has (*l.c.*) given the characters, which have been used to distinguish the ♀ *conjungens* from that of *flavoguttata*. The smaller average size of the latter is evident, when a series is compared, but the form of the body seems to me to be the same in both species, provided that the segments of the abdomen are in the same state of extension or retraction. The real, and, so far as I can see, probably the only certain difference between the females of the two species is found in the clothing of the propodeum. In well preserved examples of *flavoguttata* the hairs form two dense and conspicuous snow-white patches, an adornment readily visible to the naked eye, but in *conjungens* the propodeum is sometimes nearly glabrous, even in fresh examples; or, if it bears numerous hairs, these are longer and less conspicuous than in the common and allied species. As a rule the



mesopleural red markings of the thorax are less extensive in the larger species.

The male of neither species has a specialised clothing of hairs on the propodeum (such as is seen in the female of *flavoguttata*), but they greatly resemble each other. In typical examples, both the scape of the antennae in front (as well as behind) and the labrum are black, or almost so, in *flavoguttata*, and even if the labrum is largely yellow, the scape is generally black in front. In *conjungens* neither the labrum nor the front of the scape is black. But examples of *flavoguttata* are sometimes found with both the scape (in front) and the labrum pale, and then the resemblance to small examples of *conjungens* is extreme. Fortunately, one slight, but in *Nomada* very important, character remains to differentiate the species. In *flavoguttata* the posterior surfaces of the front and middle femora are much more conspicuously clothed with hairs, so that, viewed from in front, in certain aspects, these have a distinct and fairly long fringe of hairs beneath, but in *conjungens* these fringes are almost entirely absent, though on close inspection very short hairs may be seen, and on the front femora a few longer ones. Still more easily may *conjungens* be separated by this character from any of the *ruficornis* group, some species of which it greatly resembles superficially, though not really allied to them. I believe the genital armature is practically the same as that of *flavoguttata*.

All the specimens taken by Chitty were labelled "Huntingfield" [Kent] and some at least were captured on the same day as examples of *Andrena proxima*, its host. The dates of capture are in the last week in May, and the first half of June.

Paignton:

November, 1916.

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*Wicken Fen.*—The Council of the National Trust appeals to naturalists interested in the preservation and upkeep of Wicken Fen to assist to defray the expenses of the Watcher who guards the property against abuse, and performs the duties of Forester generally. As entomologists, we are, perhaps, more concerned for the integrity of the fenland than any other workers in the field of Science. I am asked, therefore, to invite subscriptions and donations for the purpose indicated. The amount required is not large, and I shall be happy to receive contributions, however small. Cheques and postal orders should be crossed "London and South Western Bank, Bloomsbury Branch, Wicken Fund," and made payable to me.—H. ROWLAND-BROWN, Hon. Treasurer for Wicken Fund, Oxhey Grove, Harrow Weald.

*Coleoptera, Hemiptera, etc., in Devonshire.*—During July and August last I had numerous opportunities for collecting in Devonshire, at Budleigh Salterton, Exmouth, Dawlish, Bridestowe, Lydford, etc., but there are few captures of any note to record. At Exmouth, *Ochthebius metallescens* var. *poweri* was still to be found in plenty, and *Lesteva fontinalis* and *pubescens* sparingly, under the conditions noted by me in 1915 (cf. Ent. Mo. Mag., LI, pp. 299, 309). Omitting most of the insects recorded by me from that locality (*l.c.*), the following may be mentioned: *Bembidium punctulatum*, *decorum*, *atrocaeruleum*, and *tibiale*, *Homalota currax*, *pavens*, *longula*, and *jallax*, *Tachyusa constricta*, *Limnius tuberculatus* and *troglydites*, *Elmis volkmari*, *Paramecosoma melanocephalum*, *Cryptohypnus dermestoides*, etc., in the shingly bed of the River Otter, and *Gastroidca viridula*, abundant, in all its stages, on *Rumex*, on the banks of the same river, Budleigh Salterton. *Helodes minuta*, with its larva, *Myllaena kraatzi*, *Lesteva punctata*, *Ochthebius bicolor*, *Helophorus aequalis*, *Georyssus*, etc., in the trickles of water on the cliff face, Exmouth. The beautiful Dolichopid fly, *Liancalus virens* Scop., was also to be seen sipping the trickling water at this locality. *Ancyrophorus aureus* and *omalinus*, sometimes together under the same stones, in a small, nearly dried-up stream, and *Ocalea castanea*, beneath damp leaves, Harpford Wood. *Orthochaetes insignis*, *Gronops lunatus*, *Centhorrhynchus euphorbiae*, *Helophorus nubilus*, *Amara tibialis*, etc., Woodbury Common. *Cteniopis sulphureus*, abundant on flowers of *Armeria*, *Oncomera femorata* on ivy, *Anchomenus prasinus*, one specimen with abbreviated rounded elytra, in company with many of the ordinary form, *Lunprosoma concolor*, Budleigh Salterton. *Phytosus nigriventris*, *Diglotta*, *Saprinus maritimus*, *Crepidodera impressa*,\* Dawlish Warren. *Carabus arvensis* and *catenulatus*, *Pterostichus aethiops*, *Patrobus excavatus*, *Bradycellus similis*, *Agabus guttatus* (dark form), *Helophorus aeneipennis*, *Ocyusa incrassata*, *Homalota eremita*, *Amischa* sp. (?), ♂ ♀ (perhaps different from any of the *analis*-group on the British list), *Myllaena kraatzi* and *brevicornis*, *Stenus nitidiusculus*, *Oxytelus rugosus* var. *terrestris*, *Lesteva pubescens*, *Scydmaenus elongatulus*, etc., in *Sphagnum* in the bogs, or in moss on the Tors, on the moor, and *Pachyrrhinus comari*, Bridestowe. *Orectochilus*, *Dianous*, *Hydraena gracilis*, *Lesteva fontinalis* and *pubescens*, Lydford Gorge. Amongst the Hemiptera the following are perhaps worth noting, the Capsids with few exceptions being widely distributed insects: *Salda scotica* and *littoralis*, and *Cryptostemma alienum*, on the banks of the Otter. *Teratoris saundersi* (cf. Ent. Mo. Mag., 1916, pp. 255–257) and *antennatus*, *Calocoris sexguttatus*, *Oncognathus binotatus*, *Dicyphus constrictus*,\* *errans*, and *annulatus*, *Campyloneura virgula*, *Aetorrhinus angulatus*, *Mecomma ambulans*, *Cyrtorrhinus caricis*, *Macrotylus paykulli*, *Amblytytus affinis*, Budleigh Salterton. *Salda c-album*, at Tavy Cleaves, *Monalocoris filicis*, by sweeping fern, and *Hebrus ruficeps*, *Agalliastes wilkinsoni*,\* and *Delphacinus mesomelas*, in *Sphagnum*, on Links Tor, etc., Bridestowe. A great deal of time was devoted to the examination of *Sphagnum* in the peat bogs, and drier moss on the Tors, on Dartmoor, but with no better results than stated above. Cranmere Pool, reached after a long tramp across the heaths and bogs, was completely dried up in August, it being then nothing but a large depression in the peat, almost devoid of vegetation. Nothing better than *Patrobus excavatus* and *Pterostichus nigrita* were seen during

the short time spent there, necessarily curtailed by threatening mists. Doubtless earlier in the season it would yield a few interesting insects, as *Narthecium* and other plants grow freely in the bogs above it. The species marked with an asterisk are probably additions to the County list.—G. C. CHAMPION, Horsell, Woking: November, 1916.

*Claviger longicornis* Müll. in Glamorgan. On October 8th I found a large colony of the ant, *Donisthorpea (Lasius) umbrata* Nyl., beneath a large flat stone at Sully, near Penarth. On the under-surface of the stone were great numbers of winged females, and running among these I found four examples of the beetle *Claviger longicornis* Müll. Further visits to the nest proved fruitless, and by the 22nd the ants had all disappeared below ground. The nest also contained the mite, *Sphaerolaelaps holothyroides* Leon., in some numbers—H. M. HALLETT, 64, Westbourne Road, Penarth: December 6th, 1916.

*Lytta vesicatoria* L. in Norfolk.—It may be of interest to record that two Norfolk specimens of *Lytta vesicatoria* have recently come into my possession. On June 6th last, Mr. H. Dixon Hewitt, of Thetford, sent me a living example which he had just captured in that town in a spider's web. The second one was given me by Mr. J. S. Warburton, who took it at Methwold, in the same neighbourhood, on June 13th, 1914. It has previously occurred in this county, but there is no record of its capture here for very many years.—H. J. THOULESS, Corfe, College Road, Norwich: November 23rd, 1916.

*Psylliodes cyanoptera* Ill. at Thetford.—I am able to record an additional locality for this rare beetle to those mentioned by Mr. Donisthorpe in his recent note on the species (*Ent. Mo. Mag.*, LII, p. 204), as I captured a solitary specimen by general sweeping at Thetford, on August 7th, 1911. Unfortunately I did not recognise the beetle until I reached home, and therefore made no search for further examples.—H. J. THOULESS: November 23rd, 1916.

*A note on Coleoptera found in two consecutive bags of Thames flood rubbish.*—On the 7th and 8th inst., there was a considerable rise in the Lower Thames, and on each of these consecutive days I took a small bag of rubbish from the same spot. This rubbish was collected by sweeping along in the very margin of the rising water with a water net, and when full, tying a string round the bag of rubbish thus obtained, and putting it through  $\frac{1}{2}$ -inch sieve on returning.

First day.—Nature of rubbish, almost entirely small pieces of grass as found in the box of a lawn-mower. Quantity of rubbish proportionately small, the water having only just risen over the fields. Almost every blade of grass had its marooned inhabitants, and thistle stems were absolutely black with *Staphylinidae*. Number of beetles proportionately tremendous, the rubbish literally swarming with insect life. Beetles taken—*Hypera punctata*, *Chrysomela staphylaea*, and *Phaedons*, several specimens. *Eirirrhinus acridulus*, *Longitarsi* (especially *jacobaeae*), and *Apions* in abundance, an uncountable mass of *Staphylinidae*, and many *Cercyons*.

Second day. — Nature of rubbish, mixed sticks, leaves, grass, etc., great and small. Quantity of rubbish proportionately much greater, the water having been “out” for 24 hours. Number of beetles comparatively small, casual examination of the rubbish showing only a few crawling here and there. Beetles taken—*Ilybi*, *Aphodii*, and small *Carabidae* in moderate abundance, and a large number of *Staphylinidae*, but a number infinitesimal as compared with those seen on the previous day.

Observations.—While the water is rising, and has just come over the fields, is the best time for the Coleopterist to hunt, since the marooned insects disappear in a marvellous manner in 24 hours or less.

*Staphylinidae* in flood-rubbish are, like the poor, always with us, but whereas, on the first day of the rising flood, phytophagous *Coleoptera* are much in evidence, their place is taken on the second day by onthophagous beetles and their predaceous brothers (both ‘wet bobs’ and ‘dry bobs’). Is there more than coincidence in the synchrony of the disappearance of the plant feeders with the appearance of the predaceous beetles?

Two other points on flood-rubbish hunting:—Firstly, when in the field I follow Nature’s Entomologists—the starlings—who are epicures, and from whose discordant gossip one may learn where the best ‘restaurants’ may be found. Secondly, the local tinsmith has made me a useful apparatus for this work by fixing a handle on each side of an ordinary biscuit tin, from which he had cut away the bottom and substituted half-inch wire gauze. In this simple box, when the lid is on, the rubbish, being capable of extra vigorous shaking, may be dealt with in greater quantity and more rapidly.—F. THOMPSON, River Bank, Sunbury-on-Thames: Nov. 11th, 1916.

[My personal experience with flood-rubbish agrees with that of most collectors, including Dr. Thompson, in that I find it most productive by far if it is taken when the water has just reached its maximum height. This is especially the case with a spring or summer flood, as the beetles then disappear very quickly when the water recedes; but in winter the rubbish often repays examination for several weeks after being deposited (*cf.* Ent. Mo. Mag., Vol. XXXIV, pp. 56, 57; Vol. XXXV, pp. 57–60, 115). Certain species, however, seem always to leave the refuse almost at once. A rapidly rising flood is much the most remunerative, a slow rise giving the insects time to get away. My own practice is to bring home a large bag of the less coarse refuse, to allow it to dry for several days (with the mouth of the bag securely tied up, of course), and to work it first through a sieve of quarter-inch mesh into another bag, and these siftings again over paper, in very small quantities at a time, through one of about ten meshes to the inch. In this way the numerous very minute and often desirable beetles present may be readily detected.—J. J. W.]

*Vanessa urticae* in Upper Teesdale and at Hart.—Referring to Dr. Chapman’s remarks on *V. urticae* in Ent. Mo. Mag. (LII, pp. 186, 207, 1916), the following note may be of interest. I spent from July 4th until the end of the month at Egglestone in Upper Teesdale. It is a very hilly country, and I was unable to get about very much, but in the short walks I was able to take *V. urticae* was

strongly in evidence, larvae from quite small to fully grown being abundant. I was informed that the previous winter had been a severe one, snowstorms commencing in November, and the weather continuing with more or less severity until about Easter, finishing with a late spring; here on the coast, where we had a mild, open winter, with very little frost, only one or two hibernated specimens were seen flying about the garden in the spring, but not a single larva was observed during the summer. I am quite in agreement with Dr. Chapman, and have long held the opinion that severe winters with plenty of frost are preservative of insect life by ensuring complete hibernation and preventing the waste of vitality occurring in mild open winters by the insects, especially larvae, coming out of hibernation upon mild sunny days, wasting their strength, and moreover running the risk of being gobbled up by hungry birds.—J. GARDNER, Laurel Lodge, Hart, West Hartlepool: *October 23rd, 1916.*

*A note on Vespa sylvestris.*—During the past summer I received a good-sized nest (measuring about eight inches in diameter) of this wasp, which had been constructed in an empty beehive—probably a rather unusual situation—at Newnham, Cambridge. The base was attached by a number of papery walls and pillars to a flat board from which the nest hung. Between July 24th, when it was brought to the Museum, and August 21st, 58 males and 191 queens, but not a single worker, emerged from the nest. By August 17th emergences had become very few, and August 21st was the last day on which any occurred. These figures may have some interest as indicating the number of males and queens produced by a colony, but I do not think they represent the full amount, as emergence of those forms had probably already begun before the nest was brought in.—HUGH SCOTT, University Museum of Zoology, Cambridge: *November 29th, 1916.*

*Two interesting ants in Essex.*—Whilst searching for *Coleoptera* at Billericay, Essex, on October 8th, 1916, I discovered a colony of the rather scarce ant, *Leptothorax nylanderii* Först., under the bark of a fence alongside the railway. The particular post chosen by the ants was in a state of decay, owing to the repeated attacks of *Coleoptera*, chiefly the Anobiid *Ptilinus pectinicornis* and the Longicorn *Clytus arietis*. The ants had chosen the base of the post, utilising the disused burrows of the latter beetle for their nest, having increased the size by tunnels evidently of their own make. Of the insects visible on removing the bark, the majority were winged females, only one dealated female and one winged male being seen. Not knowing that my captures were of interest, I only selected three specimens for preservation, and these are now deposited in the collection of the British Museum (Natural History). On revisiting the place a fortnight later, I found no ants at all. Evidently the disturbance, together with their exposure to rather severe weather, had caused them to desert their nest. This species has previously been recorded from Essex, from Ardleigh, in the Colchester district.

The other species whose capture I wish to record, is the little *Formicoxenus nitidulus* Nyl., two examples of which were found at Hockley, Essex, on

November 5th, in nests of *Formica rufa*. These two were the only ones seen, although I examined the contents of two nests. For the identification of both species I am indebted to Mr. Donisthorpe.—HAROLD E. BOX, 55, Baxter Avenue, Southend-on-Sea, Essex: November 15th, 1916.

*Raphidia xanthostigma* Schumm. in Middlesex and Essex.—Amongst a number of miscellaneous insects collected by myself during 1915 were two examples of this uncommon Snake-fly. One of these, a male, was taken at Pinner Hill, near Northwood, Middlesex, on May 24th. It was the only specimen retained from about a dozen seen resting on the bark and leaves of oak and willow trees on the edge of a brook. Two days previous I had been fortunate in capturing a single female in Epping Forest. This specimen was beaten from undergrowth of bramble, etc., in Fairmead Thicket. On June 18th of the following year, whilst searching for *Coleoptera* under beech bark at High Beech, Epping Forest, I found a nearly mature snake-fly larva. On disturbance it exhibited its characteristic habit of running backwards with its head waving from side to side, and rapidly disappeared in a burrow in the bark. On splitting open the piece of bark the creature fell out and was captured. This larva was killed and mounted, and has since been submitted to Mr. K. J. Morton, through whose kindness the two imagines were determined. Mr. Morton was of the opinion that it also was *R. xanthostigma*, but suggested a comparison with Waterhouse's figures and description of the larva of *Raphidia ophiopsis* Schumm. (Trans. Ent. Soc. Lond., I, 1836, p. 23). I have dissected out the mouth parts, and they agree with Waterhouse's figures. McLachlan, in his "Monograph of the British Neuroptera-Planipennia" (Ibid., 1868, p. 159), says with regard to *R. xanthostigma*: "It is the species to which Mr. Waterhouse's account of metamorphosis will apply, according to his type." I believe that it is unusual for the larvae of *Raphidia* to inhabit beech trees, but Mr. Morton is inclined to think that the insects are more particular as to the condition of the bark and wood than to the species of tree. My larva was taken from a tree which had been felled for some years, but although damp and fungoid in places, the wood was quite sound. I had some little difficulty in removing the bark from the part from which the larva was taken.—HAROLD E. BOX: December 5th, 1916.

*Calliphora vomitoria* captured by an oyster.—About the middle of last September, on opening an oyster from a small consignment that had been sent to me from Whitstable, I was much surprised to observe a large "blow-fly" (*Calliphora vomitoria*) struggle out from between the shells as soon as the oyster knife had cut the adductor muscle. The fly was sufficiently strong for flight, and immediately flew to the nearest window, where it was captured. Examination showed it to be a large female fly and quite unhurt. When the shells were separated a number of eggs of this fly were visible on the upper side of the oyster, but none had so far hatched. Unfortunately, although the fly and oyster were covered by a bell jar, both were lost by a meddling servant before it could be ascertained whether the eggs were viable and would hatch.

Oysters have been recorded as "capturing" many inhabitants of their own domain, and even the feet of shore wading birds have been imprisoned

between the shells, when they have inadvertently been placed in an "open" oyster, but I have never previously heard of a fly meeting this fate.

Obviously, in this case, the incident must have occurred after the oyster was brought ashore. Apparently for some reason the mollusc must have opened its shells, and the fly have seized the opportunity of giving its progeny a specially dainty pabulum. It is difficult to explain, however, how such a blundering and large fly as *Calliphora*, once it got inside, did not stimulate the oyster to close its shells immediately, and I can only imagine that the shells were very gently shut while oviposition was well under way. With the shells closed it is surely only good fortune on the part of the fly that it was not killed, but possibly being well within it was crushed between the shell and the soft body of the oyster, and remained in that position until released by the oyster-knife. The question arises: how long did the fly endure such imprisonment and yet be capable of flight? On this point the only answer I can give is that the oysters were boxed and in transit for 24 hours, while this particular oyster was not opened for two days after arrival in London.

A letter to the Whitstable oyster fisheries asking for particulars of the methods adopted in regard to the storage of the oysters and the time that usually elapses before consignment to customers has brought no reply—probably on account of the managers interpreting the occurrence as a slur upon their methods of dealing with their wares!

Although the eggs had not hatched up to the time when they were last seen, I see no reason to suppose that they would not have done so ultimately, even in the presence of the salt fluid surrounding the body of the oyster, as two years ago in Boston, where I happened to be breeding large numbers of *Calliphora* for work on experimentally induced myiasis, it was the practice to feed the larvae on a variety of diet including dry salt fish.—MALCOLM EVAN MACGREGOR, B.A. (Cantab.) (Wellcome Bureau of Scientific Research), 10, Henrietta Street, London, W.: November 1st, 1916.

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## Obituary.

*Dr. Bertil Robert Poppius*, the Finnish entomologist, died at Copenhagen on November 27th, aged only 40 years. During many years he studied *Coleoptera*, and has published numerous papers on Siberian and North European forms, but later he began to study the Hemipterous families *Capsidae* and *Anthocoridae*. His most important works are:—"Monograph of the holarctic sub-genus *Cryobius* (*Carabidae*)," and his great "Monograph of the Ethiopian *Capsidae*" (2 Vols., 1912-1914). One paper by him, entitled "Contributions to the knowledge of the Coleopterous fauna of the Shetland and Orkney Islands" (*Öfv. Finska Vet.-Soc. Förh.*, 47, 1905), dealt with British insects.—E. BERGROTH, Jämsä, Finland: December 3rd, 1916.

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## Societies.

YORKSHIRE NATURALISTS' UNION: ENTOMOLOGICAL SECTION.—The Annual Meeting of the Entomological Section of the Yorkshire Naturalists' Union was held at Doncaster, by invitation of Dr. CORBETT, on November 4th, 1916. Prof. GARSTANG, M.A., F.Z.S., of Leeds, the President of the Section, occupied the chair at both the afternoon and evening meetings.

The former was held in one of the rooms of the Doncaster Museum, where the collection of local insects made by Dr. Corbett was laid out for inspection. The attendance, although not so large as in previous years, was very fair considering the crisis through which the country is passing. The Reports of the various Committees were read. These showed that good work had been done in most orders, more particularly in *Coleoptera*, *Diptera*, *Hymenoptera*, and *Arachnida* (which for convenience is attached to the section). A number of interesting specimens were exhibited. A collection of *Coleoptera* made from 50 to 70 years ago by the late C. W. Simmons, of York, was shown by Mr. W. Hewett. A fine ♀ specimen of *Monochamus sutor* L., taken in a woodyard in Huddersfield, was exhibited by Mr. Cocker. *Leptura sanguinolenta* L., a ♀ taken at Barnsley by Mr. E. G. Bayford. Dr. Fordham exhibited a number of interesting and rare species, including nine new to the county, viz.: *Acupalpus consputus*, *Atheta fungivora*, *A. gyllenhalii*, *A. sodalis*, *Gyrophæna nana*, *Trichopteryx fratercula*, *Cryptophagus ruficornis*, *Cis setiger*, *Malthodes brevicollis*. There were fewer exhibits than usual of *Lepidoptera*. A collection of *Pieridae* made by Dr. Smart, of Shelley, while serving in France, was shown by Mr. B. Morley, of Skelmanthorpe, and a fine specimen of *Acherontia atropos* L., which had been arrested by a policeman and brought alive to Dr. Fordham, was shown by that gentleman.

The evening meeting was mainly devoted to the reading of two papers. The first of these was by the Secretary, Mr. B. Morley, of Skelmanthorpe, on the collection of *Lepidoptera* made by Dr. Smart, of Shelley, while serving with the British Expeditionary Force in France, many species being taken in the trenches. Surprise was expressed that *Colias hyale* should be much commoner than *C. edusa*. *Melanargia galatea*, so plentiful as to appear like falling leaves, *Pieris brassicae*, remarkable for its abnormally small males, and equally abnormally large females. The moths were even more interesting than the butterflies. The specimens of *Pitonia atomaria* were quite twice the size of those met with in Yorkshire. One of the most interesting finds was a specimen of *Boletobia fuliginaria*, which Dr. Smart took in his own dug-out. The other paper was by Mr. E. G. Bayford, of Barnsley, dealing with Donisthorpe's "British Ants" and Prof. Carr's volume on "The Invertebrate Fauna of Nottinghamshire," and showing how they should stimulate the study of the groups usually neglected, and assist in determining their comparative distribution. Mr. Bayford showed a specimen of *Gerris najas* De G., an insect which has occurred in the utmost profusion on the canal at Walton, near Wakefield, yet has not been found in Nottinghamshire, nor does Saunders record it from any northern county. He also exhibited a specimen of *Nabis flavo-marginatus* Scholtz, taken by him in Derbyshire, near the border of Cheshire. Saunders had no records from either



Derbyshire, Nottinghamshire, or Yorkshire; in all three counties it has now been found. A short discussion followed the reading of each paper, in which Prof. Garstang, Dr. Corbett, Mr. W. Hewett, and others took part.—E. G. B.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :  
*Thursday, September 14th, 1916.*—MR. HY. J. TURNER, F.E.S., President, in the Chair.

The Meeting was spent in a consideration of *Pararge aegeria*. The President introduced the subject with a series of notes on the following points:— I. Original description. II. Enlarged and modified subsequent descriptions. III. History of the nomenclature. IV. Times of appearance. V. Evidences of growing scarcity in this country. VI. Experiments in breeding. VII. Variation: 1. General characteristics; 2. Lines of variation; 3. Sexual variation; 4. List of aberrations (striking aberrations are very rare); 5. Geographical races. VIII. Suggested questions for further investigation. Mr. Gibbs discussed some of the same points, especially referring to his own observations of the growing scarcity of the species. Mr. Platt Barrett gave his experiences of the species for the past 50 years. Dr. Chapman, Messrs. Gibbs, Curwen, Platt Barrett, Leeds, and Turner exhibited the various forms from the British Isles and many parts of the Continent. A number of members took part in the discussion.

*Thursday, September 28th, 1916.*—The President in the Chair.

Mr. T. W. Hall exhibited a larva of *Cossus ligniperda*, and called attention to its habit, when annoyed, of ejecting an evil smelling liquid. Mr. Newman, a dark leaden aberration of *Agriades thetis*, one of several taken recently in Kent. Dr. Chapman, considerable series of the grasshoppers *Stenobothrus lineatus*, *Gomphocerus rufus*, *Chorthippus parallelus*, *Stauroderus bicolor*, and *G. maculatus* from the North Downs escarpment, and gave notes on their habits and habitats.

*Thursday, October 12th, 1916.*—The President in the Chair.

Mr. Kaye exhibited a specimen of the new species of *Ornithoptera*, *O. joiceyi*, from New Guinea. Mr. Newman, specimens of the extreme melanic form of *Tephrosia consonaria* from Kent, fine melanic forms of *T. consortaria* and an intermediate form, a series of var. *rossica* of *Callimorpha dominula*, and a bred series of *Diceranura bicuspis* from Tilgate Forest. Mr. A. E. Gibbs, the purse-like galls on the petioles of poplar leaves caused by the Aphid *Pemphigus bursarius*. Mr. Gibbs, a case of further specimens of *Pararge aegeria* var. *egerides* from S. Devon, sent by Dr. Perkins, and read a long series of notes on the characteristics, habits, and dates of the various broods. In the discussion it was shown that besides passing hibernation in almost any stage of larval growth, the species could pass the winter as a pupa. The Report of the Field

Meeting at Ockham and Wisley on May 20th was read by Mr. Kaye, the leader. The Reports of the Field Meetings at Clandon on June 24th, and at Box Hill on July 22nd, were read by Mr. Hy. J. Turner, the leader.—HY. J. TURNER, *Hon. Secretary.*

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ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, November 1st, 1916.*—Dr. C. J. GAHAN, M.A., D.Sc., Vice-President, in the Chair.

Messrs. Hassan Efflatoun, Choubrah Avenue, Cairo, Egypt, and S. E. Agricultural College, Wye; Frank Hannyngton, Mercara, Coorg, S. India; Harry Haden May, Blackfriars House, Plymouth; and Akio Nohira Tchijoji, Ottagigun, Kyoto, Japan, were elected Fellows of the Society.

Prof. Poulton gave an account of observations by Mr. C. O. Farquharson on the Hesperid butterfly, *Rhopalocampta forestan* Cram. He also exhibited a specimen of a Tabanid fly (probably *Pangonia aldi*) which when on the wing had attacked Dr. G. D. H. Carpenter. Also examples of *Mallota cimbiciformis* bred by Mr. H. Britten of the Hope Department. The Rev. F. D. Morice, specimens of *Pteronus sertifer* ♂♂ and ♀♀, and read notes. Mr. G. T. Porritt, specimens of *Symphorobius striatellus* Klap., and of *S. elegans* Steph., for comparison. Mr. G. Talbot, on behalf of Mr. J. J. Joicey:—(1) A gynandromorph of *Papilio lycophron*, race *phanias* R. and J., from North Peru. (2) *Polygrapha cyanea* G. and S., the unique and hitherto undescribed female, apparently a mimic of *Opsiphones*. (3) A hybrid gynandromorph of *Amorpha populi* × *Smerinthus ocellatus*.

The following papers were read:—"Further notes relating to the Origins of the Jurinean Genera of *Hymenoptera*," by the Rev. F. D. Morice, M.A., F.E.S., and J. Hartley Durrant, F.E.S. "On a collection of Heliconine forms from French Guiana," by J. J. Joicey, F.E.S., and W. J. Kaye, F.E.S. The latter paper was illustrated by a large collection of varied forms of *Heliconius melpomene*, which was exhibited.—GEO. WHEELER, *Hon. Secretary.*

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## ON *RHYNCHITES OPHTHALMICUS* STEPHENS, WITH A TABLE OF THE BRITISH SPECIES OF THAT GENUS.

BY JAMES EDWARDS, F.E.S.

Messrs. Fowler and Donisthorpe (*Coleopt. Brit. Isl.*, VI, p. 182, 1913) adopt the dictum of Mr. Champion (*Ent. Mo. Mag.*, XL, p. 79, 1904) that the true *R. ophthalmicus* Steph. = *R. olivaceus* Gyll. But Stephens' opinion was, and that of extra-British writers is, that *ophthalmicus* Steph. = *sericeus* Herbst. I would venture to suggest that, in the absence of proof to the contrary, Stephens' *ophthalmicus* must be taken to be an insect possessing the characters which he

ascribed to it. Stephens' insect was violet in colour, the rostrum had a sulcus on each side and a deeper one in the middle (Ill. Mand., IV, p. 200, 1831), and the elytral interstices were thickly punctured (Manual, p. 263, 1839). These characters are proper to *sericeus* Herbst, but are not to be found in *olivaceus* Gyll. *R. sericeus* is reputed to occur on young shoots of oak, in May and June. Stephens says that his *ophthalmicus* was found within the metropolitan district, but apparently rare. No British specimens of it are known to exist, and the late Mr. E. A. Waterhouse reported that *ophthalmicus* was represented in the Stephensian collection by a single example of *olivaceus* Gyll. This circumstance, which is confirmed by Mr. Newbery, has no bearing on the identity of the insect described by Stephens under the name of *R. ophthalmicus*.

The following table has been prepared from the insects themselves, and includes *Byctiscus* and *Deporaus*.

- 1 (22) Length of elytra not more than one-half greater than their width.
- 2 (5) Elytra with a little very fine adpressed pubescence at their extreme apex, or entirely bare. Hind coxae not reaching outwardly to the metasternal episterna. (BYCTISCUS.)
- 3 (4) Elytra pubescent at the apex, the punctured striae irregular. Upper- and under-side concolorous ..... *betuleti* Fab.
- 4 (3) Elytra entirely bare, the striae quite regular. Upper-side bright metallic green or coppery, rostrum, under-side, and legs dark blue. *populi* Linn.
- 5 (2) Elytra evidently pubescent throughout.
- 6 (9) Elytra with irregular, and in parts confluent, puncturation. (RHYNCHITES.)
- 7 (8) Rostrum thick, distinctly shorter than the head and thorax together, of the same colour as the head. Front of thorax in the male with a horn on each side. Pubescence of the upper-side whitish, and therefore more evident in the dorsal aspect. Length 6-8 mm.... *auratus* Scop.
- 8 (7) Rostrum somewhat thin, as long or longer than the head and thorax together, violet. Thorax simple in both sexes. Pubescence of the upper-side brownish, and therefore less evident in the dorsal aspect. Length 4-6 mm. .... *bacchus* Linn.
- 9 (6) Elytra with punctured striae or rows of punctures.
- 10 (13) No scutellary stria. (INVOLVULUS.)
- 11 (12) Upper-side bronze or coppery; ninth stria merging with the tenth at its half-length ..... *cupreus* Linn.
- 12 (11) Upper-side blue; ninth stria reaching the apex ..... *coeruleus* De G.

- 13 (10) Scutellary stria present. (COENORRHINUS.)
- 14 (17) Ninth stria reaching the apex.
- 15 (16) Elytra dark blue-green; tenth stria at the base lost in an irregular double row of punctures; interstices wider than the striae; pubescence shorter, darker, and less projecting .....*germanicus* Herbst.  
(*minutus* Fowler.)
- 16 (15) Elytra bronze-green; tenth stria simple at the base; interstices  
• narrower than the striae; pubescence longer, paler, and more projecting .....*aeneovirens* Marsh.
- 17 (14) Ninth stria not reaching the apex.
- 18 (21) Elytra blue or greenish-blue.
- 19 (20) Sides of head behind the eyes bulging outward. Thorax with a feeble middle channel. Elytral interstices convex, scarcely so wide as, the striae with an irregular row of very fine punctures. Pubescence long and very sparse .....*pauzillus* Germ.
- 20 (19) Sides of head behind the eyes straight. Thorax extremely closely punctured, with a trace of a smooth middle line. Elytral interstices flat, with a distinct and regular row of punctures. Pubescence long and dense .....*interpunctatus* Steph.
- 21 (18) Elytra red, with or without a blackish suture .....*aequatus* Linn.
- 22 (1) Length of elytra twice as great as their width.
- 23 (34) Head not constricted into a neck.
- 24 (29) Body with long projecting hairs. (LASIORHYNCHITES.)
- 25 (28) Elytral striae distinct to the apex.
- 26 (27) Head and thorax blackish-green, elytra greenish-blue. Elytral interstices with a single row of punctures. Male: basal half of the rostrum with a smooth middle line bounded on each side by a row of large irregular punctures, which are sometimes confluent, the outer edge of these punctures lying in the same horizontal plane as the smooth middle line, and therefore giving rise to the appearance of three keels, a very narrow one on each side and a broad one in the middle. Female: basal half of the rostrum with large crowded irregular punctures .....*olivaceus* Gyll.  
(*ophthalmicus* Auctt. Brit. nec Steph.)  
(*sericeus* Auctt. Brit. nec Herbst.)
- 27 (26) Upperside purple-blue (violet). Elytral interstices irregularly and somewhat deeply punctured. Male: rostrum behind the antennae with two longitudinal grooves each containing a few punctures, and just behind the base of the antennae a deep oblong groove. Female: rostrum behind the antennae with a few coarse, shallow punctures, behind the base of the antennae a deep oblong groove...  
*sericeus* Herbst.  
(*ophthalmicus* Steph.)

EXCHANGE.

DUPLICATES.—*Anisotoma furva*, *A. ciliaris*, *Aegialia rufa*, and *Ammoecius brevis*. *Desiderata*: Other local Coleoptera, especially *Geodephaga*.—R. WILDING, 52a, Orrell Lane, Aintree, Liverpool.

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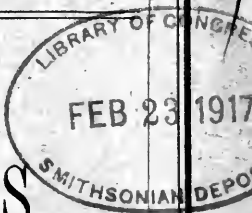
[THIRD SERIES—VOL. III.]

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### **MEETINGS OF SOCIETIES.**

ENTOMOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Wednesday, Feb. 7th, 1917.

The Chair will be taken at 8 o'clock in the evening precisely.

The Library is open daily from 9 a.m. to 6 p.m. (except on Saturdays, when it is closed at 2 p.m.), and until 10 p.m. on Meeting nights.

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THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, Hibernia Chambers, London Bridge. The Second & Fourth Thursdays in each month, at 8 p.m. The lantern will be at the disposal of Members for the exhibition of slides.

The Chair will be taken punctually at 8 o'clock.

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THE LONDON NATURAL HISTORY SOCIETY which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

February 6th.—“Holiday Notes from the Wye Valley,” by Messrs. BISHOP, BURKILL, HALL, and TREMAYNE. February 20th.—“A Spring and Summer at Oxshott,” by RUSSELL E. JAMES, F.E.S.

Hon. Sec.: J. ROSS, 18, Queen's Grove Road, Chingford, N.E.

Chingford Branch. The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.



- 28 (25) Elytral striae becoming obsolete and merging in the irregular puncturation behind, the ninth not merging in the tenth, the interstices with a somewhat irregular double row of finer punctures...  
*cavifrons* Gyll.  
 (*pubescens* Herbst.)
- 29 (24) Body with scarcely visible pubescence. (PSELAPHORHYNCHITES.)
- 30 (31) Front tibiae sinuate within, the inner apical angle produced into a claw-like tooth.....*tomentosus* Gyll.  
 (*uncinatus* Thoms.)
- 31 (30) Front tibiae straight, without any indication of a tooth at the inner apical angle.
- 32 (33) Larger: male, length 3 mm., female 4.2 mm.; rostrum much longer and more slender than in *nanus*, thorax more closely punctured, with the sides more rounded .....*harwoodi* Joy.
- 33 (32) Smaller: male, length 2.7 mm., female 3.5 mm.; rostrum shorter and straighter than in *harwoodi*, thorax less closely punctured, with the sides straighter .....*nanus* Payk.
- 34 (23) Head constricted into a neck. (DEPORAUS.)
- 35 (36) Entirely black. Head with the eyes narrower than the greatest width of the thorax. Hind femora dilated in the male.....*betulae* Linn.
- 36 (35) Body greenish-bronze, elytra blue. Head with the eyes as wide as the greatest width of the thorax. Hind femora simple in both sexes.  
*mannerheimi* Hummel.  
*(megacephalus* Germ.)

At Foxley Wood, Norfolk, I have found the blue form of *R. betuleti* the prevalent one, but I have from thence green examples (ab. *viridis* Wasm.) and coppery ones (ab. *cuprinus* Schilsky). The form to which Marsham gave the name *nitens* has greenish-blue head and thorax and violet elytra; I have not seen this.

Mr. W. B. Davis has taken *R. populi* at Frampton Common, E. Gloucestershire.

In view of the uncertainty attaching to the determination of *R. auratus* and *R. bacchus*, I have been fortunate in securing from Mr. T. G. Bishop, the present owner of the S. Stevens Collection, his critical dicta with regard to two historic specimens: the one from Donovan's collection is *auratus*, and that taken off oak underwood near Cracking Hill, Birch Wood, by B. Standish on September 24th, 1843, is *bacchus*. The latter species is reputed to occur on fruit trees, especially apple, and to fly on sunny afternoons in September and October, hibernating under bark; and *auratus* to occur on *Prunus spinosa* from May to July. Walton, who was evidently acquainted

with the distinctive characters of the two species, says (Ann. and Mag. Nat. Hist., XIII, 1844, pp. 88, 89) that Stephens had many of each from the Marshamian collection.

Although Walton (*t.c.*, p. 87) writes as though the form of *aeneovirens* with blue or bluish-green elytra (ab. *fragariae* Gyll.) was familiar to him, it seems to be unknown to present-day collectors in this country.\* According to Schilsky the *minutus* of Herbst is an entirely blue or violet form of *aeneovirens*. For me, *R. paucillus* is most easily distinguished by its arcuate temples; in the dorsal aspect the head is constricted immediately behind the eyes and again next the front edge of the thorax, the sides forming a continuous outward curve; Mr. Joy has been good enough to lend me an example taken by S. Stevens off whitethorn at Shirley. I have taken *R. interpunctatus* off oak, in May, at Bixley, near Norwich, and Monkham Wood, Colesborne; it may be distinguished at a glance from *germanicus* by its more oblong form, and wider and flatter interstices. Specimens of *R. aequatus* with the suture blackish (ab. *paykulli* Schilsky) are quite as frequent as the others. I have taken *R. harwoodi* at Foxley Wood, Norfolk, at the same time as *R. tomentosus*; and *R. mauerheimi* off birch at Colesborne on three occasions, but always singly.

Colesborne, Cheltenham :

Nov. 17th, 1916.

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## STUDIES IN RHYNCHOPHORA.

BY D. SHARP, M.A., F.R.S.

### I.—TRIBE PSEUDOBAGOINI,

I wish to express my thanks to Messrs. G. A. K. Marshall, Champion, Bedwell, Day, Tomlin and Britten, as well as to Hugh Scott of the Cambridge Museum, who have assisted me by the communication of specimens of *Pseudobagoini*, as to which tribe a preliminary note was published in this Magazine for December last (p. 275).

### PSEUDOBAGOINI, trib. nov. *Erishinorum*.

*Tarsi vel subfiliformes, vel breves articulo tertio bilobato. Tibiae ad apicem intus uncatæ.*

---

\* I have taken the form of *R. aeneovirens* with blue-green elytra at Darenth Wood and Woking, and in the New Forest.—G. C. C.

Lacordaire established for the genus *Bagous* and some few forms supposed to be allied with it, a group he called *Hydronomides*. This group was distinguished according to him from other *Eirrhini* by the unlobed third joint of the tarsi. Nevertheless, a large portion of the species he assigned to the *Hydronomides* have a quite definite lobation of the tarsi, this being the case even in the genus *Hydronomus* itself. The group must therefore be abandoned or modified, and an examination of the aedeagus has yielded such remarkable results as to show that the group is a quite unnatural one, so that its division must be effected. This is best accomplished, I believe, by retaining the separation from the *Eirrhini* of both of the component divisions of Lacordaire's group *Hydronomides*, and placing one of the divisions in the *Eirrhini*, the other—the true *Bagoini*—going into that great and distinct phylum of the *Curculionidae*, the *Lixidae*.

The name *Hydronomides* must be abandoned, as the genus *Hydronomus* is a very exceptional one, and does not possess the character with which Lacordaire associated the name.

I may here remark that, though there can be no doubt as to the complete severance of the *Bagoini* from the *Pseudobagoini*, the separation of the *Pseudobagoini* as a tribe distinct from *Eirrhini* is not beyond question. But the classification of the *Eirrhini* is altogether an extremely difficult one, and I think the best course we can adopt at present is to separate the *Pseudobagoini* as a tribe distinguished from other *Eirrhini* by what we may term the degradation of the tarsi: but the group in other respects is extremely close to such *Eirrhini* as *Dorytomus pectoralis*.

The genera of *Pseudobagoini* may be thus tabulated:—

Tarsi not bilobed.

Mentum narrow ..... *Parabagous*.  
Mentum broad ..... *Pseudobagous*.

Tarsi bilobed.

Prosternum impressed..... *Abagous*.  
Prosternum emarginate in front, but not impressed.. *Hydronomus*.

#### PSEUDOBAGOUS, gen. n.

*Mentum latum, transversum. Rostrum crassum, breve, a capite abrupte divisum, scrobis rectis, superne omnino conspicuis. Metasternum elongatum. Tarsi articulo tertio orali, haud lobato.*

*Type: Bagous longulus* Gyll. (South Africa).

*Bagous longulus* has quite the facies of our European genus *Parabagous*, though it is a more elongate insect. It appears to be very

variable, or there may be more than one species under it. This can only be decided by good series of specimens, as the monotony of the aedeagus appear to be very great throughout the *Pseudobagoini*. The following species seems to be clearly distinct.

1.—*Pseudobagous junodi*, sp. n.

*Major, elongatus, angustus, niger, undique griseo-ochraceo-lutosus, tarsis, tibiis antennisque testaceis, his clara nigricante; fronte profunde foreolata, thorace angusto, longitudinaliter medio impresso* Long. 7-8 mm.

Closely allied to *B. longulus*, but larger, with broader head, stouter rostrum, and very little sign of callosities on the elytra. *B. longulus*, as at present comprehended, is so variable that a more detailed comparison might be deceptive. The aedeagus is very much like that of the genus *Parabagous*, but the strut of the tegumen is excessively short, while in *Parabagous* it is merely short in *P. frit* and long in *P. binodulus*. (In one specimen of *Pseudobagous longulus* this strut can scarcely be detected.)

I am indebted to Mr. G. A. K. Marshall for a pair of this species found at Delagoa Bay by H. Junod. The specimens of *P. longulus* with which I have compared *P. junodi* have been lent to me by Mr. Marshall: three are from Salisbury in Rhodesia, one from Beira, and one from Uitenhage in Cape Colony.

With reference to the short strut of the aedeagus, I may remark that it has been pointed out by Muir and myself that the line of evolution of the aedeagus in *Rhynchophora* is that of reduction of tegmen; and I may now add that when any part of the tegmen is found to be unusually reduced, it may also be found to be slightly variable. Hence minute differences in the strut of the tegmen in *Pseudobagous* should not be considered as of specific value until a very careful investigation has been made. The true specific characters of the *Pseudobagoini* are probably to be found in the sac. Unfortunately this cannot be satisfactorily examined in the case of these small insects when dried.

PARABAGOUS, gen. n.

*Mentum angustum. Tarsi filiformes, articulo tertio haud lobato. Prosternum ante coxas profunde impressum.*

This genus is well distinguished by the structure of the feet from *Abagous*. Its type is *P. frit*.

1.—*P. frit* Gyll.

*P. frit* was formerly called *subcarinatus* in our British collections, but Gyllenhal mentions the narrow third joint of the tarsus, which

is a really distinctive character of this insect. It is a rare species in this country, but I have before me a very fine series collected by Mr. Bedwell near Gravesend, and many years ago it used to occur at Hammersmith marshes.

Mr. Bedwell's beautiful series varies but little, but I have in my collection a specimen of unusually small size and dark colour, with slightly less elongate legs and feet, that may be a different species. It was found near London fifty or sixty years ago.

A specimen of *P. frit* was sent by Crotch to M. H. Brisout de Barneville, and was returned by him as *B. subcarinatus*. This example is now in the Cambridge Museum.

## 2. — *Parabagous binodulus* Herbst.

*Curculio binodulus* Herbst, Käf. 6, p. 247, pl. 67, fig. 15.

*Bagous binodulus* Auctt.

This is a very distinct species. The male is remarkable by the great development of the depressions on the under-surface, which extend from near the middle coxae to near the hind margin of the second abdominal segment. The terminal segment is also largely impressed, with the impression coarsely punctured and bearing a good deal of white hair.

I have seen only one example. It is in the Crotch collection of the University of Cambridge. It was sent by Crotch to M. H. Brisout de Barneville at the time he was writing his monograph on *Bagous*, and bears his label "*binodulus*." I have dissected the specimen, and find that the male structures show a close alliance with those of *P. frit*.

## ABAGOUS, gen. n.

*Mentum parvum. Tarsi breves, articulo tertio lobato. Prosternum ante coxas impressum, profunde emarginatum.*

This genus—of which *Bagous lutulentus* is the type—is readily distinguished by the structure of the feet.

The following list represents merely my ideas as to the British species, with which, however, I am but imperfectly acquainted.

### 1. — *A. lutulentus* Gyll.

This is apparently a fairly common insect in England from Norfolk southwards. It has recently been proposed to replace its well-known name by that of *glabrivostris* Herbst, but I do not think that

the guess as to its being Herbst's species is a happy one, and consequently we should retain the old name.

### 2.—*A. colliguensis* Herbst.

This is known to us as *Bagous lutulentus* var. *major*. I believe it will prove to be a distinct species, and that it is probably the *Curculio colliguensis* Herbst, which name stands in catalogues as merely a synonym of *lutulentus*. It is apparently rare, but was formerly found by Dr. Power and myself at Merton, near London, and has recently been taken by Mr. Bedwell near Gravesend.

My three examples prove on dissection to be all females, as also is one of the four found by Bedwell, and his other three specimens look quite the same.

### 3.—*A.* (sp. ?)

I have a very small narrow specimen, with roughly sculptured rostrum, and the scrobes more than usually visible from above; it is a male, and the aedeagus differs from that of *lutulentus* by its larger development and the more elongate and pointed apical part of the median lobe. It is no doubt a distinct species, but the example is in bad condition and I prefer to leave it without a name at present. It was given me many years ago as an exponent of *Bagous frit*. A female example from Christchurch may possibly be the same species.

### 4.—*A. lutosus* Gyll.

No British example of this species has been seen by me, but a specimen received from the late C. J. Thomson has been lent to me by Mr. Champion.\* It is a female and can only be compared with *A. colliguensis*. The thorax is rather broader, and the legs are a little shorter, while the difference in facies is sufficient to make me feel sure that the two are distinct species.

### 5.—*A. nigratarsis* Thoms.

This is certainly very close to *A. lutulentus*, but the dark colour, which is specially conspicuous in the case of the antennae and tarsi, affords an easy means of distinction. In addition to this the rostrum is rather differently formed, the scrobes being more conspicuous. The aedeagus seems to be very little different in the two.

I have never met with *A. nigratarsis* myself, but I have seen a fine series found by Messrs. Day and Britten in Cumberland, and a smaller

Mr. Edwards (Ent. Mo. Mag., 1902, p. 241) has recorded the capture of a *Bagous* at Wretham Heath, Norfolk, agreeing with Thomson's *B. lutosus*. Mr. Thouless has also met with it in the same district.—G. C. C.

one found in Ireland by Mr. Tomlin. Two females sent by the late C. J. Thomson to Mr. Champion are probably this species, but they are in bad condition, having been transfixed by a large pin. The only doubt I have as to the distinctness of *nigritarsis* arises from the specimen I have alluded to above under No. 3; but, as I have said, I have little doubt that will prove to be really of another species.

The insect on which *nigritarsis* was first introduced as a British species is still in the Crotch collection at Cambridge. I anticipate that it will prove to be yet another species. It went to M. H. Brisout de Barneville, and bears still his label "lutulentus varietas." I describe it briefly below.

6.—*A. rudis*, sp. n.

*Major, robustus, fusco-griseo squamosus, elytris punctis duobus albidis; antennis pedibusque nigris, illarum basi tibiisque testaceis; prothorace angusto, fortiter rugoso-sculpturato. Long. (absque rostro) 3 $\frac{3}{4}$  mm.*

*A. nigritarsis* has a corresponding length of about 3 mm., so that the difference in size is considerable. The colour is less dark, and the sculpture of the thorax is remarkably coarse.

The thorax has a fine channel on the middle, and this is continuous with a depression on the vertex. The constriction of the sides of the thorax near the front is very strong. The elytra are broad, shaped more like those of *B. collignensis* than those of *nigritarsis*, and the callosity before the apex is not very conspicuous; the striation is fine.

The resemblance to *A. collignensis* is so great that the two were placed together in the Crotch collection as *B. "nigritarsis,"* but independently of the darker antennae and tarsi, *A. rudis* has a broader and more strongly lobed third tarsal segment.

The sex of the individual is uncertain, and there is no indication of its source.

*Hydronomus* Auctt.

It would scarcely be necessary to allude to this genus were it not that it has recently been merged in *Bayous*. This is a complete mistake. *Hydronomus* has not been connected with *Bayous* proper since the far distant epoch when the differentiation of the *Lixidae* from the other *Cureulionidae* was established. It differs also from the other genera of *Pseudobagoini*, not only by the unimpressed prosternum, but also by the scrobes, which are less definite and directed more downwards. The aedeagus is quite that of the other *Pseudobagoini*.

I hope to deal with the true *Bagoini* in a subsequent paper. May I add that I shall be very much obliged to anyone who will let me see

an example of *B. diglyptus*? There is a species that must be somewhere near it in Mr. Tomlin's collection, and I am a little doubtful whether "*diglyptus*" should really have a place in our Catalogue.

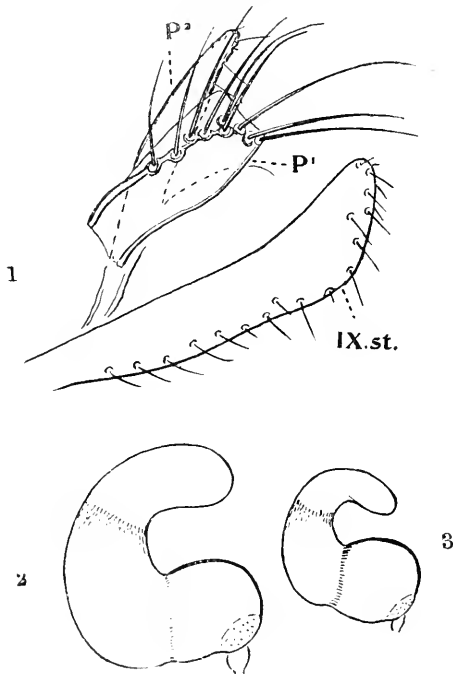
Brockenhurst:

December 28th, 1916.

ON *XENOPSYLLA AEQUISETOSUS* ENDERL. (1901).

BY THE HON. N. C. ROTHSCHILD, M.A., F.L.S.

This species of *Siphonaptera* was described in 1901 by Enderlein (I, p. 554) from a single female contained in the collection of the Königl. Zoologische Museum in Berlin. When, in 1908, we published our revision of the non-combed eyed *Siphonaptera* (II, p. 45) the species was still unknown to us, except for Enderlein's description and



some additional notes received from the director of the Institute just mentioned. In 1911, however, all the fleas of the Berlin Museum were entrusted to us for study, inclusive of the types; and in the catalogue we gave of them (III, pp. 64 and 89) the differences between the females



of *Xenopsylla aequisetosus* and *X. cheopis* were duly pointed out, and the receptacula seminis figured. The male was not known at that time.

The Imperial Bureau of Entomology have since received a number of specimens of both sexes of *X. aequisetosus*, which have been lent to us for description. Both the ♂ and ♀ of *X. aequisetosus*, although very similar to *X. cheopis*, its nearest ally, are easily distinguished from that species by the genitalia. In *X. aequisetosus* the outer process, P<sup>1</sup> (*cf.* Fig. 1), of the organs of copulation is broader apically than that of *X. cheopis*, being widest at the apex, and truncate. The bristles of this process, about nine or ten, are rather stronger and somewhat differently arranged than in *X. cheopis*, and the dorsal portion of the process, *i.e.*, the portion above the bristles, is so little chitinised that it is quite indistinct in specimens cleared and mounted in balsam, the bristles in such specimens appearing to be placed along the dorsal margin of the process, which is not the case. In non-mounted specimens the true outline of process P<sup>1</sup> is more easily observed. The second process, P<sup>2</sup>, is slightly broader than in *X. cheopis*, and the ninth sternite (IX. st.) more strongly curved apically.

The females of the two species are best recognised by the receptacula seminis. In *X. cheopis* (Fig. 2) the head is not so broad as the basal portion of the tail—the tail, moreover, being very long. The receptaculum seminis of *X. aequisetosus* (Fig. 3) is much smaller, and its head is broader than the tail.

*X. aequisetosus* was originally described from Togoland, where it was found on a *Cricetomys*. The specimens received by the Imperial Bureau of Entomology were obtained in Accra, Gold Coast, and at Zomba, Nyasaland, on *Cricetomys gambianus*. It has also been found on the Brown Rat, *Mus. norvegicus*, in Accra, Gold Coast.

- I. Enderlein, Zur Kenntniss der Flöhe and Sandflöhe, in Zoolog. Jahrbüch, Abt. Syst., XIV, pp. 549-557, Text-figs. A & B, Taf. 34 (1901),
- II. Jordan and Rothschild, Revision of the non-combed eyed *Siphonaptera*, in Parasitology, I, pp. 1-100, pls. I-VII, (1908).
- III. Jordan and Rothschild, Katalog der Siphonapteren des Königlichen Zoologischen Museums in Berlin, in Nov. Zool., XVIII, pp. 57-89, Text-figs. 1-10 (1911).

A CONTRIBUTION TO THE LIFE-HISTORY OF *PIEZODORUS*  
*LITURATUS* L.

BY E. A. BUTLER, B.A., B.Sc., F.E.S.

*Piezodorus lituratus* L. is one of the commonest of our British *Pentatomidae*, and is found on furze bushes in most places where these flourish; but, though it is a common insect, very little has been recorded as to its life-history and general habits, and the following is an attempt to summarise what has up to the present time been ascertained.

In every instance that has come under my notice, the eggs have been laid on the young and unopened, but fully-formed, flower-buds of the furze (*Ulex europaeus*), being placed in a double row along one of the two sepals. Each group contains from eleven to fourteen eggs, placed in two contiguous rows; those in each row are in close contact with one another, and are placed alternately to those in the other; when there is an odd egg it is set in the middle line at one end. The egg is a drum-shaped body, consisting of a short cylinder rounded at the end which is attached to the flower, and somewhat flattened at the other, where it is closed by a kind of lid. The whole surface is banded alternately with rings of white and nigro-fuscous, a white spot forming the centre of the distal extremity, and a dark one that of the proximal, while the sides show two white and two dark bands. The surface is reticulated and beset all over with fine whitish spines; and further, the white band round the apical rim carries a series of about 30 large white spines, which are strongly clavate and nearly erect. The circular lid is of the same texture as the rest of the shell, and is white, with a not very clearly defined nigro-fuscous ring on its disc.

On hatching, this cap is pushed up on one side, remaining attached at the opposite point, so that after the emergence of the larva, it falls back almost into its original position. It does not, however, quite close the aperture, because there usually projects a curious apparatus which has been well described by J. H. Fabre in connection with another species (*Sour. Ent.*, viii, 69). This consists of a clear membrane with three strong brownish ribs radiating from one point on its margin, like the webbed foot of a duck. According to Fabre, this apparatus is general in the *Pentatomidae*, and is used in conjunction with the forcing of blood into a trihedral vesicle on the head, as a spring to push open the lid of the egg; and it remains, after the emergence of the insect, projecting through the opening, and preventing the lid from being completely shut. (Fig. 1.)

The larvae when newly hatched are entirely of an orange colour, with red eyes and a red patch on the dorsum of the abdomen. After about an hour the colour changes to pale brown on the fore parts, with three similarly coloured bars in the region of the scent-glands, and spots on the connexivum. Ultimately the fore-parts, the abdominal bars, and the connexival spots become black, and the abdomen may remain more or less orange, or deepen into crimson, while the legs and antennae become dark piceous, the eyes still remaining red. The antennae are four-jointed, with the terminal joint much the largest, and the first and third sub-equal and the smallest; the tibiae are strongly ridged, the tarsi are two-jointed, with the terminal joint much the longer; the claws are strongly curved, and pale in colour. The central lobe of the head projects considerably beyond the side-lobes. The head and thoracic segments are shining and almost impunctate, but with fine transverse striae; the first two thoracic segments are sub-equal in length and the third is shorter.

Mr. T. Edmonds, of Totnes, kindly sent me several batches of eggs on May 20th, 1916. One of these batches began to hatch out on June 3rd, and most of the batch emerged on the same day, the greater number of them at exactly the same time. They emerge with the dorsal surface uppermost, and the legs are drawn out last of all. They were fed on furze, but the weather was very cold at the time and their growth was correspondingly slow. The first ecdysis did not take place till June 18th, and during the whole of the fortnight of their free existence they had persisted in clustering together in a corner of the box in which they were kept, and quite away from the food-plant; they would remain in this position for days together, quite inactive. At first they were very reluctant to leave the empty egg-shells, clustering on top of them for hours at a time, without moving, and not attempting to reach the fresh food-plant which was close by.

In the second instar the colours and general form were pretty much the same, save that the antennae were darker, almost black, but the base and apex of the second and third joints had a pinkish tinge, as also the apex of the first and the base of the fourth. The whole insect had now become strongly and densely punctate, and the punctures on the red part of the abdomen, being black, were very conspicuous. The fore-parts still retained some transverse striations, and a small patch on the vertex was alutaceous. The head was still very large in proportion to the body, and the pronotum had become rather longer than the mesonotum.

I was unable to carry these insects beyond their second instar, and can only speak of the rest of the life-history from examples found at other times. They persistently refused to have anything to do with the furze with which they were kept supplied, and this is in accord with the experience of the Rev. W. F. Johnson, who, speaking of somewhat older larvae, says: "These larvae were very badly behaved in captivity, for all that I took, except one, preferred to die rather than proceed to the perfect state, though I gave them every comfort, not to say luxury." I am inclined to think that a change of diet was needed in this second stage, and that, while the insects in their first instar readily fed on furze-juice, they may have needed afterwards the stimulus of an animal diet. For although this species is almost confined to furze-bushes, it by no means follows that the plant constitutes its food throughout life, especially when we remember how thickly populated furze-bushes always are with insect and arachnid life of all sorts, much of which might quite easily be mastered by *Piezodorus* larvae in any of their stages.

There are in all five larval instars, and the changes that take place concurrently with the growth of the insect consist chiefly in modifications of the thoracic segments. In the third instar, the middle of the hind margin of the mesonotum is slightly extended backwards, so that the margin becomes gently sinuate, and this segment begins dorsally to overlap the metanotum slightly in the centre. This situation is still more pronounced in the fourth instar, by the increase in the length of the mesonotum in the centre and at the lateral margins, so that still less of the metanotum remains visible. At the same time the lateral margins of both pro- and mesonotum become narrowly ochraceous. In the fifth and last larval instar, the wing-pads are fully developed, the mesonotum projecting in the centre in the form of a large triangle (the rudimentary scutellum), and at each side as a large flat disc rounded outwardly and truncate behind, representing the hemelytra of the adult. Beneath this, and forming a continuation of the metanotum, appears a corresponding disc representing the wings: the metanotum itself also is by this time triangularly produced in the centre. The only other changes are that hairs appear on the inner margin of the tibiae, which become longer at each ecdysis; the basal tarsal joint also becomes very hirsute beneath, and the terminal one less so; the antennae also develop hairs. The puncturation of the fore-parts becomes more rugose as growth proceeds. The claws in the last instar are appendiculate and very

strong. Most of the bright red colour has disappeared from the abdomen by the time of the last instar, and has been replaced by a vinous tint. There are no ocelli in any of the larval instars, and the number of antennal joints remains four throughout, and that of the tarsal joints two. Clearly, therefore, the greatest number of morphological changes occur at the last ecdysis, when the insect acquires its wings and ocelli, and increases the number of its antennal joints to five, and of its tarsal joints to three, while at the same time the reproductive organs are perfected and the integument becomes strongly chitinised.

At each ecdysis the skin splits longitudinally along the middle line of the pro-, meso-, and metanotum, and also transversely along the suture between the head and pronotum, so that the cephalic sclerite remains entire, bent forward to the front of the cast skin, the part covering the eyes being separated from it at the sides, while the halves of the dorsal sclerites of the thorax are pushed towards the sides quite free from the head, but remaining attached to the abdominal skin behind, which does not split anywhere. Not only are the limbs and antennae drawn out of their sheaths, but also the rostrum and its setae, and the principal tracheae, especially those that spring from the spiracles. This method of ecdysis holds good for all the *Pentatomidae* in which I have been able to observe it. It may here be remarked that the cast skins form excellent objects for observing the structure of the exoskeleton.

Adult insects may be found throughout the year; in fact I have records of captures in every month except February. Copulation takes place in the spring and the ♂ shortly afterwards dies. The ♀ begins to deposit her eggs almost immediately, and the fact that they are placed on the furze flower-buds is good evidence of the time of their deposition. The larvæ appear during the summer and generally mature by the beginning of August; but some may still be found during the rest of the month, and a few stragglers even up to the beginning of October. This seems to imply that batches of eggs are laid at intervals during the summer, as we have seen that those of the same batch are hatched almost simultaneously. The normal time for completing the larval life seems to be about two months. The insects of the year usually spend their winter in the furze-bushes, the evergreen nature of which affords them the needful shelter. On warm days they bestir themselves and bask in the sunshine (see Ent. Mo. Mag., xxxvii, p. 73), sometimes taking short flights to the accompaniment of a loud buzzing of the wings.

There is a green form of the larva, besides the one above described, and this probably corresponds with the green form of the adult. Some change takes place in the distribution of the pigment during larval life, for a cast skin of the third instar shows almost as much colour as the insect itself, and those of the first are quite black, except the abdomen, which is hyaline; but one yielded by the last instar is entirely pale ochreous, with a fine rosy tinge on the wing pads; and the black punctures show out very distinctly, indicating that the pigment in them is entirely superficial.

This insect is not absolutely confined to furze-bushes; it has been found also on other leguminous plants, such as broom, *Genista*, *Melilotus*, and *Trifolium*. Other plants also, outside the *Leguminosae*, have yielded it, such as Tamarisk (Tuck), Willow (Sopp), Heather (Bedwell), and Reuter adds *Lonicera*, *Crataegus*, *Betula*, *Quercus*, and in winter on Pines. But, except the last, most of these are probably merely casual occurrences, and in this country at any rate, the staple host-plant is certainly *Ulex*.

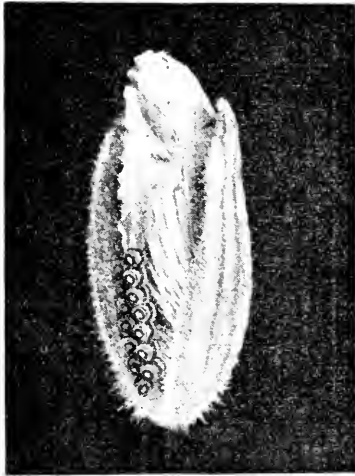


Fig. 1.—*P. lituratus* ova,  $\times 3$ ,  
hatched.

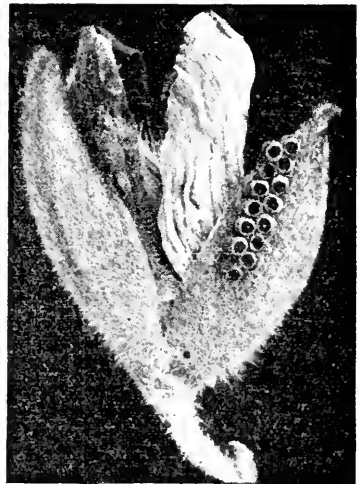


Fig. 2.—*P. lituratus* ova,  $\times 3$ ,  
parasitised.

The eggs are subject to the attacks of a minute Hymenopterous parasite, a Proctotrupid of the genus *Telenomus*. The parasites do not appear till about three weeks after the time for the emergence of their hosts; and apparently their first meal after emergence consists of the lid of the egg, which entirely disappears without leaving any traces

(Fig. 2). So far as I have been able to observe, when parasitism takes place, all the eggs in a batch are affected.

For the excellent photographs which accompany this article I am indebted to the skill of Mr. Hugh Main.

56, Cecile Park,

Crouch End, N.:

January 3rd, 1917.

## FAUNA OF STAFFORDSHIRE—*ICHNEUMONIDAE*.

BY CLAUDE MORLEY, F.Z.S., F.E.S., &c.

I have recently had the pleasure, thanks to the kindness of Prof. Carr, of looking through a collection of *Ichneumonidae* made in, and in the vicinity of, the town of Lichfield during the year 1916. Considering how poor a season was that of last summer, the collection is very full, and a capital piece of work for so restricted a period. Staffordshire is one of the most neglected counties of England as regards *Ichneumonidae*; and, excepting only some casual captures effected by Mr. Tomlin and other Coleopterists at Cannock Chase, and a few by the Birmingham Entomologists, I can recall no published records thence. Consequently it is of especial interest to extend our knowledge of their local distribution, as evidenced by the following Lichfield insects. The nomenclature is that of my British Catalogue of 1915.

*Protichneumon fuscipennis* Wesm.; *Coelichneumon fuscipes* Gm. and *C. impressor* Zett.; *Stenichneumon trilineatus* Gm. (many); *Cratichneumon rufifrons* Gr., *C. dissimilis* Gr., *C. fabricator* Fab., *C. annulator* Fab., and *C. fugitivus* Gr.; *Melanichneumon leucomelas* Gm.; *Borichneumon ridibundus* Gr., *B. bilunulatus* Gr., *B. lepidus* Gr., and many ♂♂ (first described by me in Ent. Mo. Mag., 1904, p. 37) *B. heracleanae* Bridgm.; *Ichneumon molitorius* Gr., *I. confusorius* Gr., and *I. albiger* Wesm.; *Chasmodon motatorius* Fab., *Ctenichneumon castigator* Fab., *Amblyteles palliatorius* Gr., and *A. armatorius* Först.; *Eurylabus tristis* Gr., *Platylabus pedatorius* Fab., *Herpestomus brunneicornis* Gr., *Phaeogenes ophthalmicus* Wesm., *P. bellicornis* Wesm., and *P. maculicornis* Steph.; *Dicaelotus pumilus* and *D. cameroni* Bridgm.; *Colpognathus divisus* Thoms., and the aberrant *Alomyia debellator* Fab.

The *Cryptinae* included *Microcryptus arridens* Gr., *M. nigrocinctus* Gr., and *M. labralis* Gr.; *Glyphicnemis profligator* Fab., *Phygadeuon exiguus* and *P. fumator* Gr.; *Hemitetes necator* Gr. and *H. laevigatus* Ratz.; *Pezomachus instabilis* Först. and *P. fasciatus* Fab.; *Stilpnus gagates* Gr., *Atractodes exilis* Hal., and

*Exolytus laevigatus* Gr.; *Spilocryptus abbreviator* Fab., *Goniocryptus titillator* Linn., and *Cryptus lugubris* Gr.

The *Pimplinae* were richer with *Pimpla robusta* Morl., *P. arundinator* Fab., *P. brevicornis* Gr., *P. punctiventris* Thoms., *P. inanis* Schr., *P. detrita* Hlgr., *P. instigator* Fab., *P. turionellae* Linn., *P. maculator* Fab., *P. alternans* Gr., *P. rufata* Gm., *P. oculatoria* Fab.; *Schizopyga podagrica* Gr., *Glypta pedata* Desvignes, *G. scalaris* Gr., *G. flavolineata* Gr., and *G. evanescens* Ratz.; *Lissonota bellator* Gr., *L. cylindrator* Vill., and *L. sulphurifera* Grav.; *Phytodiaetus coryphaeus* Gr., *Oedematopsis scabricula* Gr., *Banchus pictus* (a nice series of both sexes), *Exctastes cinctipes* Retz., and *E. nigripes* Gr.

Very few *Tryphoninae* were represented, such as *Bassus laetatorius* (I last saw it from Cape Town!), and *B. tricornis* Gr.; *Homocidus cinctus* Gr., *H. tarsatorius* Pz., *H. deplanatus* Gr., and *H. dimidiatus* Schr.; *Promethus sulcator* Gr., *P. cognatus* Hlgr., and *P. pulchellus* Hlgr.; *Mesoleius semicaligatus* Gr., *Dyspetes praerogator* Linn., *Trematopygus albipes* Gr., *Tryphon rutilator* Linn., *Eeenterus flavilabris* Hlgr., *Mesoleptus testaceus* Fab., *M. cingulatus* Gr., *Euryproctus lateralis* Gr., and *Polyblastus variitarsus* Gr.

Less attention seemed to have been paid to the smaller *Ophioninae*, and several of the obscure genera *Omorga* and *Angitia* were not in a condition to admit of determination. *Campoplex obliterated* Hlgr., *C. angustatus* Thoms., *C. terebrator* Först., *C. nitidulator* Hlgr., *C. zonellus* Först., and *C. tenuis* Först.; *Cymodusa leucocera* Hlgr., *Casinaria ischnogaster* Thoms., *Phobocampa uncinata* Gr., and *P. bicingulata* Gr.; *Omorga faunus* Hlgr., and *O. borealis* Zett., with *O. ensator* Gr.; *Nepiera concinna* Hlgr., *Angitia majalis* Gr.; *Ophion stigmaticus* Morl., and *O. scutellaris* Thoms.; *Henicospilus ramidulus* Linn.; *Paniscus cristatus* Thoms. and *P. melanurus* Thoms.

Monks Soham, Suffolk:

December 20th, 1916.

*Notes on Coleoptera in Devonshire.*—Among the *Coleoptera* taken by myself during 1915 and 1916, the following may, perhaps, be of some little interest. From the Plymouth district:—*Agonum assinile* (*Anchomenus*) *junceus*, near Lopwell, June, 1916; *Amara aulica*, *Metopsia* (*Phloeobium*) *clypeata*, *Euplectes sanguineus*, *Brachygluta fossulata*, *B. waterhousei*, six under stones on the shore at Oreston; *Bythinus curtisii*, *Neuraphes elongatulus*, *Agathidium nigrinum*, *Halysia 16-guttata*, *Corymbites bipustulatus*, one at Newnham Park, Plympton, 22.vii.1916; *Grammoptera tabacicolor*, *G. ruficornis* var. *pallipes* Steph., Lopwell; *Psylliodes affinis* and *P. chrysocephala*, both species not uncommon round Brixton; *Ceuthorrhynchus pyrrhorhynchus*, *C. timidus* Weise, Plymbridge, 11.vii.1915, new to district; *Gymnetron pascuorum*, *G. antirrhini*, *Magdalis armigera*, *M. ruficornis* (*pruni*), *Tychius picirostris*, *Apion onopordi*, *radiolus*, *ebeninum*, *rufirostre*,



*curtirostre*, *gyllenhalii*, *punctigerum*, *erri*, *ononis*, *virens*, etc. During the second and third weeks in last August I collected in the Newton Abbot and Bovey Tracey district. *Coleoptera* were by no means plentiful, but among many other species the following were obtained:—From Newton Abbot: *Platambus maculatus*, *Orectochilus villosus*, *Anacaena limbata*, *Helochares ligidus*, *Philonthus quisquiliarius* v. *inquinatus*, *Stenus buphthalmus*, *S. tarsalis*, *Utholacrus corruscus*, *Olibrus particeps*, *Scirtes hemisphaericus*, etc. From Bovey Tracey:—*Epyraea depressa*, *E. florea*, *Coccinella conglobata*, about a dozen specimens, *Cryptocephalus fulvus*, *C. pusillus*, *Phytonomus ramicis*, *P. trilineatus*. From Heathfield:—*Paracymus scutellaris*, *Hydrochus nitidicollis* (first taken by Messrs. J. H. Keys and P. De la Garde in the Meavy Valley, and subsequently by the latter at Christow), and *Laccobius purpurascens*, a single example of each; *Microglossa pulla* and *Gymnetron beccabungae* v. *nigrum*. At Bradworthy, near Holsworthy, N. Devon, in August, 1915, *Lasia globosa* occurred very plentifully; I also took a specimen of *Cassida equestris* Fab., an insect not previously recorded from the county. I am indebted to my friend Mr. J. H. Keys for his kind help in identifying many of the species.—A. VINCENT MITCHELL, 90, Mount Gold Road, Plymouth; December 28th, 1916.

*Teratologies of Prasocuris junci* Brahm.—Three interesting abnormalities of this beetle occurred to me during August at Barnard Castle on *Cochlearia* and Brooklime: *a*, a specimen with the left anterior leg correctly shaped, but of only half the normal size as shown by the corresponding leg on the right; *b*, a fully mature specimen with hard integument, but with the left intermediate leg teneral and still reddish; *c*, a specimen with the left posterior leg somewhat flattened in a vertical plane for about half its length with a strong carina on the upper side, then suddenly and abruptly reduced to a third the normal thickness for a further sixth of the length, and with the last third of the usual shape, but bent outwards at right angles to the first portion so as to form a letter L.—GEO. B. WALSH, 166, Bede Burn Road, Jarrow-on-Tyne; January 10th, 1917.

*Malthodes atomus* Thoms.: *synonymical note*.—Amongst some new synonyms of European *Coleoptera* recently recorded by M. Bedel (Ann. Soc. Ent. Fr., LXXXV, p. 271, Aug., 1916), there is one concerning *Malthodes atomus* Thoms. (1864), an insect well known to British entomologists. This is stated to = *M. pumilus* Brébisson (1835), the type of which was from Calvados. *M. pumilus* Motsch. (1853), from the Crimea, therefore requires a new name.—G. C. CHAMPION, Horsell, Woking; January, 1917.

*Diptera at Dunster* (Somerset).—When spending some weeks during August, 1916, at Dunster, a friend suggested that I should collect flies. The result shows the locality to be very rich and well worth the attention of entomologists. The total number of species captured was close upon 100, and the following are some of the rarer ones:—

*Pachyrrhina imperialis* Meig., in low-lying meadows. *Machimus atricapillus* Flh. *Anthrax hottentata* L., much worn, in fair numbers on bare patches of

sand near the sea; the patches were also inhabited by *Mellinus arvensis*. *Calli-cera aenea* F., one specimen, ♂, of this very rare fly was captured. It is a Mediterranean genus, of which *aenea* F. and *gerburyi* Verr. are the only species found in Great Britain.

*Ischyrosyrphus laterarius* Müll.; *Helophilus versicolor* F.; *Xylota florum* F.; *Pyrophaena granditarsis* Forst.; *Eristalis nemorum* L.; the beautiful var. *furva* of *Eristalis intricarius* L.; *Chrysogaster chalybeata* Mg.; *Volucella pellucens* L., very common; *Volucella inanis* L., fairly frequent, though most of the specimens were ♂: this fly is said to be associated with the hornet, but I did not see any of the latter; *Conops flavipes* L. and *Conops quadrifasciata* Deg., which always flew in pairs, about 20 were seen in the hedge bordering the moor, but they were difficult to catch as they kept well in the hedge; *Pyrellia cyanicolor* Zett.

The sand dunes yielded only *Anthrax*; the marshes, pine woods and moors seemed rather poor in *Diptera*; the hedges everywhere swarmed with *Diptera*, which attracted *Sympetrum striolatum* in immense numbers. But for the fact that I had no experience and poor health, the result would probably have been better still. Mr. H. S. Charbonnier kindly identified my captures.—H. AUDCENT, 34, Belvoir Road, St. Andrew's, Bristol: January 17th, 1917.

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## Abstracts of Recent Literature.

BY HUGH SCOTT, M.A., F.L.S., F.E.S.

TOTHILL, J. D. "THE ANCESTRY OF INSECTS, WITH PARTICULAR REFERENCES TO CHILOPODS AND TRILOBITES." *American Journal of Science*, Vol. 42, pp. 373-387, November, 1916.

Various genealogical trees for insects have been put forward: *inter alia*, the classification of Brauer; the work of Packard deriving winged insects through primitively wingless forms from Myriapoda; Carpenter's conclusion (1903) that insects and the myriopod groups Chilopoda (centipedes) and Diplopoda (millipedes) all originated independently from a symphyloid stock; and the heterodox theory of Handlirsch, that insects were directly derived from the extinct crustacean group Trilobita, the detailed structure and development of which has become known in recent years.

This last hypothesis Tothill considers to be very suggestive, but open to objections. As shown below, he suggests rather that trilobites may have given rise to chilopods, which in turn gave rise to insects: these last arising, therefore, not directly but indirectly from trilobites.

Which are the most generalised of all insects? The Apterygote forms occasionally preserve, even in the adult condition, primitive characters, such as the abdominal appendages, and in certain cases (*e.g.*, *Anurida* and young embryo *Lepisma*) the tritocerebral appendages. But some of them show considerable specialisation, such as reduction of eyes and mouth-parts (certain Thysanura and

Collembola), reduction of tracheae and the number of abdominal segments (Collembola), and the occurrence of specialised organs like the caudal spring and colophore of Collembola. The Apterygota seem too specialised to be in the *direct* line of descent of the winged forms (Pterygota).

A different conception of a primitive generalised insect has been engendered by the findings of Handlirsch from the Palaeozoic strata. As an example, *Stenodictya* is a large insect with well differentiated head, thorax, and abdomen, with the full number (11) of abdominal segments, and with caudal cerci. It has two pairs of large, long, and narrow wings, *the venation of which closely resembles that of the hypothetical wing suggested by Comstock and Needham some years before the publication of Handlirsch's work.* Its prothorax also has a pair of wing-like expansions of considerable size [*cf.*, the nymphal stages of certain Termites], and each abdominal segment has a pair of smaller lateral expansions. In its early stages at any rate, *Stenodictya* had appendages on the abdominal segments, but these *may* not have been primitive, but secondarily acquired gill-filaments like those of a *Sialis* larva, for *Stenodictya* was possibly aquatic in its early life.

If the fossil group Palaeodictyoptera, here exemplified by *Stenodictya*, represent the ancestral stock of Pterygote insects: what then were the ancestors of Palaeodictyoptera? From the available data may be constructed a hypothetical ancestral insect, wingless with nervous system less compacted than in living forms, with paired appendages on both thoracic and abdominal segments (abdominal appendages are widely developed in the embryos of living insects), and with a series of spiracles (structures which appear very early in the embryonic life of living forms). The head is not discussed in detail, but is considered as probably composed of six segments. Neither is it possible to decide whether the individual appendages were biramous [two-branched, the common Crustacean type] or not; actual evidence only points to a biramous condition in the case of the 1st and 2nd maxillae.

The generalised ancestral insect being now visualised, where is the actual creature most closely resembling it to be found? Arachnoids are passed over as too specialised. One turns to consider Trilobita, a group already highly differentiated in the oldest known fossiliferous rocks, and reaching their climax in the Ordovician, the lowest great system but one; creatures which "dominated the life of the oceans," occupying the ecological position now held by fishes. With the increase of fishes in the Silurian epoch, the decline of trilobites began, and they "became extinct with the passing of Palaeozoic time." More than 2000 species have been described, doubtless but a fraction of the whole.

It is sufficiently remarkable that it should have been possible to study in detail the eyes and appendages, even the development, of creatures which ceased to live such long ages ago: but so it is, in the case of certain kinds. The trilobite head has *at least* five pairs of appendages, and in *Triarthrus* it has a pair of long filamentous antennae, very insect-like. Three kinds of eyes have been found in trilobites, ocelli, aggregates of simple eyes, and true compound eyes—corresponding roughly to the kinds in living insects. One trilobite genus

shows regional specialisation of the first three segments behind the head; another has jointed caudal appendages like cerci. The "trilobate" body segments recall the laterally expanded segments of *Stenodictya*. They bear each a pair of homologous, biramous appendages.

Thus Trilobita do conform in several ways to the concept of an ancestral insect. But their biramous appendages are against this (unless insect appendages were also biramous), and they have no spiracles. Knowledge of their nervous system and head segmentation is inadequate for the drawing of conclusions.

Turning to Myriapoda, Diplopoda (millipedes) are unlikely to throw much light on the question, but Chilopoda (centipedes) offer suggestive features. They approach insects in the form of their nervous system, histological nature of their tracheal system, form of mandibles and maxillae, and embryonic development. An ancient centipede, with maxillipeds not specialised into poison-claws, would have been suspiciously like the ancestral insect outlined above.

If, then, insects arose from a chilopod stock, what was the ancestry of Chilopoda? *Peripatus* is here considered as probably out of the question, its tracheal system being histologically quite unlike that of either insects or centipedes, and having probably arisen independently, like the incipient tracheal system of certain woodlice. Fossil centipedes throw hardly any light on the matter. But in living forms some embryonic features suggest an ancient "crustacean" condition of the appendages. All that has been said above of likenesses between trilobites and ancestral insects applies even more forcibly to the case of trilobites and ancestral centipedes. Here is the main suggestion of Tothill's paper: that the ancestors of insects arose, not directly from trilobites, but from a chilopod stock, which in turn originated from a trilobite stock. This suggestion is as logical as many others, and will not be useless even if it "succeeds only in stimulating the search for further facts."

To derive centipedes from trilobites implies that some form or forms left the ocean and became terrestrial, exchanging gills for air-breathing organs. This has actually occurred in the genera of woodlice referred to above, in spite of their belonging to the great crustacean group, in which branchial gills are the rule. Tothill's idea also involves a logical sequence from marine creatures to wingless terrestrial forms, and from these to winged forms.

Finally, vertical distribution in time is diagrammatically shown. Trilobites were at their zenith in almost the oldest known fossiliferous strata, and vanished with Palaeozoic time; chilopods appear to have arisen rather later than the period at which trilobites attained their maximum; and insects, so far as known, originated much later in Palaeozoic time, reached their climax in Mesozoic epochs, and are now in a condition of decline.

## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :  
*Thursday, November 9th, 1916.*—Mr. H. J. TURNER, F.E.S., President, in the  
 Chair.

Mr. G. W. Mason, of Ealing, was elected a Member.

Professor Bateson, F.R.S., gave a lecture, with lantern slides and other illustrations, entitled "Remarks on the Mendelian Theories, with especial reference to recent extensions in their application made in America." Some discussion took place. Mr. G. T. Porritt exhibited a gynandromorph of *Lasio-campa quercus* and an olive-banded male of the same species, together with a lemon-yellow male of *Cosmotriche potatoaria*, the former from near Huddersfield. Mr. Platt Barrett, British *Lycaenidae* taken this season.

*November 23rd, 1916.*—The President in the Chair.

Mr. L. W. Newman exhibited a series of very darkly marked bred specimens of *Agriopis aprilina* from Teesdale. Mr. Frohawk, a fine bred series of *Chryso-phanus rutilus* from ova laid by a female from Holland, and compared them with the Austrian race and British *C. dispar*. Mr. Turner, a long series of many forms of *Peronea cristana* and examples of various continental races of *Parnassius mnemosyne*. Mr. Brooks reported that he had taken an imago of *Acrionicta megacephala* on June 8th and another on August 8th on the same trunk; it was supposed that the latter was a belated emergence. Mr. Blair, the living larvae of the Dipteron, *Microdon mutabilis*, an inhabitant of ants' nests, found among sphagnum from the New Forest. Mr. Frohawk reported that he had noticed wasps collecting ears of corn in quantity from one portion of a field. This was quite a new habit.—H. J. TURNER, *Hon. Secretary*.

### ON THE KIRBY COLLECTION OF *SPHECODES*, *NOMADA*, *ANDRENA*, AND *CILISSA*, WITH THE DESCRIPTION OF A SPECIES OF *SPHECODES* HITHERTO UNRECORDED FROM BRITAIN.

BY R. C. L. PERKINS, M.A., D.Sc., F.E.S.

The Kirby collection of British Bees, for the most part formed before the year 1802, and illustrating his celebrated and admirable "Monographia," published in that year, may be considered the most important of all our British collections, owing to the large number of actual types that it contains. Unfortunately, before it became the property of the British Museum, many of the specimens, as we know from F. Smith, were in a 'decayed' condition, and in fact they show plainly the ravages of Dermestid beetles, Psocids, and such like pests. Many of the specimens, too, are coated with dirt and exudations, and some are in a very fragmentary condition. I do not think that any serious

attempt has ever been made to clean the specimens, in order that the most difficult species, such as those of the genus *Sphcodes*, might be correctly determined; and it is astonishing that Smith, with his great love for our British bees, and with the opportunity that was his, should not have taken pains to improve the condition of the collection and to study it more critically.

I have lately been permitted to clean, mount and identify some of the specimens that most required to be worked at, and with the exception of one or two very badly mutilated examples, I believe all the specimens of *Sphcodes* are now capable of being distinguished.

Kirby's actual types of each species bear a special label with a number corresponding to that of the species, as numbered in his "Monographia." Also the varieties are distinguished by labels bearing a Greek letter, as in that work.

In *Sphcodes* (included of course under *Melitta*) six species were recognised by Kirby. His *M. gibba* (No. 7) is a ♀ *S. pellucidus* Smith (= *pilifrons* Thoms.), while his ♂ is *S. rubicundus* von Hag. His var.  $\beta$  is a very old and abraded ♀, hardly to be identified with certainty, but possibly *S. ferruginatus* Schenck. It is this specimen that he thought might be a 'nenter' (worker), under the supposition that *Sphcodes* had three forms as in the social bees.

His var.  $\gamma$  is a *S. subquadratus* Sm., as also is the fifth example, not specially labelled by him.

Of *Melitta geoffroyella* K. there are only two females. The type is a most difficult insect to name, and is, I believe, a small example of *S. variegatus* von Hag., though some might consider it to be an abnormal example of *S. dimidiatus* von Hag. I can almost match it with a specimen of the former from a locality where the latter does not occur. The second specimen is also a small *variegatus*.

*Melitta sphaecoides* K. is represented only by the ♀ type. It is the *Sphcodes gibbus* of authors (nec K.).

*Melitta monilicornis* K., one of which is much mutilated, having lost its abdomen, the other being the type, is *S. subquadratus* Sm.

*Melitta picea* K. is represented only by the type, and that is headless. It is a ♂ of *S. gibbus* of most authors (not K.).

There are 13 examples of *M. divisa* K. The type is a ♂ of *S. similis*, as also are the vars.  $\beta$ ,  $\gamma$ ,  $\epsilon$  (one of the two examples) and three others not specially labelled. Var.  $\delta$  is headless, but is probably *S. dimidiatus*; and another labelled 12 ♂  $\delta$ , is *affinis* von Hag. The second

example labelled  $\epsilon$  is headless and has also lost the apex of the abdomen, and is safer left undetermined. Two specimens (not numbered nor lettered) are, one certainly and the other probably, *S. variegatus*. Finally, one  $\zeta$  is at a glance distinct from any species in the British list, and I have identified it by von Hagens' figure and description (kindly lent me by Mr. Morice), and by comparison with a single Continental male in the general collection at the museum, as *S. scabricollis* Wesm.

*S. scabricollis* Wesm.  $\nu$

The  $\zeta$  (and the  $\text{♀}$  also, according to descriptions) can be distinguished at a glance from any other of our species by the excessively densely punctured surface of the whole mesonotum and scutellum, the surface between the punctures appearing to form, as it were, merely a raised edge to the punctures, whereas in other species there is always more or less distinct flat surface, at least in some parts, between the punctures, however dense these may be.

The first and second segments of the abdomen are finely and remotely, but quite distinctly, punctured, and in this respect are very similar to one another. The stipes of the male genital armature are smooth and shining, at least on the basal portion, and no definite sculpture is visible even under a strong lens; the more strongly chitinized part of the lacinia, seen from above, is triangular, and very sharp at the apex, and it is bordered with a pale membrane inwardly, which has at the apex a fringe of hairs, and also extends back a short way along the inner margin of the stipes. Seen from the side, the lacinia is emarginate at the apex, so as to form an upper and lower process, and the latter bears short hairs beneath. In certain positions of the lacinia, this lower process may appear in a dorsal view of the armature, exterior to the upper one.

The very old example here described is about the size of a *pili-frons* or *subquadratus*, and has had a large part of the antennae and head eaten out; but in the Continental specimen the basal impressions (pubescent bands) of the flagellar joints of the antennae are narrow. These organs are in general formed as in the *gibbus* group, but von Hagens, no doubt rightly, places *scabricollis* in a distinct section with the large *S. fuscipennis* Germ., which latter once stood in our lists on the authority of specimens in Leach's collection.

Of his *Melitta divisa* Kirby gives Barham as the locality, and says '*e rarioribus una.*' In his paper on the genus, von Hagens says

that *scabricollis* is a scarce species, but gives several localities. Förster found it at Aachen. At a guess, *Halictus quadricinctus* might be its host.

As to Kirby's types of *Nomada*, many of these have already been correctly determined, but the unique specimen and type named *alternata* K. is nothing but a slight variety of *goodeniana* K. without the scutellar spots, etc. It is astonishing how the name ever came to be used for *N. marshamella* K., the common parasite of *A. trimmerana*.

Of *N. flava* Panz., there are only three males, the specially numbered one is a ♂ *bifida*, another marked 'var.' is headless, but is also probably *bifida* Thoms., while  $\gamma$  is a large and brightly-marked *xanthosticta* (= *lateralis* E. S., *bridgmaniana*, Sm.).

As Smith determined, *Apis cornigera*, *subcornuta*, *capreae*, and *lineola*, all belong to the species we know by the last mentioned name, as also does the fragmentary type of *A. jacobaeae* K.

*Apis leucophthalma* K., as Mr. Morice had some time ago informed me, is clearly a ♂ *N. borealis* Zett., and the latter name becomes a synonym.

There are several specimens named *N. ruficornis* L., of which the two specially labelled "27 ♀" are *bifida*; var.  $\beta$  is a *ruficornis* of the large form parasitic on *A. fulva*, and var.  $\gamma$  is an *ochrostoma*; var.  $\delta$  is *N. guttulata* ♀, while the three remaining specimens are one ♀ *flavo-guttulata* and 2 ♀ *ochrostoma*. The type of *A. hillana* was not in Kirby's collection, and as it cannot be definitely fixed as being either an *ochrostoma* or *guttulata* it cannot be used. It is quite probable that it was a *guttulata* and not synonymous with *ochrostoma*.

Placed amongst the *A. fabriciella* K. (= *fabriciana* Auct.) is a specimen of *Nomada*, number 114. As the "Monographia" ends with the 111th species of *Apis*, it is clear that Kirby added to his collection after the publication of his work. Now there are also similar additional numbered species of *Melitta*, bearing numbers beyond those of the species in the "Monographia," and some of them also bear specific names written by F. Smith, but these are not included amongst Kirby's original species, even though they are the same. I presume, therefore, that Kirby's *Apis* No. 114 was finally placed under *fabriciella* by himself, and considered to be a variety of that species. As a matter of fact, it is a very good fresh-looking specimen of *Nomada conjungens* ♀, the bee so recently added to our list. As is well known, Barham was, and no doubt still is—since it has comparatively recently been obtained there—a locality for *Andrena proxima*, the host of *conjungens*. This



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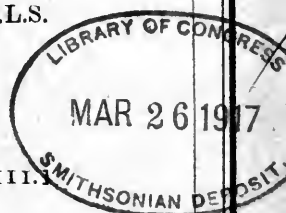
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The Chair will be taken at 8 o'clock in the evening precisely.

The Library is open daily from 9 a.m. to 6 p.m. (except on Saturdays, when it is closed at 2 p.m.), and until 10 p.m. on Meeting nights.

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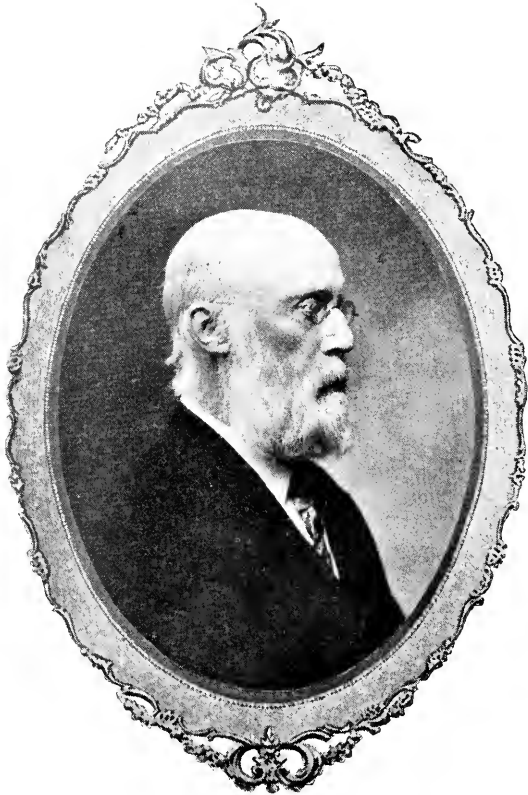
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March 6th—Special exhibition and discussion, "The Geranacea." Opened by F. B. BISHOP. March 20th.—"Life History of the Cuckoo." By F. P. BAYNE (illustrated by lantern slides). April 3rd.—Exhibition of lantern slides by Members.

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[Photo: Elliott & Fry.]

*Chas. O. Whetstone*

*Andrena* stands under several names in Kirby's collection, as detailed below. Kirby's No. 113 is a ♂ of *N. fabriciella*, but it was not added to the typical specimens of his *Apis quadricincta*, this being the name under which he described the male of *fabriciella*, though he suggests that it may be the other sex of the last named. The type of *A. rufocincta* is a *flaroguttata* ♀, not *furva* Panz., as Smith considered it.

In the genus *Andrena*, of Kirby's *Melitta rosae* Panz. (No. 39), the specially numbered ♀ is what we have considered to be Panzer's species (*s. str.*). "39 ♀ var." is a *florea* ♀, as also are  $\gamma$  and  $\delta$ ; the "♂" is that of *florea*. *Melitta zonalis* (No. 40) is the true ♂ of *rosae*. Under *M. nitida* K. the example labelled "51 ♀ var." is a mutilated *trimmerana* ♀; the lettered varieties are correctly placed. The males assigned to *tibialis*, the one headless and the other var.  $\beta$  are both *A. nigroscenea*, but these males are not described in the "Monographia." *M. mouffetella* K. (53) as Saunders correctly determined, is a very ordinary, stylopized ♂ of *tibialis*, and the males are also that species.

*Melitta trimmerana* K. (No. 57) is a cause of difficulty. The type, as was obvious at a glance, is not what is universally known as *Andrena trimmerana* K., but is the ♀ of the summer brood of *A. spinigera* K., known to us as *A. anglica* Alfk. When we consult the "Monographia" (II, p. 116) we find that Kirby only once collected typical *trimmerana*, and that was in the middle of August. He says "*Hab. Barhamiae in floribus Augusto medio 1799 semel lecta,  $\beta$  bis in floribus horti mense Maio. Capta etiam a D. Jacobo Trimmer . . . .*"

This sufficiently shows that the type form of *trimmerana* was not what we know by that name. It is true he says that the scopa is "*subtus albida*," *i. e.*, whitish beneath, a character of the *trimmerana* of our lists, but if he examined typical examples of this latter from Trimmer, as is quite likely, he may well have supposed that the scopa was slightly discoloured in his own specimen; indeed, it frequently becomes so from pollen. Kirby seems to have had little knowledge of our common *trimmerana*, for he assigns his one ♂ of it to *A. varians*. It seems clear then, deplorable as we must consider it, that *A. spinigera* K. (No. 63) must be known as *A. trimmerana* K. (No. 57) = *anglica* Alfk. The name *spinigera* may well be used for its extraordinarily dimorphic spring form, thus named by Kirby. As to *trimmerana* Auct. nec K., I do not know what synonymic names may be available for use. It would certainly be unfortunate should some varietal name, such as var. *scotica*, have to be used for the typical form.

*Melitta varians* Rossi (58) has assigned to it, as ♂, that sex of *trimmerana* Auct. nec K., as stated above, while the ♂ described under *M. helvola* L. is, I believe, a ♂ *A. nigrouenea*, but it is a headless specimen. *M. picicornis* K. (No. 62) has been cited as a synonym of *A. trimmerana* (Auct. nec K.) by E. Saunders, but this I have long known to be an error, as *picicornis* was described as having a yellowish scopa. The type is very much distorted and affected by the stylopid parasite, but I believe it to be a ♀ of the second brood of *A. geymana* (which I frequently find stylopidized), and the second example in the collection a faded example of the same species. The type of *M. subdentata* K. (No. 65) is a ♂ *helvola* L.; the var.  $\beta$  is ♂ *varians*. *M. picipes* K., which has been referred to the same species as *M. picicornis*, viz., to *A. trimmerana* Auct., was probably a worn or faded *A. afzeliella* or *wilkella*, stylopidized or otherwise. The type was in Drury's collection, and is not represented in Kirby's, but it could hardly have belonged to the *trimmerana* group. If found, I fear its name will have to be used for one of Kirby's later species. In the case of No. 67, *M. angulosa* K., the antennae are so mutilated that I do not feel sure whether this type is a slightly aberrant ♂ of *helvola* or *varians*, but I do not think it can be *synadelpha*, a name which, being recent,\* one would not regret.

The type of *M. lanifrons* (78) was in Haworth's collection, and I do not know whether it is likely to exist now. The description of this ♂ is not very convincing, but I think it may have been an *Andrena nigriceps*. Kirby's *M. contigua* (79) is ♂ *fulvicrus*, as Smith rightly determined. In the first edition of his book the last-named author retains *M. lewinella* K. (88) as a species, and says it is very like the male of *denticulata* K., but in his second edition he sinks it, as being a ♂ *dorsata* K., which is correct. *M. ovatula* K. (89) is the ♂ of *Andrena afzeliella*, and has priority over that and *fuscata* K. The type of No. 93, *M. collinsoniana*, is not as has been held, the ♂ of *A. proxima*, but is a ♂ *dorsata*, while the var.  $\beta$  is a true *proxima*. No var.  $\beta$  is mentioned in the "Monographia," so perhaps there has been some error in the labels, for the description agrees better with *proxima*. In no other case but where *proxima* is concerned have I found reason to suspect that the type of a species in Kirby's collection was not the actual subject of his description. But *M. combinata* ♀ type (94) is *dorsata*, and the ♂ given to it is a *proxima*. There should be a var.  $\beta$  of *combinata*, which Kirby described as "*plantis omnibus nigris*," and this was no doubt a ♂ *proxima*.



If, then, var.  $\beta$  of *collinsoniana* (93) (= *proxima*) was transferred to *combinata* (94), and the male types of 93 and 94 transposed, then all the specimens would agree with the descriptions in the "Monographia."

*M. nudiuscula* K. (No. 95) has been considered to be *dorsata*. The type is in very bad condition, and the one hind leg or its fragments are stuck on to the side of the insect with a large mass of gum. When this leg is removed and cleaned the specimen can at once be determined, as being *dorsata*, if it be that species. The males under *M. albicrus* (96) are represented by a  $\sigma$  *fulvicrus* (so labelled by F. Smith) and a very worn example of the same species unlabelled. The mistakes that have been made in connection with *M. connectens* (97) are quite as inexplicable as those that concern *Nomada alternata*. The unique type is a  $\text{♀}$  *A. chrysoseles*, and a comparison of Kirby's descriptions of his two species will show how closely these agree, except, in small points, due to abrasion of the specimens. Smith, in his 1st Edition, says that *A. connectens* "approaches the preceding" (*dorsata*) and that it occurs at Southend, but there is a blank in his cabinet over the label for this species. In his 2nd Edition, he says the type is in a mutilated state, "and it is therefore very difficult to arrive at any satisfactory opinion respecting it!" but that it may be a worn variety of *dorsata*. E. Saunders also gives it as a synonym of *dorsata*, with a query. *M. subincana* K. (98) is a  $\sigma$  of *A. dorsata*. Smith (as is the case with one or two other obscure species) does not refer to this Kirbyan type in either of his editions on British bees. *M. convexiuscula* K. is a stylopedized *A. wilkella* K. (not *afzeliella*), but  $\beta$  is a female of *A. dorsata*. This var. is not referred to in Kirby's book. Why the name *afzeliella* has been generally used for 108 I do not know, for, as is well known, *fuscata* (107) is the same species, and it might have stood in our lists as *fuscata* var. *afzeliella*; but now both these must give place to *M. oratula* (No. 89). It remains to add that *Melitta tricincta* K. (109) is not synonymous with the species we call *Cilissa leporina*, but with *C. melanura*, and its specific name must replace the latter. The correct synonymy of a good many of Kirby's specimens will be found correctly given by F. Smith and E. Saunders, and to these, unless the species are difficult enough to make further confirmation advisable, I have not referred.

One may remark that in Kirby's collection there are three described species, which have not again been recorded in this country, viz., *Halictus laevis*, *Andrena nana*, and *Sphecodes scabricollis* (= *M. divisa* K. part.). There is no reason to suspect the authenticity of any of these insects

when we consider the case of *Nomada conjungens*, above mentioned; that of *Halictus 4-cinctus* (E. Saund.) which only comparatively recently has been re-discovered, though it is far from rare in some localities; and that of *Heriades*, which also was not collected for about a century.

The conspicuous (or at least distinctive) *Psen* (*Mimesa*) *atra* also has been practically lost since Kirby's time, while only during recent years has the still more distinctive *Pompilus sanguinolentus* been added to our lists, though now it has been taken in several distinct localities. Smith's special captures, '*Crabro clypeatus*,' '*Megachile pyrina*,' and '*Bombus pomorum*' are, like those of Kirby, awaiting re-discovery.

The following changes of names, will, I fear, have to be made in our lists, the specific name placed first being the one that we must use.

<i>Melitta monilicornis</i> K.	=	<i>Sphcodes subquadratus</i> Sm.
<i>M. divisa</i> K.	=	<i>S. similis</i> Wesm.
<i>Sphcodes scabricollis</i> Wesm.	=	<i>M. divisa</i> K. (partim).
<i>M. geoffroyella</i> K.	=	<i>S. variegatus</i> von Hag. (?)
* <i>S. pellucidus</i> Sm	=	<i>S. pilifrons</i> Thoms.
<i>M. trimmerana</i> K.	=	<i>Andrena spinigera</i> (2nd brood)
	=	<i>A. anglica</i> Alf.
<i>M. ovatula</i> K.	=	<i>M. afzeliella</i> K.
<i>M. tricineta</i> K.	=	<i>Cilissa melanura</i> Nyl.
<i>Apis marshamella</i> K.	=	<i>Nomada alternata</i> auct. Brit. nec K.
<i>A. goodeniana</i> K.	=	<i>A. alternata</i> K.
<i>A. leucophthalma</i> K.	=	<i>Nomada borealis</i> Nyl.

Paignton:

December 1st, 1916

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### SOME COLEOPTERA FROM NORTHERN INDIA.

BY G. C. CHAMPION, F.Z.S.

Amongst a large number of *Coleoptera* from Western Almora recently sent me by my eldest son, H. G. Champion, Assistant Conservator of Forests for that district, there are numerous interesting forms, some of which he will doubtless report upon later.

These insects are mostly from high elevations south of the Central Himalayas, and, as might be expected, many of them show strong

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\* Determined from F. Smith's collection, and added here for completeness.

Palaeartic affinities, a few, indeed, being actually European. Such are *Temnochila caerulea* F. var. *asiatica* Lév., *Buprestis* (*Ancylochira*) *geometrica* L. and G., *Hylobius*, *Ips* (*Tomicus*), *Polygraphus*, and *Platypus* spp., *Nothorrhina muricata* Dalm. (a Longicorn found by myself in the Guadarrama, Spain), etc., associated with "Chir," *Pinus longifolia*; *Capnodis indica* Thoms., a Buprestid very like the Palaeartic *C. cariosa* Pallas; *Cyrtognathus hugeli* Redt., a large Prionid, sent in numbers, perhaps confined to Northern India; *Notiophilus orientalis* Chand., etc. Descriptions of two species of *Mycetophagus* and a *Penthe*, the last-named genus not hitherto recorded from Northern India, are appended below:—

#### MYCETOPHAGIDAE.

##### *Mycetophagus sulcicollis*, sp. n.

Elongate, shining, rufo-testaceous, the antennae infusate towards the apex, the eyes black, the prothorax and elytra nigro-variegate, the markings on the latter consisting of a sub-quadrate patch on each side of the scutellum at the base, a small spot on the shoulder, two angulate irregular fasciae (one, ante-median, oblique, not reaching the suture, the other, post-median, transverse, entire), a transverse streak at the sides below these, and an apical patch; thickly clothed with rather coarse decumbent pubescence, which partakes of the ground-colour. Head densely, roughly punctulate, the transverse frontal groove deep, sinuous; maxillary palpi stout; antennae long, reaching considerably beyond the humeri, rather stout, joint 3 twice as long as 2, 4-7 much shorter, 8-10 slightly wider, about as broad as long, 11 oblong-ovate. Prothorax short, broad, strongly rounded at the sides, narrowed anteriorly, bisinuate at the base, the hind angles obtuse; densely, shallowly, reticulate-punctate, sulcate down the middle, and with deep basal foveae. Elytra long, slightly wider than the prothorax, sub-parallel in their basal half, flattened on the disc, the humeri obtuse, but somewhat prominent; striato-punctate, the interstices almost flat, densely, roughly punctulate. Legs long, rough, pubescent, the tibial spurs strong. Length  $5\frac{3}{4}$ , breadth  $2\frac{1}{2}$  mm. (♂.)

*Hab.*: N. INDIA, W. Almora (*H. G. Champion*, 18.v.'16).

One male, the sex recognizable by the 3, 4, 4-jointed tarsi. Found on a large fresh *Polyporus* growing on a dead *Alnus nepalensis*, in company with a second species of the same genus and other *Coleoptera*. The present insect is more elongate, and has longer legs and antennae, than usual in *Mycetophagus*. The rough prothoracic sculpture is perhaps best described as reticulate, no definite isolated punctures being traceable.

##### *Mycetophagus alni*, n. sp.

Oblong-oval, rather convex, feebly shining; nigro-piceous, the basal joints of the antennae, the bases of the tibiae, and the tarsi in part, more or less fer-

rusty; the elytra with a transverse angulate fascia on the outer half just below the base, and numerous small scattered spots, fulvous, the spots towards the apex clustered into an irregular undulate fascia; thickly clothed with rather coarse, decumbent pubescence, the hairs along the sides of the prothorax and elytra projecting beyond the margin, which appears ciliate. Head densely asperato-punctate, the transverse frontal groove arcuate, deep; antennae rather short, extending to a little beyond the humeri, joints 3-7 comparatively slender, gradually becoming shorter and broader, 6 and 7 about as long as broad, 8-11 wider, together forming a loose 4-jointed club, 9 and 10 transverse, 11 ovate. Prothorax short, broad, moderately rounded at the sides, narrowed anteriorly, bisinuate at the base, the hind angles obtuse; densely asperato-punctate, the basal foveae deep, and with a shallow fovea opposite the scutellum. Scutellum strongly transverse. Elytra oblong, not, or very little, wider than the prothorax; shallowly punctato-striate, the interstices almost flat, densely, roughly punctulate. Legs moderately long, rough, pubescent, the tibial spurs small. Length  $3\frac{3}{4}$ -4, breadth  $1\frac{1}{2}$ - $1\frac{3}{5}$  mm. ( $\sigma$  ♀.)

*Hab.*: N. INDIA, W. Almora (*H. G. Champion*, 18.v.'16).

Three specimens, found with the preceding species on *Polyporus* on *Alnus nepalensis*. Very like the European *M. atomarius* F., *M. 10-punctatus* F., and various allied Japanese and N. American forms; but narrower, and with a rougher head and prothorax, the latter without isolated larger punctures, the joints 1-7 of the antennae not so wide as those following, so that 8-11 form a loose club. *M. fraternus* Grouv.,\* from Kurseong, E. Himalayas, the only species of the genus recorded from India, the unique type of which is in the Calcutta Museum, seems to be somewhat similar: it is described as having the epistoma almost smooth, joints 6-10 of the antennae transverse, the prothorax sub-asperate and strongly, deeply punctate, etc., and therefore cannot be synonymous with the insect here described.

#### MELANDRYIDAE.

##### *Penthe aluorensis*, n. sp.

Elongate, broad, sub-opaque; black, the scutellum ferruginous, the terminal joint of the antennae yellow; thickly clothed with fine, adpressed, blackish pubescence, that on the scutellum fulvous. Head small, triangular, densely, finely punctate, the shallow transverse frontal groove connected with an interocular median sulcus; antennae pilose, moderately stout, reaching to about the basal fifth of the elytra, joint 3 very elongate, more than twice the length of 2, 4 and 5 sub-equal in length, 5 widened, compressed, flattened and rugose beneath, and closely ciliate with pallid hairs along the lower inner edge, 6-10 much shorter and narrower, sub-equal, 7 also fringed with pallid hairs on inner edge beneath, 11 acuminate-ovate. Prothorax very broad, short, twice the width of the head,

\* Records of the Indian Museum, VI, p. 315 (1911).

broadly arcuato-explanate at the sides anteriorly and simously narrowed behind, the hind angles sharp; deeply excavate towards the outer margin, sulcate down the middle, and with a sinuous transverse groove before the base, terminating in a deep fovea laterally, the entire surface densely, minutely punctate. Scutellum very large, densely punctulate. Elytra long, broader than the prothorax, somewhat dilated at the sides below the tumid humeri, and with a rather prominent reflexed margin; with numerous rows (about 15) of punctures, which are coarse at the base and become very fine towards the apex, the interstices flat, densely punctulate. Length  $11\frac{3}{4}$ , breadth  $5\frac{1}{2}$  mm. ( $\delta$ .)

*Hab.*: N. INDIA, W. Almora (*H. G. Champion*, 18.v.'16).

One specimen, found on a *Polyporus* on *Alnus nepalensis*. Near *P. rufopubens* (sic) Mars., from the "East Indies,"\* an example ( $\text{♀}$ ) of which from Assam is contained in the British Museum; differing from it in having the prothorax much more uneven (the outer portions less hollowed and the transverse post-median groove being absent in *P. rufopubens*), strongly arcuato-explanate at the sides anteriorly, and wanting the two transverse patches of rufo-fulvous pubescence at the base, the hairs on the scutellum shorter, and the elytra rather coarsely striato-punctate to about the middle. *P. japona* Mars.  $\delta$ , an insect said to live upon a white arboreal fungus, has a similarly dilated, inferiorly ciliate fifth antennal joint, and the seventh also ciliate beneath, the same sex of the N. American *P. pimelia* F. and *P. obliquata* F. having three or four of the intermediate joints widened, compressed, and fulvo-pilose beneath. The other described species of the genus are from Java or Sumatra.

Horsell:

February 5th, 1917.

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### MEOTICA EXILIFORMIS JOY, A GOOD SPECIES.

BY H. BRITTEN, F.E.S.

Having taken in this district a good many specimens of a small *Meotica* from flood refuse, which seemed to me to be distinct from either *M. exilis* Er., or *exillima* Shp., I sent examples to Dr. Sharp to make quite certain that my determination of this species was correct. He returned them as probably distinct, and with his usual kindness enclosed the whole of his material in the *exilis*-group for me to examine. Included amongst them was a male example from Mr. Joy, labelled "*exiliformis*," which I at once recognised as my insect; and

\* Ann. Soc. Ent. Fr., 1876, pp. 336, 337.

as a help towards distinguishing these small forms the following table has been drawn up:—

1. Male with seventh ventral segment produced in a sharp angle in middle.
  - a. Larger, paler, with antennae longer and only slightly darker at apex than at base, and with fourth joint as long as broad; median lobe of male aedeagus bifid at apex ..... *exilis* Er.
  - b. Smaller, darker, antennae shorter and more distinctly darkened at apex, fourth joint broader than long; median lobe of male aedeagus simple at apex ..... *exillima* Shp.
2. Male with seventh ventral segment only slightly sinuate, not produced in a sharp angle in middle. Intermediate in size, much darker in colour, with antennae decidedly fuscous at apex, fourth joint as long as broad; median lobe of male aedeagus simple at apex ..... *exiliformis* Joy.

*M. exilis* is always a comparatively large, broad, and pallid insect; it has the antennae only slightly darkened at apex, and longer than in either of the other two species.

*M. exillima* is much narrower and more obscurely coloured; the antennae are shorter, and more decidedly darkened towards apex.

*M. exiliformis* is intermediate in size and much darker in colour, with the antennae fuscous at apex; the legs are also usually darker than in either of its allies.

These descriptions apply to the typical form of each species: but individuals occur in all three in which the elytra are shorter than the thorax, these, when critically examined, generally proving to be males. In all of them the seventh dorsal plate is shorter and slightly more truncate in the males, whilst the seventh ventral plate in the females is longer than the dorsal and rounded at the apex. The females, too, differ *inter se*, in the shape of the small chitinous spermatheca.

The figures of the seventh ventral segment are drawn to scale, and as seen from above with the dorsal plate removed.



*M. exilis.*



*M. exillima.*



*M. exiliformis.*

Myrtle View, Windmill Road,  
Headington, Oxon.:

February, 1917.

ON THE RARITY AND RESTRICTED DISTRIBUTION OF  
ANIMAL—ESPECIALLY INSECT—SPECIES.

BY GEO. B. WALSH, B.Sc.

Most of us, whatever the designation we apply to ourselves—bionomist, zoologist, entomologist, systematist, or, *turpissimus turpissimorum*, “mere collector”—take more pleasure and conceivably, if such a fault can be laid to the charge of any of our fraternity, more pride in the capture of a rare species such as, for example, a “Camberwell Beauty,” than in that of its commoner relatives, such as a “Small Tortoiseshell,” although as cabinet specimens they fill up equal blanks, and as living creatures the “commoner” may possibly be more interesting than its “aristocratic” ally. In view of this very human love of the uncommon, it may be worth while to consider for a short time some of the intrinsic factors of which the rareness of a species is the extrinsic manifestation.

In the first place, the term “rareness” is rather loosely applied to two somewhat different phenomena, the occurrence of a species in only small numbers in any part of its range, and that of a species in more or less restricted localities, where it may be common or rare in the first meaning of the term, over a greater or smaller range. As examples of the former we may quote, from the Order whose study I most affect—the *Coleoptera*—*Velleius dilatatus* F., *Rhizophagus aeneus* Richt. (= *coeruleipennis* Sahlb.), and (in Britain) *Lebia crux-minor* L.; and as examples of the second, *Pterostichus cristatus* Duftt., and *Acrulia inflata* Gyll. It is obvious, however, that these two divisions finally merge into one another; and as the two phenomena are governed by the same laws, it will be convenient and proper to treat them together.

It must be noted, however, that the evidence we use as the criterion of the rarity of a species depends upon a variety of factors. It is reasonably easy, for example, to gain rapidly a good idea as to the frequency of occurrence of conspicuous organisms, especially if they are very active, like birds or butterflies, or fixed, like the flowering plants; even here, however, the problem may be rendered more difficult by the habitat of the species being not entirely accessible, *e.g.*, the deep sea or mountain summits; or by the shyness of an animal so that it is rarely seen. For example, the otter is by no means uncommon in our northern rivers, and is said to occur within sound, and certainly within sight, of the great Elswick works, and yet comparatively few people have ever seen one. Then again a paucity of

students may render our knowledge of the occurrence of even a whole Order very incomplete. To alter a little a statement which used to be applied to the *Coleoptera*: "Our knowledge of the distribution of the *Diptera* (say) is really our knowledge of the distribution of the Dipterists." Even where students are reasonably numerous, an insect may escape observation because of its close resemblance to some commoner form, and this more especially when the species is small. This applies, for example, among beetles, probably to certain of the smaller *Oxyteli*, the *Athetæ*, and the *Trichopterygidae*. Finally, our ignorance of the bionomics of a species may frequently produce a totally incorrect notion as to its commonness. We have had interesting illustrations of this in the case of the insects connected with the nests of moles and birds,\* and of those connected with burnt timber,† and it is just possible that certain species, such as *Lebia crux-minor* and *Rhizophagus aeneus*, which have been taken in widely separated localities, may turn out to be not really uncommon when we know their habits and life-history. For example, it has been suggested that the latter insect occurs under the bark of alders, which are frequently submerged, though I am not aware that anybody has systematically tested this statement. Moreover, as my friend Mr. W. E. Sharp points out (*in litt.*), the adult stage of an organism may have a very brief existence, *e.g.*, in the *Ephemeridae*, so that unless an observer happens to be "on the spot" at the exact time of its appearance a really common or even abundant species may be rarely seen.

Generally speaking, the factors determining the frequency of a species may be divided into two classes—those connected with its phylogeny, and those connected with its ontogeny; in other words, those which have determined the existence of the species as a whole, and those which determined the existence of each individual in that species.

To consider the former first, the rarity or localisation of a species may be due to one at least of a number of causes which are fairly easy to distinguish from one another, if observations are made over a sufficiently wide area, and during a sufficiently long period of time.

#### 1.—DISTANCE FROM CENTRE OF ORIGIN.

It is one of the tenets of zoogeography that each animal and vegetable species originated in (as at least, an *almost* invariable rule)

\* Norman H. Joy, "Coleoptera in the Nests of Mammals and Birds," *Ent. Mo. Mag.*, 1906, pp. 198, 202, 237-243.

† G. C. Champion, "A *Buprestid* and other *Coleoptera* on Pines injured by heath fires, in N.-W. Surrey," *l.c.*, 1909, pp. 247-250.



only one centre, from which it made its way outwards to cover a range whose limits are determined by a large number of factors, such as the age of the species, the existence of barriers to further progress, the physiographical and climatic conditions, the presence of the necessary food, the existence of enemies (whether predatory or parasitic), the competition of allied and other forms with a similar habitat or pabulum, etc. As a general rule, a species is most abundant in its centre of origin, and becomes increasingly scarce as we recede from it. Our own islands are almost too small, and too short a period has elapsed since the Ice Age to permit this phenomenon to be definitely shown in its full detail, but students of every Order will be able readily to quote examples of species which become rarer from north to south, *i.e.*, those of northern origin; or from south-east to north and west,\* *i.e.*, those of eastern origin; or from south-east to north and east, *i.e.*, those of Lusitanian origin. Taking the *Coleoptera* only, as examples of the first we may quote *Miscodera arctica* Payk., *Agabus arcticus* Payk., and *Rhagium inquisitor* L. (= *indagator* Brit. Cat.); of the second, many species of *Harpalus*, *Hygrobia* (*Pelobius*) *tarda* Herbst, and *Paederus riparius* L.; and of the third, *Eurynebria complanata* L., *Phosphuga subrotundata* Steph., and *Pentarthrum huttoni* Woll. Thus the rarity of a species in a given locality may be due to the fact that it is on the confines of its range.

## 2.—EXTENSION OF RANGE.

Under certain favourable conditions such an organisation can extend its range, gradually overspreading new tracts of country and becoming common in places where it was once scarce or even absent. Thus what was formerly a highly desirable acquisition for the cabinet becomes in time almost a commonplace of collecting. This spread of species, with the gradual change from rarity to frequency, is one of the most interesting subjects in the study of Zoogeography, although the determining factors of this extension of range are not always obvious. In some cases man is certainly directly responsible, as in the spread of the house mouse (*Mus musculus* L.), and the brown rat (*Mus decumanus* Pall.) to all parts of the earth; the occurrence nowadays of the snail, † *Helix aspersa* Müll., in many remote regions‡; the swarms of the Gipsy Moth (*Oenocera dispar* L.) in the New England States, and the ubiquity of granary species of *Collembola*, *Coleo-*

\* See D. & R. F. Scharff, "European Animals," London, 1907;  
Do. do. "The History of the European Fauna," London 1899;  
See W. E. Sharp, "Entomologists' Record," 1901, etc.

† Scharff. "The History of the European Fauna." C. I.

‡ I have myself observed *Helix aspersa* completely naturalised and abundant in Chile, New South Wales, New Zealand, and New Caledonia.—J. J. W.

*ptera*, and *Lepidoptera*. In other cases, pressure of hunger in overpopulated (by the species) districts drives an animal out to seek fresh food supplies, as in the case of locusts, and perhaps the Painted Lady (*Vaessa cardui* L.) and other butterflies. Sometimes it seems to be due to an unexplained migratory instinct in the creature itself, possibly of somewhat recent acquisition as, perhaps, in the case of *Danaida plexippus* L.,\* or possibly more deeply seated—an example of so-called “race-memory”—as with the Lemming (*Myodes lemmus*). Sometimes it is difficult to find any clear reason for the extension of the range, e.g., *Lathridius (Coninomus) nodifer* Westw., and *Plusia moneta* F., although one may make a number of likely suggestions, such as those connected with food supply, climate, absence of competition, etc. It is clear, however, that in cases of this kind the casual factor can be recognised from the fact that the originally rare organism becomes increasingly common, and tends to spread further afield.

In some cases this extension of range is retained permanently, as in the cases of the brown rat and the common cockroach (*Stilopyga orientalis* L.). In other cases the species is gradually driven back again by some inimical cause, and is to be found no more in its new territory. For example, the beetle *Hygrobia tarda* Herbst seems occasionally to come north, only to be driven back again, probably by our northern weather conditions. Thus one specimen has been found in the Newcastle district,† and in 1888 it occurred in numbers near Withernsea‡ in East Yorkshire, although it is now extinct there.

In a few cases we can see the ebb and flow of the species, as in the case of the cotton boll weevil§ (*Anthonomus grandis*), which in favourable years spreads to the more northern American cotton States, only to be killed off and become extinct in bad seasons, being replaced by fresh immigrants in suitable years again.

### 3.—GRADUAL RESTRICTION OF RANGE.

As opposed to the above, some insects are losing in the struggle for existence, either owing to competition with introduced or with other local forms, or to the change in the physical environment brought about in some cases by natural means, or more usually by man.

\* J. J. Walker, “Geographical Distribution of *Danaida plexippus* L.” Ent. Mo. Mag., 1885-6, pp. 217-224; 1914, 181-193, 224-237.

† J. T. Bold, “Catalogue of the *Coleoptera* of Northumberland and Durham. 1871, p. 16.

‡ Yorks. Nat. Union Excursion Circular. No. 224.

§ C. A. Ealand, “Insects and Man.” London. 1915.

Examples of the former reason are by no means uncommon or difficult of observation; the black rat (*Mus rattus* L.) has been ousted from many of its haunts by the brown or Norwegian rat (*Mus decumanus*); the introduction of salmon into New Zealand rivers has caused the destruction, or at any rate the reduction in numbers, of native species of fresh-water fishes; the ravages caused by rabbits in Australia have driven the Kangaroo away from many of its old haunts; and then in countries where new newly-introduced insects have been a plague, *e.g.*, the small Cabbage-white Butterfly (*Pieris rapae* L.) in Canada, the introduction by man of their appropriate natural parasites, *e.g.*, the Braconid *Apanteles glomeratus* has speedily caused a reduction in their numbers.

Frequently we can see the gradual or even sudden extinction—generally, in some measure at least, owing to man—of a species in some of its haunts, especially of the larger and more conspicuous forms, such as, in England, the wolf, the bear, and the beaver, the Gipsy Moth, and the large Copper Butterfly (*Chrysophanus dispar* Haw.): in Africa the quagga (*Equus quagga* L.); and in North America the bison and the passenger pigeon (*Ectopistes migratorius* L.)

Sometimes we can see the change in the physical conditions and can deduce from this, even if we cannot observe it directly, the consequent effect upon the organisms dependent on them. This may take one or more of three possible courses:—(i) The reduction in numbers and final extinction of a species owing to the direct inimical effect of the environment, *e.g.*, the destruction of many plants and animals in the neighbourhood of large towns as the result of poisonous emanations, cultivation, etc.\*; (ii) The intrusion of *new* competitive forms better suited to the external conditions, and thus the extinction of species by indirect means; (iii) or, if the process of environmental change be slow enough, a possible gradual adaptation of the organism to its new conditions, with the consequent production of a new physiological, and therefore presumably of a new morphological—entity, *forma*, species, variety, call it what you will.

(To be continued.)

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\* Geo. B. Walsh, "Observations on some of the causes determining the Survival and Extinction of Insects." *Ent. Mo. Mag.*, 1915, pp. 225-232, 257-261.

*A Jumping Cocoon.*—Some years ago I received from Cape Town a number of the cocoons known in the colony as “jumping eggs” or “jumping beans,” belonging to the Tineid *Scyrotis athleta* Meyr., and described in the “Annals of the South African Museum,” Vol. V, p. 378 (1909). These cocoons are hard oval bodies, and possess the power, when placed on a level surface, of leaping a foot or more by the action of the pupa inside. The pupae were alive when received, and I experimented with the cocoons by placing them on a table in the sunshine; I found that this stimulated their activity, and that the leaps made were in the large majority of cases in the direction away from the sun. It appears probable, therefore, that the purpose of the habit is to enable the cocoon, when (as described) it falls to the ground from the food-plant, to escape from the hot African sun into some place of shelter, and the discomfort caused by the heat would be a sufficient incitement to effort. I failed to rear any of the moths, possibly from insufficient warmth or other unsuitable climatic conditions.—EDWARD MEYRICK, Thornhanger, Marlborough: February 15th, 1917.

*Dimorphic variation in a South African Tineid.*—The following instance of variation in a species of *Eretmocera* (*Heliodinidae*) may interest some who are not otherwise concerned with South African insects. The forms in question will be found figured and described (as species) in a paper by Lord Walsingham in the Transactions of the Entomological Society of London for 1889. I had for some time suspected, from the sameness of their local distribution, that several of these were not specifically distinct; but in justice to Zeller, who first described some of them, it should be mentioned that he also had suspicions of it, without the advantage of this knowledge. I recently received from Mr. A. J. T. Janse, of Pretoria, for examination, a very large number of *Tineina*, mostly taken during a tour in Natal; amongst these were fine examples of four of these forms (*fuscipennis* Z., *miniata* Wals., *derogatella* Walk., and *lunifera* Z.), which proved to have been all taken in the same locality on the same day. Of these, *fuscipennis* and *miniata* were taken *in cop.*, being ♂ and ♀; *derogatella* and *lunifera* constitute a precisely similar pair (♂ and ♀), except that in both the carmine areas of abdomen and hind-wings are replaced by deep yellow. Now in all specimens that I have seen these areas have been either carmine or yellow, and not an intermediate colour, but I possess an example in which the abdomen is yellow and the hind-wings are carmine. I think, therefore, there can be little doubt that these four forms are referable to a single species, for which *fuscipennis* Z. is the earliest name. It would appear further that *dorsistriyata* Wals. is only a slight variety of the *lunifera* form, and *carteri* Wals. of the *fuscipennis* form. The yellow forms are by no means the result of fading, being found in as fresh condition as the others, but may depend on some slight chemical action.—EDWARD MEYRICK: February 15th, 1917.

*Sawflies collected near London during 1915-16.*—During the last two years I have collected a number of miscellaneous *Hymenoptera*, the majority of which are referable to the family *Tenthredinidae*. These have been determined through the kindness of the Rev. F. D. Morice, who suggests my making a

record of such sawflies as I have taken, irrespective of whether the species are considered common or otherwise, as additional data are always of value to entomologists. The nomenclature and systematic order have been adopted at the discretion of Mr. Morice, whose valuable assistance I here acknowledge with many thanks.

*Pamphilus sylvaticus* L., Pinner, Mx., 24.v.15; *P. depressus* Schr., Epping Forest, Great Monk Wood, 16.v.15; *Xiphydria prolongata* Geoffr. (*dromedarius* F.), Broxbourne, Herts, 10.viii.15, one female seen ovipositing in a fence composed of pine wood; *Henichrou alni* L., Epping Forest, 28.v.16, one specimen swept off rushes at the Wake Valley Pond; *Pteronidea salicis* L., Woodford, Essex, 28.viii.15, abundant on willows; *P. miliaris* Panz., Epping Forest, 25.vi.16; *P. ribesii* Scop., Pinner, 23.v.15; *P. polyspilus* Först., Chalfont St. Giles, Bucks, 4.vii.15; *Hopllocampa pectoralis* Thoms., Epping Forest, 28.v.16, on rushes; *Strongylogaster cingulata* F., Epping Forest, 25.vi.16, on bracken; *Selandria fürstenbergensis* Konow, near Epping Forest, 28.vi.16; *S. serca* F., Pinner, 23.v.15, Northwood, Mx., 20.vi.15; *S. sixii* Voll., Ware, Herts, several specimens found on rushes on the banks of the R. Lea, 22-23.v.16; *Tomostethus luteiventris* Klug (*fuscipennis* Fall.), Epping Forest, Fairmead Bottom, 22.v.15, also on rushes at the Wake Valley Pond, 28.v.16; *Dolerus pratensis* L., Epping Forest, 26.iii.16, one specimen shaken from a mass of *Juncus*, grass, etc.; *D. palustris* Klug, Epping Forest, 22.v.15, 26.vi.16; *D. aericeps* Thoms., Rickmansworth, Herts, 20.vi.15, one specimen flying amongst rushes at the side of the Grand Junction Canal; *D. triplacatus* Klug ( $\sigma$  = var. *sleini* Konow), Epping Forest (see Ent. Mo. Mag., Vol. LI, p. 242, 1915; Vol. LII, p. 262, 1916); *D. ferrugatus* Lep., Epping Forest, 28.v.16; *D. gonager* Klug, Harrow, Mx., 7.v.15, one specimen swept from *Juncus*, etc.; *D. haematodes* Schr., Epping Forest, 16.v.15, a pair ( $\sigma$   $\eta$ ) swept from *Juncus effusus* near Loughton Camp; *D. nigratus* Müll. (*fissus* Htg.), Harrow, 7.v.15, also at Enfield, Mx., 19.v.16 (one specimen taken by Mr. G. W. Thomas); *D. aeneus* Htg., Northwood, 9.v.15; *Rhogygaster fulvipes* Scop., Epping Forest, 21.v.16, one specimen beaten from aspen; *Tenthredella temula* Scop. (*bicincta* L.), Pinner, 24.v.15, also at Waltham, 13.vi.15; *Tenthredopsis coqueberti* Klug, Epping Forest, 22.v.15, one male, Pinner, 23.v.15, one female; *T. inornata* Cam., Pinner, 24.v.15, two females; *T. ? spreto* Lep., Pinner, 24.v.15; *Tenthredopsis* sp., near *thoruleyi* Konow, Broxbourne, 21.v.16.—HAROLD E. BOX, 55, Baxter Avenue, Southend-on-Sea: February 7th, 1917.

*Some Dorset Tenthredinidae.*—The following list of *Tenthredinidae* found by me during the last few years in this county may be of some interest. It must be very incomplete, as my collecting of the sawflies has been quite "casual":—*Pamphilus hortorum* Klug, *P. pallipes* Zett., *P. inanitus* Vill., and *P. sylvaticus* L., were all seen occasionally, but seldom caught. They flash up and down the leafy barrier of foliage by the sunny side of woodland glades on the most ideal summer days of May and June: *P. pallipes*, at Morton, in May, the others near Coombe Keynes, East Lulworth, etc., *P. hortorum* being the most abundant here. *P. pallipes* is associated with birch, from which I have swept it. *Hartigia linearis* Schrank is commoner than *Astalus pallipes* Klug, but both are far less frequent than *A. pygmaeus* L. In July, 1914, a great

number of *Sirex gigas* L. emerged from new fir supports in a blacksmith's shed. The emergence continued in July, 1915, every specimen being ♂. The wood was from East Lulworth. The ♀ has occurred in my garden and elsewhere in the village, though suitable trees are almost non-existent in Winfrith itself. A blue-black *Sirex*, doubtless *S. noctilio* F., has been seen on the wing at Morden. *Trichiosoma tibialis* Leach, ♂, bred from Winfrith hawthorn, has yellow tibiae. *Abia sericea* L. is very common. *A. fasciata* L. less so. *A. candens* Knw. is not rare. *Tenthredo cyanocrocea* Först., *T. ustulata* L.: of the latter I have a perfect specimen, taken from the jaws of *Formica rufa*! *Pteronus pini* L. was not known by me in this neighbourhood until last summer, when I found a larva and cocoon on Morden Heath. *Trichiocampus ulmi* L., *T. drevseni* Thoms., and *T. radiatus* Htg. (the two latter are perhaps not really distinct species). *Priophorus padi* L., *Dineura stilata* Klug, *Euura saliceti* Fall., *Pontania leucosticta* Htg., *P. riminalis* Htg., *P. salicis* Christ., *Holcocneme lucida* Panz., *Pteronidea ribesii* Scop., *P. myosotidis* F., *P. oligospilus* Först., *P. miliaris* Panz., *Amauronematus fallax* Lep., *Pachynematus flaviventris* Htg., *P. trisignatus* Först., *P. vagus* F., *P. obductus* Htg., *Pristiphora fulvipes* Fall., *P. crassicornis* Htg., *P. pallipes* Lep., *P. pallidiventris* Fall., *Caliroa varipes* Klug, *C. annulipes* Klug, *Hoplocampa pectoralis* Thoms., *H. crataegi* Klug, *H. ferruginea* Panz., *Tomostethus gagathinus* Klug, *T. dubius* Gmel., *T. luteiventris* Klug, *Blennocampa assimilis* Fall., *B. tenuicornis* Klug, *Scolioneura betuleti* Klug, *Monophadnus albipes* Gmel., *M. geniculatus* Htg., *M. ruficruris* Brull., *Pseudodineura fuscula* Klug. *Athalia spinarum* F., one specimen only on marshy land near the Frome, Iford, 22.vi.12. *A. lugens* Klug, *A. glabricollis* Thoms., *A. lincolata* Lep., the last-named extremely abundant, *Selandria serva* F., *S. sivi* Vollenh., *S. stramineipes* Klug, *S. morio* F., *Strongylogaster cingulatus* F. (1 ♂ to 13 ♀♀), *Stromboceros delicatulus* Fall., *Empria excisa* Thoms., *E. liturata* Gmel., *E. immersa* Klug, *Emphytus togatus* Panz., *E. cinctus* L., *E. calceatus* Klug, *E. tener* Fall., *E. grossulariae* Htg., *Taxonus equiseti* Fall., *T. glabratus* Fall., *Loderus vestigialis* Klug, *Dolerus madidus* Klug, *D. pratensis* L., *D. aericeps* Thoms., *D. palustris* Klug, *D. gonager* F., *D. puncticollis* Thoms., *D. sanguinicollis* Klug (var. *fumosus* Steph.), *D. niger* L., *D. picipes* Klug, *D. nigratus* Müll., *D. oblongus* Cam., *D. aeneus* Htg., *Rhogogaster punctulata* Klug, *R. viridis* L., *R. fulvipes* Scop., *R. aucupariae* Klug, *Pachyprotasis rapae* L., *Macrophya rufipes* L., common in June on *Oenanthe crocata*, *M. annulata* Geoffr., *M. 12-punctata* L., *M. rustica* L., *M. albicincta* Schr., *M. ribis* Schr. The resemblance of *M. annulata* to a large *Salix* when seen over woodside herbage is, as pointed out by the Rev. F. D. Morice, quite misleading. *Allantus scrophulariae* L., *A. arcuatus* Först., *A. marginellus* Klug, *A. vespa* Retz., *A. distinguendus* v. Stein, *Tenthredella temula* Scop., *T. mesomela* L., *T. olivacea* Htg., *T. atra* L., *T. livida* L., *T. ferruginea* Schr., *T. balteata* Klug, *Tenthredopsis litterata* Geoffr. (vars. *varia* Gmel., *cordata* Geoffr., *thoracica* Geoffr., *concolor* Knw.). I have taken ♂ *litterata* at the same time and place as ♀ *T. nassata*, a coincidence apt to deceive! *T. nassata* Knw., *T. dorsivittata* Cam., *T. liliae* Panz. var. *inornata* Knw., *T. dorsalis* Lep., *T. inornata* Cam. (?), whatever this form may be, *T. fenestrata* Knw., *T. coquebertii* Klug, *T. palmata* Geoffr. I indicate some of the last-named

"forms" with reserve as regards their significance or identity. I am indebted to the Rev. F. D. Morice for kind and ready help.—F. H. HAINES, Brookside, Winfrith, Dorset: *January 31st, 1917.*

*Chrysotimus concinnus* Zett. in *Wills.*—I took a female of this apparently rare *Dolichopid* in Broomsgroove Wood, near Savernake, Wilts, on July 23rd, 1914. Unfortunately I did not recognize it at the time, so did not search for more specimens.—T. W. KIRKPATRICK, 7th Rifle Brigade, The Deanery, Ely, Cambs.: *February, 1917.*

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## Review.

"DIPTERA DANICA." BY WILLIAM LUNDBECK. Part V. LONCHOPTERIDAE, SYRPHIDAE. Copenhagen: G. E. C. Gad. London: William Wesley and Son. 594 pages, 202 figures. Published July 1st, 1916.

Once again we have the pleasure of welcoming the appearance of another "Part" of Mr. Lundbeck's very excellent work on the Danish *Diptera*. The present Volume is perfectly uniform in character with all its predecessors, and, like them also, it is noted for very evident care in preparation, lucid descriptions, and illuminating figures. The arrangement and nomenclature are the same as that of Kertész' "Katalog paläarktischen Dipteren, 1907," and differs in only a few minor respects from that of Verrall's "British Flies," Vol. VIII, the chief differences being as follows:—

<i>Ascia</i>	(Verrall) is known as <i>Neoascia</i> ,
<i>Catabomba</i>	( " ) " " <i>Lasiophthicus</i> ,
<i>Ceria</i>	( " ) " " <i>Cerioides</i> ,
<i>Chrysochlamys</i>	( " ) " " <i>Ferdinandea</i> ,
<i>Chilosia sparsa</i>	( " ) " " <i>C. antiqua</i> ,
" <i>antiqua</i>	( " ) " " <i>C. nigripes</i> ,
" <i>pulchripes</i>	( " ) " " <i>C. pagana</i> ,
" <i>praecox</i>	( " ) " " <i>C. ruralis</i> ,

while Mr. Lundbeck has pointed out an evident error of identification on Verrall's part with regard to *Orthonera elegans* Mg., the British species being *O. geniculata* and not *elegans*. Only two species are described as new to science by the author—*Penium dubium* and *Orthonera intermedia*.

A comparison of the species recorded from the two countries (Denmark and England) is always interesting. In the case of the *Syrphidae* the total number of species appears to be approximately the same in each case, viz., about 210; but of these about 30 species (after allowing for probable synonyms) and four genera are found in Denmark but not in Britain; and about 36 species and six genera (seven if *Psarus* be considered British) are found in Britain but not in Denmark, as follows:—

## DENMARK ONLY.

- Paragus albifrons* Fall.  
 \**Triglyphus primus* Lw.  
*Penium morionellum* Zett.  
 „ *dubium*, n. sp.  
*Cnemodon fulvimanus* Zett.  
*Pipiza austriaca* Mg.  
*Orthoneura elegans* Mg.  
 „ *intermedia*, n. sp.  
*Chrysogaster viduata* L.  
*Chilosia vicina* Zett.  
 „ *pubera* Zett.  
 „ *frontalis* Lw.  
 „ *canicularis* Puz.  
 „ *chloris* Mg.  
 „ *gigantea* Zett.  
 \**Eriozona syrphoides* Fall.  
*Syrphus macularis* Zett.  
 „ *arcuatus* Flh.  
*Brachyopa dorsata* Zett.  
*Eristalis lucorum* Mg.  
 „ *anthophorinus* Fall.  
 „ *oestraceus* L.  
 „ *vitripennis* Strobl  
 „ *alpinus* Pnz.  
*Helophilus affinis* Wahlbg.  
 „ *consimilis* Malm  
*Brachypalpus laphriiformis* Fall.  
*Xylota ignava* Panz.  
 „ *femorata* L.  
*Eumerus ruficornis* Mg.  
 \**Spilomyia saltuum* F.  
 \**Temnostoma vespiformis* L.  
*Arctophila bombyiformis* Fall.

## BRITAIN ONLY.

- Pipizella maculipennis* Mg.  
*Pipiza fenestrata* Mg.  
 \**Psilota anthracina* Mg.  
*Chrysogaster splendens* Mg.  
 „ *hirtella* Lw.  
*Chilosia vulpina* Mg.  
 „ *chrysocoma* Mg.  
 „ *nebulosa* Verr.  
 „ *barbata* Lw.  
*Platychirus discimanus* Lw.  
 „ *melanopsis* Lw.  
 „ *podagratus* Zett.  
 „ *perpallidus* Verr.  
*Melanostoma dubium* Zett.  
*Syrphus nigricornis* Verr.  
 „ *vittiger* Zett.  
 „ *labiatarum* Verr.  
 „ *arcticus* Zett.  
 \**Pelecocera tricincta* Mg.  
 \**Chamaesyrphus scaevoides* Fall.  
 „ *lusitanicus* Mik  
 \**Hammerschmidtia ferruginea* Fall.  
*Volucella inflata* F.  
*Criorrhina ranunculi* Pnz.  
*Brachypalpus bimaculatus* Meq.  
*Xylota abiens* W.  
 \**Calliprobola speciosa* Rossi  
*Chrysotoxum octomaculatum* Curt.  
 „ *elegans* Lw.  
 \**Psarus abdominalis* F.  
 \**Callicera aenea* F.  
 „ *yerburyi* Verr.  
*Microdon latifrons* Lw.

^ Genera not represented in the other country.

With reference to the above, *Paragus albifrons*, if a good species, is certainly British; our *Pipizella heringi* is almost certainly Lundbeck's *Penium dubium*, in which case *P. heringi* is known from Denmark only; our *Pipiza lugubris* is probably identical with Lundbeck's *P. austriaca*, in which case *P. lugubris* is at present known from Denmark only; *Syrphus arcuatus* of Lundbeck is a different species from *S. arcuatus* of Verrall; our *Brachypalpus bimaculatus* is very possibly identical with Lundbeck's *B. laphriiformis*; while the following are very doubtfully distinct British species:—*Pipiza fenestrata*, *Melanostoma dubium*, and possibly *Syrphus nigricornis*.

Lundbeck gives much interesting information and many descriptions of the larval and pupal stages; of special interest being his description and



figures of the larva and pupa of *Noauscia floralis*, for the early stages of this genus were previously unknown. He also appears to have satisfactorily distinguished the three species *N. floralis*, *dispar*, and *geniculata*. His figures of the front legs of the males in the genus *Platychirus* are drawn as viewed from beneath, thus showing the peculiar markings often present on the tarsal joints, and at the same time forming an interesting complement to the figures given in Verrall's "British Flies." To students of the Danish fauna of *Diptera* the possession of this work will be a necessity, and all Dipterologists will find much information of interest in its pages, while the fact that it is written in English is a compliment to the English speaking race which the author may rest assured is duly appreciated.—J. E. C.

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## Obituary.

*Charles Owen Waterhouse* died at his residence at Acton, on February 4th, after a lingering illness, aged 73. He was the eldest of the three sons of G. R. Waterhouse—formerly Keeper of Geology at the British Museum at Bloomsbury—and a godson of Charles Darwin and Sir Richard Owen. Born at Bloomsbury on June 19th, 1843, he went at the age of nine to live in that Museum, where his father had an official residence. On July 9th, 1866, at the age of 23, after studying at University College School and King's College, he obtained an appointment as Junior Assistant in the Entomological Department of the Museum, of which he became a first-class Assistant on April 5th, 1879, and an Assistant Keeper on April 10th, 1905, remaining in this office till his retirement on June 30th, 1910. He was then awarded a Companionship of the "Imperial Service Order," the "I. S. O.," for long and meritorious services. His father was an eminent Zoologist and Entomologist, and all three sons may be said to have inherited their tastes from him. The youngest brother, E. A. Waterhouse, an expert Coleopterist, died just about a year ago—on February 2nd, 1916. The surviving brother, F. Waterhouse, also a keen Coleopterist, was till his recent retirement, Librarian of the Zoological Society of London. A sister married E. C. Rye, one of the original editors of this Magazine, their son Bertram also being a good collector of insects. Truly an entomological family! About six pages of the Catalogue of the Library of the Entomological Society of London are devoted to a list of his papers, most of which were published in the Transactions of that Society, "The Annals and Magazine of Natural History," the "Proceedings of the Zoological Society of London," and the "Entomologist's Monthly Magazine"—two short notes by him, probably the first he had written, having appeared in our first volume, 1864-65. He wrote mainly on *Coleoptera*, the most important papers, perhaps, being those on *Lycidae* and *Buprestidae*, the latter appearing in the "Biologia Centrali-Americana." His "Aid to the Identification of Insects" consisted of two volumes of coloured plates illustrating types of *Coleoptera*, *Lepidoptera*, *Hemiptera*, etc. Waterhouse devoted a great deal of time to the preparation of models and diagrams to explain the morphology, classification, and economy of Insects, for exhibition

in the Galleries of the Museum at Cromwell Road, and he edited the 1st edition of the "Guide." More recently, in conjunction with the late F. Enock, he paid considerable attention to the *Mymaridae*, and joint papers on these minute *Hymenoptera* were contributed to the Entomological Society's Transactions. An excellent manipulator, notwithstanding a certain amount of nervousness, which would appear to render such work very difficult, he was able to make very good dissections of insects, as may be seen by a visit to the Galleries and collections of the Museum. Subsequent to his retirement he was often to be seen at work at the Museum in order to finish the rearrangement of the *Buprestidae*, the incorporation of the Kerremans collection having been in great part completed at the time of his decease. Waterhouse was elected a Fellow of the Entomological Society of London in 1869, and was President in 1907-8, and Vice-President, 1900 and 1909. His wife and daughter survive him. Always genial, and ever willing to assist visitors of all kinds, he will be missed by many, including some of those who knew him in the old days at Bloomsbury. —G. C. C.

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*Juan J. Rodriguez Luna*, who died in Guatemala on December 22nd last, at the age of 76, was but little known in this country. He had a great love for Natural History generally, including Botany, and many Entomologists are indebted to him for examples of the special productions of that Central American Republic, which has a rich tropical fauna and flora in the two coast regions, and a subalpine one in its high mountains and plateaux. The present writer was fortunate in making his acquaintance in the Guatemalan capital, in March, 1879, and subsequently spent some time on the coffee and sugar-cane estates owned by him at Capetillo, a locality situated in the elevated valley between the lofty volcanoes of the Agua and Fuego. After my return to England, in 1883, we occasionally corresponded, and from that year onward he has from time to time sent me insects from his country, the last letters received from him being dated May and August, 1916. He was one of the first collectors to send the remarkable Rutelid-beetle, *Heterosternus rodriguezii* Cand., to Europe, and only a few years ago another fine Lamellicorn of the region, *Pantodinus klugi* Burm., was received from him. Candèze, too, was indebted to Rodriguez for many *Elateridae*. During his three visits to Europe, 1868, 1878, 1887, he made the acquaintance of various French and Belgian entomologists, and when he came to London in 1887 we again met. The Museum of the Sociedad Economica in Guatemala received much assistance from him in completing its local collection of birds, many of which were sent to Salvin for determination. He was a member of various French, Belgian, and Spanish scientific Societies, and in 1900 was awarded the French distinction of the Cross of a Chevalier of the Legion of Honour for his services in improving the cultivation of cinchona and other valuable plants, some of which he successfully introduced into Guatemala. The Editors of the "Biologia Centrali-Americana" certainly owe him a debt of gratitude, in which the present writer shares.—G. C. C.

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*J. Platt Barrett.*—Lepidopterists will learn with regret that another link in the older generation of Entomologists was severed on December 27th last by the somewhat sudden death of Mr. J. Platt Barrett. Born June 29th, 1838, in a house on the moors near Marsden, Huddersfield, he received his early education in his native village, removing to Doncaster in his thirteenth year to become a pupil of the late Mr. Baker of the Institute for Deaf and Dumb, in that town. About 1855 he became a tutor in the same institution, where he remained until 1858, when he joined the staff of the then well-known Old Kent Road Institution for Deaf and Dumb. On the removal of the pupils of that institution to new premises at Margate, Barrett went to reside at Birchington to be near his work, and where in his spare time he wrote a "History of Birchington," which necessitated a good deal of research in Parish Registers, etc. From there he removed to Margate in 1888. He remained with the Deaf and Dumb Institution until he was pensioned, after fifty years of teaching in one school. In 1908 he returned to London, where he devoted his time largely to the continuation of his study of the *Lepidoptera* which he had commenced in the very early years of his life. He was always an enthusiastic collector and breeder of the British *Lepidoptera*, and now, with his time entirely at his disposal, it was his great delight to revisit the old well-known localities of his early days to note the changes that had come to the entomological fauna in the interval. Some of his favourite collecting haunts were Dulwich, Chattenden, Box Hill, and, further afield, the Kent coast. Probably few knew the *Macro-Lepidoptera* of these districts so well as he. His excursions for *Aporia crataegi*, *Nonagria sparganii*, *Acidalia ochrata*, *Agrotera nemoralis*, and many other local species, were a source of great pleasure to him, and many of our collections are indebted to his generosity for recent specimens of these and many other species. One of the specialities of his early days was *Acidalia strigilata*, which he used to take in some numbers in Folkestone Warren, but which since then appears to have almost disappeared from our fauna.

In 1894 Barrett went to Sicily for a prolonged visit to his son, and soon became intensely interested in the *Lepidoptera*—especially the butterflies—of that island. From that date to 1914, even at his advanced age, he made no fewer than eight long visits to Sicily, and was there during the memorable earthquake at Messina in 1908, when he miraculously escaped with his life, his daughter-in-law and grandchild, sleeping, we believe, in the next bedroom to his, being killed. The war alone put a stop to these expeditions. His interest in British *Lepidoptera*, however, always remained, and from 1910 to 1916 he collected in Scotland, Devonshire, Somerset, Cornwall, Lancashire, Dorset, Kent, etc., even so recently as last year visiting Royston, Tring, Northfleet, Kingsdown, etc.

Barrett was greatly interested, too, in the work of Entomological Societies, and was one of the founders—practically the founder—in 1872 of the now flourishing and important South London Entomological and Natural History Society. The meetings were first held in his house at Peckham, when he acted as the Secretary, becoming the third President, in 1877. During his residence in London he was a regular visitor and exhibitor at its meetings, and at the close of the one held so recently as November 9th last, the

writer of this notice had a very pleasant conversation with him, the last in an intimate friendship of nearly fifty years. In 1911 Barrett joined the Entomological Society of London, and became a familiar figure at the meetings of that assembly.

He bequeathed his collection of *Lepidoptera* to the Council of Horniman's Museum at Forest Hill. It contains many interesting and valuable insects, including a pair of the very few British specimens of *Aplasta ononoria*, which he himself took in Folkestone Warren, July 1st, 1900, but which he had never recorded in print.

He was buried on January 2nd in the same grave with his wife, who had predeceased him in 1883, at Birchington, and the sympathy of Entomologists will be with his two daughters and son who survive him.—G. T. P.

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## Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: Thursday, January 11th, 1917.—MR. HY. J. TURNER, F.E.S., President, in the Chair.

The death of Mr. J. Platt Barrett was announced.

Mr. Brooks reported *Hibernia defoliaria*, taken by Mr. B. S. Williams, quite freshly emerged in January. Mr. Moore, the deep green Sphingid, *Euchloron megaera*, and a species of *Euchloris* from S. Africa. Rev. F. M. B. Carr, his captures of the past season in Staffordshire and in the Wye Valley, with *Agriadens coridon*, aberrations from Royston, and including *Leptosia sinapis*, *Brenthis selene*, *Eulype hastata*, *Venusia cambrica*, etc. Mr. Hugh Main, a cage made by him to facilitate the breeding of *Geotrupes* beetles, and to allow of full observation of the digging of the galleries, massing the pabulum, laying the ova, feeding and growth of the larva, etc., etc., and read a paper, his observations being frequently at variance with those previously recorded.—H. J. TURNER, *Hon. Secretary*.

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ENTOMOLOGICAL SOCIETY OF LONDON: Wednesday, December 6th, 1916.—COMMANDER J. J. WALKER, M.A., R.N., F.L.S., Vice-President, in the Chair.

Prof. L. C. Miall, F.R.S., Norton Way N., Letchworth, and Col. J. W. Yerbury, F.Z.S., 2, Ryder Street, St. James's, S.W., were elected the first Special Life Fellows of the Society.

Mr. J. C. F. Fryer exhibited: (1) Specimens of the beetles *Anthicus bifasciatus* and the bug *Lygus rubicundus*, two species which have only been recorded in Britain from a restricted area in Cambridgeshire and Huntingdonshire. (2) Specimen apples illustrating the serious injury caused by the bugs *Plesiocoris rugicollis* and *Orthotylus marginalis*, which appear to have adopted apple as a food-plant only within comparatively recent years. Dr. H. Eltringham, examples of *Papilio dardanus* ♂, taken by Mr. G. H. Bullock (British Vice-Consul at Fernando Po) near Santa Isabel, Fernando Po; also a curious

example of *Danaïda chrysiippus* f. *alcippus* taken near S. Isabel, Fernando Po, and entirely devoid of yellow pigment, the result being that the specimen had the appearance of a monochromatic representation of the insect. Prof. Poulton said that he had received a fine series of Mylabrid beetles, including many pairs *in coitú*, collected by Mr. C. O. Farquharson from "ground-nut," *Arachis hypogaea*, at Moor Plantation (480-580 ft.), 4 miles west of Ibadan, S. Nigeria. The assemblage was found to break up into four species belonging to three genera or sub-genera. Prof. Poulton said that he had received several letters and boxes of specimens from Dr. Carpenter from South-West Uganda and East Africa west of the Victoria Nyanza, and he felt sure that the Society would be glad to record the observations on this little-known area. Mr. O. E. Janson exhibited a specimen of *Thaumasus gigas* Oliv., a rare and remarkable Longicorn beetle recently received by him from Venezuela.

The following papers were read:—"New species of *Hymenoptera* in the British Museum," by Rowland E. Turner, F.E.S. "Descriptions of South American *Micro-lepidoptera*," by E. Meyrick, B.A., F.R.S., F.E.S. "Notes on some British Guiana *Hymenoptera*," by G. E. Bodkin, F.Z.S., F.E.S.

Wednesday, January 17th, 1917: ANNUAL MEETING.—COMMANDER J. J. WALKER, M.A., R.N., F.L.S., Vice-President, in the Chair.

No alternative names having been received, the Fellows nominated by the Council were declared to be elected as Officers and Council for the ensuing year.

The Balance Sheet was read by Mr. R. Wylie Lloyd, one of the Auditors, and adopted on the motion of Mr. F. H. Wolley-Dodd, seconded by Mr. G. E. Frisby. The Rev. G. Wheeler, one of the Secretaries, then read the Report of the Council, which was adopted on the motion of Mr. H. Main, seconded by Mr. W. J. Kaye. In consequence of the absence of the President through illness, his Address was read at his request by the Rev. Jas. Waterston, who showed a number of slides in illustration. The Rev. F. D. Morice proposed a vote of thanks to the President, regretting his absence and its cause, and expressing the hope that the Address might appear in the Proceedings of the Society. The vote of thanks was carried unanimously, after being seconded by Mr. Hamilton Druce. A vote of thanks to the Officers was passed on the motion of Mr. Stanley Edwards, seconded by Mr. J. Hartley Durrant, and each of the Officers said a few words in reply.—GEO. WHEELER, *Hon. Secretary*.

---

## NOTES ON THE COLLECTION OF BRITISH HYMENOPTERA

### ACULEATA FORMED BY F. SMITH.

BY R. C. L. PERKINS, D.Sc., M.A., F.E.S.

Having given an account recently of a considerable part of the Kirby collection of British bees, it may be interesting to Hymenopterists if I now add some notes on F. Smith's collection of British *Aculeata*. Smith's collection is, of course, comparatively of very

large size, a single drawer of his cabinet containing more examples than the whole of Kirby's collection. Also the specimens are in an excellent state of preservation, and for the most part will not suffer by comparison with examples freshly caught. They show clearly enough that a well-preserved collection will hardly deteriorate at all in half or three-quarters of a century. I first saw Smith's collection at the Entomological Exhibition held at the old Westminster Aquarium in 1879, and I imagine that very few specimens had ever been moved for any purpose since that time, until I began my examination of the species.

A few specimens, to which I shall refer, were sent to Edward Saunders for examination, at the time when he was writing his "Hymenoptera Aculeata," and by the side of these there are generally labels in his handwriting. Smith did not regularly ticket his specimens with locality labels or dates, but only in special cases. Perhaps he felt fairly sure of his identifications, and that the localities given in his British Museum publications were therefore sufficient. But the many wrongly named examples in the collection show how necessary locality labels really are, for it may be that those wrongly named are the very ones on which a species is credited to a certain locality. The earliest date I can remember to have noticed on Smith's labels is 1837, the latest 1876, so that roughly speaking, the collection represents the work of 40 years, though no doubt a good deal of collecting was done before the first date.

It will be convenient to deal with the bees first, on account of my recent paper on the Kirby collection. The three commoner species of *Colletes* do not call for much remark, though there are wrongly-named individuals present in each case. *C. picistigma* Thoms. was not recognised by Smith, but his specimens named *fodiens*, from Barmouth, belong to it. *C. marginata* Smith was originally described on specimens captured by Samuel Stevens, at Littlehampton. These, in beautiful condition, are still in Smith's collection; and on one, dated 1845, is a label stating that it had been compared with the Linnaean example, so named in M.S. Whether this really was the same species as the Linnaean is of little consequence, but it may be said that Smith, in his 2nd edition, states that in 1875, he himself found the species in plenty at the original locality on the flowers of yarrow. His Littlehampton specimens, however, are all *fodiens* in fine condition, and quite unlike *marginata*! He has none from the northern

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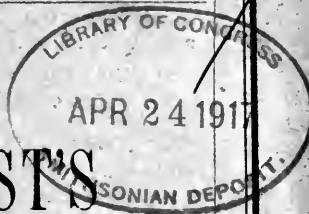
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### **MEETINGS OF SOCIETIES.**

**ENTOMOLOGICAL SOCIETY OF LONDON**, 11, Chandos Street, Cavendish Square, W.—Wednesday, April 4th, 1917.

The Chair will be taken at 8 o'clock in the evening precisely.

The Library is open daily from 9 a.m. to 6 p.m. (except on Saturdays, when it is closed at 2 p.m.), and until 10 p.m. on Meeting nights.

**THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY**, Hibernia Chambers, London Bridge. The Second & Fourth Thursdays in each month, at 7 p.m. The lantern will be at the disposal of Members for the exhibition of slides.

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**THE LONDON NATURAL HISTORY SOCIETY** which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

April 3rd.—Exhibition of lantern slides by Members.

*Hon. Sec.* : J. Ross, 18, Queen's Grove Road, Chingford, N.E.

**Chingford Branch.** The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.

localities he cites, but there are a number of *unnamed* ones from Deal, together with the parasitic *Tachinids* he bred from the nests.

The collection of *Prosopis* is a poor one. The species were too difficult for Smith and probably not attractive for that reason. Under *P. punctulatissima* Smith, there are half-a-dozen specimens, but only one of these, a ♀, is correct. The others are all ♂ *confusa* Nyl. In his 1st edition, he says it was only once met with, at Birch Wood, Kent, and in his 2nd he gives no locality. The ♀ referred to is labelled "Ham." (Hampstead). It is one of the oldest bees in the collection, as is proved by the pin used. The examples of *P. rupestris* Sm. from Sidmouth, are quite ordinary ones of *P. communis* Nyl. One would have been at a loss to know why these were ever described as new had one not examined the series of *P. communis* and found that most of the females assigned to this really belong to *P. confusa*. Smith probably compared his Sidmouth captures with some of these, and finding them different concluded that they were new. It may be remarked that in his works on bees, it is chiefly on the ♀ characters that Smith bases his species, always describing this sex first and usually at greater length. Of *P. varipes* Sm. there are only the ♂ and ♀ types (labelled as such), and one other ♂. No doubt these are the specimens "bred from bramble and rose sticks sent from Bristol." Only the ♂ type belongs to *P. pictipes* Nyl. (the name by which we know *varipes* Sm.), the ♀ type and the other ♂ are quite remarkable aberrations of *P. hyalinata* Sm., of very small size and abnormal in colour, the ♂ with the facial markings much diminished, the ♀ with these increased. In a copy of Smith's 2nd edition, formerly belonging to Saunders, I find written in pencil against the description "♀ = *hyalinatus* small?" "♂ = *pictipes* Nyl."—which is quite correct. These notes in pencil appear to have been made when Saunders was working on his "Synopsis," as some of them are exactly reproduced therein. The specimen of *P. variegata*, "purchased from Mr. Pelerin," and said to have been caught in "the neighbourhood of Bideford," is duly labelled, but the species requires confirmation as British.

In *Sphecodes* the long series of *gibbus* L. and *subquadratus* Sm. are almost entirely correct, but *rufescens* Fourcr. was a mixture of large or medium-sized species, which could not be placed in the other two. It contained one ♂ *spinulosus* von Hag., several *rubicundus* von Hag., and *pilifrons* Thoms.; both sexes also of *similis* Wesm., and the ♂ of *ferruginatus* Sch. *S. pellucidus* Sm., sunk by himself as a var. of *rufescens*, is *pilifrons* Thoms., and has the priority. Under

*S. ephippium* L. were placed all the small *Sphécodes* which were not considered identical with the preceding. These were all sent by Dr. Mason to Saunders, who determined them mostly correctly. A batch labelled "look like *puncticeps* but some might be *similis*, the armature would decide at once" are: 6 *puncticeps* Thoms., and 3 *similis*, but I have not dissected them. The other specimens determined by Saunders are: 1 ♂ *niger* von Hag. ("nr. Hastings"), and the usual *dimidiatus* von Hag., *variegatus* von Hag., and *affinis* von Hag.

Two specimens of the large *S. fuscipennis* Germ. were obtained from the same source as the *Prosopis variegata*. The host of this parasite is, I believe, a species of *Halictus* unknown in England, and of much larger size than any British one, and the *Sphécodes* cannot be admitted to our list. Pelerin seems to have had for sale several very desirable bees, as they were then considered, before Leach's supposed Devonshire captures were suspected of being foreign. I believe the "*Megachile pyrina*" from "Southampton" was also supplied by Pelerin to Walcott. Smith's collection of *Halictus* was by no means a good one, and he was at a loss to separate the smaller species. For instance, his series of *H. minutus* K. contains hardly any of that insect. *H. atricornis* Sm.—his own species—contains ♀ *nitidiusculus*. It should be stated that the males assigned to *laevigatus* K. are a mixture of *freygessneri* Alfk. and *fulvicornis* K. The male of the latter is also described as the ♂ of *longulus* Sm., but there is a small *cylindricus* F. mixed with these. *H. atricornis*, captured by himself in Yorkshire, was called *subfasciatus* Nyl., being mixed with true specimens of Nylander's species. A single ♀ named *H. fasciatus*, presumably the one sent to Nylander and returned as being this, is an ordinary and typical *tumulorum* L., and not at all like the generally accepted *fasciatus* of that author. It is labelled Deal. In addition to the types of "*gramineus*" Sm. from Cove Common, Hants, are two much abraded examples, only half the size of these, named *subauratus* Rossi by Saunders, and labelled "Ilfracombe." Otherwise of interest are the two ♀♀ of *maculatus* Sm., and the very remarkable varieties of the ♂ of *H. rubicundus*, captured on Lundy Island, at first mistaken by Smith for *H. 4-cinctus* auct. Brit.

The genus *Andrena*, containing insects of larger size than those of *Halictus*, and many of them possessing considerable beauty, is very well represented in Smith's collection. Apart from individuals wrongly placed, no doubt through carelessness rather than ignorance, and some that have previously been examined and referred to either by Saunders

or myself, the following species may be mentioned. Examples supposed to be *A. simillima* Sm., from Cromer, Norfolk, and from L. Rannoch, Scotland, are only *pubescens* F. All the Norwich ♂♂ (received from Bridgman), supposed to be *tridentata* K., are *nigriceps* K. The supposed\* ♂♂ of *fuscata* Sm. are ordinary *trimmerana* Auct. The ♀ assigned to *A. similis* Sm. is an elongated *albicans* K., next to which it is placed. *A. bimaculata* K. stands under four names: *A. bimaculata* and *decorata*, the spring and autumn broods, more or less red marked, and *A. conjuncta* Sm., and *vitrea* Sm., the same without red markings. The ♂♂ under *A. nigroaenea* K. are half of them *A. tibialis* K.; those under the latter are correct, except for a single ♂ *nitida*, misplaced probably through carelessness.

*A. frontalis* Smith is represented by three examples: two very old, and no doubt the original ones, and one added later. The former are ♂ *ceii* Schr., and ♂ *chrysosecelus* K.; the latter is *fulrescens* K. The series of *A. fulvago* Christ. includes three ♀ *chrysosecelus* and two ♀ *fulrescens* K. *A. picipes* K. is represented by the three examples from Portslade, sent by Walcott, and two other specimens, possibly from Bridgman. The former are ♂ and ♀ *nigroaenea* and ♀ *tibialis*, all styloped; the latter *nigroaenea* ♀ styloped. They can have nothing to do with the original *picipes* of Kirby. *A. picicornis* K. is represented by a ♂ and ♀, both styloped, of *A. wilkella* K. This ♂ might possibly represent Kirby's *picipes*, but certainly not *picicornis*. There seems to have been some confusion between these two forms by Smith, and it appears that in his 2nd edition he must have described both from the same specimens (sent by Walcott), as his description of *picipes* has not the least resemblance to those so named in his cabinet, but was evidently made from *nigroaenea* or *tibialis*. In Walcott's collection at Cambridge, I have seen the other specimens, taken at Portslade, and these are also mixed *tibialis* and *nigroaenea*. (For my remarks on the Kirbyan species see ante p. 50.)

Another styloped *Andrena* that calls for remark is a single ♀ placed under *mouffetella* K. The latter is well known to be *tibialis*, changed by parasitism. Smith's specimen has nothing to do with this, but I believe is a ♀ of *fasciata* Nyl., slightly altered by the stylops. It is in beautiful condition and was taken at Holdershot Heath, near Farnborough in July, 1849. I cannot find any second brood in *A. fasciata* recorded in this country, nor in Alfken's German lists, though it is one of the earliest spring bees—appearing as early

\* Smith's description of ♂ *fuscata* was made from these. As in the case of *A. fuscata*, he mistook the apex of the cheek for the base of the mandible.

as March, with its double-brooded ally, *fulvicrus*. Nor have I ever found the latter stylopized, though it has been recorded, as thus affected, by Morley. Of *fasciata*, I have no other record of stylopization. Smith took a stylopized ♂ of *A. bucephala* St., but left this unnamed.

*A. clypeata* Sm. is, as Saunders had determined from the description, an entirely typical ♂ *praecox* Scop., although in both editions Smith remarks that it is "a very distinct and marked species, and easily recognised." As he had ♂♂ of *praecox* correctly determined (under Kirby's name *smithella*), and also females of the same from Scotland, whence came the type of *clypeata*, this error is incomprehensible.

The other *Andrenae* worthy of note are the original examples of *A. polita* Sm., and a beautiful hermaphrodite of *A. nitida* Fourcr., female on the left side, male on the right. The remarkable aberration mentioned by Saunders under *A. bimaculata* (Hym. Acul. p. 236), which he says suggests a cross between this species and *filipes* F., and which Smith described as *praetexta*, is a variety of *filipes* corresponding to the var. *consimilis* Sm. of *nitida*.

(To be continued.)

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CRYPTOCEPHALUS BIPUNCTATUS L., AND *C. BIGUTTATUS* SCOP.  
(= *BIPUSTULATUS* F.).

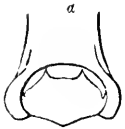
BY W. E. SHARP, F.E.S.

In the great genus *Cryptocephalus* Geoffr., of which (*sensu lato*) some hundred-and-sixty species are known as European, not more than eighteen or nineteen have been discovered in these islands. Of the two which form the subject of the present note neither can be considered frequent or widely distributed, and one (*C. biguttatus*) is undoubtedly rare. Moreover, as a doubt has been expressed by more than one author as to their specific distinctness, I have thought it well, besides recording the captures of the rarer, to add a few words on the characters which appear to me to establish the specific validity of each of them.

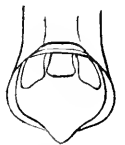
Thus Weise, although he clearly points out the differences which separate *C. biguttatus* from *C. bipunctatus*, and in fact refers to a disparity between their aedeagi, yet remarks (Ins. Deutschl., Vol. VI, p. 168): "In later date, Marseul divided it (*biguttatus*) by form and punctuation from *bipunctatus*, but these differences by themselves alone, in

view of the extraordinary inconstancy of the *Cryptocephalus* sculpture, offer us no absolute security for determination, and it is therefore not improbable that a fresh decision may be for uniting the two species, or rather for considering it a form of *bipunctatus*." Or again, Fowler, referring to *thomsoni*, a varietal form of *bipunctatus*, writes (Col. Brit. Isls., Vol. IV, p. 291): "and it still seems doubtful whether they (that is examples of *thomsoni*) should either all, or in part, be referred to *C. biguttatus* or *C. bipunctatus* if the two latter species be really distinct; this has been doubted by some authors who have united them." Rye also has a note (Ent. Mo. Mag., Vol. II, p. 86) something to the same effect.

Such doubts as these have probably been provoked by the wide range of variability assumed by *C. bipunctatus*, of which *C. biguttatus* might have been considered a possible form, in spite of its much coarser elytral striation and deeper punctuation. The very plain dissimilarity in the form of the aedeagus of the two beetles seems, however, to settle the question. From ♂ specimens of both species, that is normal *biguttatus* and "typical" *bipunctatus*, received from the Continent, I have been able to dissect out the aedeagi which are repre-

*C. biguttatus.*

sented here in the accompanying sketches: *a* representing the organ of *C. biguttatus*, *b* that of *bipunctatus*. The points of difference are obvious, and need not be dwelt on in detail by me here; but I may state that in extracting the similar organ from the most frequent British variety of *bipunctatus*, *i.e.* *sanguinolentus* Scop. (= *lineola* F.), I find the form to be precisely similar to that of the "typical" *bipunctatus* as here shown..

*C. bipunctatus.*

As, however, it may be desirable more particularly to differentiate between the two insects, I venture to add as follows:—

1. Entirely black, shining, with the apex of each elytron separately and broadly yellow red; punctures of elytral striae deeper and coarser, interstices sub-convex; aedeagus as in *a*. Length 5-6 mm.

...*biguttatus* Scop.

This seems to be a remarkably stable species, no varietal form being mentioned in the European Catalogue of 1906. Very few examples are known as British, and the few captures that have been made have all been swept from mossy or heathery localities. Chappell of Manchester took the greatest number that have ever been taken at once in this country, many years ago on Chat Moss\*; Dr. Power cap-

\* Through the courtesy of Mr. J. R. le B. Tomlin I have been able to examine some of these specimens of Chappell's now in his possession, and satisfy myself that they are undoubtedly examples of *C. biguttatus*, and not of any form of *C. bipunctatus*.





in certain instances, that the least frequent form of a species becomes the type of it!

In the present case there is no evidence whatever that a "typical" *C. bipunctatus* is in any sense more archaic or more representative of the species than any other of its numerous forms, and in this country at any rate is in a quite negligible minority as compared with the "var." *sanguinolentus*.

As to the occurrence of these several forms in Britain, Mr. Champion and Mr. Newbery have the "type" from Devonshire, and Mr. Donisthorpe and Mr. Pool have taken it near Niton, in the Isle of Wight. Mr. Newbery has specimens of the form *immaculatus* Pic, taken with *sanguinolentus* at Totnes, Devon. This latter form seems to be generally, but by no means commonly, distributed over the whole of England where suitable localities exist, such as heaths and mosses, for its maintenance. The var. *thomsoni* has been taken by Dr. Power, Mr. Champion, and Commander Walker, at Horsell or Woking, and by Mr. Tomlin near Crowthorne.

So far, I have been unable to verify the occurrence of the vars. *immaculipennis* Pic, *quadrinotatus* Schöff., or *clericus* Seidl. as British, but I have no doubt that among the numbers of *sanguinolentus* taken, examples have been found which might be referable to one of these forms. Of the bionomics of the species, including its food-plant, or whether its various forms all feed on the same plant or plants, nothing definite is known.

Crowthorne, Berks.:

February, 1917.

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REMARKS ON THE TABLE OF THE BRITISH SPECIES OF  
*RHYNCHITES* BY MR. J. EDWARDS.

BY E. A. NEWBERY.

Having had some correspondence with Mr. Edwards on the above subject, a few remarks on his useful table may not be out of place.

*R. auratus* Scop. and *bacchus* Linn.—The only record for more than a hundred years of the capture of either of these in Britain appears to be the single specimen of *bacchus* alluded to by Mr. Edwards as taken by B. Standish in 1843, *i.e.*, 74 years ago. The food-plants of both being common here, I think it may be fairly assumed that they are now extinct.

*R. sericeus* Herbst.—There is no reason to suppose that this insect is, or ever was, British. The single specimen of *ophthalmicus* in the Stephensian collection (which, although not labelled as the type, may be assumed in default of any other example to represent his *ophthalmicus*) certainly belongs to the same species as those in the Power and other British collections under this name. It has no resemblance to what is understood on the Continent as *R. sericeus* Herbst, which is placed by modern authors in a different sub-genus, the elytra appearing confusedly punctured, by reason of the large punctures in the interstices. Walton (Ann. Nat. Hist. XIII, 1844, p. 84) says: "I have not observed the *R. sericeus* of Herbst in any British Collection." As to whether *R. ophthalmicus* is identical with *R. olivaceus* Gyll., the only specimen under this name in the General Collection at the British Museum is too mutilated to enable me to form an opinion. The name *olivaceus* Gyll. has priority.

*R. aeneovirens* ab. *fragariae* Gyll.—I have a specimen from Claygate of a dark blue colour, without any greenish hue.

*R. tomentosus* Gyll. and *harwoodi* Joy.—I have always taken these two forms together, at Loughton, Farnham, Claygate and Wimbledon; at the last named place they occurred on many occasions.

13, Oppidans Road, N.W. 3:

March 13th, 1917.

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A NEW SPECIES OF *CERAPTEROCERUS* WESTW. (*EUSEMION* DAHLB.) (ENCYRTIDAE: CHALCIDOIDEA) FROM ITALY.

BY DR. LUIGI MASI

(Museo civico di storia naturale in Genova).

In Boll. Lab. Portici, 1909, Vol. IV, p. 6, figs. 5-9, I have described and figured under the name *Cerapterocerus corniger* (Wlk.), a species which proves now to be distinct from that described by the English author. I had judged the figure of the antenna of *Eusemion cornigerum* given by Walker (Notes on Chalcid., Pt. v., p. 73, 1872) to be inexact, but after examining a specimen of *cornigerum* from Camberley, Surrey (E. E. Green), it is evident that I have been mistaken in this respect. *E. cornigerum* differs in several of its characters from the Italian species. The latter may be referred to as *E. italicum* Masi. In it the funicle is broader, the club nearly as long as wide, the forewings are hyaline at the base, and the clear spot near the stigma is prolonged into a narrow transverse band. *Eusemion italicum* has been bred from the Coccid *Ceroplastes cuscii* collected at Catanzaro and Portici.

March, 1917.

FIRST IMPRESSIONS OF A NORTH INDIAN STATION IN  
THE RAINS.

BY H. G. CHAMPION, B.A., I.F.S.

It has occurred to me that it might be of service to give some account of the chief features of interest that strike the attention of the Entomologist, with more or less British and European experience, during his first rainy season in N. India. It so happened that early in the rains (mid August) I was deputed to do some work in Dehra Dun for about two and half months, and it is to this locality, which lies at the foot of the outer hills of the Himalayan system, but is separated from the plains to the south by the Siwalik range, that these notes will refer.

The bungalow occupied by me was situated some three miles from my work, and the purpose of these notes will be best served if a description is given of the country between the two places—ground I frequently covered, net in hand.

One starts, after a short distance along a road, by dropping down into the gravelly bed of a watercourse, which, in spite of its width of anything up to 100 yards, and its steep banks, about 20-30 feet high, was unusually dry, and even after heavy rain, never had more than a meandering stream of muddy water. It seemed likely that a little search would be sure to yield a fair number of *Coleoptera* of the *Bembidium* and *Anchomensus* type, with a few Staphylinids and other miscellaneous forms under stones; but actually very few could be found in this way, and the moist banks, which at home would surely have produced *Bledii*, *Dyschirii*, etc., were likewise unproductive. I am still unable to assign a reason for this poverty in what at home we should consider a very likely collecting ground.

Ascending the opposite bank, the path runs through irrigated cultivated ground, carrying for the most part crops of rice, but the irregular hedges, formed chiefly of *Vitex negundo*, and the herbaceous growth along the path offered possibilities; there were always plenty of *Lepidoptera*, if nothing else, to be netted here. There are but few plants in flower to attract these except the *Vitex* itself, and one could always see *Papilio polytes*—a handsome species, black, except for a series of bold yellowish spots on the hind wing (the ♀ has some red coloration also),—*Hypolimnas bolina* ♂, *Catopsilia chryseis* L., etc., on the pale blue blossoms. The chief growth along the path-side is the sensitive *Mimosa pudica*, the coarse leguminous *Cassia obtusi-*

*jolia*, and *Zizyphus jujuba*, but the sweeping net yielded next to nothing beyond the black and yellow *Tylocerus bimaculatus* Hope, strongly reminiscent of the autumnal *Rhagonycha fulva* at home, and abundant on the flowers of the last mentioned plant. The most interesting find here, however, was a very active metallic green Cicindelid, *Collyris* sp., whose larva lives in the hollowed twigs of the *Vitex*, etc.

There was abundant life, however, still mostly Lepidopterous, in the form of *Terias hecabe*, ad lib., *Junonia lemonias* (suggestive of *Pararge megera*); *J. orithya*, with a large patch of blue scales and red eye-spots on the hind wing; and *J. iphita*, swift in flight, but dull in appearance for a genus typically brightly coloured; and *Vanessa* was abundantly represented by *V. cardui*, as well as by forms very similar to the British *V. urticae* (as *V. cashmirensis*) and *V. atalanta* (as *V. indica*). Dragon-flies are fairly common, as also are Asilid flies, whilst the commonest Hymenopteron is the yellow *Polistes hebraeus*, which is always to be seen in the bungalows.

Further on along another short stretch of road is a hedge of *Duranta* (*Verbenaceae*, pale blue flowers and conspicuous orange berries), which was always attractive to butterflies, especially Pierines: *Pieris mesentina*, *P. canidia*, and the fine *Delias eucharis* were here the most regular species. Reaching fields again, the collecting becomes more varied and productive, as this time we are on unirrigated land carrying a variety of crops, partly cereal and partly pulse, in small plots separated by low earth banks, on which is a fine growth of wild plants, and occasionally a rough hedge. Almost the first thing that catches the eye is the abundance of dragon-flies hovering in the air about six feet above the ground, usually all facing the same direction, and at intervals swooping down on some victim. If one walks through the vegetation, numerous Myrmeleonids, chiefly *Macronemurus* spp., I think, take to wing; and, less often, the fine big *Palpares pardus* with its black spotted wings. One day some 50 larvae of one of these forms came up in the sweeping net.

Besides the above-mentioned butterflies, numerous others were to be found here. The most interesting to the novice were beyond doubt the two species of *Hypolimnas*—*bolina* and *misippus*. Both were common, together with the butterflies mimicked by the ♀♀, *i.e.*, *Euploea core* and *Danais chrysippus* respectively, and it is not always easy to detect one from the other on the wing. The male *Hypolimnas*, very similar in both species, are black with a roughly circular patch of blue scales on the fore-wing—handsome butterflies, very active on the

wing. Incidentally, *Danaus genutia* was also common, though local. Two more species of *Junonia* were to be seen here, the conspicuous *J. hierta* (resembling *J. orithya*, but having large yellow blotches on the wing instead of blue), and *J. almana*, a red-brown insect with conspicuous eye-spots, and easily mistaken for an *Argynnis* when flying rapidly--which last-mentioned genus was also represented by one or more forms. Among the low vegetation, a pretty little "Ringlet," *Ypthima hübnerei* was almost as abundant as the ubiquitous *Terias hecabe*.

It is needless to catalogue everything seen, but no account would be complete without mention of a group of species which the British Lepidopterist with a weakness for popular names would term "White Admirals:" *Neptis carynome* and *Symbreuthia lucina* were perhaps the most representative forms. Finally, there is always a miscellany of Lycaenids, *Polyommatus*, Hesperiid, etc., some very like those familiar in England, and others strange to me.

The Heterocera were not much in evidence, except for the day-flying *Utetheisa cribraria*, similar to *U. pulchella* in a general way, but having the fore-wings in the ♂ ochreous-yellow, and in the ♀ pink, sprinkled with black dots; the larva of this species was common on the Leguminous *Crotalaria sericea*. There were one or two active Arctiids about, and it was pleasant to pick up so familiar a form as *Acherontia* (*A. styx*) in the road one day; another "old friend" was the larva of a *Stauropus* (*S. alternus*) feeding on *Cajanus indicus*.

"Dhal," *Cajanus indicus*, is one of the commonest field crops in these parts, being an erect, leguminous herb, reaching some 8 feet in height, and bearing yellow flowers like those of *Lotus*. There were considerable areas under this crop along my path, and I collected a good many species here. A large *Mylabris*, probably *M. macilentata* Mars., was very common, and a series showing a wide variation in the black bands could be collected; but both *Cajanus*, and a low *Indigofera* (*I. hirsuta*), growing beneath and among it, yielded nothing to hard work with the sweeping net. It is curious that in England, a good growth of any leguminous plant is sure to produce a peculiar species of *Apion* or other Curculionids, but of these I could find no representative here. Anthophilous *Hymenoptera* were concentrated in these fields as one would expect. The local honey-bee, *Apis dorsata*, was abundant, but the majority of the bees were larger black species, chiefly *Xylocopa fenestrata* and *Megachile anthracina*, with a few *Megachile disjuncta* (black, with basal abdominal segments clothed with white pubescence), *Osmia*, sp., etc. Other forms especially noted were *Scolia carbonaria*,

*Crocisa emarginata* (a pretty species with patches of blue scales on the abdomen), and a coal-black *Euменыes*.

As might be expected, Acridiids are abundant enough, but were not collected. One form, however, must be mentioned, *i.e.*, *Aularches punctatus*, which is a large, heavy species, with conspicuous red, black and white "warning" colours, and which exudes a frothy secretion when handled. Small active Blattids turn up commonly in the sweeping net, but were also neglected. Finally, of a fine evening, the large termite, common in these parts, may be seen to swarm—an occasion which also gives one the best opportunity of observing many of the local birds.

The day's collecting is finished in the Bungalow after dark, when the lamps attract insects sufficient in quantity, if not in quality, to satisfy the most ardent Entomologist. Excluding *Lepidoptera* (which form a much smaller proportion of the total than they do at home), of the larger visitors, two or three species of *Copris* (or allied genera) and *Xylotrages gideon* are the most regular and noisy. Smaller Lamellicorns are also abundant, and a species of *Paussus*\* not rare, but on the whole the *Coleoptera* show little variety. The giant bug, *Belostoma indicum*, is perhaps the most striking of all the insects collected, but the quantity is made up, not of these large forms, but chiefly of small Acridiids, Gryllids, and the like.

\* \* This note in its original form had the misfortune to go down with S.S. "Arabic" in the Mediterranean; it is reproduced largely from memory, away from books and collections, in the Himalaya proper.

Almora, U.P., India :

January 2nd, 1917.

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*Notes on Coleoptera in Devonshire: a correction.*—My attention has been called to an inaccuracy in my notes (*Ent. Mo. Mag.*, Feb., p. 40). I regret that, through trusting to memory, I inadvertently stated that *Hydrochus nitidicollis* was first taken by Messrs. Keys and de la Garde. This is incorrect, as it was first taken, identified, and added to the British list by Mr. Donisthorpe (*cf.* *Ent. Record*, 1906, p. 133, and *Col. Brit. Isls.*, Vol. VI, p. 34).—A. VINCENT MITCHELL, 90, Mount Gold Road, Plymouth: February 9th, 1917.

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\* This insect is allied to *P. seriosus* Wasm., but it cannot be identified from Fowler's key to the Indian Paussidae (*Fauna Brit. India, Coleopt.*, Vol. I.). It is not represented in the British Museum collection.—G. C. C.

*Dytiscus dimidiatus* Bergstr. in Somersetshire.—A correspondent, Mr. C. P. Hurst, of Treowen, Berron Road, Burnham, Somerset, has forwarded for identification a female specimen of this beetle taken by him near Wedmore, N. Somerset. The capture is of considerable interest, as the only localities given by Fowler are the Fen district, and Askham Bog in Yorkshire, in both of which the insect has been taken in some numbers. Mr. Hurst's specimen was taken in a watercourse, but he writes that the place where he found it "must originally have been a fen (it was on the Somerset 'Levels')," and suggests that the beetle is perhaps a survival from former times.—K. G. BLAIR, British Museum (Natural History): *March 6th, 1917.*

*Zygogramma exclamationis* F., a North American Chrysomelid, imported.—In November, 1914, I received a number of living specimens of *Zygogramma exclamationis* F., which had been imported from Colorado with seeds of the red sunflower. Mr. Tomlin kindly identified them for me.—F. W. COCKS, 26, Crown Street, Reading: *February 1st, 1917.*

A few notes on *Rhynchites*.—Mr. James Edwards' interesting paper on *Rhynchites ophthalmicus* Steph., etc., in the January and February numbers of this Magazine has induced me to write the following brief notes:

*R. ophthalmicus* Steph.: in a collection of European *Coleoptera* possessed by the late F. Bates, specimens of *R. sericcus* Herbst were present. These were violet in colour, and would agree with Stephens' description of *ophthalmicus*. Certainly I have never seen any British insects like these. *R. betulae* L. (*betuleti* F.): I have captured this species at Chiddingfold, Darenth Wood, Guestling, etc. On the whole, I have found the green form more plentiful. I possess specimens which are all green; green, with a coppery rostrum, head, and thorax; green, with only the rostrum coppery; and green, with a coppery head and rostrum, and golden thorax. Both blue and green ♂♂ occur, though I have heard it suggested that this is not the case. *R. populi* L.: only green specimens of this usually occur, but Mr. O. E. Janson took a number of blue ones at Sidcup; I have only found the green form at Bexley. *R. ueneovirens* ab. *fragariae* Gyll.: I captured a specimen of this aberration at Rossbeigh, Co. Kerry, in June, 1902, and recorded it as "a curiously coloured specimen" (*Irish Nat.*, XII, p. 64, 1903). *R. interpunctatus* Steph.: I have beaten this species not uncommonly off young oaks in Buddon Wood, Leicestershire, when with my friend Mr. Bouskell, who discovered it there; I have also found it in Sherwood Forest. *R. coerules* De G. (*conicus* Th.): this species I have always found very rare; I have taken it in the New Forest, and the Blean Woods.—HORACE DONISTHORPE, Durandesthorpe, 19, Hazlewell Road, Putney, S.W.: *February 14th, 1917.*

*Enquiry respecting Birch Wood, Kent.*—I shall be glad if anyone can give me any information respecting the precise whereabouts of the celebrated old locality, Birch Wood, where *R. bacchus* is said to have occurred. The late lamented Mr. C. O. Waterhouse told me within the last year or two that he had

ascertained the situation of the wood when collecting. I unfortunately omitted to make a note at the time, and he himself afterwards forgot, but said he would find out for me again. Not knowing of his illness, I wrote the day before his death to remind him, and it was a great shock to me to hear in reply that he was gone. His constant readiness with help and advice on any point in Entomology endeared him to all of us.

I require this information for my next book—on the British Myrmecophilous Fauna—as I have various records of ants' nest beetles from Birch Wood.—HORACE DONISTHORPE.

*Abraxas grossulariata* var. *albovarleyata*.—I have recently added to my series of *Abraxas grossulariata* a very beautiful, and as a variety, I have no doubt unique, example of the species. It was bred in May last by Mr. J. Lee, of this town, from a pairing of the variety *varleyata*, obtained from wild larvae collected in a garden in this district in the spring of the previous year. About fifty specimens were bred from the brood, all typical *varleyata* except this specimen, although the brood generally showed proportionately considerably more white in the usual wing-rays of the ♂ than in any other brood I have seen, several of the specimens being exceptionally fine in this respect. My specimen differs from the typical *varleyata* ♂ in that the hind wings are entirely white with the exception of the veins, and a series of four marginal spots (one between each of the basal wing veins), and a few almost unnoticeable freckles, all of intense black. The fore-wings, besides the usual white shoulder band, have a series of seven large oblong-square white marks on the outer margin, separated from each other by black streaks; and there are also two parallel short streaks of white just anterior to the middle of the black central area. The form probably represents the extreme form of *varleyata* in the pale direction, and I think var. *albovarleyata* is an appropriate name for it.—Geo. T. PORRITT, Dalton, Huddersfield: *March 5th*, 1917.

*Note on the habits of the Tropical American Fulgorid, Pterodictya ephemera F.*—In Distant's enumeration of the Central American Fulgoridae, it is stated, on my authority, in connection with the habits of this species (Biol. Centr.-Am., Rhyneh. Homopt., i, p. 38. Nov. 1887), that it was sometimes found four or five specimens together on tree-trunks in the forest, the tree in question having the trunk closely studded with long sharp spines, between which the insect rests, thus adding to the difficulty of capture, as it immediately flew off when approached. This tree was not identified at the time, but it can now be stated that it was *Bombax fendleri* Seem. (*Bombaceae*), one of two species recently placed under a new generic name, *Bombacopsis*, by H. Pittier (Contribs. U.S. Nat. Herb., Vol. 18, Pt. 4, 1916), whose excellent photographic plates (74 and 75, *loc. cit.*) at once reminded me of this remarkable Fulgorid, of which I captured many examples in the State of Panama in the early 'eighties. Its large size, talc-like tegmina, etc., and the perpendicular spiral flight, render *P. ephemera* a very striking insect. Stoll figured and described it in 1788, under the name "*La Cigale Demoiselle*," from a specimen from Surinam.—G. C. CHAMPION, Horsell, Woking: *March 13th*, 1917.



*Occurrence of Megalomus hirtus L. in Kincardineshire*—When at Muchalls last July, I was fortunate enough to take a short series of *Megalomus hirtus* L., by sweeping the herbage along the cliffs; the insect was not at all common, in fact the average was about one a day with close sweeping, but it must be mentioned that the winds were very cold and the prevalence of sea fogs made sweeping a very difficult matter. This insect is recorded by McLachlan as "one specimen taken by J. C. Dale at Duddingston, in 1825, and the specimen in the British Museum, and probably one or two other British specimens." I have, since my capture, learned that Prof. James Trail, of Aberdeen, took an example at Muchalls some years ago, which was submitted to and identified by McLachlan. I do not think that this specimen has been recorded before.

When sitting in the net, this Hemerobiid is very inconspicuous, reminding one of a "humped up" example of one of the common species of *Cixius*. As far as I noticed, the insect made no attempt to fly away or even to walk about when placed in the glass tube. I tried to find out what plant it might be attached to, but without success.—JAMES J. F. X. KING, 1, Athol Gardens Terrace, Kelvinside, Glasgow: February 12th, 1917.

*Hymenoptera in Mus. Brit.*—It would appear from Dr. Perkins' remark at p. 50 of this volume that he is unaware that Haworth's collection, at least as far as its *Hymenoptera* are concerned, was acquired by Stephens (along with those of Marsham, Francillon, Donovan and other noted men of the time) before his death, in 1852. His entire collection passed to the Trustees of the British Museum in, I believe, 1857. Consequently Haworth's type of *Melitta lanifrons* Kirby should still be in the "Old British" collection in the Museum, though doubtless not indicated as such. It is very likely to be *Andrena nigriceps*, a species common in Suffolk, though occurring only from July to September, for Kirby can have had no more than indefinite knowledge thereof, or he would hardly have recorded it 'Aprilis incuntes.' The recent deplorable decease of Mr. W. F. Kirby, Mr. Edward Waterhouse, Mr. Meade-Waldo, and Mr. Chas. Waterhouse has deprived the older collections of many important, though unfortunately purely traditional, details. Kirby's guide to the collection of the "eighties" is of the usual official stamp and little known, though useful in its way. Stephens had labelled all Marsham's *Hymenoptera* with a circular white ticket, differing from the oblong one affixed by the Museum to his own specimens only in shape. I do not think Haworth's specimens bore any similarly distinctive mark. Another detail, known I believe only to the elder Waterhouse, is that the ancient tomes topping the interfenestrate shelves in the *Hymenoptera* Room relate to MS. numbers attached to some of the oldest specimens of exotic *Hymenoptera* still preserved in Britain. They contain the names of localities and captors to be found nowhere else; interspersed with these are MS. descriptions by such men as Adam White, entered between 1850 and 1860, and William Elford Leech, sometime Keeper of the British Museum, who died in 1836. The risk of irreparable loss, entailed by the abolition to duplicate cabinets of the oldest, raggedest, and most disreputable specimens bearing no data, is here well illustrated in *Melitta lanifrons* Kirby. And yet, as Meade-Waldo used to say, "You can't keep everything!"—CLAUDE MORLEY, Monks Soham House, Suffolk: March 7th, 1917.

## Abstracts of Recent Literature.

BY HUGH SCOTT, M.A., F.L.S., F.E.S.

BARNES, J. H. and GROVE A. J. "THE INSECTS ATTACKING STORED WHEAT IN THE PUNJAB, AND THE METHODS OF COMBATING THEM, INCLUDING A CHAPTER ON THE CHEMISTRY OF RESPIRATION." *Memoirs of the Department of Agriculture in India, Chemical Series, Vol. IV, No. 6, pp. 165-280d, Nov., 1916.*

This work, the result of the combined researches of a chemist and an entomologist, contains much that is highly suggestive, and of great interest, both scientific and practical. The insects found in the stored wheat consist of eight species of Coleoptera and one of Lepidoptera. Only three, however, are actively responsible for damage to the wheat, namely, the Dermestid *Attagenus undulatus* Motsch., the Bostrychid *Rhizopertha dominica* Fabr., and the weevil *Calandra oryzae* Linn.: the first is known to attack the grain in its larval stage; the two latter in both larval and adult stages. Of the other species, *Laemophloeus* sp. (Cucenjiidae) is only found living on floury frass and grains already damaged by other insects. *Tribolium castaneum* (Tenebrionidae) was proved by experiment unable to live on sound grains, and is strictly a flour-beetle rather than a wheat-beetle; practically the same may be said of *Latheticus oryzae* (Tenebrionidae). *Alphitobius piceus* appears to be merely a scavenger, and not to attack the grain; attempts to rear it on wheat in any form failed, though it is found in stores that have been damaged or have become damp, and is often associated with attacks by Termites. The eighth kind of beetle is *Calandra granaria* Linn., which was but rarely found. The larvae of the Lepidopteron, *Sitotroga cerealella* Oliv., damage the grain, but were only observed in one district.

The life-histories of these insects are dealt with in detail, and are illustrated in coloured plates. The bionomics of *Attagenus undulatus* exhibits some curious features. The number of its moults varies according to season and sex. The progeny of the same parents may vary in this respect, even though kept under identical conditions. Thus, of two larvae derived from a single ♀, one passed through seven, the other through four, moults. The former became a ♀, the latter a ♂, and as a general rule ♀-producing larvae undergo at least one more moult than those which produce males. During the hot dry months the number of moults is reduced and development is accelerated, while in the rains the number increases. But no constant number can be given even within these seasonal limits. Hibernation in the larval stage occurs, and when adverse conditions are encountered the insect merely becomes dormant until they change. The eggs are laid among the wheat and usually singly. The larvae do not as a rule bore right into the grains, but gnaw them from outside. Before the third moult they seem unable to attack whole seeds, and can only gnaw those which are already damaged; but in the later stages they can begin on sound grains.

In *Rhizopertha dominica* the adults will eat away the whole starchy interior of the seed, and produce much floury frass on which the young larvae probably feed—at any rate in part. The eggs are laid either loose among, or stuck to,

the grains. Younger larvae cannot penetrate sound grains, but the least abrasion of the hard outer skin enables them to enter. The larva then excavates a cavity in the seed and pupates therein without forming any cocoon. In the notorious *Calandra oryzae* the egg is laid in an excavation in the grain made by the female, and the larva has no need to search for a suitable place of entry to its food—a fact which may be correlated with its legless condition; the whole of its larval and pupal existence is passed, weevil-fashion, in a single grain. The damage done by *A. undulatus* is on the whole more slow and steady. It has a great capacity for withstanding adverse conditions, but is handicapped by its slower rate of reproduction. The other two species are far more easily affected by adverse conditions, but under favourable circumstances can do great damage in a short time.

Turning to the part of the paper which deals with chemical questions: tests were made of the effect of dry gases—carbon dioxide, hydrogen, and nitrogen—on the larva of *A. undulatus* and the adults of *R. dominica* and *C. oryzae*, it being thought that, if such measures were effective, wheat might be stored in sealed bins, into which such gases could be introduced. But it was found that the insects can survive for long periods in an inert condition, from which, if a supply of oxygen be restored to them, they can resuscitate. The time taken to produce actual death was spoken of as “the lethal period,” and this decreases as the temperature rises, and also as the concentration of gas becomes less dense. In an atmosphere of dry carbon dioxide at 30° C., the lethal period of *A. undulatus* was from 63 to 89 hours; of *C. oryzae*, from 30 to 51 hours; and of *R. dominica*, from 14 to 50 hours (p. 234). In the experiments with hydrogen and nitrogen respectively, the lethal period was also often of considerable length. Moreover, the period varies not only with temperature and gas-density, but also with the season of the year, and in the case of different individual insects. On the whole, *A. undulatus* seems the most resistant to all the gases, *R. dominica* the next, and *C. oryzae* the least resistant (p. 238).

The interpretation of these phenomena is very suggestive. In Chap. iv are reviewed various suggested explanations of the nature of the process of respiration, and by a series of experiments the writers come to the conclusion that, in the case of these insects at least, respiration is at the root an enzymic process due to the presence in the cells of an enzyme capable of bringing about oxidation. A number of larvae were killed and ground to pulp in such a way as not to destroy the cell substance, and it was found that certain chemical manifestations of the respiratory process still continued. When the living insects are quite cut off from atmospheric oxygen, the enzymic action may enable them to continue respiration by making use of the chemically-combined oxygen in their own bodies—i.e., by breaking down reserve-substances (fats) and oxidising other compounds with the oxygen thus set free. This is regarded as the explanation of the long survival of the insects in the gases used. The wide difference in length of the lethal period in individual insects indicates that its duration is regulated by the degree of enzymic activity of the insect at the time. Such enzymic activity may also control the supply of energy at such times

in the ordinary metamorphosis when no provision seems to be made for ordinary respiration. The decrease of the lethal period with increasing temperature is also explicable on the enzymic supposition. The fact that the insects are more quickly killed when the gas is lighter or less dense is probably to be explained by the laws of gaseous diffusion: the gases produced by the "internal" respiration (*i.e.*, breaking down of reserves) would be more rapidly diffused in a lighter atmosphere, and hence the using up of the reserve substances would be accelerated.

From a practical point of view, the writers are forced to the conclusion that these inert gases cannot be economically used as asphyxiating agents, owing to the capacity of the grain-pests for remaining alive so long in an inert state; also, in the case of carbon dioxide, the gas injures the germinating power of the grain. Resort must therefore be had to active chemical deterrents or mechanical methods of treatment. Chap. vi deals with remedial measures.

One other point may be briefly alluded to—the effects of moistness and dryness (Chap. v). It must suffice to say that dryness has a marked inhibitory effect on *C. oryzae*, while *A. undulatus* on the other hand prefers dry conditions, and *R. dominica* seems very little affected either way. Desiccation, therefore, though effective against *C. oryzae*, is not so against all the insects attacking stored wheat in the Punjab.

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## Review.

"A NATURALIST IN BORNEO." By the late Robert W. E. Shelford, M.A., F.L.S., etc. Edited, with a Biographical Introduction, by Professor E. B. Poulton, D.Sc., LL.D., F.R.S., etc. London: T. Fisher Unwin, Ltd. 1916.

It was common knowledge with the friends of the late Robert Shelford that many of the weary hours of the long and distressing illness preceding his untimely death were occupied in putting together the numerous notes and reminiscences of his seven years' curatorship (1897–1905) of Rajah Brooke's Museum at Sarawak, as the basis of a volume dealing with the Natural History and Entomology of that most interesting region of the great Island of Borneo. Although this material was left in a somewhat unfinished state, its judicious and careful editing by his friend Professor Poulton—at whose suggestion the work was undertaken, and to whom we owe the introductory sketch of the author's career—aided by those well-known Bornean authorities, Dr. C. Hose and Mr. H. N. Ridley, with others, has resulted in the handsome volume now before us, replete from cover to cover with first-hand observations on the splendid tropical fauna of Sarawak. Shelford was first of all an Entomologist, though of exceptionally wide knowledge and sympathies in all branches of Natural Science, and Chapters V to IX, about one-third of the book, are devoted to the insect life of that region. His favourite Order, the *Orthoptera*, is, as might be expected, treated in much detail, and a large amount of information is given respecting the many striking forms of these insects which came

under his notice. Equally interesting is the chapter on "Beetles," including the strange life-history of *Collyris*, a twig-boring genus of *Cicindelidae*; that of the wonderful *Mormolyce*, perhaps the most bizarre in form of all Coleopterous insects; and the account of the remarkable "trilobite" larvae (or larvi-form imagines) of an undetermined Malaeoderm beetle of relatively gigantic size. "Ants and Plants" is the title of Chapter VII, in which are fully described the modifications of the organs of plants of diverse Natural Orders, "to all appearances admirably and purposely adapted for the harbouring of ants"; the details of various Pitcher-plants, so characteristic of Borneo, and their ant associates, being of special interest. "Mimicry," the important subject of the next chapter, is treated in a very suggestive and original manner, and many new facts bearing on the question are brought forward. The details and tables of the mimetic Longicorn beetles of Borneo, which in a good many instances are mimics of other species of the same family of *Coleoptera*, forms a contribution to the subject of special value. The charm and lucidity of the author's style, conspicuous throughout the book, are seen in their best in the three chapters devoted to the account of excursions of some length from Sarawak in search of zoological and ethnological material. An excellent portrait of the author, and numerous characteristic half-tone plates reproduced from his drawings, and from photographs by himself and Dr. C. Hose, illustrate the volume, which all his friends and readers will appreciate as an appropriate memorial to a charming personality and an admirable Naturalist too early lost to Science—J. J. W.

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### Obituary.

*Arthur E. Gibbs.*—It is with sincere regret that we have to record the death of Mr. A. E. Gibbs at the comparatively early age of 58. Fortunately for him, his father (Alderman Gibbs of St. Albans) was a man of a wide outlook, and he encouraged his boy in his natural history studies, and went so far as to give him a special room in their business premises where he could keep his entomological and other treasures. This was a great advantage to him, and it was natural that his knowledge should soon take him to the Continent in search of his favourite hobby—the *Lepidoptera*. He did not, however, confine himself to insects, for he amassed a fair collection both of flints and coins, and was well-known locally for his archaeological researches. Among his Continental trips he spoke with greatest satisfaction of those he made to Corsica, Spain, Algeria, and the Balkans, and he enriched several collections with his captures. He was a Fellow of the Linnean, Zoological, and Entomological Societies, and served twice on the Council of the last-named, having been elected for the second time in January of the present year. He had also been a valued member of the Business Committee of that Society for some years, and it will be difficult if not impossible to find a successor, for his technical knowledge and experience in the printing trades proved of very great service to them, and through his efforts more than one saving was made in the cost of their publications. He was one of the proprietors of the "Herts Advertiser" and the "St. Albans

Times," and, I believe, of the "Luton News"; and a director of his father's firm of Gibbs & Bamforth, Ltd, and of the St. Albans Gas Company and other concerns, so that it is really a wonder he could do so much for Entomology. Apart from British and Palaearctic *Lepidoptera*, he made a considerable collection of American *Rhopalocera*, and for some time past he mainly occupied himself with the study of these insects.

He found time, however, for various public activities, and was a member of the St. Alban's Education Committee, and of the Library Committee, and, I believe, took a prominent part in founding the High School for girls in his native city. The last time I saw him was at the South Kensington Museum on one of the first days in December, and little did I realise that it would be our last meeting here. He had just recovered from an attack of influenza, but a relapse following almost immediately, he was ordered to take a complete rest; but, alas, it was of no avail, as serious symptoms soon set in, and he passed away on March 3rd, leaving a widow and three daughters to mourn his loss. To them we offer our very sincere sympathy.—G. T. B.-B.

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## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
*Thursday, January 25th, 1917.*—Mr. HY. J. TURNER, F.E.S., President, in the Chair.

ANNUAL MEETING. The Balance Sheet and Report of the Council were read and adopted. The President declared the following elected to fill the several offices and Council for the ensuing year: *President*: H. J. Turner, F.E.S.; *Vice-Presidents*: R. Adkin, F.E.S., and A. E. Gibbs, F.L.S., F.Z.S.; *Treasurer*: T. W. Hail, F.E.S.; *Librarian*: A. W. Dods; *Curator*: W. West; *Editor of Proceedings*: H. J. Turner, F.E.S.; *Hon. Secretary*: Stanley Edwards, F.L.S., F.Z.S.; *Council*: S. R. Ashby, F.E.S., W. J. Ashdown, K. G. Blair, B.Sc., G. Brooks, F. W. Frohawk, F.E.S., D. R. Morford, C. W. Sperring, A. E. Tonge, F.E.S., and W. West, L.D.S.

The President then read his Address, "Shakespeare and Insects." Votes of thanks were passed to the various Officers and Council for the past year.

*Thursday, February 8th, 1917.* The President in the Chair.

The Rev. D. M. Darwell, of Dagpole, Woodford Wells, was elected a Member.

Mr. A. W. Buckstone exhibited series of *Zygaena lonicerae*, *Z. trifolii*, and *Z. filipendulae* from many British localities, and read a paper on the local racial characters shown, and gave an analysis of the markings on the undersides. A short discussion ensued. Mr. Hugh Main, the curious double cocoons spun by a species of *Coniapteryx*. Mr. Moore, various Bombycine moths from Ashanti, including *Bunea atcinöe*, *Lobobunea phaedusa*, *Gynanisa ethra*, *Nudaurelia butleri*, *Imbrasia epimethea*, *Microgene herilla*, and *Carnegia mirabilis*. Mr. Bowman, a unicolorous slate-coloured example of *Cuspidia (Acrionicta) megaecephala* from Hackney Downs.

Thursday, February 22nd, 1917. The President in the Chair.

An exhibition of Lantern Slides. Mr. West (Ashtead), slides showing androconial scales of several species in each of the families of butterflies represented in the British fauna. Mr. Hugh Main, slides showing (1) ova of the Earwig *in situ*; (2) a series of details of the life-history of a small burrowing beetle common in Epping Forest; (3) a series illustrative of the transformations of *Dytiscus marginalis*; (4) a series of the habits of the larva of *Cicindela campestris*. Mr. Bunnett, slides illustrating all stages of a colony of *Vanessa io*.—HY. J. TURNER, *Hon. Report, Secretary*.

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ON THE RARITY AND RESTRICTED DISTRIBUTION OF  
ANIMAL—ESPECIALLY INSECT—SPECIES.

BY GEO. B. WALSH, B.Sc.

(Continued from p. 61.)

Examples of these environmental changes are by no means difficult to find: (a) the destruction of forest land in England, besides removing many possible sources of food, has affected the climate of the country by reducing the rainfall and raising the temperature, it is said, by about 1° F.; and thus other species have been affected besides those which are purely sylvicolous; (b) in France, the indiscriminate destruction of forests by the peasantry during the excesses of the French Revolution caused the loss of the tree-roots which bound the soil together on the slopes of the Auvergnés and the Vosges; consequently the soil and sub-soil were removed from large tracts of hillside owing to the erosive action of the rain; this is not now retained by the soil and plants in the hills where it falls, but runs directly into the rivers, filling them rapidly much above their usual level and thus causing devastating floods in their lower courses, for example, near Orleans, on the Loire; this destruction of forests, therefore, besides affecting to their disadvantage the upland species which found their *habitat* there, reacts inimically upon lowland species far removed from the original forests\*; (c) in the Landes of south-western France, until the planting of a long and thick littoral belt of pine-trees, the sea-sand drove steadily inwards, destroying arable and grass land, and causing an entirely new type of environment to spring up there; and (d) to quote one more of many possible examples, the progressive desiccation of Central Asia is causing great differences in the fauna

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\* It will be interesting to note what result, if any, follows the serious destruction of vegetation that is now going on in all the present battle areas.

and flora of the Steppes, owing to their gradual change to the desert condition, with consequent enormous destruction of animal and vegetable life.

Species, then, which are being more and more restricted in range, can be recognised by the fact that they become gradually rarer until at last they disappear. Examples in Britain are unfortunately only too common, especially among the butterflies.

#### 4.—EVOLUTION OF NEW SPECIES.

In all the cases just mentioned, in addition to the direct extinction of the original habitant species and the introduction from without of immigrant species better suited to the new conditions, there is the possible transmutation of one form into another better fitted to cope with the new environment. Our detailed knowledge of animal physiology is not yet wide enough, and our historical record of it is far too brief, to permit us to give definite proved examples of this most interesting change, though it is evident that it must occur; but we may note that it is frequently urged that the progressive darkening of many Lepidopterous species, *e.g.*, the Peppered Moth (*Biston betularius* L.), is due to the new conditions brought about by the industrial revolution in Britain and other countries, with the consequent pollution by soot of trees, fences, etc.\* There is presumably nothing inherently improbable in this conjecture, although it has not been definitely proved, nor does it meet with universal support.

#### 5.—RELATION TO OTHER ORGANISMS.

Changes such as those indicated above, which involve the existence, the distribution, the numbers or the permanence of a vegetable or animal form, must of necessity affect other organisms also which are dependent on it for its means of existence; for example, organisms which depend directly on other animals or plants as sources of food must become extinct with the extinction of their food supply. This is shown very clearly during the drainage of fens, the reclamation of waste land, and the destruction of forests. But the same thing applies also to ecto- and endo-parasites and to commensals in all degrees of dependence on their host or messmate, so that the distribution and numbers of the one must be closely correlated with those of

\* It is immaterial for the purposes of the present paper whether this melanistic tendency is an entirely new condition, or, as has been suggested for some species at least, a reversion to type—the idea of the adaptation of a species to its new environment still holds.



the other; for example, the range of the Staphylinid beetle *Quedius othinieusis* Joh. (*talpaeum* Dev.), whose *habitat* is apparently restricted to moles' nests, cannot be wider, and may be narrower than the range of the animal with which it is associated, and thus the rarity of the one species must of necessity imply the corresponding rarity of its dependent.

#### 6.—PAST GEOLOGICAL HISTORY.

Then again, the geological or climatic changes which have taken place in past ages may have been in some cases only local, so that we may find in scattered localities species which are either identical or closely allied. If the separation has been of comparatively brief duration, probably the former condition of things will hold; but if of longer duration, probably the second—and this more especially if (i) the *habitats* are separated by barriers difficult of passage, such as wide stretches of sea, deserts, mountains, or land between now unconnected seas, *e.g.*, the Black Sea and the Caspian; (ii) the two *habitats* possess even slightly differing conditions of physiography, geology, and climate, with their correlated differences of fauna and flora; (iii) the genera are of a plastic nature, such as *Salix*, *Rosa*, and *Rubus* among plants, *Helix* among the *Mollusca*, and *Longitarsus* among the *Coleoptera*. Hence we find that isolated mountains, islands, areas of inland drainage, etc., frequently possess peculiar forms of extremely restricted distribution, such as, for example, the numerous forms of *Helix* in the Philippines, where almost every island possesses one or more peculiar species. It is from considerations such as these too, that we can explain the discontinuous distribution of Alpine and Arctic plants and animals in Britain, though it would be well, within the limits of this short paper, to avoid the still vexed question of the survival or destruction of all terrestrial life, in northern Britain at least, during the glacial period.

#### 7.—THE PAST GEOGRAPHICAL HISTORY OF THE SPECIES.

In some cases of discontinuous distribution, however, the observed phenomena cannot always be satisfactorily explained, either on the theory of past geographical continuity of range, or on the theory of divergent descent from such a geographically continuous species. As pointed out in Section 1, a species or genus extending its range makes its way outwards in various directions. It is quite conceivable that a species might reach a given country by two or more

entirely different routes, the two groups of the immigrant species never linking up. In this way we have in Britain, according to Mr. J. W. H. Harrison,\* who is an extremely able student of Zoogeography, two distinct and separate immigrant groups of the Kentish Glory Moth *Dimorpha (Endromis) versicolora* L., one in the North of Scotland, which made its way from Siberia by way of the Scandinavian peninsula and its past connection with our islands, and the other in the south of England, which has come by way of the Continent.

#### 8.—EXCEPTIONAL MEANS OF DISTRIBUTION.

Finally, in order to explain certain other examples of discontinuous distribution, the aid of special extraneous causes has often been invoked, such as mud on the feet, or food in the crops of migratory birds, ocean currents, floods, gales, etc. Unfortunately, though these agencies *do* work to some extent, and in certain cases, there is a great conflict of opinion on the subject, largely owing to the lack of proof that some of the methods are even possible. It is said, for example, that birds migrate on empty stomachs, and therefore could not carry seeds or resistant eggs in their crops, and that immersion in sea-water is fatal to many animal forms. Under the circumstances, then, it will be unnecessary here to do more than merely mention the suggestion.

#### B.—ONTOGENETIC FACTORS.

We now come to a series of phenomena which are familiar to every student of nature, namely, that species do not occur in equal numbers every season; that in some years what are usually quite common species are almost rare, and at other times so-called rarities are quite common. Almost every species shows a kind of irregular periodicity of this kind,† which must evidently be a result of circumstances which have occurred during the life of at most a few generations. In all probability, the fundamental determining factor in these cases is always one of climate, reacting either directly on the organism in one of its stages, or indirectly through its enemies, whether competitive, predatory, or parasitic.

\* "The Geographical Distribution of *Dimorpha (Endromis) versicolora*." Ent. Mo. Mag., 1916, pp. 134-139.

† Cf. W. E. Sharp. "Hydradephaga of Lancashire and Cheshire." Naturalist, 1892, pp. 189-190.

DESIDERATA.

Wanted at once, for cutting up, a worn-out copy of Dalla Torre's Catalogue of Ichneumonidae, 1901/2.—CLAUDE MORLEY, Monks Soham House, Suffolk.

Will any collector who habitually takes *Scodiona fagaria* (belgiaria), kindly communicate with N. CHARLES ROTHSCHILD, Arundel House, Kensington Palace Gardens, London, W.

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## THE NATURALIST:

A MONTHLY ILLUSTRATED JOURNAL OF

NATURAL HISTORY FOR THE NORTH OF ENGLAND

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G. C. CHAMPION, F.Z.S. J. E. COLLIN, F.E.S.

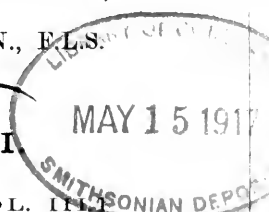
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VOLUME LIII

[THIRD SERIES—VOL. III]



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## **MEETINGS OF SOCIETIES.**

ENTOMOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Wednesday, May 2nd, 1917.

The Chair will be taken at 8 o'clock in the evening precisely.

The Library is open daily from 9 a.m. to 6 p.m. (except on Saturdays, when it is closed at 2 p.m.), and until 10 p.m. on Meeting nights.

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THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, Hibernia Chambers, London Bridge. The Second & Fourth Thursdays in each month, at 7 p.m. The lantern will be at the disposal of Members for the exhibition of slides.

The Chair will be taken punctually at 8 o'clock.

---

THE LONDON NATURAL HISTORY SOCIETY which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

Hon. Sec.: J. Ross, 18, Queen's Grove Road, Chingford, N.E.

Chingford Branch. The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.

It is always difficult, and—in the present state of our knowledge—generally impossible, to give a conclusive explanation of any particular case, depending as it does, on specific bionomics of which we are probably ignorant, on weather conditions reacting in an obscure manner during probably a long period, and on an extremely complicated inter-relation and correlation of any given species with many other organisms. Nevertheless, the main outlines of the general determining causes are clear enough. The exceptional scarcity of species in any given year may be due to:—

(1) Unfavourable weather conditions, reacting directly on the organism during some stage of its life-history, *e.g.*, exceptionally severe or mild and open winters; dry or wet summers; an early spring with late frosts; heavy rains or floods during some critical period of its life, etc.

(2) Weather conditions reacting indirectly by affecting in an unfavourable manner its food supply.

(3) Weather conditions reacting indirectly by affecting its enemies in a favourable manner; owing to this, there will be an increase in the numbers of its parasites or predatory enemies, or in the number of organisms that share with it its food supply. Thus it is a generally observed fact that many insects are rare after a very open winter, partly owing to the fact that they are less torpid and therefore are more likely to be exposed to dangers from frosts, floods and birds; and partly because the birds have a better chance of searching for insect food during mild weather than when there is much snow and frost. Again, if the early-feeding Lepidopterous larvae, notably such as feed on oak, are especially numerous, they strip the trees of their foliage, and the late-feeding larvae either die in great numbers owing to scarcity of food; or—an interesting modification of habit—in some cases, and to some extent at least, adopt a carnivorous instead of a vegetarian diet.

It is obviously impossible, in the limits of a short paper like this, to discuss in anything like an adequate manner, any of these factors which tend towards the rarity or localisation of animal and vegetable forms, but perhaps enough has been said to show that the whole subject is an extremely complicated one, involving as it does, a great number of factors—physiological, morphological, geological, physio-graphical, climatic, etc.—concerning whose exact facts and laws, to say nothing of their inter-relation, we as yet know far too little.

## SUMMARY.

## 1.—RARENESS.

- a.* Paucity in numbers.                      *b.* Restriction of range or *habitat*.

## 2.—RARENESS may be due to :

- a.* Phylogenetic,                                      *b.* Ontogenetic, factors.

## 3.—PHYLOGENETIC FACTORS.

- a.* Distributional origin.                      *b.* Gradually increasing range.  
*c.* Gradually decreasing range.              *d.* Change of physiographical  
*e.* Evolution of new forms.                      and climatic conditions.  
*f.* Relation to other organisms.              *g.* Past geological history.  
*h.* Difference in migrational              *i.* Exceptional means of distri-  
paths.    bution.

## 4.—ONTOGENETIC FACTORS.

Almost invariably fundamentally climatic, reacting

- a.* Unfavourably on the organism.    *b.* Unfavourably on its food supply.  
*c.* Favourably on its enemies.

166, Bede Burn Road,

Jarrow-on-Tyne :

January 23rd, 1917.

*A Halticid-beetle, Psylliodes affinis* Payk. (= *Macrocnema exoleta* Curt.), damaging the foliage of potatoes.—As we are endeavouring to grow as many potatoes as possible during the present year, it is perhaps worth while to call attention to an insect—not the Colorado potato-beetle this time—that appears to have greatly damaged the foliage of older plants in the vicinity of Stuttgart in 1915. The insect in question, *Psylliodes affinis* Payk., which is widely distributed in Britain, and is known in Germany as the “potato earth flea-beetle,” was included and figured by Curtis in his “Farm Insects” amongst the species affecting potato-crops, but his account of the damage done by it mainly refers to *Solanum dulcamara*. The German writers, Tölz and Heikertinger, who have described the various stages of *P. affinis*, state that the young potato-plants are not much injured by the beetle or its larvae, but that great damage is done to the older plants by the feeding of the adult. *P. affinis* feeds on various *Solanaceae* (*Solanum*, *Hyoscyamus*, and *Atropa*), but apart from Curtis’s statement, I have seen no other record of its attacking *S. tuberosum* in this country. The allied *P. luteola* Müll., rare in Britain, is also said by Bedel to attack the leaves and stems of potato plants. I once saw it in great profusion at Larche, France, on willows, bordering ground cultivated with potatoes, but the beetles were doubtless merely resting on the trees. The above particulars concerning *P. affinis* are taken from an abstract from a Stuttgart periodical, noticed in the “Review of Applied Entomology” for March, 1917.—G. C. CHAMPION, Horsell, Woking: April, 1917.



ON A NEW SPECIES OF *DOCOPHOROIDES* GIGL. (*EURYMETOPUS* TASCH.) FROM AN ALBATROSS (*DIOMEDEA MELANOPHRYS*).

BY JAMES WATERSTON, B.D., B.Sc.

(Imperial Bureau of Entomology, London).

Dr. L. Péringuey, Director of the South African Museum, has recently submitted to me a new *Docophoroides* from the black-browed albatross. The male of this species is the most distinct and interesting of the genus yet discovered, and as my second report on the Mallophaga in the South African Museum is likely to be somewhat delayed, I have drawn up the following short description. *D. harrisoni*, n. sp., is closest to the genotype *D. brevis* Duf. (1834).

*Docophoroides harrisoni*, n. sp.

♂. Head similar to that of *brevis*, but much more contracted and shorter anteriorly; clypeal angles round, and the signature broad, 16-17 bristles in two rows on the temples at each side, 4 towards the prothoracic angles. First and second tergites of abdomen with 8 bristles, third and fourth with 4, and the rest with two, except the ninth, which bears 8, 8.

Dimensions: length, 2.95 mm.; greatest breadth of abdomen (segm. 4), 1.25 mm.; length of head, .85 mm.; breadth, 1.05 mm.; breadth of prothorax, .67 mm.; of metathorax, .91 mm. Genitalia (fig.): basal plate long (three times as long as the distal mesosome), anteriorly narrowed and shortly rounded without the distal ventral splints found in *simplex* Waterst. and *pacificus* Kell. There are no terminal anchoring processes such as occur in the other known species. The median basal ventral chitinization is small (*cf. brevis*).

♀. Nearly 3.1 mm.; breadth, 1.43 mm.: head length, .98 mm.; breadth, 1.05 mm.; prothorax as in ♂; metathorax breadth, .98 mm. Lateral marks on the ninth sternite very elongate wedge-shaped, broadest anteriorly, and nearly converging to a point posteriorly. The greatest breadth is about quarter the length. In the female of *brevis* the same marks are roughly in the shape of a parallelogram, whose length is thrice the breadth.

*Type* ♂ (to be deposited in the South African Museum) from *D. melanophrys*.

British Museum (Nat. History):

April 10th, 1917.



## STUDIES IN RHYNCHOPHORA.

BY D. SHARP, M.A., F.R.S.

## 2.—THE BRITISH BAGOINI.

As previously stated (*ante*, p. 27) Lacordaire mixed insects of two divisions of *Rhynchophora* under the name of *Hydronomides*. One of these divisions I have already discussed, and I here deal with the British forms appertaining to the other. According to the views here to be expressed, these weevils belong to a great group to be called *Lixidae*, and consisting of the syntheses *Cleonini*, *Lixini*, *Rhinocyllini*, *Larinini*, *Paipulesomus* and *Bagoini*. These insects differ from all other *Rhynchophora* inasmuch as the elongate struts of the median lobe are replaced by a pair of short callipers.

*Bagoini* differ from the other groups of *Lixidae* by possessing filiform in place of lobed tarsi. They appear to form a natural division, very easily defined by those two characters. The filiform tarsi are extremely exceptional in *Rhynchophora*. Outside the *Bagoini* they reappear in the genus *Parabagous* of the *Pseudobagoini*; but in that genus the aedeagus is constructed as in normal *Curculionidae*.

These particulars are sufficient for my present purpose, but I may add that I have been for some time engaged on a memoir on the classification of the *Rhynchophora*, which I hope to publish if I can obtain a sufficient number of critical genera for dissection.

The European *Bagoini* were discussed by Henri Brisout de Barneville in 1863, in the *Annales de la Société Entomologique de France*, pp. 491–524. Since then Thomson has described several species supposed to be new, but which cannot be recognised from his descriptions alone, the aid of his types being necessary.

The species of *Bagous* are very difficult of recognition by mere inspection, but the tarsi differ from species to species and do not vary, while the aedeagus in nearly all cases affords a decisive criterion. Our British forms fall into four genera.

## PROBAGOUS, gen. nov.

*Tarsi elongati; aedeagus t<sub>o</sub>monibus minutis incurvatis.*

Type of the genus *P. heasteri* Newbery.

This genus has the tarsi more elongate than any of our species of *Bagous*, and the aedeagus is very distinct on account of the very

minute callipers, and the absence of a transverse bridge at the base of the upper lip of the median lobe.

I adopt the term "temo" for the prolongation at the base of the median lobe. *Probagous* is highly exceptional in this respect, and the term is not there a good one; but in other *Rhynchophora* it is suitable, it being understood that the processes in question are always paired.

1.—*Probagous heasteri*, sp. n.

*Bagous tempestivus* var. *heasteri*, Newbery, Ent. Rec. xiv, 1902, p. 149.

This is a very distinct species, the third joint of the tarsus being distinctly broader than the second, and the aedeagus having marked peculiarities.

There is a general resemblance to *P. cnemerythrus*, but the thorax is nearly straight at the sides behind the anterior constriction, and the elytra are less parallel: near the apex they are very suddenly narrowed, but there is no nodular elevation. When alive the species is at once recognisable by the very extensive and conspicuous pale fascia behind the middle of the elytra; but this nearly always disappears, the insect becoming uniformly greasy and black. The tarsi are very long, the third joint being about twice as long as broad, distinctly longer than the second, though somewhat emarginate beneath, concealing the true fourth joint, so that this tarsus approaches more nearly to the normal curculionideous foot than does that of any other *Bagous*.

The aedeagus has a considerable general resemblance to that of *B. cnemerythrus*, but the apical portion is broader; the basal callipers are remarkably small, the bridge of the tegmen is absent; the superior appendages are long and slender.

This extremely interesting insect has occurred only in the New Forest, where, however, it is very rare. Mr. Newbery informs me that it is known to occur in France.

2.—*Probagous cnemerythrus* Marsh.

*Curculio cnemerythrus* Marsh. Ent. Brit. p. 268.—*Bagous cnemerythrus* Boh., in Schönh. Gen. Curc., viii, 2, p. 33.—*Bagous tempestivus* Bris., Ann. Soc. ent. Fr., 1863, p. 507; et Catt. britt.—*Bagous dilatatus* Thoms., Skand. Col. x, p. 342.

Var. ?, minor, angustior.

*Bagous angustatus* Thoms., Opusc. ent. ii, 1870, p. 139.—*Probagous convexicollis* Sharp, Ent. Mo. Mag., lii, p. 225. (nec *B. convexicollis* Boh.).

This is a very variable species. It is of more elongate form than any of the *Bagous* proper, and has a longer abdomen, with a longer and narrower intercoxal process, and the third and fourth segments not so short. Usually it is more or less tessellate, the colours being white and obscure black; but the coloration varies greatly, and in some cases the insect looks almost white.

The aedeagus is very much simpler in structure than it is in *Bagous*; there is no transverse bridge at the base of the upper lip; the basal callipers are minute, and the superior processes of the tegmen are long but extremely slender, and basally conjoined; the tip of the median lobe is blunt and not pointed.

The largest specimens have occurred in Sheppey. A specimen of the white form from Finchley is in the Crotch collection, bearing Brisout's label, "*tempestivus*."

*B. dilatatus* is stated in the European catalogue to be a synonym of "*tempestivus*." Accepting that as correct, I must at present place *angustatus* Thomson as a variety, although it is given a separate place in the European catalogue. At first I thought it probably another species, but on renewed examination I am not able to find any satisfactory distinctive characters in the external structure, and so far as I can judge from the examination of old, dried specimens, the aedeagus is very similar in the two forms, being only a little more parallel in *angustatus*, with the tip slightly more rounded. At present it is better to treat the two as one species.

*B. angustatus* used to occur in the Hammersmith marshes in company with *Lyprus cylindrus*; I have not seen any example from elsewhere that I can with certainty refer to it, though Mr. Bedwell has found, at Askham Bog, Yorks., two specimens that are scarcely different. At Hammersmith the form occurred with *cnemerythrus*; and at Rye, Bedwell has found a specimen very near, if not it, in company with *cnemerythrus*.

As regards the name of the species, Boheman, in Vol. iii of Schönherr's work, recorded "*tempestivus*" as British, on the authority of a specimen sent to him by Spence. In Vol. viii, p. 83, he revised his work on *Bagous*, and states expressly that English and French "*tempestivus*" were not that species, and he describes them as

*cnemerythrus* Marsh., which was named by Marsham from a specimen in Kirby's collection.

At present "*tempestivus*" and *cnemerythrus* are considered to be one species. It is quite doubtful what "*tempestivus*" Herbst really was, and under the circumstances I think we had better call our larger form *cnemerythrus*. Waterhouse states, on the authority of Kirby's collection, that *cnemerythrus* Marsh. was *Lyprus cylindrus*, but I think this was a mistake arising from the true *Lyprus* being then scarcely known in Britain.

#### LYPRUS Schönherr.

This is a valid genus. The rostrum is longer than in the *Bagoini*, and the aedeagus, though it exhibits some relation with that of *Probagous*, has important peculiarities. There are no superior appendages, the strut of the tegmen is short; the peculiar bridge at the base of the orifice of the median lobe is absent, and the orifice is placed in the middle of the length of the tube; whether there is a long upper lip or only a very short one cannot be determined from my specimens.

##### 1.—*Lyprus cylindrus* Gyll.

This species is readily distinguished by its elongate, narrow elytra, by the long, slender tarsi, the unusually long metasternum and basal segments of the abdomen, and by the longer apical portion of rostrum.

It is only rarely met with in this country, but is sometimes in large numbers when found. When I discovered it at Hammersmith Marshes in October, 1863, it was in great profusion, and Dr. Power, and others who afterwards went to the same spot, also found it in plenty. Mr. F. Smith informed me that there was then only one British specimen known.

#### BAGOUS Germ.

I select *nodulosus* as the type of this genus, a course I believe to be in accord with the views of Schönherr.

In this difficult genus the tarsi are of great importance: they differ from species to species, and in *B. inceratus* are definitely pentamerous.

##### 1.—*Bagous nodulosus* Herbst.

Distinguished from all the other species of the genus by its large size (length, 4-5 mm. from tip of abdomen to front of thorax), covered with a grey or clay-coloured glaze, nearly uniformly.

The aedeagus is remarkable by the long upper lip of the median orifice, which is apparently always elevated by a trigger-like structure. The bridge of the tegmen is moderately broad, the strut is about as long as the diameter of the tegmen; the tegminal appendages are quite obsolete. The space enclosed by the callipers is rather larger, and the two are a little prolonged anteriorly, and there nearly parallel and contiguous. The species occurs in the southern part of the Kingdom in several localities, and occasionally in some numbers, but it is far from common.

2.—*Baqous claudicans* Boh.

Variable in size, from  $2\frac{1}{4}$ –3 mm. long. The elytra are rather broad, and stand out at the shoulders very much beyond the thorax, which is about as long as broad, and is somewhat coarsely rugose. The coloration is markedly maculate, and has a very slight olivaceous tinge in fresh specimens; a pale mark beyond the middle is usually conspicuous. The antennae are variable in colour, usually largely yellow, with a very broad dark club; the dark colour sometimes extends nearly to the base, but this always remains yellow. The tarsi are of moderate length, sometimes yellow, generally a good deal infuscate; the second joint of the posterior pair about as long as it is broad.

The aedeagus is characteristic and invariable (when mature). I have examined it in about 20 specimens. The callipers are very slender at the tips, convergent and contiguous there, and inclose a rather large area. The apical portion of the median lobe is broad; the actual apex is broad, almost truncate, with a very minute acumen on each side. The bridge formed at the base of the margin of the upper lip of the median orifice is very marked, rather deeply sinuate on each side, and with a short longitudinal elevation in the middle. The tegmen forms a slender ring, with a pair of delicate, slender appendages in the middle, joined at the base; the strut is slender, rather longer than the diameter of the tegmen.

This species seems to be but little known in collections, but it is abundant at Brockenhurst in the spring and autumn and may sometimes be found in hundreds; it frequents the muddy margins of small stagnant pools. It has also been found by Mr. Tomlin at Tresco in the Scilly Islands, and Mr. Bedwell has a single example from the New Forest; Campbelltown, one specimen, November, 1894 (*J. J. Walker*); Edenhall, Cumberland, 13.v.'06 (*Britten*, one specimen).

The proper name of this species is still doubtful. *B. claudicans* and *mundanus* are considered to be synonyms, and if this be really the case, the name *mundanus* should be used, as it comes first in the book where both were originally described. Brisout mentions several varieties, most of which are probably distinct species. One of these, "*fritillum* Walton," was, I believe, never published, so that we are spared the necessity of determining it.

### 3.—*Bagous tomlini*, sp. n.

*B. claudicans* persimilis. Minor, niger, griseo-variegatus, antennis (clava excepta) testaceis, tibiis fusco-testaceis vel nigris; tarsis gracilibus, fere elongatis. Long., 2½ mm.

This is extremely similar to the preceding species (*B. claudicans*), but appears to be smaller, has no olivaceous tint, the elytra are not so broad, so do not stand out so much from the thorax, and the sculpture of the thorax is a little finer. The tarsi are rather longer and more slender, the second joint of the posterior being not so broad as it is long. The aedeagus differs markedly, having an acuminate slender extremity, and the bridge of the upper lip of the median orifice more distant from the apex. The tegmen is remarkably slender and delicate, with very long slender strut, and superior appendages.

Three examples were found by Mr. Tomlin in the Romney Marshes many years ago; and there is a specimen in the Chitty collection at Oxford, labelled "New Fst. Ju. 1, 1893."

### 4.—*Bagous arduus*, sp. n.

*B. claudicans* persimilis, tarsis elongatis facile distinguendus. Long. 3 mm.

Although I have seen only a few specimens of this insect, there is no doubt as to its being a distinct species, the aedeagus being quite adequately diagnostic. It is rather broad and shaped much as in *claudicans*, but the apex is broad, truncate, feebly bisinuate, and the upper lip of the orifice is more distant from the apex. The tegmen and basal portions of the organ seem to be much the same as in *claudicans*.

I do not attempt to sketch the minor details of the species, the material being so scanty; but independent of the aedeagus the longer tarsi readily differentiate *B. arduus*.

My unique specimen was given to me many years ago as "*frit*" (= *claudicans*). I cannot decipher the writing on the card, but the insect is probably from the London district. In the Champion collection

there are five examples (Woking, l.ix.'78) that are almost certainly this species, but the aedeagus has not yet been examined.

There is also a specimen from France in the Chitty collection at Oxford, labelled "*claudicans*."

5.—*Bagous diglyptus* Boh.

This species is problematic. All I can say about it is that there is an example so named in the Chitty collection at Oxford that is distinct from anything else known to me. This individual does not, however, agree with the description of *diglyptus* given by Fowler (Col. Brit. Isls. v. p. 291), so that there may be two rare species in Britain under this name. The brief description of *diglyptus* given by Henri Brisout de Barneville (Ann. Soc. ent. France, 1865, p. 505) does not satisfactorily accord with the Chitty specimen. All I shall say about it is that it is very like *claudicans*, but the thorax is more rounded at the sides and more finely sculptured, and the striae of the elytra are deeper and the tarsi longer. This insect was found at Stalham Broad in Norfolk, 8.vi.'06. The specimens described by Fowler were found on the banks of the Trent at Burton.\*

6.—*Bagous lutulosus* Gyll.

Readily distinguished from all our other species by the very short tarsi and the deeper striation of the elytra; the surface of the thorax is uneven, and the species is one of the few that can be recognised at a glance. I have not examined the aedeagus.

*B. lutulosus* seems to be rare. Fowler gives several localities, including Ireland, which I consider very doubtful. It occurs in the New Forest, where, however, I have found only single specimens at intervals of several years.

7.—*Bagous brevis* Gyll.

This species is nearest to *lutulosus*. It has a very uneven surface of the thorax and rather deep striation of the elytra: the tarsi are longer than in *lutulosus*. The aedeagus is much like that of *claudicans*, it has a broad apical portion, but the tip—unlike that of the commoner species—is quite rounded.

*B. brevis* occurs at Brockenhurst in company with *claudicans*, but as a great rarity. It has also been found at Woking, but not, I believe recently.†

\* These were determined by M. Brisout de Barneville in 1879, when *B. diglyptus* was first recorded from Britain (cf. Ent. Mo. Mag., XV, p. 235).—G.C.C.

† April and May, 1904, J.J.W. and G.C.C., Ent. Mo. Mag., XI, p. 168.—Eds.



8.—*Bagous limosus* Gyll.

This is another easily-distinguished species, being of broad form, with the thorax much rounded at the sides and narrowed behind; the elytra has very large punctures on the striae, but these are not readily seen, as the insect is nearly always very dirty. The tarsi are elongate. The aedeagus is elongate with a narrow pointed tip, and the superior appendages of the tegmen are quite small.

The species appears to be widely distributed in the south-east of England; it is not uncommon at Brockenhurst. Sheppey (*J. J. Walker, G. C. Champion*); Tollesbury, Essex, v.'08 (*W. Bervin, in coll. Britten*).

9.—*Bagous argillaceus* Gyll.

This insect is extremely variable in size. In fresh specimens it is recognised at once by the peculiar glaze of the surface. The eighth joint of the antennae is broader than usual, and the tarsi are definitely 5-jointed.

The aedeagus bears a general resemblance to that of *B. nodulosus*, but is without the prominent trigger arrangement, and the basal callipers are more slender. I have examined only one specimen.

*B. argillaceus* was described from the Caucasus, and we may be permitted to doubt whether our English insect is really it. In this country this species appears to be almost confined to the lower part of the Thames Valley, and we are indebted to Mr. Champion and Commander Walker for supplying our collections with it.

It has been taken sparingly by Moncreaff in Portsea Island (*Ent. Ann., 1890, p. 106; Ent. Mo. Mag., Vol. VII, p. 154*).

## ELMIDOMORPHUS Cussac.

This genus should, I think, be provisionally retained, as the structure of the club of the antenna is quite distinct from that of all other *Bagoini*, and is indeed remarkable for a Curculionid.

The alteration of the name to *Helmidomorphus*, or to *Helminthomorphus*, cannot be accepted, as the change is that of the first letter; and moreover does not bring accord with Grecian orthography, although this is its *raison d'être*.

I.—*E. aubei* Cussac.

I have not been able to examine the aedeagus of this rare insect, of which only three or four specimens have been found in Britain. I adopt the name under which it was well figured and described, as I have no belief in its being the *petro* of Herbst.

Brockenhurst :

March 30th, 1917.

*The habits of Parabagous binodulus.*—As this species is so very rare in our collections, I think it worth while to call attention to M. Gadeau de Kerville's notice of its habits (Ann. Soc. ent. France, 6.v.1885, p. 425). It lives in Normandy on *Stratiotes aloides*, and gnaws both the leaves and the perianth, usually keeping under water but frequently letting itself float to the air for respiration. It was observed in May or June in the imago state, and the insect hibernates in that condition on the ground in the neighbourhood of the plant. Probably a little attention from those who live where this plant is well at home, would lead to its rediscovery in this country.—D. SHARP, Brockenhurst: April 4th, 1917.

*Birch Wood and Hammersmith Marshes.*—These two localities are now "portions and parcels of the dreadful past." They, with Darenth Wood, were 60 years ago amongst the very best spots in Britain for Entomology. In answer to Mr. Donisthorpe's inquiry, I may say that he will get the knowledge he asks for from Shield's "Practical Hints respecting Moths and Butterflies," p. 56, and from Crutchley's Map of the environs of London and 30 miles round, published by Arrowsmith in 1824. The latter was one of the best maps I have ever consulted, and it was my guide in my entomological wanderings about London, now from 50 to 60 years ago. At that time I not only collected at Birch Wood but dined at the Bull Inn there with the members of the old Entomological Club. Birchwood Corner is on the Maidstone road a mile-and-a-half due west of Swanley, and the Wood started from the corner, extending due south. When I was residing at Dartford thirty years ago I revisited the spot, but found it covered with houses built by some speculator, and several of them in ruins though they had never been inhabited.

When in London last year I went to Hammersmith to try and identify the old collecting ground. I quite failed; and what a falling off I found! What people call the advance of civilisation produces a very depressing effect on those of us who recollect the beauty of suburban London 60 or 70 years ago. Hammersmith Marshes and Notting Hill Marshes were the same locality; when entered from the north they were called Notting Hill, when from the south, Hammersmith. A walk of a mile-and-a-half north-west from Holland House would traverse these old marshes. The way to identify this spot from Crutchley's map is to note "Notting Barn Farm" and "Atley's Farm," which were on the outskirts of the Marshes.—D. SHARP, Brockenhurst: April 4th, 1917.

*Coleoptera collected near London during 1914-1916.*—Amongst a large number of *Coleoptera* taken by myself since 1914 are some species deserving of record, either on account of their apparent scarcity, or of the interest attaching to their capture. Most of them were collected near the Metropolis, a few exceptions being those taken near Southend. The records are arranged, as far as possible, into three convenient groups, according to the localities in which the respective species were collected.

Epping Forest and its immediate surroundings: *Cychrus rostratus* L and *Carabus arvensis* Herbst, beneath oak and hornbeam logs in Monk Wood, and at High Beach, during the winter months. On five separate occasions solitary specimens of each of these uncommon beetles occurred under the same log; it would be interesting to know if there can be any association between the two insects, as I can hardly believe this to be merely a coincidence. *Carabus granulatus* L., on one occasion only have I taken this species in the forest, viz., on 27.xi.'14, under an oak log near Fairmead thicket. *Notiophilus rufipes* Curt., not uncommon in Great Monk Wood, often in company with the common *N. biguttatus*, *Pterostichus picimanus* Duft., a solitary specimen taken at Loughton, 5.xii.'15, under loose bark of willow. *Ilybius fenestratus* F., fairly common in Strawberry Hill Pond, 2.v.'15. *Microglossa pulla* Gyll., several beaten from hawthorn blossom near Great Monk Wood, 30.v.'16. *Conosoma bipunctatum* Gr., High Beach, 12.vi.'16, under loose beech bark. *Megacronus cingulatus* Mann., found during the summer by shaking masses of grass, heather, etc., and at Loughton in haystack refuse. *Quedius ventralis* Ahr., in an old decaying fungoid beech tree near the "Robin Hood," November, 1915; *Q. lateralis* Gr., abundant in the autumn in masses of the fungus *Armillaria mellea* on beech stumps, and under oak logs in Monk Wood; *Q. scitus* Gr., found on four occasions in the forest, in the frass left by the larvae of *Rhagium inquisitor* and other Longicornes in oak and hornbeam logs; *Q. cinctus* Pk., in decaying masses of the fungus *Pleurotus ostreatus* on beeches, Great Monk Wood, 3 and 10.x.'15. *Stenus lustrator* Er., at roots of grasses, etc., in St. Thomas' Quarters, 26.iii.'16. *Philonthus cephalotes* Gr., Loughton, 17.x.'15, by shaking grass, etc. *Symbiotes latus* Redt., I came across a colony of this beetle under elm bark at Loughton, 12.xii.'15. *Chilocorus bipustulatus* L. and *Coccinella hieroglyphica* L., not uncommon by sweeping heather near Great Monk Wood. *Nitidula rufipes* L., common by beating hawthorn blossom. *Litargus bifasciatus* F., two specimens under beech bark at High Beach, 18.vi.'16. *Mycetophagus piceus* F., under oak bark, Leyton, 15.iv.'16; *M. atomarius* F., one specimen under loose beech bark in Great Monk Wood, 7.v.'16. *Megatoma undata* L., one specimen, still in its pupal envelope, found in a crevice under the bark of a decaying beech tree in Great Monk Wood, 16.x.'16. *Trox scaber* L., Loughton Camp, 20.v.'16, one specimen found crawling on a beech trunk at midnight. *Melasis buprestoides* L., not uncommon in one or two favoured beeches at High Beach; the imago, pupa, and the curious doubled-up larva were to be found in short vertical tunnels in the wood during June and July. *Athous rhombus* Ol., reared from larvae taken from under oak and beech bark; during June and July, 1916, several imagines were found in beeches at High Beach. *Tillus elongatus* L., very abundant in Great Monk Wood, during June and July, 1916, and found running about on, and

flying in the neighbourhood of, beeches infested with *Ptilinus pectinicornis*; out of about 100 specimens seen, only two males were of the entirely black variety, these were taken from solid wood at the beginning of June. *Opilo mollis* L., one specimen taken from a beech, 28.x.'14; another was found in Loughton Camp on the same tree and at the same time as the *Trox scaber* already mentioned. *Hedobia imperialis* L., one specimen beaten from hawthorn, 28.v.'16. *Prionus coriarius* L., larvae found in oak logs (see Ent. Mo. Mag., Vol. LI, p. 310, 1915); on 30.vii.'16, a freshly emerged male was captured resting on a beech trunk in Great Monk Wood. *Leptura scutellata* F., although considered a rarity near London, this beetle seems to be rather common at High Beach and in Great Monk Wood; larvae and pupa were found in beech (occasionally in oak and hawthorn) during early summer, whilst the imagines appeared in numbers in June and July; I have succeeded in rearing the perfect insects from quite small larvae. *Clytus mysticus* L., one specimen beaten from hawthorn near Sewardstone, May, 1916. *Donacia discolor* Pz., common on sedges, etc., in a little marsh in the middle of Great Monk Wood, 22.v.'15 and 25.vi.'16; *D. versicolora* Brahm, on pond weeds at Strawberry Hill Pond, 2.viii.'15; *D. thalassina* Germ., *D. bicolora* Zsch., and *D. semicuprea* Pz., on rushes, etc., at the Wake Valley Pond, May–August, 1916. *Zeugophora flavicollis* Marsh., a single specimen beaten from aspen, near Great Monk Wood, 3.x.'15 (this specimen has since been deposited in the collection of the British Museum, Natural History). *Mycetochares bipustulata* Ill., High Beach, 10.vi.'16, in the disused burrows of *Dorcus parallelipedus* in beech. *Tetratoma fungorum* F., very common on various fungi in Monk Wood and in Honey Lane Quarters during autumn. *Orchesia nicans* Pz., in *Polyporus* on beech, 3.x.'15, Monk Wood. *Conopalpus testaceus* Ol., a few specimens found crawling on the trunk of a beech, June, 1916. *Phloeotrypa rufipes* Gyll., 18.vi.'16, in a fallen beech at High Beach. *Rhynchites pubescens* F., beaten from oak, near Loughton Camp, 16.v.'15. *Hylesinus crenatus* F., infesting an old log (? ash) near Connaught Water. *Trypodendron domesticum* L., not uncommon in bark of beeches near Great Monk Wood.

Other localities in Essex: *Polystichus vittatus* Brullé, Southend, 30.vi.'16, one specimen taken in flight. *Philonthus discoideus* Gr., South Woodford, amongst hot-bed refuse. *Xantholinus tricolor* F., South Woodford, 16.vi.'16, two specimens found under bricks. *Dendrophilus pygmaeus* L., common in a nest of *Formica rufa* at Hockley, 5.xi.'16. *Monotoma conicicollis* Aubé, in nests of *Formica rufa*, Billericay, 29.x.'16; Hockley, 5.xi.'16. *Aphodius sordidus* F., a pair captured flying at South Woodford, 4.ix.'15. *Callidium variabile* L., in oak logs in a brickfield at South Woodford; the beetles emerged in large numbers during June, 1916; only one specimen was of the blue variety. *Helops coeruleus* L., in posts and oak trees at Barling, Hockley, Rayleigh, etc. *Tany-mecus palliatus* F., a pair beaten from a hedge at Rayleigh, 7.vii.'16.

North Middlesex and South Hertfordshire: *Pterostichus pieimanus* Duft., Pinner, Mx., 14.iii.'15, under willow bark. *Lucie humeralis* F., infesting a fungus on elm, Bushey, Herts., 28.iii.'15. *Haplocnemus impressus* Marsh., under elm bark, Harrow, Mx., 7.iii.'15. *Opilo mollis* L., Wembley, Mx., 20.iii.'15, one

imago and several larvae found in willow. *Xestobium tessellatum* F., in company with the last. *Tetropium gabrieli* var. *crawshayi* Sharp, many beetles and larvae found in a fallen spruce at Northwood, Mx., June, 1915. *Clytus mysticus* L., not uncommon at hawthorn blossom in May, 1915, at Harrow, Pinner, Rickmansworth, etc. *Cryptocephalus frontalis* Marsh., several specimens beaten from black poplar at Ruislip, Mx., 13.vi.'15. *Hypophloeus bicolor* Ol., Kenton, Mx., 7.iii.'15, under elm bark.—HAROLD E. BOX, 55, Baxter Avenue, Southend-on-Sea, Essex: April 3rd, 1917.

*Additional localities for Cryptocephalus biguttatus* Scop.—In the "Dale collection" of British *Coleoptera*, now in the Oxford University Museum, there are six specimens of *Cryptocephalus biguttatus*, four of which are on very ancient pins and bear no data whatever. The other two are good and perfect examples, mounted in C. W. Dale's somewhat careless style, on separate cards, each of which is marked beneath in his unmistakable script, "Bournemouth, June 7th, 1892." It may, I think, be fairly presumed that these specimens were taken there by Mr. Dale himself, especially as the Rev. W. W. Fowler records *C. biguttatus* from "Bournemouth (Kemp-Welch)" in *Coleopt. Brit. Islands*, Vol. IV, p. 281. The "Hope-Westwood" series of British beetles contains also several old pinned examples of this species, the only one with any data bearing a label "Weaver, N.F.," these being almost certainly the initials of "New Forest," where Weaver is well known to have collected, and where I believe this rare *Cryptocephalus*, already (*l.c.*) recorded from Lyndhurst, may be looked for with some prospect of success.—JAMES J. WALKER, Oxford: April 17th, 1917.

*The Azalea Tingid, Stephanitis (Tingis) pyrioides* Scott.—This Hemipteron has not yet, I believe, been detected in, or recorded from Britain, but as it is certain to appear here sooner or later, attention may be called to a full account of its life-history by Messrs. E. L. Dickerson and H. B. Weiss, in *Ent. News*, XXVIII, pp. 101-105, pl. ix, March, 1917. The insect was described by Scott in 1874, from a specimen from Japan (the type subsequently passing into the British Museum with that author's collection), and it has been detected during recent years at Boskoop, in Holland, and in various parts of the Eastern United States. The American writers state that *S. pyrioides* was evidently introduced into New Jersey in the egg-state on evergreen azaleas, from Japan, and that the deciduous varieties are not so badly attacked as the evergreen ones. They give figures of the egg, the five stages of the nymph, and the imago. The nymphs and adults feed on the under-surfaces of the azalea leaves, the abstraction of the sap resulting in a discoloration of the upper surface, so that the presence of the bug, as in the case of *S. rhododendri*, is soon detected. The mature insect is not unlike the last-named species, which was found in abundance by Mr. E. E. Green, in his garden at Camberley, Surrey, during the past year (*cf.* *Ent. Mo. Mag.*, 1916, p. 207). Horvath considered the specific name *pyrioides* to be absurdly compounded, and renamed it *azaleae*, thus adding to the synonymy.—G. C. CHAMPION, Horsell, Woking: April 7th, 1917.

*The original capture of Hydrochus nitidicollis in Britain.*—Mr. A. Vincent-Mitchell's correction (*antea* p. 84) of his previous statement on the capture of this beetle, although actually and literally correct, would make it appear that I alone was responsible for its discovery in Britain and that Mr. Keys had nothing to do with the matter. I have always regarded it as a joint capture, and recorded it as such at the time. It is therefore as well to give an account of the circumstances under which the insect was taken. On April 13th, 1906, I went with Keys to Yelverton, as he had promised to show me how to find *Gnypteta coerulea* in the river Meavy. His method was to gather partly-submerged moss from stones and boulders in the river, and wring it out over a sheet. He collected a lot of the moss and threw it on to the sheet, and I examined it for the beetles. When doing so I detected a "*Hydrochus*, which I did not recognise. Mr. Keys told me he had never taken a species of the genus there before, and we eventually took four specimens." I identified the species when I got home, and brought it forward as British [Ent. Record, Vol. XVIII, p. 133 (1906); Col. Brit. Isles, Vol. VI, p. 34] (1913)]. It will thus be seen that though I did actually take the first British specimen, picking it up and bottling it, but had it not been for Keys I should probably never have gone to this locality at all. I have always considered such discoveries as joint captures; more especially when the locality is known to one of the collectors, although he may not have actually detected and bottled the first specimen.—HORACE DONISTHORPE, 19, Hazlewell Road, Putney: April 16th, 1917.

*Cumberland Hemiptera—Heteroptera.*—During 1916, the weather conditions were frequently unfavourable for outdoor work, and the time available for study was much curtailed, yet I was very successful in adding to my local collection. Amongst the species taken, the following have not been previously recorded by me in this Magazine: *Pentatoma rufipes* L., uncommon on, or near, oak; *Scolopostethus affinis* Schill., a single specimen beaten from a dead partridge at Grinsdale in January; *Monanthia cardui* L., locally common and found in several stages of development at Cummersdale in August; *Hebrus ruficeps* Thoms., undeveloped specimens, common in *Sphagnum* at Orton in autumn; *Hydrometra stagnorum* L., numerous specimens seen walking with peculiar gait on the surface of a backwater of the River Petteril in May: it also occurs in flood refuse in winter; *Velia currens* F., common, always undeveloped; *Gerris thoracicus* Schum., *G. gibbifer*, Schum., and *G. odontogaster* Zett., occurred together on a pond on one of the Solway salt marshes; *Ploiariola vagabunda* L., two specimens beaten from a dead Scots Fir in September; *Nabis limbatus* Dahlb., *N. ferus* L., and *N. rugosus* L., all occurred commonly in the sweep-net; *Salda saltatoria* L., beaten from a dry hedge-bank in February; *S. pallipes* F., not uncommon near water on both sides of the Eden Estuary; *Cimex lectularius* L., in Carlisle; *Temnostethus pusillus* H.-S., rare, on oak; *Anthocoris confusus* Reut., *A. nemoralis* F., and *A. nemorum* L., all common and frequently found in winter hibernating beneath the bark of sycamore and other trees; *Tetraphleps vittata* Fieb., beaten from Scots Fir, along with *Acompocoris pygmaeus* Fall., *Megaloceroea ruficornis* Fourc., common at Armathwaite in September; *Leptopterna dolabrata*

L., common; *L. ferrugata* Fall., two odd specimens only; *Monalocoris filicis* L., common on ferns, foxglove, and other plants; *Pantilius tunicatus* F., rare, on alder in the Caldew Valley in late autumn; *Phytocoris populi* L., *P. tiliae* F., and *P. dimidiatus* Kb., all beaten sparingly from oak in the Carlisle district; *P. ulmi* L., very common on hawthorn, bramble, etc.; *Calocoris ochromelus* var. *fornicatus* D. and S., swept in a grassy lane; *C. striatus* L., not very common, at Orton, in July; *Dichroscytus rufipennis* Fall., a few specimens on Scots Fir at Morton; *Lygus lucorum* Mey., on alder, commonly; *Liocoris tripustulatus* F., occasionally in the sweep-net; *Aetorhinus angulatus* F., common on alders; *Campyloneura virgula* H.-S., local, on oak; *Orthotylus ericetorum* Fall., quite common on heather; *O. chloropterus* Kb., and *O. marginalis* Reut., also occurred, but much more sparingly; *Malacocoris chlorizans* Fall., very local, on hazel, in August; *Phylus melanocephalus* L., and *P. palliceps* Fieb., found together on oak, *palliceps* being much the rarer of the two; *Psallus fullenii* Reut., found by general sweeping, and *P. alnicola* D. and S., beaten from alder, both late in the year; *Nepa cinerea* L., in Thurstonfield Lough: also taken in Lake Ullswater; *Corixa striata* L., not uncommon in several of our ponds.

Almost all these records refer to the neighbourhood of Carlisle. Mr. E. A. Butler has, with his usual kindness, helped me much with the determination of my captures.—JAS. MURRAY, 2, Balfour Road, Carlisle: April 2nd, 1917.

*On the genus Paltodora.*—Under the name *Paltodora* I (and others) have been confusing three good genera, distinguishable as under by scaling of palpi and neuration of forewings, and differing in superficial appearance, geographical range, and larval habit (so far as known):—

**PALTODORA** Meyr.—Second joint of palpi clothed beneath with long, rough, spreading hairs; forewings with 6 separate, 7 and 8 stalked. Larva on bracken fern (*Pteris*). Type (and only species): *cytisella* Curt.: Europe.

**ISOFRICTIS**, n.g.—Second joint of palpi clothed beneath with long, rough, spreading hairs throughout; fore-wings with 7 and 8 out of 6. Larva in flowerheads of *Compositae*. Type: *striatella* Hüb.; includes also nearly all the European and North American species hitherto referred to *Paltodora*.

**PYNCOSTOLA**, n.g.—Second joint of palpi with compact projecting apical tuft of dense scales beneath; fore-wings with 7 and 8 out of 6. Larva (only one known) in heliciform case, food-plant unrecorded. Type: *sperosa* Meyr., mainly developed in Africa (whence I have already described over a dozen species), and includes also the European *bohemiella* Nick., and the three Australian species.

The nearly allied *Megacraspedus* Zell. has palpi as in *Pyncostola*, fore-wings with 6 separate or 6 and 7 out of 8. Larvae probably mostly on *Gramineae*.—E. MEYRICK, Thornhanger, Marlborough: April 17th, 1917.

## Obituary.

*Octavius Pickard-Cambridge* was born at Bloxworth House, Dorset, on November 3rd, 1828, and lived the greater part of his long life at Bloxworth. After a short time in London, studying law, he went to the University of Durham, graduating there in 1858. For two years he held the curacy of Scarisbrick in Lancashire, where his outspoken adhesion to the views of Darwin, then new to the world, aroused the horror of many of his brother clergy. But in 1860 he returned to Bloxworth as his father's curate, and succeeded him as Rector in 1868. The greater part of the years 1864 and 1865 were spent in foreign travel, mainly in Italy, Austria, Egypt, and Palestine; he took with him to Egypt an admirable taxidermist, Mr. Henry Rogers, and the party brought home not only a great quantity of spiders, but a large number of valuable birds, as well as many new and rare *Lepidoptera*, the best of which were accepted by the British Museum. He was married in 1866, and five sons survive him. He was elected a Fellow of the Royal Society in 1887. He died at Bloxworth on March 9th last. His primary study was that of the Arachnida, and among them chiefly of Spiders, *Phalangidea* and *Chernetidea* (False-Scorpions). Of these he received collections from every part of the world, and his own probably contained a larger number of type-specimens than any in existence (it includes among others most of Blackwall's types). He was indefatigable in describing and recording new and rare species, and his accurate and beautiful draughtsmanship greatly enhanced the value of his work.

His principal publications were his share in Moggridge's "Harvesting Ants and Trap-door Spiders"; Descriptions of the Spiders collected by the second Yarkand Mission, and by the Challenger Expedition; "The Spiders of Dorset," with descriptions of all British Species, whether found in Dorset or not; Monographs on the British *Phalangidea* and *Chernetidea*; and the greater part of that portion of the *Biologia Centrali-Americana* which deals with the Arachnida *Araneidea*; besides which he published almost annually for 50 years one or more papers in various periodicals, containing descriptions of new species, records of occurrences, and rectifications of synonyms.

But he was also an enthusiastic student and collector of *Lepidoptera*, and at the same time he captured specimens of other Orders of insects that came in his way. His collection of British *Lepidoptera* is very extensive, and among other varieties contains two specimens of *Lycaena argiades*, taken on Bloxworth Heath in 1885; *Hypena obsitalis* (Bloxworth); and a series of *Lithocolletis anderidae* (Bloxworth and Bere Wood). He was a beautiful setter and always delighted to give specimens to his entomological friends. I have known him work for many days or nights, long after his own series were complete, to obtain sets for others of species which were at the time (and many of which are still) considerable rarities—*Noctua ditrapezium*, *Heliothis dipsacea*, *Heliophobus hispidus* (from Portland), *Oenectra pilleriana*, *Eupoecilia geyeriana*, *Psoricoptera gibbosella*, *Cosmopteryx orichalcella*, *Aciptilia paludum*. He was above all fond of the Micros, and used to look with good-natured amusement on "the diurnal and macro-lepidopterous frame of mind" of those whom he called "goodness-gracious naturalists," and it was his ambition to pursue his



entomological work in the generous spirit of his old friend and collecting companion (in the New Forest and elsewhere), Frederick Bond. Among his other old friends were H. T. Stainton, J. C. Dale, and J. O. Westwood, and he knew or corresponded with nearly all the leading Entomologists of the generation which succeeded them. He would have nothing to do with "exchange," but was always ready to give, and often benefited by a like generosity from others. It was one of his greatest pleasures to help and encourage young collectors, and to escort his fellow naturalists to his favourite localities. His entomological career began with the capture of *Colias hyale* in 1836; his last specimens were set in July 1916; and he was a frequent contributor to the entomological magazines. For many years he received much help from his nephew, Frederick O. Pickard-Cambridge, who died some years ago, but while he lived was a keen naturalist and fine draughtsman.

Those who knew him will always think of him as one who never seemed to grow old—enthusiastic, warm-hearted, outspoken, and full of fun and life; possessed of an extraordinary knowledge of nature, and entirely devoid of personal ambition or selfishness in his work as a naturalist. It may be added that he was also something of an antiquarian, an ardent lover of classical music, and a good violinist; and that as Rector of Bloxworth he was beloved by young and old. The spirit in which he lived can best be summed up in the words of a cutting pasted inside the cover of the prayer-book which lay on his writing desk: "Look at your mercies with both eyes, at your troubles with only one; study contentment; keep always at some useful work; let your heart's window be always open towards Heaven."—A. W. P.-C.

## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *Thursday, March 8th, 1917.*—MR. HY. J. TURNER, F.E.S., President, in the Chair.

The death of Mr. A. E. Gibbs, Vice-President, was reported.

Mr. W. J. Ashdown exhibited examples of all the species of Surrey *Coleoptera* which he had taken during the season of 1916. Beetles were generally abundant throughout the year. Mr. Newman read a short paper, "The rearing of *Macrothylacia rubi*."

*Thursday, March 22nd, 1917.* The President in the Chair.

Mr. A. Buckstone exhibited series of the March and July broods of *Tephrosia histortata*, bred from an Oxshott female taken in April, 1914, including a female which had remained in pupa two winters—from June, 1914, to February, 1916. He also showed *T. crepuscularia* taken in various Surrey localities during May for comparison; a discussion ensued. Mr. Edwards, a box of exotic *Lepidoptera*. Mr. Turner, a photograph of the larval cases of the 15 more easily obtainable species of the British *Psychidae*, taken by the Rev. C. R. N. Burrows, who was desirous to obtain fresh specimens for structural examination. Mr. Turner also showed imagines of several of the commoner species of the genus *Lithocolletis* and made some remarks on their life-history.—HY. J. TURNER, *Hon. Report. Secretary.*

## NOTES FROM THE STROUD DISTRICT (GLOS.).

BY C. NICHOLSON, F.E.S.

The following notes and observations on insects seen and taken during five visits to the above district during the years 1912 to 1916 may be of some interest. In 1912, 1913, and 1914, the period was roughly the last week in July and first week in August; in 1915 it was from June 19th to July 3rd; and in 1916 from June 29th to July 8th. On all five occasions the weather was somewhat mixed, both as regards temperature and rain, the last one being probably the worst in both respects, and all the worse for that because it was only ten days instead of a fortnight. There were, however, many respectably warm days, and some decidedly hot—especially in 1912, 1913, and 1914. In 1915 there was one slight frost, and most of the nights and early mornings were distinctly chilly. These remarks apply, of course, to the period when I was there, and not to the whole year in each case.

As 1912 was my first visit to the district, and Mr. C. J. Watkins of Painswick was no longer with us to give me hints, I had to forage for myself in finding out localities and the best way to work them. I spent a good deal of time exploring the neighbourhood, including one or two trips to "the cities of the plain," Cheltenham and Gloucester. The scenery consists mainly of rolling limestone hills and downs, rising to some 800 or 900 feet, with deep valleys, plenty of springs and streams, and a good sprinkling of woods and plantations. The latter, however, are principally larch, pine, and young beech, and are disappointing from the entomological standpoint. The upland flora is practically the same as that usually characteristic of the chalk and limestone, whilst that of the valleys and streams is alluvial. On the whole, I can thoroughly recommend the district to the notice of naturalists, and as it is invigorating and dry, so far as the climate is concerned, and easy of access from London—in normal times—it is a good place for a summer holiday for those entomologically inclined. I myself did not stay at Stroud, but at a quaintly picturesque little village called Pitscombe, midway between Stroud and Painswick, and it may be as well to say that more attention was paid to "the other orders" than to the *Lepidoptera*; hence the paucity of my notes concerning the latter.

On my first visit I found *Melanargia galatea* more or less common on all the grassy downs and rough ground in the district, and to one who had previously seen that butterfly only in the form of an odd

specimen in various localities, and an isolated colony in one of the New Forest enclosures, it was a pleasure to find the insect in such numbers and in perfect condition. It was equally common, but not quite so fresh, in 1913 and 1914. I was greatly struck with its remarkable resemblance to the flower heads of the common burnet saxifrage (*Pimpinella saxifraga*), which grows freely with the usual chalk-down thistle (*Cnicus acaulis*), and when a butterfly was perched on a flower of the latter, or on a scabious or hawkweed, it several times deceived me until the apparent umbel flew up almost from under my feet. Two beautiful specimens of *Grupta e-album* were seen on different days, but neither of them secured.

On mulleins (*Verbascum thapsus*) on the site of a small beech plantation (mostly felled), on the side of a valley behind Pitcheombe, I found *Pentatoma verbasci* (*baccarum*) in all sizes, from larval forms an eighth of an inch across, to perfect insects; this bug was seen nowhere else in the district, although mulleins are common there.

Besides the common *Bombi*, the *Psithyri* seem to be well represented: *rupestris*, *vestalis*, *campestris* (all forms), *distinctus* and *quadricolor* have all been met with, the first three being common. The males seem very fond of knapweed flowers (*Centaurea nigra*), those of *campestris* being partial to dyer's rocket (*Reseda luteola*), and those of *rupestris* were especially attracted by the flowers of *Teucrium chamaedrys*, a handsome and local labiate growing in a large patch in one station in the district, and met with nowhere else.

In 1913 I discovered a delightful stone quarry near Slad, which proved a happy hunting ground then and on subsequent visits. Here *Psithyri* were discovered in great force, especially *campestris*, and here it was I captured the specimen of *Didea alneti* recorded in this magazine (Vol. L, p. 17). In the immediate vicinity, I also took that year a single specimen of *Adimonia tanacetii*, a beetle supposed to be attached to tansy, but there was no trace of that plant in the district.

I also took a rather worn example of *Criorrhina oxyacanthae* on a flower of viper's bugloss (*Echium*) in the quarry. On the banks of a brook running through a meadow near Painswick, I found four larvae of *Cucullia lychnitis*, feeding on the buds and flowers of water figwort (*Scrophularia aquatica*). These were brought home still feeding, and they eventually pupated, and after passing two winters in the pupal condition, three of them produced nice specimens in May, 1915.

I paid a visit to Birdlip, and on a piece of rough land alongside the road found a good deal of wild parsnip (*Pastinaca sativa*), on

which I took males of *Vespa rufa*, *norvegica*, and *sylvestris*. The *V. rufa* were variable and the *norvegica* well marked, and, judging from their similarity, all from the same nest. It is rather remarkable that *V. vulgaris* and *germanica* are rarely seen on flowers, whereas males of the three other species named are quite commonly to be taken in that way. Workers of *V. rufa* also seem to frequent flowers, freely, especially *Heracleum*, for the purpose of capturing flies thereon as food for their larvae.

The *Pastinaca* also attracts Ichneumons freely, as well as *Diptera*. In fact, in the Stroud district it is one of the most attractive of flowers for many groups, and *Heracleum sphondylium* is a good second. Goutweed (*Aegopodium podagraria*), which usually grows in patches, especially near houses, is also good for *Diptera*, *Coleoptera*, and *Tenthredinidae* in that district. *Pastinaca*, however, seems uncertain in its attractiveness, as I found it practically unproductive in a field near Dorking on July 28th, 1915, whilst in my garden here it is visited by *Foenus jaculator*, Ichneumons, *Chrysotoxum cantum*, and other species of *Hymenoptera* and *Diptera*.

I think it would be useful to have on record the experience of other collectors as to the attractiveness of flowers in various districts, with particular reference to those kinds most generally visited by many orders of insects. Hints of this sort would be very useful to others besides tyros like myself.

The year 1914 will long be memorable to me as the year in which I first saw and captured *Metoecus paradoxus*. In the lane near the house at which I stayed at Pitchcombe, there was a nest of *Vespa vulgaris* in the hedgebank, and I looked upon it as in a very desirable position to take in due course. One day on returning from an expedition I spied a female *Metoecus* quietly at rest on a nettle leaf near the nest, and this quite decided the fate of that nest. Just previous to the conclusion of my stay I armed myself with a bottle of cyanide solution, a pair of old kid gloves, a bill-hook, trowel, and other impedimenta, and amid a small knot of wondering children grouped at a very respectful distance, proceeded to storm the vespine stronghold. Owing to a large bough of elder, which grew right across the entrance hole, it was difficult to inject the cyanide with good aim, especially as the entrance turned rather upwards just inside. I therefore decided to dig down to the nest from the top of the bank after clearing away the nettles and other weeds. This was eventually accomplished amid a small cloud of resentful wasps, some of which

succeeded in sitting down effectively on both my wrists and one knee. However, I secured the nest, in a somewhat dishevelled condition, capturing two more *Metoecus* in the process, and bore it in triumph to the house, where it was installed in a cardboard box. On my return to London I brought the nest with me.

On arriving home I suspended two combs of this nest in a wooden box and placed it in a warm sheltered spot in the garden with a rotten fence pale near, to provide the wasps with building material. They made themselves at home and covered in the two combs almost entirely with fresh envelopes, and I got out two more *Metoecus*, making five in all—two males and three females. There were a few *Volucella* larvae, probably *V. pellucens*, in the nest hole, but I did not get any of these through.

Wasps were very plentiful that year in the Stroud district, and I was shown four holes from which the badgers (also common there) had dug out and eaten the nests in one night. This suggests that if badgers were allowed to live in all parts of the country, instead of being stupidly exterminated in most, we should hear less of plagues of wasps than we do, for there was absolutely nothing left of the nests but a few bits of the paper of the outer envelopes.

I found another patch of *Pastinaca* in an old quarry near Haresfield Beacon, and here again there were plenty of *Vespa* males, *Ichneumonidae*, and other things.

On one occasion there was a strong breeze, and I was astonished at the pertinacity with which the wasps and other insects clung to the parsnip flowers, although the plants were often blown over to an angle of  $45^\circ$ , and in some cases even  $60^\circ$  from the perpendicular. Yet *Syrphus ribesii*, which usually, or at least often, flies off at the observer's close approach, so wary is it, did not allow itself to be blown away, and I was able to box it with ease; evidently it was too busily engaged in hanging on and feeding to notice the approach of real danger.

In 1915, as shown by the dates, I was about five weeks earlier than usual and met with a different set of insects in consequence. The evening I arrived I caught a solitary *Dianthoecia conspersa* on the down behind the house. It was visiting the flowers of bladder campion and was in very good condition; but although I kept a sharp lookout then and on succeeding evenings no further specimens were seen.

At one end of this down is a hedge bordering a field of corn or clover and one evening about dusk hearing some large animal rustling

about and apparently trying to come through the hedge, I stood quite still and waited for a few moments, with the result that I had the felicity of seeing a badger come through the hedge, its white face-streaks revealing its identity unmistakably, although I was rather expecting to see a fox. After regarding me fixedly for some seconds it retreated the way it had come, and I heard it floundering down the hedge in full retreat.

The brambles being still in bud only, I tried wild rose flowers, but found them very unproductive and apparently unattractive to insects, my only capture worth noting being a fine specimen of *Criorrhina berberina*. The common ox-eye daisy produced *Strangalia melanura* in good quantity, and the gout-weed supplied me with *Oedemera nobilis* in some numbers, with an occasional *Oe. lurida*.

A visit to the Slad quarry yielded some fresh specimens of *Volucella bombylans* and a few var. *plumata*; also a fine *Criorrhina oxyacanthae*. On my way back I got a somewhat worn "queen" of *Psithyrus quadricolor* and a black male of *Bombus ruderatus*. I was very surprised at the latter as that species had not previously been seen by me in the district. Dr. Perkins, however, tells me that it occurs freely in some parts of Gloucestershire on kidney-bean flowers. The only other locality in which I have so far met with it is Saffron Walden, where the queens are plentiful in all forms on dead nettle and other flowers in the Spring. I should be glad to know of any locality near London where it occurs.

I was puzzled on several occasions to account for a mysterious humming in beech trees, as if a wasps' or bees' nest were established amongst the branches, and at last found that it was due to numbers of *Bombi* and *Vespae* visiting them for the honey dew deposited on the leaves by, I presume, *Phyllaphis fagi*. I had not noticed this on previous occasions, so possibly the Aphid was particularly abundant that year.

My visit in 1916 was memorable for two things—a good haul of *Callidium violaceum*, and the scarcity of *Bombi* and *Vespae*. The season was certainly backward, for although I was ten days later than in 1915, things seemed less advanced even than on that occasion. Another noteworthy item was that for the first time my "Bignell-tray" accompanied me, as I had not thought it worth while to take it before owing to the unsatisfactory nature of the woods above referred to. The most interesting things it introduced to my notice were a specimen of *Centrotus cornutus* from a small roadside sallow; three larvae of

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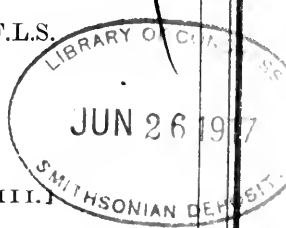
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## **MEETINGS OF SOCIETIES.**

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The Chair will be taken at 8 o'clock in the evening precisely.

The Library is open daily from 9 a.m. to 6 p.m. (except on Saturdays, when it is closed at 2 p.m.), and until 10 p.m. on Meeting nights.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, Hibernia Chambers, London Bridge. The Second & Fourth Thursdays in each month, at 7 p.m. The lantern will be at the disposal of Members for the exhibition of slides.

The Chair will be taken punctually at 8 o'clock.

THE LONDON NATURAL HISTORY SOCIETY, which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

Hon. Sec.: J. Ross, 18, Queen's Grove Road, Chingford, N.E.

Chingford Branch. The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.

*Trichiosoma betuleti* from a hawthorn bush; and an example of *Phyllon 2.6*  
*bius calcaratus* with black elytra spotted with coppery red marks, a  
 result due to the normal covering of greenish scales being entirely  
 wanting. This specimen was beaten from a Scots pine, and it seems  
 rather remarkable that it should have become so abraded. The *Trichio-*  
*soma* larvae were apparently confined to that one bush, for I found no  
 others.

The *Callidium violaceum* bred very freely in my host's summer-  
 house, which was built of matchboards and faced with split 2-inch  
 larch poles. These larch poles were sprinkled with the curious rounded  
 oblong apertures, through which the beetles emerged, and the  
 latter generally appeared from about midday until 2 p.m. On one  
 day I got seven and much admired the almost tropical look of  
 the insects as they crawled slowly about the wood, the females in some  
 cases having their ovipositors deeply inserted in the cracks. Some  
 specimens were decidedly violet, others strongly tinged with green,  
 but most were of a rich deep blue. I had seen one maimed specimen  
 crawling on the garden path on one of my former visits, but not being  
 aware of its identity or habits I did not hit upon its probable source.

On this visit I again found *Oedemera nobilis* in numbers, and  
*Oe. lurida* commoner than in the previous year, but both species were  
 on ox-eye daisy and hawkweeds instead of goutweed.

I met with some fresh specimens of *Abraxas ulmata* sitting on  
 dog's mercury and other leaves, and looking like starling-droppings,  
 in a larch wood bordered by a few wych elms and some large beeches.

On hawkweed flowers in one spot, on the edge of an upland  
 path, I found several specimens of *Cephus pygmaeus*, a sawfly which I  
 had not met with before; all were females.

The beating-tray also yielded sundry *Dascillus cervinus* from  
 hawthorn, and I found others in several places on nettles and other  
 herbage. The goutweed produced two *Tenthredo biciuctus* and one  
*T. viridis*. The latter was calmly munching an unfortunate *Chloromyia*  
*formosa* to my great astonishment, as I did not then know that any  
 sawflies were carnivorous in their imaginal state.

The last evening of my stay was devoted to the taking of a small  
 nest of *Vespa norvegica* from a haystack. It took some time to get  
 out and suffered considerably in the process, as it was much involved  
 with the stalks of the hay. I established it in a rubbish heap in the  
 garden here, with the help of some hay from the lawn, and the few

surviving wasps repaired damages to the nest and kept going for some weeks, but eventually disappeared, owing, presumably, to the queen having been lost. Unlike *V. vulgaris*, which uses rotten wood, *V. norvegica* and most, if not all, of the other British species use sound wood, but I did not see where these specimens obtained their materials.

Although *Ichneumons* were plentiful in the district, I cannot say that I met with any rare species. *Cratichneumon dissimilis* and *Tryphon ephippium* are probably the best, and I also got a couple of *Anomalon cerinops*; all these were on *Heracleum*. *Ichneumon extensorius* and *sarcitorius*, and *Ctenichneumon divisorius* were common on *Pastinaca*, and it was interesting to notice how alert these conspicuous *Ichneumoninae* were, and how quick to dodge beneath the flower-heads at the collector's approach, by which move they often escaped the pill-box just as it was closing over them.

In the foregoing lines I have, of course, omitted the commoner species of all Orders, mentioning only those I thought worthy of some notice.

35, The Avenue,  
Hale End, Chingford  
February, 1917.

SITARIDA WHITE = NEPHRITES SHUCKARD (FAM. MELOÏDAE).

BY K. G. BLAIR, F.E.S.

(Published by permission of the Trustees of the British Museum.)

In response to a suggestion by Mr. A. M. Lea, of the Adelaide Museum, I have compared the type of *Sitarida minor* Champ. (1895) with the description of *Nephrites nitidus* Shuckard. The diagnosis of the last-named genus is very detailed and agrees in every respect with the insect before me; the description of the species, on the other hand, is brief, but, so far as it goes, also applies to Mr. Champion's specimen. The latter was taken by Commander Walker at Hobart, Tasmania, and as Van Diemen's Land is the locality given by Shuckard, there can be little doubt that the two species are identical.

Mr. Champion described his insect as a ♂, probably on account of the pectinate antennae and the slender protruding ovipositor which he took to be the aedeagus; but Wellman (Canad. Ent. xl, 1908, p. 424) expressed doubt as to the correctness of this view, and suggested,

without an examination of the type, that it was in reality the ♀ of a form allied to *Goëtymes pictipes* Blackb. A comparison of these types convinces me that such is indeed the case. The differences between the two forms are such, however, that it does not seem justifiable to assume them to be sexes of the same species, as is probably the case with *Sitarida hopei* White (♀) and *Goëtymes fulvicornis* Pase. (♂) (cf. Wellman, *loc. cit.*), though it may well be that this is indeed their relationship.

In view of our very incomplete knowledge of the species of this group it seems inadvisable as yet to separate *Sitarida* White (1846), type, ♀, *hopei* White (= *Goëtymes* Pase., type, ♂, *fulvicornis* Pase.) from *Nephrites* Shuck. (1837), type, ♀, *nitidus* Shuck. (= *Sitarida minor* Champ.); the latter therefore has priority as the name of the genus.

Shuekard considered his genus as occupying a position intermediate between the Meloïd genus *Sitaris* and *Rhipiphorus*, though placing it nearer the latter. This resemblance is purely superficial; all details of structure demonstrate unquestionably its alliance to *Sitaris*. The simple claws, toothed at the base, is a character unusual in the Meloïdæ, but claws of this type are found in the genus *Hornia* and in *Mylabris tiffensis* and its allies.

The type of *Sitarida minor* has been most kindly presented by Mr. Champion to the British Museum. It is not known whether that of Shuekard has been preserved.

British Museum (Nat. Hist.),  
Cromwell Road, S.W.  
April 1917.

---

#### ON A NEW GROUP OF STAPHYLINIDÆ.

BY MALCOLM CAMERON, M.B., R.N., F.E.S.

##### ARPEDIOPSINI, n.

Antennæ 11-jointed, inserted below a prominence antero-laterally, external to the outer margin of the mandible. Maxillary palpi 4-jointed; labial palpi 3-jointed. Ocelli wanting. Prothorax entirely corneous in front of the anterior coxæ, prothoracic epimera large, the stigmata concealed; anterior coxal cavities open behind. Anterior coxæ conical, prominent; posterior coxæ transverse; trochanters small, simple. Abdomen bordered, first ventral segment distinctly keeled in the middle line. All the tarsi 4-jointed.

This group is related to the Omaliini, Piestini, and Oxytelini, probably most closely to the first.

## ARPEDIOPSIS, n. gen.

Labrum transverse, corneous, broadly emarginate. Mandibles short, stout, not prominent, the right one with a small tooth before apex, both bordered with a membrane towards the base. Inner lobe of maxilla ciliated for nearly the apical half internally, outer lobe with the apex and apical half of outer margin ciliated. Maxillary palpi 4-jointed, the first joint short, scarcely longer than broad, the second longer, nearly triangular, about  $1\frac{1}{2}$  times longer than broad, the third short, as long as broad, the fourth elongate, fusiform, about as long as the first three together. Mentum hexagonal, divided by a suture into anterior and posterior (pars basilaris) portions, corneous, the suture membranous. Labium transverse, narrower than the mentum, the lateral margins and a central raphe corneous, otherwise membranous. Labial palpi short, 3-jointed, distant at their attachment to the labium; last joint short, conical. Tongue broad, membranous, broadly and obtusely emarginate. Paraglossae diverging, overlying the tongue and not extending beyond it, strongly ciliate internally. Legs moderate; all the coxae contiguous. Tibiae with a few feeble spines along the external margins. Tarsi short, 4-jointed, first three joints short, subequal, the fourth longer than the first three together; claws simple. Elytra not soldered. Wings rudimentary. Abdomen bordered, of six visible segments, first ventral segment strongly carinate in the middle line.

*Arpediopsis fulklandica*, n. sp.

Rather depressed, castaneous, abdomen black. Head and thorax with greasy lustre, elytra rather shining. Antennae and legs reddish testaceous. Length 4.75 mm. In facies very similar to *Arpedium quadrum* Gr. Head as broad as long, quadrilateral, narrowed before the eyes, which are small and not prominent; temples smaller than the eyes, rounded; vertex with a deep round impression on either side above the eyes and a small median fovea; front rather broadly impressed on either side; puncturation limited to the region of the antennal tuberosities and sparing, ground-sculpture well marked, coriaceous. Antennae moderate, the 1st joint a little thickened, stouter than the following, scarcely as long as the 2nd and 3rd together, 2nd shorter than 1st and 3rd, club-shaped, 3rd club-shaped, 4th and 5th of about equal length, oblong, shorter than 3rd, 6th and 7th obconical, a little longer than broad, 8th, 9th, and 10th about as long as broad, 11th short, oval, pointed; the last six joints finely pubescent. Thorax slightly broader than long, broader than the head, widest at the junction of the anterior and middle thirds, narrowest at the base; posterior angles rounded; disc with a depression on either side of the middle line, extending from near the anterior margin to, and coalescing with, a median impression before the base, thus forming a long U; median line shining, finely grooved; puncturation scanty and large, ground-sculpture as on head. Scutellum coriaceous. Elytra bordered laterally, at the shoulders wider than the thorax at the base, gradually dilated behind, transverse, postero-external angles rounded, scarcely longer than the thorax, uneven, rather shining, coarsely but sparingly punctured, and without visible ground-sculpture.\* Abdomen as broad as the elytra, sides almost parallel to apex, bordered, puncturation finer and closer

\* Excepting a few short rays from the punctures, which, however, do not meet one another.

than that of the thorax, ground-sculpture coriaceous, pubescence scanty. There appear to be no secondary sexual characters.

*Hab.* Sandy beaches in vicinity of Port Stanley, Falkland Islands, in decaying kelp (*Macrocyctis pyrifera*), December 1914.

April 28th, 1917.

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## DESCRIPTION OF A NEW GENUS OF STAPHYLINIDAE.

BY MALCOLM CAMERON, M.B., R.N., F.E.S.

In 1875 C. O. Waterhouse (Ent. Monthly Mag. xii, p. 54) described as *Phytosus atriceps* a species from Kerguelen Island, the type of which is in the British Museum. In December 1914, at Port Stanley, Falkland Islands, I found this species occurring on sandy beaches in the dry root-masses of the "kelp" (*Macrocyctis pyrifera*) thrown up by the sea. Examination of these specimens shows that the insect must be removed from *Phytosus*, and the following new genus is founded on it.

### PARAPHYTOSUS, n. gen.

*Facies of Phytosus.* Labrum transverse, gently rounded at the sides. Mandibles lightly curved, the right one furnished with a small tooth at the middle of the inner border. Inner lobe of maxilla in front furnished with spines internally, posteriorly ciliated; outer lobe with the apex ciliated. Maxillary palpi 4-jointed, the first joint very small, second elongate, slightly curved, the third a little longer than the second, the fourth subuliform, about one-third of the length of the preceding. Mentum transverse, quadrilateral; anterior margin broadly emarginate, narrower than the posterior. Labium transverse; tongue narrow, elongate, simple. Labial palpi elongate, two-jointed, the second joint about half the length of the first. Paraglossae not extending beyond the tongue, ciliate internally. Tibiae ciliate externally, not spiny. Tarsal formula, 4, 4, 5; the anterior and middle pairs with the first three joints subequal, together a little shorter than the fourth; the posterior with the first four joints subequal, the fifth about as long as the three preceding together. Claws simple. Apterous.

This genus appears to stand near *Phytosus* and *Arena*: from the first it differs by the two-jointed labial palpi and the absence of spines on the tibiae; from the second by the two-jointed labial palpi and the toothed right mandible.

April 29th, 1917.

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A NEW BRITISH SPECIES OF *PTILIUM* (COLEOPTERA).

BY H. BRITTEN, F.E.S.

*Ptilium asperum*, n. sp.

Elongate-oval, fuscous, clothed with moderately long greyish hairs; head large, very finely and thickly tuberculate; eyes prominent; antennae moderately long, pitchy; thorax wider than head, broadest in middle, sides strongly rounded in front and constricted behind, hind angles projecting, covered with thickly-set large tubercles; elytra elongate-oval, broadest at middle, strongly asperate in irregular transverse rows; legs dirty yellow. Length  $\frac{3}{4}$ - $\frac{7}{8}$  mm.

This species at first sight closely resembles a large example of *P. spencei* All., but is easily distinguished by its basally constricted thorax, the much coarser sculpture of the thorax and elytra, and the shorter greyish hairs. In shape it resembles *P. caledonicum* Sharp, but is at once separated from that species by its stronger sculpture and dark colour.

I have made drawings of the male aedeagus as seen from the front and side, with another, to the same scale, of the aedeagus of *P. marginatum* Aubé, drawn from a side view,



to show the very different outline and much smaller size in the latter species, though the insects themselves are similar in dimensions. The aedeagus of these two species differs considerably from that of any of the other

members of the genus I have examined.

The description is taken from a male captured in an old squirrel's drey at Great Salkeld, Cumberland, 19. vi. 1913. Another specimen of the same sex was taken in fungi in the New Forest, 4. viii. 1914. A third, found in Scotland by Mr. N. H. Joy, has also been examined by me, but the sex of this example has not been ascertained.

Myrtle View, Windmill Road,  
Headington, Oxon.  
Feb. 21st, 1917.

ON THE *ATOMARIA VERSICOLOR* OF BRITISH COLLECTIONS.

BY E. A. NEWBERY.

It appears evident that the above-named species as understood on the continent is a different insect to that described as *A. versicolor* by Wollaston in his revision of the British species of the genus (Trans. Ent.



Soc. Lond. 1857, p. 64), and by subsequent British writers, who have, as a rule, copied his description.

Reitter (Fauna Germ. iii, 71), with whom Ganglbauer, Kuhnt, and other authors are practically in accord, gives the following characters to distinguish *versicolor* from the other species in the *analis*-group:—

The fine side-margin of thorax visible, by direct view from above, from middle to base. Thorax from base to apex moderately equally contracted, almost conical, finely and remotely punctured, shining yellow-red. Elytra at least equally strongly punctured, blackish, red-yellow at shoulders and towards apex. First joint of antennae well longer than broad. Elytra short, oval, broader than the thorax. Length 1.4–1.5 mm. (*A. ornata* Reitt.)\* In wine cellars and wine casks, rare. *versicolor* Er.

It may be noted that in the other British species of the group—*analis* Er., *apicalis* Er., *ruficornis* Marsh., and *gibbula* Er. (*hislopi* Woll.)—the side-margin is not visible from above.

The principal points in Wollaston's description—reproduced by Fowler—are in conflict with the above, thus he says:

“In its distinctly punctured surface the *A. versicolor* approaches the *apicalis*, . . . it is also brighter and less pubescent, and its prothorax is more rounded at the sides.” He states that he “has met with it in considerable abundance at Withington, on the Cotswold Hills, Glos., principally beneath the dry dung of sheep.” This is a very likely habitat for *analis* or *apicalis*, but by no means so for a cellar species.

All the specimens that I have seen in British collections standing as *versicolor* must be referred to one or other of the above-named two species. It seems extremely probable that *versicolor* Er. has not yet occurred here.

13, Oppidans Road, N.W. 3.

April 27th, 1917.

*Pterostichus angustatus* Duft. etc. in the Woking district.—Last June Mr. Tomlin was kind enough to introduce me to the very restricted locality for *Pterostichus angustatus* Duft. at Crowthorne (Wellington College), Berkshire. This place, a patch of open burnt ground in pine woods, was so like certain spots in the Woking district, that I felt sure the species must occur there also, more especially as *Anchomenus quadripunctatus* Degeer, was known to inhabit both the Surrey and the Berks localities. The last-named insect I had not seen in my own district since 1902, but a few days ago it again put in an appearance, and with it, sure enough, was the *Pterostichus*, both in numbers.

\* I have since, by the kindness of Mr. Champion, seen a specimen received from Reitter himself and bearing his label, “*A. ornata* Heer.” This insect is quite distinct from *versicolor* Er., the thorax being broadest at basal third and from thence narrowed to base. It agrees well with the description of *A. ornata* Heer (*nec* Reitter) = *contaminata* Er., in Reitter's work quoted above.

The re-establishment of a sawmill last winter in another and more likely clearing in our pine woods, near burnt ground, afforded the right sort of place for these two insects, and both of them were found quite at home, on May 12th, beneath planks and logs left resting on the sawdust and chips accumulated round the mill. *Asemum striatum* was about on the cut timber, and *Enicmus histrio* and *Coninomus carinatus* and *nodifer* (all three in numbers), *Atomaria badia*, *Glischrochilus (Ips) 4-guttatus* and *4-punctatus*, *Pityophagus ferrugineus*, and *Trichophya pilicornis*, etc., were to be found on the moist under-surfaces of the freshly-cut boards.\*—G. C. CHAMPION, Horsell : May 15th, 1917.

*A note on Cryptocephalus bipunctatus L., etc.*—In reference to Mr. W. E. Sharp's valuable paper on this beetle (*antea* pp. 76-79), it seems to be only fair to Mr. R. S. Mitford to mention that he was the first to take the type form in Britain, in 1907. He kindly told me whereabouts he had taken his two specimens, at Niton, I. of W.; and in July, 1908, I went down there, and, after a strenuous hunt, succeeded in finding its headquarters and secured a number of examples. Next year I gave Mr. Pool a plan of the spot, and he went down to help Mr. Mitford to obtain more. It may also be mentioned that the var. *thomsoni* was taken by Mr. Hereward Dollman at Lewes.

With regard to Mr. Sharp's remarks on the bionomics of the species—the larva and larval case will be found to be described (and the latter figured) by Rosenhauer ["Ueber die Entwicklung und Fortpflanzung der Clythren und Cryptocephalen," Erlangen, 1852, pp. 1-34, Pf. 21]. This paper was referred to by me in my life-history of *Clythra 4-punctata* L. (Trans. Ent. Soc. Lond. 1902, 11-25).

In a few notes on *Cryptocephali* [Ent. Rec. xx, 208-9 (1908)] I mention that all the species (as do *Clythra*, *Labidostomis*, and *Gynandrophthalma*) lay covered eggs, which they let fall; that the larva, when hatched, builds a case on to this egg-case, and that some of them feed on lichen on trees. Dr. Chapman sent me a larva in a case taken on lichen on a tree in the New Forest, and when this hatched it proved to be *C. parvulus* Müll.

Wasmann suggests that from some short notes by Weise it is probable that all the species of *Cryptocephalus* change to pupae in ants' nests. The late Mr. A. J. Chitty once captured a specimen of *C. 6-punctatus* near a nest of *F. rufa*, and expressed his opinion that it had come out of this nest.

In April 1910, I found a *Cryptocephalus* larva, in a case, in a nest of *Acanthomyops (Dendrolasius) fuliginosus* at Wellington College [Ent. Rec. xxiii, 170 (1911)]. This was taken home and placed in an observation-nest with some of the ants, carton, and contents of the nest. The larva fed on the refuse of the nest and enlarged its case in the same way as does a *Clythra* larva. It fastened the case to a bit of wood at the end of May, and hatched out in the middle of June, proving to be a specimen of *C. fulvus* Goeze. The adult beetles feed on the leaves of various trees and plants, grass, etc.

Rosenhauer (*l. c.*) gives the life-history of *C. 12-punctatus*, from the egg to the imago.—HORACE DONISTHORPE, Hazlewell Road, Putney : April, 1917.

\* Since this note has been in type, I have taken an example of *Silvanus bidentatus* F., from under pine bark, at the same locality.—G. C. C.

*Smicronyx reichei* Gyll. and *Ceuthorrhynchus viduatus* Gyll. in Gloucestershire.—Among other *Coleoptera* collected by myself in this district, I find I have taken singly the above-named scarce species, and as apparently they have not been previously observed in the county, I thought them worth recording. The *Smicronyx* was swept on a hillside near Stroud, Aug. 30th, 1905, and the *Ceuthorrhynchus* from some waterside plants near Chalford, June 14th, 1915. I am indebted to Mr. J. Edwards of Colesborne for their identification.—W. B. DAVIS, 3 Rosebank Villas, Churchfield Road, Stroud: *April* 1917.

*Stenolophus teutonius* ab. *abdominalis* Gené.—In the apparent absence of any records of the capture of the above well-marked form in Britain, it may be mentioned that two specimens were found under stones on the undercliff at Barton-on-Sea, Hants, in September 1907, by my friend Dr. C. F. Selous, one of which he kindly presented to me. Both were rather smaller than the average size of *S. teutonius*.—E. A. NEWBERY, 13, Oppidans Road, N.W. 3: *April* 27th, 1917.

*Psylliodes affinis* as a *Potato-pest*.—In the May number of the Ent. Mo. Mag. (p. 98) Mr. G. C. Champion refers to the Potato Flea-beetle (*Psylliodes affinis* Payk.), stating that no records of its occurrence as an insect of economic importance in these countries appear to have been made since the time of John Curtis. Prof. F. V. Theobald, in 1903 ('Notes on Economic Zoology' from 'Reports of the S.E. Agric. Coll. Wye,' p. 15), gives observations as to its ravages on the leaves of potato, rhubarb, and artichoke. In the same year I received potato-leaves badly eaten by *P. affinis* from Co. Dublin and Co. Clare. This and subsequent records from many parts of Ireland may be found in the 'Economic Proceedings of the Royal Dublin Society' (vol. i, pp. 254-5, 329, 572; vol. ii, pp. 38, 82-3).—GEO. H. CARPENTER, Royal College of Science, Dublin: *May* 16th, 1917.

*On species referred to Rhinosia*.—In Staudinger's 'Catalogue of Palaearctic Lepidoptera' the name *Rhinosia* Tr. is applied (by a mistaken use) to a group of species which I find to be a miscellany connected together mainly by superficial appearance. I refer the eight species composing it as under, viz.: *denisella*, *monastrictella*, *sordidella*, and *ferrugella* to the Oecophorid genus *Cryptolechia*; *cervinella* to *Aristotelia*; *flavella* and *formosella* to *Acompsia* (= *Brachycrossata* Hein.); and *invertella* to *Metzneria*. The receipt of allied species of *A. compsia* from Africa led me to notice this source of confusion.—EDWARD MEYRICK, Thornhauger, Marlborough: *May* 7th, 1917.

*Megalomus hirtus* on *Kincardineshire Coast*.—With reference to Mr. King's note on p. 87, it may be worth pointing out that the late Mr. McLachlan recorded the capture of *Megalomus hirtus* by Professor Trail a few miles south of Aberdeen, in Ent. Mo. Mag. vol. x, p. 90 (1873).—KENNETH J. MORTON, 13, Blackford Road, Edinburgh: *May* 10th, 1917.

## Abstracts of Recent Literature.

BY HUGH SCOTT, M.A., F.L.S., F.E.S.

BØVING, A. "A GENERIC SYNOPSIS OF THE COCCINELLID LARVAE IN THE UNITED STATES NATIONAL MUSEUM, WITH A DESCRIPTION OF THE LARVA OF *Hyperaspis binotata* SAY." Proc. U.S. Nat. Mus., Vol. li, pp. 621-650, pls. 118-121, January 1917.

The external structure and mouth-parts of *H. binotata* are described and figured in some detail, as representing the more primitive of the types found among ladybird larvae. The mouth-parts exhibit remarkable morphological modifications, which do not appear to have been put on record and which may not occur outside Coccinellidae. The mouth-cavity is greatly enlarged, and, in *H. binotata* at all events, is capable of holding an entire *Lecanium*-larva, the principal diet of the *Hyperaspis*. Consequent on this enlargement of the mouth the mandibles are very wide apart, and can only meet at their apices. Their molar bases are so widely separated that they cannot work against one another at all, but instead they work against a chitinous "hypopharyngeal bridge," which is peculiar to the family. Thus they grind the juices out of the prey, these juices being retained in the mouth during the process by the fleshy lobes of the ventral mouth-parts.

While *Hyperaspis* represents the primitive type, the most highly developed larvae are found in the *Chilocorini*. Between the two extremes are many intermediate gradations. *Psylloborini* and *Epilachmini* are both branches from the main stem, with special biological adaptations. Both have specialised mandibles. The herbivorous *Epilachmini* also have the hypopharyngeal bridge reduced, and altogether diverge widest from the normal.

Coccinellid larvae exhibit great variety of structure among themselves, but as a family they can only be confused with certain Chrysomelid larvae. Excepting, however, the aberrant *Epilachmini*, all others can be distinguished from Chrysomelidae by the sickle-shaped mandibles (broad in Chrysomelidae) and hypopharyngeal bridge (not developed in Chrysomelidae). All Coccinellid larvae examined by Bøving have 3 ocelli, whereas in Chrysomelidae the number varies from 0 to 6.

Bøving differentiates 9 groups: primarily by (i.) location of thoracic spiracles, (ii.) arrangement of the pleural areas of meso- and metathorax, (iii.) nature of the tubercles, plates, spines, etc.; and secondarily, by (i.) degree of development of the hypopharyngeal bridge, (ii.) form of the apex and retinaculum of the mandible. This classification, based on study of the larvae, corroborates, in all but a few minor points, the classification based on study of the adults proposed by Casey in 1898. The bibliography of Bøving's paper occupies nearly 10 pages.

## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
*April 12th, 1917.*—Mr. Hy. J. TURNER, F.E.S., President, in the Chair.

Mr. Edwards exhibited species of the genera *Nectarina* and *Hestia*, highly protected butterflies, and referred to their numerous mimics. Mr. B. W. Adkin, numerous aberrations of *Agriades thetis* and *A. coridon* taken at Eastbourne in Sept. 1916. Mr. Hy. J. Turner, a post-card illustrating a Fowling Scene from the wall of a tomb at Thebes, B.C. 1500, on which were portrayed five figures of butterflies; and a photograph of the cases of the more obtainable British Psychids, and read notes on the characteristics and life-histories of the species. Mr. H. Moore, a number of species of Nearctic and Neotropical *Sphingidae*. Mr. Frohawk, the two sexes of *Eugonia polychloros* and pointed out that the only secondary sexual character of distinction was the hitherto unnoted fact of the males possessing considerably larger eyes. Mr. Bunnett, the nymph-cases of a species of caddis-fly. Mr. Adkin read a short paper, "The Weather of 1916 and the Butterflies of Eastbourne." Mr. Frohawk, a letter from Tipperary, dated 1895, describing a butterfly existing there, which, apparently, was *Limentis sibilla*.

*April 26th, 1917.*—Mr. Hy. J. TURNER, President, in the Chair.

Exhibition of Orders other than *Lepidoptera*. Mr. H. Main exhibited living specimens of *Scarabaeus* from Malta and Sicily, and specimens of the oil-beetle, *Meloe*, with cells containing the bees, *Anthophora pilipes*, on which it is parasitic. Mr. K. G. Blair, (1) living gall-flies, *Aphidothrix radicis*, and the "truffle" gall from which they emerged; (2) *Psanmochares cardui*, a new species of Pompilid bee recently described by Dr. Perkins; and (3), on behalf of Dr. C. J. Gahan, a living specimen of the Death-Watch beetle, *Xestobium tessellatum*, which responded to stimulus by tapping. Mr. H. Moore, a large number of insects from Demerara—ants, bees, wasps, flies, Mantids, locusts, and *Hemiptera*, including *Membracidae*. Mr. Ashdown, Swiss and N. Italian *Coleoptera*, taken in 1914, including about 40 species of Longicornes. Mr. Lucas, a collection of British Earwigs, and coloured enlarged drawings of the New Forest Cricket (*Nemobius sylvestris*) and of the Giant Earwig (*Labidura riparia*). Mr. Lachlan Gibb, a case of the American "bag-worm," *Thyridopteryx ephemeraeformis*, a large Psychid. Mr. West (Greenwich), his collection of British *Homoptera* and drawers from the Society's reference collections of *Coleoptera*, *Diptera*, *Neuroptera*, *Hymenoptera*, and *Orthoptera*. Mr. Turner, various species of British *Ichneumonidae*, British *Hymenoptera*, and European *Coleoptera*. Mr. Adkin, a copy of Fuessly's 'Archives de l'Histoire des Insectes,' 1794 (French translation). Mr. Edwards, boxes of Exotic *Coleoptera*, *Cicadidae*, and *Hemiptera*.—Hy. J. TURNER, *Hon. Report. Secretary.*

NOTES ON TROPICAL AMERICAN LAGRIIDAE, WITH DESCRIPTIONS  
OF NEW SPECIES.

BY G. C. CHAMPION, F.Z.S.

(PLATE II.)

These "Notes" are the result of a critical examination of various species of the genera *Colparthrum*, *Disema*, *Meniscophorus*, *Uroplutopsis*, etc., contained in the British Museum, mainly derived from the Fry and Bates collections, supplemented by a few insects belonging to the Oxford Museum. The great genus *Statira*, 89 species of which from Central America were enumerated in the 'Biologia' in 1889-1893, has been similarly dealt with in a paper recently communicated to the Entomological Society of London.\* The identification of the sexes, to which especial attention has been paid, has resulted in the discovery of important specific characters in not a few of these insects.

COLPARTHRUM Kirsch.

Fourteen species are added to this Tropical American genus, two of these having been described by Mäklin under *Statira*. Kirsch's Colombian type, *C. gerstückeri*, is still unknown to me. Five have been recorded from Central America. Amongst those here enumerated, the tridentate mandibles have been examined in *C. decoratum* (figured in the 'Biologia'), *fasciatum*, *apicale*, *veedi*, *flavosellatum*, and *nigricauda*; the apical joint of the labial palpi is sublunate or triangular in all of them. In *C. spinicauda* the elytra are mucronate at the tip, as in *C. calcaratum* Champ. *C. subsignatum* has a faint opaque patch towards the sides of the elytra beyond the middle, and, therefore, may have to be removed from *Colparthrum* when more specimens are available for examination.

1.—*Colparthrum decoratum*.

*Statira decorata* Mäkl., Act. Soc. Fenn. vii, p. 588 (1863).

*Colparthrum decoratum* Champ., Biol. Centr.-Am., Coleopt. iv, 2, p. 67, pl. 3, fig. 20.

Var. *Statira bilunulata* Pic, L'Echange, xxviii, p. 76 (Oct. 1912).

*Hab.*: MEXICO; GUATEMALA; NICARAGUA; PANAMA.

Pic's description of *S. bilunulata*, from Panama, applies to a form of the variable *C. decoratum* with two black-bordered, flavo-testaceous

\* Read March 7th, 1917.

patches (ante-median and subapical) on each elytron. This Central-American insect was recorded by me from the same country in 1889.

2.—*Colparthrum bicinctum*, n. sp.

(Plate II, fig. 1, ♀.)

♀. Elongate, shining; testaceous, the eyes and two transverse fasciae on the disc of each elytron (one before, the other beyond the middle, the anterior one reaching the suture, and extending down the latter for some distance) nigro-piceous or black; the alternate elytral interstices and the head with a few, long, erect pallid hairs. Head rather small, smooth, with a deep, transverse, bifoveate inter-ocular depression, the eyes distant and small as seen from above; antennae somewhat slender, comparatively short, joint II barely twice the length of 10. Prothorax narrow, as wide as the head, slightly longer than broad, cordate, dilated at the base, strongly constricted posteriorly, smooth, the transverse groove very deep. Elytra rather broad, moderately elongate, gradually widened to the middle, and there fully three times the breadth of the prothorax; conspicuously striato-punctate, the punctures becoming very fine and scattered towards the apex and there placed in fine striae, the interstices broad, flat, the setigerous impressions on 1, 3, 5, 7, and 9 small and scattered. Femora moderately clavate.

Length nearly 7, breadth  $2\frac{1}{2}$  mm.

*Hab.*: PERU, Chanchamayo (*ex coll. F. Bates*).

One specimen. Near the Brazilian *C. fasciatum*, differing from it in the more deeply constricted prothorax, the fewer and finer seriate punctures on the elytra (these becoming almost obsolete towards the apex), the broader, flat interstices, and the elytra themselves relatively wider. The markings are doubtless subject to variation.

3.—*Colparthrum fasciatum*.

(Plate II, figs. 2, ♂; 2 a, b, sixth ventral segment and penis-sheath.)

*Statira fasciata* Mäkl., Act. Soc. Fenn. x, p. 644 (1875).

*Colparthrum bifoveifrons* Pic, L'Echange, xxviii, p. 100 (1913).

Vars. *Colparthrum ruficeps* and var. *subobliteratum* Pic, *loc. cit.*

♂. Antennal joint II about as long as 9 and 10 united, a little shorter in ♀; sixth ventral segment developed into a pair of short, stout, curved, concave forceps, which are pointed at the apex (fig. 2 a); penis-sheath long, narrowed to the apex, the apical portion divided down the middle (figs. 2 a, b).

Length  $6\frac{1}{4}$ – $7\frac{1}{3}$ , breadth  $2$ – $2\frac{2}{3}$  mm. (♂ ♀.)

*Hab.*: BRAZIL, Boa Sorta and Santa Rita (*Sahlberg*: types of *S. fasciata*), Rio de Janeiro (*Fry*), San Antonio de Barra (*Gounelle*: types of *C. ruficeps* and var. *subobliteratum*), Alto da Serra in Sao Paulo (*G. E. Bryant*: *C. ruficeps* det. Pic.).

A long series in the Fry collection connect the numerous forms of this very variable insect, which may be known by the deep, transverse, laterally foveate, inter-ocular sulcus, the smooth head and prothorax, the coarsely punctato-striate, bristly elytra, and the powerful curved forceps (sixth ventral segment) of the male. The elytra in the type of *S. fasciata* are testaceous, with a large, triangular, post-scutellar patch, the suture thence to beyond the middle, and two transverse fasciae (one submedian and the other just before the apex), black. The sutural marking is sometimes wholly or in part obsolete and the ante-apical fascia extended to the tip or altogether wanting. One specimen in the Fry collection has the elytra wholly black; in another they are black, with a broad, common, subapical fascia testaceous; a third has two fasciae (basal and median, neither reaching the suture), and the apex, black. *C. ruficeps* has the antennae in part, and the knees, and sometimes the prothorax also, more or less infusate, and the black subapical fascia oblique (extending, however, to the tip in two of the five examples in Mr. Bryant's collection), a specimen wanting this marking forming the var. *subobliteratum* of Pic. The ♂ penis-sheath, etc., are precisely similar in the forms described by the two authors. *C. vitticolle* Champ., from Nicaragua, has a somewhat similar ♂-armature.

#### 4.—*Colparthrum reedi*, n. sp.

Elongate, narrow, shining; nigro-piceous or obscure castaneous, the elytra with a greenish or brassy lustre, the basal halves of the femora, the tibiae to near the apex, and the basal joint of the intermediate and posterior tarsi in part, testaceous; the head and elytra with a few, very long, erect, setiform hairs. Head smooth, the deep transverse inter-ocular depression bifoveate, the eyes moderately large, separated by about the width of one of them as seen above; antennae long, joint II in ♂ about as long as 9 and 10 united, in ♀ a little shorter. Prothorax subcordate, as long as broad, smooth, transversely depressed on each side at about the middle, the basal groove deep. Elytra long, much wider than the prothorax, compressed at the sides below the humeri, acuminate posteriorly; very coarsely, closely striato-punctate, the punctures deep, becoming much finer beyond the middle and there placed in well-defined striae, the interstices narrow and transversely confluent between the seriate punctures on the anterior half, broader and convex towards the apex, 3, 5, 7, and 9 each with a few scattered, fine, setigerous impressions. Femora strongly clavate.

Length  $6\frac{1}{2}$ - $7\frac{1}{2}$ , breadth  $1\frac{9}{10}$ - $2\frac{1}{4}$  mm. (♂ ♀.)

*Hab.*: BRAZIL, Bahia (*Reed, ex coll. Fry*).

Three specimens. Less elongate than *C. sulcicolle* Champ., from Panama, the head shorter and broader, the prothorax more rounded at



the sides before the middle, the elytra not so deeply striate, and with the interstices transversely confluent on the anterior half, the apical joint of the  $\sigma$ -antenna longer.

5.—*Colparthrum apicale*.

*Statira apicalis* Mäkl., Act. Soc. Fenn. x, p. 640 (1875).

Antennal joint 11 in  $\sigma$  about three times, in  $\text{♀}$  barely twice, the length of 10; apical joint of labial palpi broad, sublunate; inter-ocular fovea transverse, deep, bifoveate; penis-sheath of  $\sigma$  narrowly produced and curved downward at tip.

*Var.* Elytra wholly nigro-piceous.

*Hab.*: BRAZIL, Rio de Janeiro, Boa Sorta, Petropolis.

Apparently not rare in the neighbourhood of Rio de Janeiro. The elytra are usually castaneous or rufo-testaceous with the apex black, sometimes wholly infusate. The legs are testaceous with the knees broadly blackened. A larger and more robust insect than the variable *C. fasciatum*, with the seriate punctures on the elytra less numerous and not transverse, the interstices flatter, the eyes larger. *C. apicale* may be the *Statyra praecusta* of Dejean's Catalogue.

6.—*Colparthrum flavosellatum*, n. sp.

$\sigma$ . Elongate, rather narrow, shining; nigro-piceous, the palpi and mouth-parts fusco-testaceous, the antennae (the infusate joints 1 and 2 excepted) ferruginous, the legs and abdomen testaceous, the elytra with a transverse median fascia (not reaching the suture or outer margin) and rather more than the apical third (except along the sides and suture anteriorly) flavo- or rufo-testaceous; the alternate elytral interstices and the head sparsely set with very long, erect, pallid, setiform hairs. Head almost smooth, with a deep, transverse, foveate, inter-ocular impression; eyes very large, narrowly separated, occupying the whole of the sides of the head; antennae stout, about as long as the elytra, joints 3-10 increasing in length, 11 nearly as long as 9 and 10 united. Prothorax subcordate, as broad as long, narrower than the head, smooth, the transverse ante-basal groove deep. Elytra moderately elongate, about twice as broad as the prothorax, gradually widened to the middle, arcuately narrowed posteriorly; coarsely, closely punctate-striate, the punctures transverse and deep on the anterior half, becoming small towards the apex, the interstices convex, the scattered setigerous impressions on the 3, 5, 7, 9 small. Femora moderately clavate. Penis-sheath narrowed to the tip.

Length  $7\frac{1}{2}$ , breadth  $2\frac{1}{4}$  mm.

*Hab.*: BRAZIL, Rio de Janeiro (*Fry*).

One male. Separable from all the varieties of *C. fasciatum* by the very long stout antennae and the greatly developed narrowly separated eyes. The infusate portion of the elytra, which extends for a short

distance down the suture and sides posteriorly, includes a transverse flavous fascia on the disc of each elytron at about the middle. The markings are doubtless variable. The mandibles are trifid, as in *C. fasciatum*. The apical joint of the labial palpi is rather small, subtriangular, not hollowed at the apex.

7.—*Colparthrum nautense*, n. sp.

♂. Moderately elongate, rather narrow, shining; aeneo-piceous or aeneo-testaceous, the front of the head, the palpi at the base or entirely, the antennae wholly or in part, the basal halves of the femora, and the tibiae and tarsi, testaceous or ferruginous, the elytral suture broadly infuscate in the paler example; the head and elytra with a few, very long, erect, setiform hairs. Head almost smooth, the deep inter-ocular impression bisulcate, the eyes very large and narrowly separated; apical joint of labial palpi triangular; antennae long, reaching to near the middle of the elytra, rather stout, joint 11 about three times as long as 10. Prothorax oblongo-subcordate, as long as broad, a little narrower than the head, smooth, shallowly transversely impressed on each side at about the middle, the basal sulcus very deep. Elytra moderately elongate, at the middle nearly twice as wide as the prothorax, compressed at the sides below the humeri, and somewhat acuminate posteriorly; coarsely, closely striato-punctate, the punctures becoming much finer beyond the middle and there placed in deep striae, the interstices 1, 3, 5, 7, and 9 with a row of scattered, setigerous impressions. Femora strongly clavate.

Length 6, breadth  $2-2\frac{1}{8}$  mm.

*Hab.*: UPPER AMAZONS, San Paulo [de Olivenca] (*H. W. Bates*), Nauta (*Mus. Brit.*: type).

Two males, the Nauta specimen (received by the Museum in 1858) slightly immature, and in consequence paler than the other, the insects agreeing precisely in other respects. The very large, narrowly separated eyes, and the relatively short, submetallic elytra, distinguish *C. nautense*. The eyes are shaped as in *C. flavosellatum* and *C. foreiceps*. The localities are not very far distant, Nauta being above the other and on the same river, but in Peruvian territory.

8.—*Colparthrum nigricauda*, n. sp.

Elongate, shining, the elytra dull; nigro-piceous, the elytra obscure castaneous, black along their apical margin, and with scattered bristly hairs on the alternate interstices. Head about as wide as the prothorax, smooth, the broad inter-ocular space with a transverse, subarcuate, deep, laterally foveate, impression, the eyes large, distant; antennae rather short, slender at the base, thickening outwards, joint 11 a little longer than 10. Prothorax smooth, convex, cordate, slightly longer than broad, deeply constricted and transversely grooved before the base. Elytra long, broad, at the base twice as

broad as the prothorax, widening to the middle, and somewhat acuminate at the apex; finely punctato-striate, the striae arranged in pairs and slightly sinuate on the apical half, the interstices alutaceous, feebly convex, flat on the anterior half. I, 3, 5, 7, and 9 each with a series of scattered setigerous impressions, the interspaces between which are longitudinally raised and catenulate from about the middle to the tip. Legs almost smooth, the anterior and intermediate femora clavate.

Length  $10\frac{1}{2}$ , breadth  $3\frac{1}{2}$  mm. (♀?)

*Hab.*: COLOMBIA, Munizales (A. M. Patino).

One specimen, given me many years ago by M. René Oberthür. Larger and less convex than the Brazilian *C. (Statira) apicale* Mäkl. (♀), the eyes more distant, the antennae shorter and stouter, the elytra broader and less shining, more finely punctato-striate, with the alternate interstices catenulate, and the striae arranged in pairs, posteriorly. The Colombian *C. gerstäckeri* Kirsch, must be a nearly allied insect, with trifasciate elytra, etc. Dissection of the mouth-parts shows that the example described has the mandibles tridentate at the tip and the apical joint of the labial palpi subulate, as usual in *Colparthrum*.

9.—*Colparthrum tuberculicauda*, n. sp.

Elongate, shining, fusco-castaneous, the elytra with a faint aeneous lustre. Head rather broad, smooth, the transverse inter-ocular depression shallow and trifoveate (the median fovea deep, sulciform), the eyes moderately large and separated by about the width of one of them; [antennae wanting]. Prothorax as wide as the head, as long as broad, cordate, dilated at the base, smooth, the transverse furrow rather shallow. Elytra long, twice as wide as the prothorax, gradually widened to the middle and acuminate at the apex; closely, finely punctato-striate, the punctures becoming very coarse at the sides and obsolete towards the tip; the interstices broad, flat, 3, 5, 7, and 9 with from two to four small tubercles followed by a setigerous impression. Legs long, the femora stout and moderately clavate.

Length  $9\frac{1}{2}$ , breadth  $3\frac{1}{2}$  mm. (♀?)

*Hab.*: COLOMBIA (Mus. Brit.).

One specimen, acquired in 1847. Not unlike *C. boliviense*, but a little larger, the head and prothorax broader, the eyes smaller and more distant, the inter-ocular depression shallower and trifoveate, the elytra closely, finely punctato-striate, the small tubercles reduced to a few on the apical declivity, and altogether wanting on the first (sutural) interstice. The species cannot be identified amongst the numerous Colombian *Statirae* described by Mäklin in 1878, few of which are known to me.

10.—*Colparthrum trifoveatum*, n. sp.

Moderately elongate, widened posteriorly, shining; aeneo-piceous or aeneo-castaneous, the femora testaceous or flavous at the base; the head and elytra set with very long, scattered, erect, setiform hairs. Head smooth, a little broader than the prothorax, considerably developed behind the eyes, the transverse inter-ocular groove very deeply trifoveate, the eyes rather small, distant; antennae moderately long, joint 11 not much longer than 10 in ♀ [wanting in ♂]. Prothorax oblongo-subcordate, about as long as broad, smooth, transversely compressed on each side at about the middle, the basal groove very deep. Elytra moderately long, at the base twice as wide as the prothorax, compressed below the humeri and gradually widened thence to the middle, acuminate at the apex, the transverse post-basal depression deep; rather finely striato-punctate on the disc, the punctures not very closely placed, becoming much coarser and deeper towards the sides, and almost obsolete on the apical declivity; the interstices flat throughout, 1, 3, 5, 7, and 9 each with a scattered series of conspicuous setigerous punctures. Femora strongly clavate; posterior tibiae curved in ♂.

Length  $6\frac{1}{2}$ , breadth  $2\frac{2}{5}$ - $2\frac{1}{2}$  mm.

*Hab.*: COLOMBIA (*Mus. Brit.*).

Two specimens, assumed to be ♂ and ♀, the latter acquired in 1847. A rather short form, with comparatively narrow head and prothorax, a deeply trifoveate inter-ocular depression, and broad, acuminate, feebly striato-punctate elytra, without trace of striae, and the alternate interstices each bearing a scattered row of setigerous impressions. The only described species of the genus from Colombia is *C. gerstaeckeri* Kirsch, a testaceous, nigro-fasciate insect, 12 mm. in length.

11.—*Colparthrum laevicauda*, n. sp.

♂. Moderately elongate, widened posteriorly, very shining; fusco-castaneous, the eyes and antennae darker; the elytra with a few erect setiform hairs. Head about as long as broad, well-developed behind the eyes, smooth, the transverse inter-ocular depression foveate on each side, the eyes moderately large and separated by less than the width of one of them; [antennae broken]. Prothorax elongate-cordate, dilated at the base, considerably longer than broad, as wide as the head, smooth, the transverse basal groove rather shallow. Elytra moderately long, at one-half from the base more than twice as broad as the prothorax, compressed below the prominent humeri, widened to the middle, and somewhat acuminate at the apex; finely, shallowly striato-punctate, the punctures becoming coarser at the sides and obsolete towards the tip, the interstices broad, flat, 3, 5, 7, and 9 each with several widely separated setigerous impressions. Femora clavate; posterior tibiae curved.

Length 7, breadth  $2\frac{1}{2}$  mm.

*Hab.*: UPPER AMAZONS, Ega (*H. W. Bates*).

One male. Allied to the Colombian *C. trifoveatum*, and separable therefrom by the elongate prothorax, with shallower basal groove, the less transverse head, which wants the deep central inter-ocular fovea, and the larger eyes, the first (sutural) interstice of the elytra also wanting the setigerous impressions.

12.—*Colparthrum boliviense*, n. sp.

♂. Elongate, shining, castaneous, the head and elytra set with very long, erect, scattered setae. Head rather broad, obliquely narrowed behind the eyes, smooth, the transverse inter-ocular depression deep and foveate on each side, the eyes large, separated by a little more than half the width of one of them; [antennae imperfect]. Prothorax as wide as the head, a little longer than broad, cordate, dilated at the base, smooth, the basal groove deep. Elytra long, twice as broad as the prothorax, gradually widening to the middle and acuminate at the apex; finely striato-punctate on the disc, the punctures becoming coarser at the sides and obsolete towards the apex, the interstices broad, flat, 1, 3, 5, 7, and 9 each with a row of small scattered tubercles followed by a conspicuous setigerous impression, the tubercles becoming larger and more closely placed towards the apex. Femora moderately clavate, the posterior pair hollowed along the basal third beneath, appearing angulately dilated before the middle; posterior tibiae curved.

Length  $8\frac{1}{2}$ , breadth  $2\frac{3}{4}$  mm.

*Hab.*: BOLIVIA, La Paz (*Buckley*).

One specimen, imperfect. This insect bears some resemblance to Blanchard's figure of *Statyra unicolor*, from Santa Cruz, Bolivia, but the latter is described as having a closely punctured, cylindrical prothorax. The more elongate elytra, with tuberculate alternate interstices, the larger eyes, etc., separate it from the allied *C. trifoveatum* and *C. laevicauda*.

13.—*Colparthrum setiventris*, n. sp.

♂. Moderately elongate, rather broad, widened posteriorly, shining; brassy-black, the head (except in front) and prothorax, the apices of the femora broadly, and the tibiae in great part, piceous, the basal halves of the femora and the basal joints of the antennae testaceous, the rest of the antennae, the tarsi, and mouth-parts ferruginous; the head and elytra set with a few, and the abdomen with many, long, erect, setiform hairs. Head short, broad, smooth, the transverse inter-ocular depression deep and trifoveate, the eyes large, distant; antennae long, reaching the middle of the elytra, joint II about twice as long as IO. Prothorax as wide as the head, slightly broader than long, subcordate, smooth, the basal groove deep. Elytra long, at one-half from the base twice as broad as the prothorax, widened to the middle, and acuminate at the apex; closely, finely punctato-striate throughout, the punctures becoming smaller towards the tip, the interstices broad, flat, 3, 5, 7, and 9 each with a

few conspicuous, widely separated, setigerous impressions. Ventral segments 1-5 with a cluster of setigerous punctures on each side of the smooth median space at about one-third from the margin. Femora strongly clavate.

Length 8, breadth  $2\frac{3}{4}$  mm.

*Hab.*: ECUADOR (*Buckley*).

One male. Distinguishable from its allies by the rather short prothorax, long antennae, trifoveate head, and finely punctate-striate, brassy-black elytra. The setigerous punctures on the ventral segments 1-5 are much more numerous than usual.

#### 14.—*Colparthrum spinicauda*, n. sp.

♂. Very elongate, narrow, parallel-sided, shining; testaceous, the antennae (joints 1 and 2 excepted) and eyes, the elytra with the humeri in front and the apex narrowly, the metasternum and abdomen in part, the intermediate and posterior femora (except in their flavous basal half) and tibiae, the tarsi (except at the apex), and anterior knees, black or piceous; the head, elytra, femora, and tibiae set with very long, erect, scattered, setiform hairs. Head rather broad, smooth, the transverse inter-ocular depression very deep and connected with the frontal excavation by a short longitudinal sulcus, the eyes large and separated by less than the width of one of them; [antennal joints 5-11 wanting]. Prothorax as wide as the head, cordate, dilated at the base; smooth, deeply excavate on each side of the disc at about the middle, shallowly canaliculate down the centre anteriorly, and with a deep transverse basal groove. Elytra very long, parallel, nearly twice as wide as the prothorax, compressed at the sides below the humeri, flattened on the disc, rounded at the apex, and there armed with a sharp tooth near the sutural angle; very coarsely, closely striato-punctate, the punctures becoming quite small on the short apical declivity, the interstices narrow, very convex at the apex, flatter on the disc, 1, 3, 5, 7, and 9 with scattered, fine setigerous punctures throughout their length. Penis-sheath broad, acuminate. Legs long, the femora strongly clavate, the tibial spurs small.

Length  $8\frac{1}{2}$ , breadth  $2\frac{1}{4}$  mm.

*Hab.*: PERU, Chanchamayo (*ex coll. F. Bates*).

One male. The very long, parallel, coarsely striato-punctate, almost wholly testaceous elytra (the tip and humeri only black) distinguish *C. spinicauda* from its allies. The elytra are sharply spined at the apex, as in *C. calcaratum* Champ., from Panama. The general facies is not unlike that of *C. sulcicollis* Champ., also from Panama, a metallic-green insect, with a longer head, shorter elytra, etc. The apical joint of the labial palpi is emarginate, as in the typical species of *Colparthrum*.

15.—*Colparthrum* (?) *subsignatum*, n. sp.

(PLATE II, fig. 3, ♂.)

♂. Elongate, narrow, cylindrical, very shining; testaceous, the head, antennae, base and apex of elytra, metasternum, abdomen in part, and legs (the bases of the femora, and in one specimen the knees also) black or piceous, the prothorax rufo-testaceous; the elytral interstices set with long, fine, erect hairs throughout, the head also with projecting hairs. Head short, transverse, polished, foveate in the middle between the eyes, the piligerous punctures deep, the eyes rather small, distant, not reaching the base; antennae long, feebly serrate, joint II curved, rather longer than 8-10 united. Prothorax convex, about as wide as the head, as long as broad, subcordate, deeply constricted before the base, canaliculate anteriorly and with a deep, oblique excavation on each side of the disc behind the middle, the basal margin moderately raised, the surface sparsely, obsoletely punctate. Elytra long, cylindrical, about one-half wider than the prothorax, rounded at the apex; closely, rather coarsely crenato-striate, the interstices narrow, more or less convex, strongly so at the tip, the piligerous punctures minute; and with a small, oblique, opaque patch towards the sides, not interrupting the striae. Legs slender, simple, the femora feebly clavate.

Length  $6\frac{1}{10}$ , breadth 1 mm.

*Hab.*: BRAZIL (*Mus. Brit.*), Parama (*ex coll. F. Bates*).

Two specimens, varying slightly in the colour of the legs. Smaller and more slender than the Peruvian *C. spinicauda*; the head less excavate between the eyes, the latter not so large; the elytra black at the base and apex, with a faint opaque spot near the outer margin, and the tip unarmed. The structure of the mandibles cannot be ascertained without dissection.

## DISEMA Mäklin.

*Disema* Mäklin, Act. Soc. Fenn. x, p. 646 (1875) (♂).

*Barsenis* Pascoe, Ann. & Mag. Nat. Hist. (5) xx, p. 17 (1887) (♂).

The diagnosis of *Disema* was apparently, and that of *Barsenis* certainly, drawn up from males only, though the authors seem to have been unaware of the fact. The females of all of them are rare, and, as they want most of the essential characters used to define these genera, one or two of them have been described as separate species, or placed under *Statira*, etc. The numerous S. American forms represented in the collections before me divide up into several groups, mainly on ♂-structures. The chief characters of the genus are—the strongly serrate (*Disema* s. str.) or flabellate (*Barsenis*) ♂-antennae, these organs being feebly serrate in the ♀; and the presence of a depressed opaque area on the

outer portion of the elytra in one or both sexes, which, however, is occasionally wanting. The eyes in the typical forms are extremely large and contiguous in the male, and the posterior femora are sometimes toothed, and the intermediate femora lobed, in the same sex, remarkable modifications in the structure of one or more of the ♂-tibiae also occurring occasionally, as in *Statira*. Several species vary in the colour of the prothorax (testaceous to black), elytra, and legs, others seem fairly constant. *Sphragidophorus singularis* Champ., from Panama, the ♂ of which is unknown, would, perhaps, be better included under *Disema*, the opaque area on the elytra being placed in much the same position as in the corresponding sex of *D. thoracica* Mäkl.

Elytra elongate, subparallel in their basal half, with an opaque lateral patch in both sexes; prothorax almost smooth; antennae serrate.

Posterior femora unarmed in ♂ . . . . . Species 1-4.

Posterior femora toothed in ♂ . . . . . Species 5.

Elytra long or moderately long, in most of the species widening to the middle and with the sides rounded thence to the apex.

Elytra with a large opaque lateral patch in ♂\*; antennae serrate.

Prothorax alutaceous, without large punctures. . . . . Species 6.

Prothorax coarsely or conspicuously punctured.

Posterior femora toothed or angularly dilated, and the intermediate femora sometimes lobed (Nos. 13, 14), in ♂† . . . . .  
Species 7-16.

Posterior and intermediate femora unarmed in both sexes.

Antennae serrate in ♂ . . . . . Species 17-20.

Antennae flabellate in ♂ [BARSÉNIS Pasc.]. Species 21.

Elytra without opaque lateral patch in both sexes . . . . . Species 22-24.

#### 1.—*Disema thoracica*.

*Statira thoracica* Mäkl., Act. Soc. Fenn. vii, p. 155 (1862) (♂?).

*Disema thoracica* Mäkl., op. cit. x, p. 647 (1875).

*Hab.* : BRAZIL, Rio de Janeiro (*Fry*), Discoberto del Antonio Velho, in Prov. Minas Geraes (*Burchell*: 16.x.'25, in *Mus. Oxon.*).

Two females of this species are before me, the one captured by Burchell in 1825 still in a fairly good state of preservation. *D. thoracica* is a larger and broader insect than *D. inlateralis* Pic; the elytra are nigro-piceous, with the outer margins testaceous, the interstices 1, 3,

\* The two sexes known of *D. appendiculata*, *obscura*, *subarmata*, *serraticornis*, and *fulvipes*; females of the other species wanting.

† Not definitely ascertained in *D. olivacea*, *brasiliensis*, and *tortimanus*, the hind legs wanting in the specimens examined.



and 5 bearing setigerous impressions throughout their length, the opaque lateral, velvety patch large in ♂ (see. Mäklin), small in ♀; the antennae (♀) are feebly serrate, joint 11 equalling 8-10 united; the prothorax is about as long as broad, smooth, obliquely grooved on each side of the disc towards the base, and canaliculate in front; the legs are infusate, the bases of the femora excepted.

### 2.—*Disema bimaculata*.

♂. *Disema bimaculata* Mäkl., Act. Soc. Fenn. x, p. 647 (1875).

♂. Antennae long, the joints becoming acutely serrate outwards, 11 equalling 7-10 united; eyes extremely large, almost contiguous; elytra with a large, oblong-oval, opaque, velvety-brown patch on the outer part of the disc beyond the middle; posterior femora slightly thickened towards the apex, and hollowed thence to the base beneath; ventral segment 5 broadly, deeply, arcuato-emarginate at the apex, leaving the genital armature partly exposed.

Length  $10\frac{1}{2}$ -12, breadth  $2\frac{7}{8}$ -3 mm.

*Hab.*: BRAZIL, Rio de Janeiro (*Dr. Sahlberg*, Jan. 1851, type; *Miers*, in *Mus. Oxon.*).

A specimen, ♂, in the Oxford Museum agrees with Mäklin's description of *D. bimaculata*. It is very like *D. thoracica*, except that prothorax is more elongate, and the elytra are testaceous, with the suture (rather broadly), base, and apex infusate. The males of these two insects, that of *D. thoracica* being undescribed, may exhibit more pronounced differences.

### 3.—*Disema macroptera*, n. sp.

♂. Very elongate, narrow, acuminate posteriorly, moderately shining; testaceous, the prothorax rufescent, the head and antennae, the elytra with the apex rather broadly (in one specimen the suture also thence to near the base) and the opaque sublateral patch, and the abdomen in part or entirely, black; the head and elytra with a few, erect, bristly hairs. Head almost smooth between the setigerous punctures, the eyes extremely large and almost contiguous; antennae long, the joints becoming sharply serrate outwards, 11 sinuous, asperate within, equalling 7-10 united. Prothorax long, not wider than the head, moderately rounded at the sides; rather dull, obsolete punctate, obliquely compressed on each side of the disc behind the middle, the basal margin thickened and much raised. Elytra extremely elongate, about one-half wider than the thorax, subparallel to beyond the middle, produced at the tip; closely, rather finely crenato-striate, the interstices more or less convex, 1 and 3 with setigerous impressions scattered throughout their length, the opaque lateral scar elongate, placed at a little before the dark apical patch. Ventral segment 5 simple, truncate at the tip. Legs very long, simple.

Length 13, breadth 3 mm.

*Hab.*: BRAZIL (*Mus. Brit.*), Rio de Janeiro (*Fry*).

Two males, one acquired in 1871. Separable from *D. bimaculata* Mäkl. by the much more elongate, posteriorly acuminate elytra, apart from differences in colour, etc.

4.—*Disema xanthostigma*, n. sp.

♂. Elongate, subcylindrical, moderately shining: rufo-, the elytra flavo-testaceous, the head and antennae, the suture (narrowly), base (indeterminately), and apex of the elytra, the apical half of the abdomen, and the apices of the tarsi, black; the head and elytra with a few scattered, erect, bristly hairs, the tibiae pilose along their outer half within, the tarsi hairy. Head almost smooth between the setigerous punctures, the eyes extremely large, subcontiguous; antennae stout, moderately elongate, strongly serrate from joint 3 onward, 11 curved, asperate on its inner face, rather longer than 8-10 united. Prothorax a little wider than the head, about as broad as long, subcordate, obsolete punctulate, sulcate down the middle anteriorly, transversely depressed in the centre at the base, and with a large, deep, triangular, foveolate excavation on each side of the disc, the basal margin thickened, raised, laterally projecting. Elytra elongate, subparallel, flattened on the disc, about one-half wider than the prothorax, rounded at the tip; rather coarsely punctato-striate, the interstices more or less convex, 1 and 3 with setigerous impressions scattered throughout their length, the disc with a large, oblong, ochraceous, opaque patch (extending between the striae 4-9) beyond the middle. Ventral segment 5 broadly deeply, arcuato-emarginate at the apex, leaving the genital armature partly exposed. Legs rather stout, moderately long, simple, the intermediate tibiae slightly curved.

Length  $10\frac{1}{2}$ , breadth 3 mm.

*Hab.*: BRAZIL, Rio de Janeiro (*Fry*).

One male. Less elongate than *D. inlateralis* Pic (var. *nigroapicalis*) ♂, the antennae much stouter and shorter, the elytral scar oblong, the legs simple. *D. soubironi* Pic, from Cayenne, type ♂, has differently formed intermediate and posterior tibiae in this sex.

5.—*Disema inlateralis*.

♀. *Disema inlateralis* Pic, *Mélanges exot.-entom.* i. p. 10 (Nov. 1911).

♀. Var. *Disema nigroapicalis* Pic, loc. cit.

♂. Var. *Disema arcuatipes* Pic, op. cit. iv, p. 8 (Sept. 1912).

♀. Var. *Disema inlateralis* Pic, var. *testaceipes* Pic, loc. cit. p. 9.

♀. Var. *Disema atricollis* Pic, *L'Echange*, xxviii, p. 77 (1912).

♂. Antennae long, serrate, joint 11 curved, asperate on its inner face, equalling 7-10 united; eyes extremely large, almost contiguous; elytra with a

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large, oblique, depressed, velvety patch (extending between the striae 3-9) on the outer part of the disc beyond the middle, and a broad space before and beyond it opaque and transversely wrinkled; anterior trochanters (fig. 4 a) produced into a blunt lobe beneath; intermediate tibiae sinuously curved, broadly widened outwards, and excavate and sericeous within: posterior femora armed with a small tooth beyond the middle, and deeply arcuato-excavate between this and the base beneath; ventral segment 5 broadly depressed in the middle, subtriangularly produced at the apex, leaving the forcipiform lateral portions of the sixth segment exposed; median lobe curved upwards at the tip.

♀. Antennae a little shorter, less serrate, joint 11 equalling 8-10 united; eyes not so large, narrowly separated; elytra with a small, oval, velvety patch on the outer part of the disc unaccompanied by opaque rugose spaces; legs simple.

*Hab.*: BRAZIL, Jatahy, Province of Goyas (types of Pic; Pujol, *ex coll. Fry*).

Specimens of three of the forms named by Pic, from Jatahy, are before me, and they are certainly referable to one species, which is variable in colour, *D. arcuatipes* being the male (fig 4), with somewhat similar characters to those of *D. monstrosipes* Pic, ♂, from French Guiana. An elongate, shining, narrow, subcylindrical insect (length 10-11 mm.); the prothorax long, almost smooth, and obliquely grooved on each side of the disc towards the base; the elytra coarsely punctato-striate, with conspicuous setigerous impressions along the first (sutural) interstice, and one or two others at the apices of 3 and 5; and the legs very elongate. The elytra are black in *D. inlateralis*, testaceous in their basal half in *nigroapicalis* and *arcuatipes*, the femora and tibiae being wholly testaceous in *D. testaceipes*. The var. *D. atricollis* has the legs coloured like the last named, and the prothorax black.\*

#### 6.—*Disema olivacea*, n. sp.

♂. Very elongate, rather narrow, feebly shining above, shining beneath; piceous, the elytra with a green lustre, the elongate, opaque patch black, the apices of the antennae ferruginous; clothed with a few bristly hairs. Eyes extremely large, almost contiguous. Antennae long, not very stout, moderately serrate, joint 11 a little longer than 9 and 10 united. Prothorax slightly wider than the head, perceptibly longer than broad, rounded at the sides, constricted before the prominent basal margin, the transverse basal groove deep; alutaceous, excessively minutely punctate (the usual coarse punctures obsolete), obliquely compressed on each side of the disc posteriorly, and obsoletely canaliculate. Elytra very long, gradually widening to the middle, and there more than twice the width of the prothorax, acuminate posteriorly, the humeri somewhat tumid; finely punctato-striate to near the apex, the interstices feebly convex, 1 and 3 with four or five small setigerous impressions scattered between the base and apex; the opaque lateral patch

\* The references to the figures of *D. macroptera*, *D. xanthostigma* and *D. inlateralis* were omitted on pp. 143, 144.

very elongate, occupying a space between the striae 5-9. Ventral segment 5 unimpressed, 6 narrow and partly exposed; median lobe of aedeagus long, twisted, divided towards the apex into two pieces—one, sinuous, bifid at the tip, the other obliquely, angularly dilated, hooked at the tip, and armed with two backwardly-directed teeth beneath. Anterior and intermediate legs simple [posterior pair wanting].

Length 12, breadth  $3\frac{1}{10}$  mm.

*Hab.*: AMAZONS, Ega (*H. W. Bates*).

One male. The almost impunctate, dull, alutaceous prothorax, the limited number of setigerous impressions and the very elongate opaque patch on the elytra, and the remarkable genital armature, readily separate *D. olivacea* from the other Amazonian species here described.

7.—*Disema plicatilis*, n. sp.

(PLATE II, fig. 6, antenna ♂.)

♂. Elongate, somewhat robust, moderately shining; piceous, the prothorax and elytra with a greenish lustre, the opaque lateral patch black; clothed, the legs included, with long, scattered, fine, bristly hairs. Eyes extremely large, almost touching above and beneath. Antennae rather short, stout, serrate, joint 11 nearly as long as 8-10 united, twisted, broad, sub-cylindrical, concave along the inner face, the upper and lower edges of the cavity folded inwards. Prothorax about as long as broad, a little wider than the head, rounded at the sides anteriorly, slightly constricted before the prominent raised basal margin; impressed with scattered intermixed coarse and fine punctures, canaliculate down the middle, and triangularly excavate at the base. Elytra elongate, at the base barely twice the width of the prothorax, subparallel to beyond the middle, rounded at the apex; finely crenato-striate, the interstices feebly convex, each with a series of small, somewhat closely placed tubercles, followed by a setigerous impression; the depressed opaque lateral patch very large, oblique, elongate. Beneath shining; ventral segment 5 excavate down the middle, and emarginate at the apex. Legs very long, rather stout; anterior tibiae excavate above and twisted to about their basal third, abruptly bowed and gradually widening outward thence to the tip; intermediate femora deeply sulcate beneath, and with the lower edge expanded and membranous before the apex; intermediate tibiae widened and twisted, deeply excavate at the apex externally, with a membranous fulvous border along their inner edge, and two long, curved, pencils of fulvous hair at the tip; posterior femora armed with a small tooth beyond the middle and excavate thence to the base; posterior tibiae strongly sinuate, pilose within; basal joint of posterior tarsi very elongate.

Length  $10\frac{1}{2}$ , breadth  $3\frac{1}{10}$  mm.

*Hab.*: UPPER AMAZONS, Ega (*H. W. Bates*).

One male, with extraordinary characters, the form of the eleventh antennal joint in this sex suggesting that of the Indian *Lagriocera*



*cavicornis* Fairm. The genitalia are exposed in the specimen described, the armature exhibiting four pairs of curved hooks or processes and a central, rather stout median lobe.

8.—*Disema fraternus*, n. sp.

♂. Extremely like *D. plicatilis*, but differing as follows:—Narrower; the elytra green, with the alternate interstices only tuberculate, the opaque lateral patch with numerous transverse impressed lines; the extremely large eyes touching above; the prothorax less rounded at the sides, relatively narrower, and distinctly longer than broad; the projecting paired processes of the genital armature dissimilarly shaped.

Length 10, breadth 3 mm.

*Hab.*: AMAZONS, Santarem (*H. W. Bates*).

One male, in fragmentary condition, but obviously different from *D. plicatilis* and requiring a separate name. It has the anterior and posterior legs similarly formed; the intermediate legs, and the tip of the antennae, are, unfortunately, broken off. *D. fraternus* doubtless represents *D. plicatilis* lower down the Amazon.

9.—*Disema macrostigma*, n. sp.

♂. Elongate, widened posteriorly, rather dull; piceous, the antennae and tarsi ferruginous, the opaque elytral patch brown; clothed, the legs included, with long, fine, scattered, bristly hairs. Eyes extremely large, contiguous above and beneath. Antennae long, stout, serrate, joint II thickened, rather longer than 9 and 10 united, rough and flattened on its inner face. Prothorax transverse, slightly wider than the head, rounded at the sides, constricted before the raised basal margin; impressed with scattered intermixed coarse and fine punctures, canaliculate down the middle, and triangularly excavate at the base. Elytra at the base nearly twice as broad as the prothorax, rapidly widening to the middle, and arcuately narrowed thence to the apex; finely crenato-striate, the interstices convex, each with a series of somewhat closely placed minute tubercles followed by a small setigerous puncture; the opaque lateral patch large, about half the length of the elytron, extending from the seventh stria to the margin. Ventral segment 5 hollowed down the middle posteriorly and emarginate at the apex. Anterior tibiae curved externally, bisinuate within; posterior femora with a minute dentiform projection beyond the middle, and sulcate thence to the base, the outer half of the groove sericeous within; posterior tibiae feebly sinuate.

Length 10, breadth 4 mm.

*Hab.*: AMAZONS, Santarem (*H. W. Bates*).

One male, now wanting the intermediate legs. Larger and darker than the insect here identified as *D. crassicornis* Müll., ♂, the prothorax shorter, the elytra with deeper crenate striae, convex interstices, and a

very elongate (not oblique) lateral patch, the apical joint of the antennae relatively shorter, the anterior tibiae bisinuate within.

10.—*Disema crassicornis*.

♂. *Disema crassicornis* Mäkl., Act. Soc. Fenn. x, p. 649 (1875)?

♂. Antennae long, stout, strongly serrate, joint 11 equalling 8-10 united, sulcate along its inner face; eyes extremely large, almost contiguous above and beneath; elytra with a large, oblique, dark brown velvety patch extending between the striae 4-8; anterior tibiae feebly sinuate within; intermediate tibiae dilated, twisted, and with a narrow, pallid, opaque groove along their outer face; posterior femora with a small sharp tooth beyond the middle and hollowed thence to the base; ventral segment 5 unimpressed, truncate at the tip, leaving the apical portion of the genital armature exposed.

*Hab.*: BRAZIL, Boa Sorta (*Dr. Sahlberg*, type), Rio de Janeiro (*Fry*), Espirito Santo (*Descourtils*).

Three males in the Fry collection agree fairly well with Mäklin's description. A nigro-piceous or reddish-brown, posteriorly-widened, pilose insect, length  $7\frac{1}{5}$ - $8\frac{1}{2}$  mm.; the prothorax coarsely punctate and canaliculate, feebly rounded at the sides; the elytra finely punctato-striate, the interstices each with a row of somewhat closely placed minute tubercles, followed by a small piligerous impression; the hairs long, fine, numerous, and extending to the legs, which are coarsely punctate. Mäklin does not mention the small tooth on the posterior femora, or the minute tubercles preceding each of the small setigerous impressions on the elytral interstices; the identification, therefore, of his species is not absolutely certain.

11.—*Disema sinuatipes*, n. sp.

(PLATE II, figs. 5, 5a, ♂.)

♂. Elongate, rather narrow, feebly convex, widened posteriorly, shining; piceous, the femora testaceous at the base, the opaque elytral patch black; somewhat thickly clothed, the legs included, with long, fine, bristly hairs. Eyes extremely large, contiguous. Antennae long, stout, strongly serrate from joint 3 onward, 11 nearly equalling 8-10, narrowly grooved within. Prothorax considerably longer than broad, slightly wider than the head, moderately rounded at the sides, constricted before the raised basal margin; closely impressed with intermixed coarse and fine punctures, canaliculate on the disc, and triangularly depressed at the base. Elytra moderately long, gradually widening to the middle, and there more than twice the breadth of the prothorax; crenato-striate, the punctures transverse, the interstices rather narrow, convex, each with a series of somewhat closely placed setigerous impressions; the opaque lateral patch large, elongate, oblique, extending from the fourth stria to near the margin. Ventral segment 5 unimpressed, subtruncate. Anterior tibiae angularly dilated towards the middle within, concave in their basal half above, and then bowed inward and widened towards the apex, thus appearing strongly bisinuate; intermediate and posterior tibiae simple. Femora

clavate, the intermediate and posterior pairs sulcate beneath, the edges of the groove on the latter cariniform, and forming an outwardly projecting tooth where they meet towards the apex.

Length  $7-7\frac{1}{4}$ , breadth  $2\frac{1}{2}-2\frac{1}{2}$  mm.

*Hab.*: AMAZONS, Ega and Para (*H. W. Bates*).

Three males. Narrower than most of its allies, with a relatively long prothorax, strongly serrate antennae, bisinuate anterior tibiae, and peculiarly armed posterior femora, which appear to be formed much as in *D. gounellei* Pic, from Cerqueira Cesar, Brazil.

### 12.—*Disema brasiliensis*.

♂. *Disema brasiliensis* Pic, Mélanges exot.-entom. iv, p. 10 (Sept. 1912).

*Hab.*: BRAZIL, Serra de Communaty (*Gounelle*, type).

An immature imperfect *Disema*, ♂, length about 10 mm., presumably from Brazil, in the Oxford Museum, seems to belong to this species. It is a little smaller than *D. cistelooides*, ♂, infra; the elytra have a long, oblique, opaque lateral patch, and the rough setigerous impressions extend to each interstice; the intermediate femora are furnished with a curved membranous lobe near the apex; the anterior tibiae are sinuate within; and the antennae are not so elongate. *D. longicornis* Mäkl., from Petropolis, type ♂, to judge from the description, must have longer antennae, a smaller opaque patch on the elytra and, presumably, unarmed intermediate femora.

### 13.—*Disema appendiculata*.

(PLATE II, figs. 8, 8a, ♂.)

♂. *Disema appendiculata* Pic, Mélanges exot.-entom. iv, p. 9 (Sept. 1912).

♂. Antennae long, stout, strongly serrate, joint 11 nearly equalling 8-10 united; eyes rather small, somewhat distant; anterior femora subangulate near the base beneath; intermediate femora (fig. 8a) with a curved submembranous lobe arising from the outwardly angulate carina on the lower margin at the apex; intermediate tibiae widened, twisted, deeply excavate towards the apex externally; posterior femora strongly toothed and clavate towards the apex and hollowed thence towards the base; posterior tibiae excavate on their inner aspect before the middle, sinuous as seen from above; elytra with an oblique, depressed, velvety, black patch at the sides just beyond the middle.

♀. Antennae shorter and more slender, subserrate, joint 11 slightly longer than 9 and 10 united; eyes smaller, less convex, and separated by the width of one of them as seen from above, the head appearing more developed behind them; prothorax more transverse, very coarsely punctate; elytra without opaque lateral patch, the interstices less rugose; legs simple.

*Hab.*: BRAZIL (*Miers*, in *Mus. Oxon.*: ♀), San Paulo (type of Pic: ♂), Rio de Janeiro (*Fry*: ♂ ♀).

Five males and two females before me are doubtless referable to *D. appendiculata* Pic. These specimens, ♂ ♀, vary in the colour of the head and prothorax (red to black), elytra (black or nigro-violaceous), and femora and tibiae (black, with the basal halves or more of the femora, except in one specimen, testaceous, or wholly testaceous), showing that no reliance can be placed upon colour as a specific character. Mäklin's description of *D. collaris* (1875), ♂, from Santa Rita, applies to one of the forms of the present species, except that the eyes in his insect are stated to be separated by a narrow line above and beneath, and therefore much more approximate than they are in *D. appendiculata*. The type of the latter, like that of *D. collaris*, has a testaceous prothorax. The elytral interstices are closely roughly punctate and transversely rugose in the males, smoother in the two females.

#### 14.—*Disema obscura*.

(PLATE II, figs. 9, intermediate leg, 9*a*, posterior leg, ♂.)

♀. *Statira obscura* Mäkl., Act. Soc. Fem. x, p. 645 (1875)?

♂. Moderately elongate, rather narrow, widened posteriorly, shining; piceous or nigro-piceous, the prothorax usually with a greenish or aeneous lustre, which sometimes extends to the elytra also, the latter often reddish brown, the femora at the base or entirely testaceous: thickly clothed, the legs included, with long, soft hairs. Head small, coarsely, rugosely punctate, the eyes convex, moderately large, well separated, not reaching the base; antennae stout, very long, reaching to beyond the middle of the elytra, strongly serrate from joint 3 onward, 11 equalling 8-10 united, asperate on its inner face. Prothorax wider than the head, about as long as broad, feebly rounded at the sides, slightly constricted before the rather prominent basal margin; closely, coarsely, irregularly punctate, depressed in the centre at the base, and sulcate anteriorly. Elytra moderately long, widening to the middle, and there more than twice the breadth of the prothorax, rounded at the apex, the marginal carina prominent; closely crenato-striate, the punctures transverse, the interstices flat on the disc and convex at the apex, transversely rugose, and irregularly uniseriate punctate. Femora more or less sulcate beneath, the intermediate pair with a compressed, membranous, subtriangular lobe towards the middle. Intermediate tibiae sinuate, undilated, hollowed towards the tip externally, the anterior and posterior pairs (when seen extended) with a small, narrow, curved, membranous process at the extreme base, which is received into the femoral groove when the legs are drawn inward.

*Var.* The prothorax rufo-testaceous, the legs in one specimen entirely testaceous and the antennae ferruginous.

♀. Antennae shorter and more slender, very feebly serrate, joint 11 equalling 9 and 10 united; eyes smaller and more distant; prothorax and

elytra broader, the latter with the interstices broader and less rugose; legs simple.

Length  $6\frac{1}{2}$ -8, breadth  $2\frac{1}{2}$ - $3\frac{1}{4}$  mm. ( $\sigma$   $\text{♀}$ .)

*Hab.*: BRAZIL, Rio de Janeiro (*Fry*:  $\sigma$   $\text{♀}$ ; *Miers*, in *Mus. Oxon.*:  $\text{♀}$ ), Santa Catharina (*Fry*:  $\text{♀}$ ), Santa Rita [type,  $\text{♀}$ ].

Nine males (including three of the variety with a red prothorax) and five females. A form of the equally variable *D. appendiculata* Pic, with more shining elytra, the interstices of which are less densely rugose; the  $\sigma$  with undilated, simply sinuate intermediate tibiae, a shorter tooth on the posterior femora, and the opaque patch on the elytra wanting.\* The females vary *inter se*, the two from Santa Catharina being larger and broader than the others, and they may not really belong here. Mäklin's description of *Statira obscura* applies fairly well to specimens of this sex. *D. dentatipes* (1911) and *D. tijuacana* Pic (1912), types,  $\sigma$   $\sigma$ , have somewhat similarly toothed or lobed intermediate femora in male.

15.—*Disema tortimanus*, n. sp.

$\sigma$ . Moderately elongate, narrow, shining; head, antennae, and opaque lateral depression of elytra black, the prothorax and basal halves of femora testaceous, the rest of the insect piceous, the elytra brownish at the base; somewhat thickly clothed, the legs included, with long, fine, bristly hairs. Head small, the eyes moderately large, narrowly separated, not reaching the base; antennae long, stout, strongly serrate from joint 3, II curved, nearly equalling 8-10 united, flattened and asperate on its inner face. Prothorax convex, longer than broad, moderately rounded at the sides, constricted before the prominent basal margin; closely impressed with intermixed coarse and fine punctures, triangularly depressed at the base, and canaliculate anteriorly. Elytra moderately long, widening to the middle, and there twice the width of the prothorax; finely, deeply crenato-striate, the interstices convex, each with a row of somewhat closely placed, small, setigerous impressions; the depressed opaque lateral patch long, oblique, extending between the striae 4 and 8. Ventral segment 5 excavate in the centre and emarginate at the apex. Anterior tibiae abruptly bowed inwards at about the middle, deeply bisinuate within; intermediate tibiae dilated and compressed, twisted towards apex; [posterior legs wanting].

Length 7, breadth  $2\frac{1}{16}$  mm.

*Hab.*: LOWER AMAZONS, Para (*H. W. Bates*).

One male. Narrower than *D. appendiculata* Pic, the eyes larger and more approximate, the antennae shorter, the prothorax oblongo-cordate, the elytral interstices uniseriate-punctate, etc. The much smaller head and eyes, the stouter antennae, the twisted and dilated

\* Corrigendum.—In the Table (*ante*, p. 142), line 7, after "♂" insert "except in *D. obscura*."

intermediate tibiae, etc., will serve to distinguish *D. tortimanus* from the more nearly allied *D. sinuatifpes* from the same region. The posterior femora are no doubt toothed in the ♂ of the present insect.

16.—*Disema subarmata*, n. sp.

♂. Moderately elongate, narrow, widened posteriorly, shining; fusco-testaceous or castaneous, the prothorax in some examples aeneo-piceous, the metallic lustre rarely extending to the elytra, the opaque patch on the latter brown, the antennae ferruginous, the eyes black, the legs testaceous, the apices of the femora and tibiae sometimes infusate; thickly clothed, the legs included, with long, soft, erect or projecting hairs. Head coarsely, closely punctate, the eyes large, somewhat narrowly separated; antennae very long, moderately serrate, more slender than in most of the allied forms, joint 11 longer than 9 and 10 united, asperate within. Prothorax not or very little wider than the head, feebly rounded at the sides, slightly constricted before the moderately prominent basal margin; coarsely, closely punctate, depressed in the middle at the base, and shallowly sulcate anteriorly. Elytra moderately long, widening to the middle, about twice as broad as the prothorax; finely crenato-striate, the punctures transverse, the interstices almost flat, transversely rugulose, each with an irregular series of fine piligerous punctures: the opaque lateral patch elongate, oblique, extending from the fifth stria to near the margin, and with several transverse impressed lines. Intermediate tibiae widened and sinuate, obliquely excavate beyond the middle externally, thus appearing twisted. Posterior femora feebly, angularly dilated towards the apex.

♀. Antennae shorter and more slender, very feebly serrate, joint 11 equalling 9 and 10 united; elytra without lateral patch and legs simple.

Length 6-6½, breadth 2½-2⅔ mm. (♂ ♀.)

*Hab.*: BRAZIL, Rio de Janeiro (*Ery*).

Six males and three females. Extremely like *D. serraticornis*, the male with smaller, less approximate eyes, more slender, less strongly serrate antennae, a longer opaque patch on the elytra, twisted intermediate tibiae, and subdentate posterior femora, the female apparently with a more coarsely punctate prothorax. *D. rufescens* Pic (type, ♀) (1912), from Cayenne, may be synonymous with this species, but it is impossible to identify it from the incomplete description.

17.—*Disema serraticornis*.

♂. *Disema serraticornis* Mäkl., Act. Soc. Fenn. x, p. 651 (1875).

♂. Antennae very long, stout, strongly, obliquely serrate from joint 3 onward, 11 a little longer than 9 and 10 united, asperate within; eyes extremely large, almost contiguous; the opaque, oblique patch on elytra large, covering a space between the striae 5 and 9; legs simple; ventral segment 5 unimpressed, the partly exposed genital armature including two pairs of long, slender hooks, and a long, compressed median lobe.

♀. Antennae shorter and more slender, very feebly serrate, joint 11 equalling 9 and 10 united; eyes much smaller, well separated; elytra without opaque lateral patch.

*Hab.*: BRAZIL (*Miers*, in *Mus. Oxon.*: ♂ ♀), Petropolis (*Dr. Sahlberg*, Dec. 1849: type, ♂).

Two males in the Oxford Museum are referred to *D. serraticornis* Mäkl., described from a single example with mutilated antennae, and obviously ♂; and four females in the same collection doubtless belong here. They have the head and prothorax piceous or nigro-piceous, the elytra fusco-castaneous, and the antennae, palpi, and legs rufo-testaceous; the prothorax closely impressed with intermixed coarse and fine punctures; the elytral interstices almost flat, each with a series of somewhat closely placed small setigerous punctures preceded by a very minute tubercle; the body and legs thickly clothed with long, fine, bristly hairs. The ♂, except as regards the form of the antennae and anterior legs, is very like *D. (Barsenis) fulvipes* Pasc.

18.—*Disema melanostigma*, n. sp.

♂. Moderately elongate, broad, widened posteriorly, somewhat depressed, rather dull; piceous, the head (the eyes excepted), prothorax, and scutellum rufo-testaceous, the opaque elytral patch black, the antennae and under surface ferruginous or obscure ferruginous; clothed, the legs included, with scattered bristly hairs. Eyes extremely large, contiguous. Antennae long, moderately stout, somewhat feebly serrate, joint 11 rather longer than 9 and 10 united, asperate on its inner face. Prothorax transverse, slightly wider than the head, moderately rounded at the sides, constricted before the thickened basal margin; sparsely impressed with intermixed coarse and fine punctures, canalliculate down the middle anteriorly, and triangularly depressed at the base. Elytra broad, rapidly widened to the middle, and arcuately narrowed thence to the apex; finely crenato-striate, the dorsal interstices broad, convex, and (2 excepted) bearing scattered setigerous impressions; the opaque lateral patch large, oblique, elongate, extending between the striae 4-10. Ventral segment 5 unimpressed, truncate at the tip, incompletely covering the genitalia. Anterior tibiae feebly sinuate; intermediate femora thickened towards the tip, sulcate beneath; posterior femora simple.

Length  $8\frac{1}{2}$ , breadth  $3\frac{1}{2}$  mm.

*Hab.*: AMAZONS, Ega (*H. W. Bates*).

One male. Recognizable by its moderately elongate, broad, depressed form, red head and prothorax, simple legs, and feebly serrate antennae, the elytra with comparatively few setigerous impressions (those on the second interstice obsolete) and a very large oblique opaque patch. The similarly coloured *D. collaris* Mäkl., is described as having angularly dilated posterior femora, twisted intermediate tibiae, etc., in ♂.

19.—*Disema inermipes*, n. sp.

♂. Moderately elongate, widened posteriorly, rather convex, feebly shining; piceous, the antennae and elytra reddish brown, the opaque elytral patch black, the femora flavous; clothed with long, scattered bristly hairs. Eyes extremely large, contiguous. Antennae long, moderately stout, feebly serrate, joint II nearly equalling 8-10 united, asperate on its inner face. Prothorax about as long as broad, a little wider than the head, strongly rounded at the sides, constricted before the prominent basal margin; impressed with intermixed coarse and fine punctures, feebly canaliculate down the middle anteriorly, and triangularly depressed at the base. Elytra moderately long, rather broad, rapidly widening to the middle; finely crenato-striate, the interstices feebly convex, each with a series of scattered small piligerous impressions; the opaque lateral patch large, elongate, oblique, extending from the fourth stria to the outer margin. Ventral segment 5 unimpressed, truncate at the apex, leaving a portion of the genitalia exposed. Femora comparatively smooth, the scattered punctures small, the intermediate pair curved, the posterior pair straight, unarmed; anterior tibiae slightly sinuate within; intermediate tibiae simple.

Length 8, breadth 3 mm.

*Hab.*: BRAZIL, Rio de Janeiro (*Fry*).

One male. Closely related to *D. crassicornis* Mäkl., ♂, but differing from it in having much less strongly serrate antennae, with the apical joint not sulcate within, the more elongate, laterally extended opaque patch on the elytra, the smoother, flavous femora, and the simple legs. The colour is doubtless variable.

(*To be continued.*)

## DESCRIPTION OF A NEW GENUS OF STAPHYLINIDAE.

BY MALCOLM CAMERON, M.B., R.N., F.E.S.

## PARACTOCHARIS, n. gen.

Labrum transverse, entire, anterior angles rounded. Mandibles small, not prominent, the right with a comparatively large tooth at the middle of the inner margin, the left with a small one in the corresponding position. Inner lobe of the maxilla narrow, elongate, pectinate internally; the outer lobe narrow and elongate, ciliate at the apex. Maxillary palpi 4-jointed, the first joint rather short, the second club-shaped, the third much larger than the second, ovate, the fourth small, subulate. Mentum transverse; labium transverse; tongue membranous, obovate, emarginate in the middle of the anterior margin; paraglossae scarcely visible; labial palpi 2-jointed, moderately long, the first joint longer than the second. All the coxae approximate; the femora (especially the anterior) dilated. Tarsal formula 4, 4, 5; last joint of the tarsus much larger than the preceding, with an emargination at the end in which the simple claws are somewhat concealed. Separable from *Actocharis* by the dentate mandibles, the differently shaped tongue, and the enlarged terminal joint of the tarsus.



*Paractocharis fucicola*, n. sp.

Very narrow, elongate, fragile, and depressed; obscure brown, head and abdomen black. Antennae and legs testaceous. Length 1.4 mm. Head large, a little longer than broad, almost as wide as the thorax, slightly narrowed in front, sides nearly parallel, posterior angles rounded; the vertex broadly impressed. Eyes very small. Surface not perceptibly punctured, very finely alutaceous and pubescent, scarcely shining; mouth-parts testaceous, the third joint of the maxillary palpi slightly infuscate. Antennae longer than the head and thorax, the first and second joints elongate, stouter than the succeeding, the first a little longer than the second, the third transverse, the fourth to tenth as long as broad, eleventh elongate, oval. Thorax shaped as in *Achenium*, trapeziform, as long as broad, widest at the anterior angles, narrower at the base, posterior angles rounded; broadly impressed on the disc for the whole length, sculpture as on the head and finely pubescent. Elytra narrower than, and as long as the thorax, longer than broad, sutural angles rounded, the sculpture and pubescence similar to that of the fore-parts. Legs rather stout, dirty testaceous. Abdomen elongate, as long as the fore-parts, slightly enlarged posteriorly, densely and finely punctured and pubescent throughout. Last ventral segment of ♂ produced, feebly emarginate, not narrowed.

*Hab.*: Changi, Singapore, on sandy beaches under sea-weed.

A very active species. Type in my collection.

June 17th, 1917.

DESCRIPTION OF A NEW SPECIES OF *THINOBIVS*.

BY MALCOLM CAMERON, M.B., R.N., F.E.S.

*Thinobius* (s. str.) *marinus*, n. sp.

Black, elytra, legs, and antennae dirty testaceous, the last infuscate towards the apex. Elytra longer than broad. Length  $1\frac{1}{2}$ – $1\frac{3}{4}$  mm. More depressed and fragile, the antennae much stouter, the eyes smaller, and the surface rather more shining than in *T. longipennis* Heer. Head large, transverse, subquadrate, rather convex, posterior angles rounded, narrower than the thorax, not visibly punctured, densely and finely alutaceous; temples longer than the diameter of the eyes. Antennae longer than the head and thorax, the first two joints rather stout, the second shorter than the first, the third as broad as long, the fourth to eighth transverse, gradually increasing in breadth, the ninth and tenth square, the eleventh oblong, pointed. Thorax broader than long, almost semicircular, without impressions on the disc; sculpture as on the head. Elytra much longer than the thorax, longer than broad, sutural angles rounded; very finely sculptured, finely and rather thickly pubescent. Abdomen parallel-sided, finely and rather closely punctured and pubescent throughout.

*Hab.*: Changi, Singapore, on sandy beaches under sea-weed.

Type in my collection.

June 17th, 1917.

NOTE ON THE SUBGENUS *PSEUDOPASILIA* GANGLB.

BY MALCOLM CAMERON, M.B., R.N., F.E.S.

In 'Die Käfer von Mitteleuropa,' ii, p. 145 (1895), Ganglbauer formed a subgenus, which he placed in the *Atheta*-group, for the insect known to British Coleopterists as *Sipalia testacea* Bris. (see Fowler, Col. Brit. Isls. ii, p. 166). Having recently had occasion to examine the structure of this insect, it appears to me that the tarsal formula is 4, 4, 5, so that the species cannot be retained in the 'Myrmedoniini,' and its position near the genus *Leptusa* is the correct one.

I give a short account of the mouth-parts and tarsi.

Labrum transverse, angles rounded; mandibles curved for apical half, the right one furnished with a distinct tooth at the middle of the inner border. Inner lobe of the maxilla pectinate internally for the anterior half, posteriorly ciliate; outer lobe ciliate at apex. Maxillary palpi 4-jointed, the first joint small, the second elongate, lightly curved, the third as long as the second, the fourth subulate. Mentum transverse, quadrilateral, anterior margin narrower than posterior. Labium narrower than the mentum. Tongue narrow, elongate, simple. Labial palpi approximate at their base, 3-jointed, first and second joints of equal length, the third a little shorter. Paraglossae feeble, ciliate, not extending much beyond the base of the first joint of the labial palpi. Tibiae ciliate. Anterior tarsi with first three joints short, subequal, the fourth longer than the first three together. Middle tarsi with first joint slightly longer than the second, second and third joints short, subequal, the fourth longer than the first three together. Posterior tarsi with first joint a little longer than the second, second, third and fourth short, subequal, the fifth a little longer than the third and fourth together. All the claws simple.

May 26th, 1917.

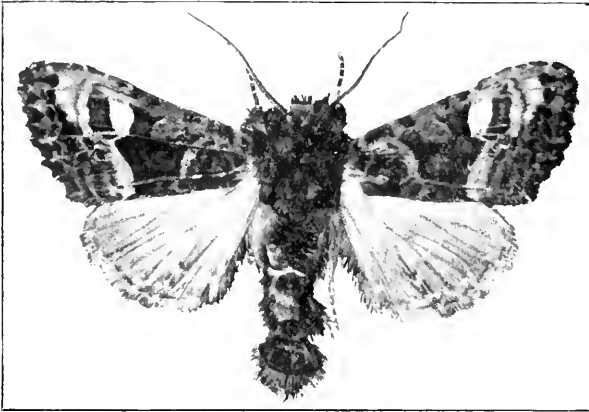
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 ON THE OCCURRENCE OF *TROGOPHLOEUS SCHNEIDERI* GANGLB.  
 IN BRITAIN.

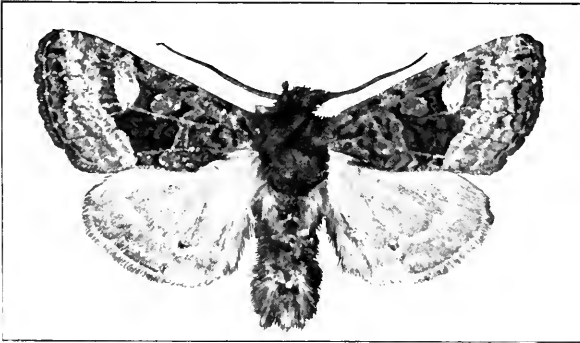
BY MALCOLM CAMERON, M.B., R.N., F.E.S.

A short time ago Mr. Newbery sent me for examination a small *Trogophloeus*, captured at Hunstanton, Norfolk, by Mr. Bedwell, which agreed in all respects with *T. schneideri* Ganglb., originally taken at Borkum, and of which there are specimens in my own collection. More recently I have examined examples of the species taken by Mr. Day in the estuary of the River Wampool, in Cumberland, and described as *T. hemerinus* by Mr. Joy (Ent. Mo. Mag. 1913, p. 155). These also are *T. schneideri* of Ganglbauer ('Käfer von Mitteleuropa,' ii, p. 659). The insect belongs to the subgenus *Troginus*, which consists at present of

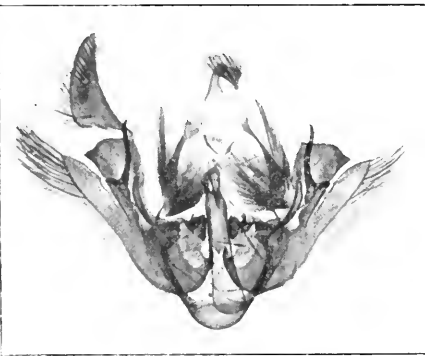




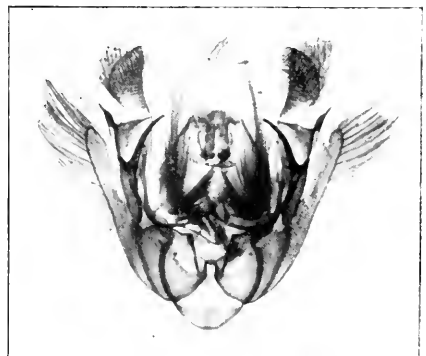
EUPLEXIA LUCIPARA L.  
British Specimen.



EUPLEXIA LUCIPARA L.  
Calgary, Alberta, Canada.



EUPLEXIA LUCIPARA L.  
British Specimen.  
♂ Genitalia (broken).



EUPLEXIA LUCIPARA L.  
Calgary, Alberta, Canada.  
♂ Genitalia.

but three European species—*despectus* Baudi, *exiguus* Er., and *schneideri* Ganglb.; this latter is considerably narrower than the first two, has the abdomen slightly widened posteriorly, is duller, and has much more finely punctured elytra, which are also proportionately longer. On the whole, *T. schneideri* is a very distinct species, and it will probably be found to be widely distributed on the coasts of these islands. Mr. Day's specimens were dug out of burrows made by *Bledius atricapillus* and those of Mr. Bedwell were found with *B. tricornis*.

June 4th, 1917.

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EUPLEXIA LUCIPARA LINN., AS REPRESENTED IN THE BRITISH ISLES AND NORTH AMERICA.

BY W. H. T. TAMS, A/SGT., C. A. M. C.

PLATE III.

During an investigation into the relationships between various closely allied *Noctuidae* of North America, particularly with reference to the male genitalia, I had occasion to examine several species which occurred also in the British Isles, and also a few forms allied very closely to some of the British *Noctuidae*.

I have for some time considered the desirability of publishing a note on this subject, but unfortunately my position in the Canadian Army Medical Corps renders it somewhat difficult for me to get sufficient time to study these questions, as I am somewhat distantly situated from those centres of learning in which one can obtain the necessary literature and access to the necessary material. It is now over a year since I touched entomological subjects, and in the meantime something may already have been published on this very subject.

The studies, of which this is one of the results, were undertaken in 1914 and 1915, in Western Canada, whilst I was acting as assistant to Mr. F. H. Wolley Dod, of Midnapore, Alberta.

By far the most interesting case, and one which I should like to see further investigated, is that of *Euplexia lucipara* Linn., a Noctuid of almost ubiquitous distribution. The following facts are, I believe, correct:—*E. lucipara* is found in the following continents—America, Europe, and Asia. From what I remember of Sir George Hampson's remarks on this moth in Vol. VII of the British Museum Catalogue (1908), the Museum collections contain specimens both from the U.S.A. and Canada, from various localities in Europe, and, in Asia, from China and Japan. Further, Sir George Hampson gives certain differences

which he apparently does not consider of sufficient importance to warrant the establishment of varietal names.

A casual comparison of specimens from Calgary, Alberta, with others of British origin reveals no very striking difference, beyond the fact that the North American examples are, in general, duller in appearance than the British, which have their dark and light markings much more contrasted.

An examination of the male genitalia of British and North American specimens reveals at once marked differences. The general form of these organs is quite obviously of the same type, but there are several points of difference which are better shown by the Plate than by any description which I can give. I would, however, point out that the uncus in the North American form is bifurcate, whilst, apparently, in the British form it is single.\* Of this I am not thoroughly satisfied, but I had at the time of making the mount only one available male, and the appearance of the uncus, whilst being in shape quite distinctly different from that of the North American form, gives one the impression that it might be bifurcate. The genitalia of the British specimen lacked a portion of one harpe, but one side is sufficient to show the difference, as in these forms the organs are symmetrical.

With reference to the imago, it is apparent on a careful examination that the wing-markings differ considerably, and the two enlarged photographs show the differences well. I am not at the present moment sufficiently familiar with the technical terms for the wing-markings to give comparative descriptions, and I would like to see these forms investigated further by a competent systematist.

The questions to which a study of these relationships gives rise are exceedingly interesting, especially the question of the values of certain characters in the determination of specific differences. Are the points of difference of sufficient value to warrant the establishment of another specific name, or are these two forms just races or varieties of one species? Of course it is useless to attempt to establish anything on the examination of a few specimens from two localities, of a species with such a universal distribution, but I am convinced that an examination of large series from the various parts of the world in which this moth is found, particularly from Eastern North America, Europe, China, and Japan, would give us valuable information on the part played in the variation of a species by its environment.

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\* Described as tongue-shaped by Mr. Pierce [Genit. Brit. Noct. p. 67, pl. 24 (1907)].—EDS.

That so common a Noctuid should have existed for so long a time in two such different forms, under one specific name, seems remarkable, especially when one considers the fact that there are not a few cases in which the forms of one species have received specific names from the same author.

There are quite a number of species of *Noctuidae*, and doubtless of other groups also, in North America which are represented in Europe either by the same form or by closely allied species, and it would repay any keen naturalist to investigate these relationships to the fullest extent, taking into account superficial characters, genitalia, and life-histories. It is principally with the object of stimulating interest in this form of investigation, particularly in regard to the examination of the male genitalia, that I have ventured to offer this short note.

In my present position I am unable to carry on these investigations further, and I shall look forward to seeing another student's remarks on this subject.

X-Ray Dept., Moore Barracks, Canadian Hospital,  
Shorncliffe, Kent.

May 11th, 1917.

[NOTES ON THE COLLECTION OF BRITISH HYMENOPTERA  
(ACULEATA) FORMED BY F. SMITH. (II.)

BY R. C. L. PERKINS, D.Sc., M.A., F.E.S.

(Continued from p. 76.)

Before leaving *Andrena*\* it may be worth while noticing the bee described as *A. articulata* by Smith, but subsequently (in both editions of his book) sunk as a variety of *A. fulvicrus*. This *A. articulata* is merely a ♂ *bimaculata* with the pubescence, as is sometimes the case, forming pale apical bands on the abdominal segments, so as to resemble closely some specimens of ♂ *fulvicrus* in this respect, when superficially examined. The genera immediately following *Andrena* call for no special remarks, except that the collection was enriched by the gift of one of the two examples of *Rophites*, captured near Hastings by Bloomfield. This bee carries a good load of pollen, which would indicate that the species was breeding in the locality where it was taken.

The collection of the attractive genus *Nomada* is a good one and, on the whole, correctly named. All the species, except *N. conjungens* and *argentata*, are represented by a fine, or at least a fair, series of

\* At the end of my last paper (*ante*, p. 76), for *flipes* read *pilipes* (bis).

examples. *N. guttulata* Schenck was taken at Hampstead and mixed with *ochrostoma* K. As is well known, the same locality was a noted one for *A. cingulata*, the host; so much so, that Shuckard, who collected there frequently, makes the remarkable statement that this *Andrena* is "perhaps the commonest" of the whole genus!

Of *N. argentata* H.-Sch., which he described first as *atrata* and subsequently considered a var. of *germanica* Sm. (*ferruginata* K.), Smith possessed only two or three examples, and of *N. conjungens* none at all. Indeed, he seems to have very rarely found the host (*A. proxima*) of the latter, since his series of it is small and poor. There is a very beautiful hermaphrodite, *N. baccata* Sm. (*albo guttata* E. S.). The head and its appendages are ♂ on the left, ♀ on the right half, the thorax and legs ♀, and the abdomen, while appearing ♀ superficially, at the apex exhibits a mixture of ♂ and ♀ characters.

In *Coelioxys* not many examples are wrongly named, except that *acuminata* Nyl. was not distinguished from *elongata* Lep., and that two females of it are separated as representing *C. mandibularis* Nyl. The true *mandibularis* was not known to Smith, and certainly the mandibles of ♀ *acuminata* do to some extent resemble those of the other, and the two species are really closely allied.

The collection of *Osmia* is a full one, except for *O. parietina* Curt., which is wanting altogether, being represented by a series of *O. inermis* Gerst. The so-called *O. fuciformis* Latr. (determined for Smith by Nylander) is, of course, nothing but a quite typical *pilicornis* Sm., a species which the describer should have known well, and yet he does not compare these two at all, but is at pains to show how '*fuciformis*' differs from *xanthomelana* K. By an unfortunate *lapsus* he diagnosed it as having the median area of the propodeum '*nitida*' when he meant *opaca*, as the subsequent note shows.

The single ♂ and ♀ of *Megachile ericetorum* Lep. (*pyrina* Sm.) were captured at Weybridge "at different times," but as both bear the date July 1844, I presume this refers only to the day of the month. The additional localities, Bristol and Southampton, given in the second edition, may possibly have been added by Smith from his having heard that Walcott of Bristol had a specimen and that Pelerin had taken it at Southampton. Walcott's specimen, however, was, I believe, purchased from Pelerin, who gave Southampton as the locality. *Prosopis variegata*, *Sphécodes fuscipennis*, and *Halictus interruptus* were some of the other species sold by Pelerin, and, as this *Sphécodes* at least can hardly have been British, one may suspect that there was some mistake as to



the country whence the others came. It seems doubtful whether any British specimens of *ericetorum* exist, excepting the original pair taken by Smith.

The hermaphrodite of *Anthophora pilipes* taken at Barnes in 1836 is very well preserved, and, as Smith remarks, "the ♀ character predominates," since, so far as can be told without dissection, the abdomen is wholly ♀. There are also several interesting hermaphroditic examples of *Apis mellifica*.

The collection of *Bombus* includes some interesting specimens apart from those of *B. pomorum* Panz., a species which apparently has never been found here since it was recorded by Smith. Owing to his carelessness in this, as in other matters, the date of capture of the three males has been recorded as 1837 and 1863 by himself. But the actual label on the ♂ is clearly July 1857, so that in his one record he probably looked at the label but misread it, and in the other trusted to memory. The ♀ has no label. That the males were not caught in 1837 is certain, as the pins used are of much later date.

Smith took great pains in his younger days to compare individual *Bombi* with the actual types of Linnaeus and Kirby and to label them accordingly, and whatever one may think of the original description, it is clear that the type of the Linnean *B. muscorum* was, when Smith examined it, the species we used to know under that name, but later as *agrorum* Fabr. I see no reason, therefore, for this later name on the ground that the original description is imperfect or inconclusive. Smith's *B. venustus* was essentially based on the pale form of *smithianus*, later known to us as *muscorum* L., but he also included with this the species which Saunders called *venustus* and others *helferannus*. Of *B. soroënsis* F. there is an extensive series, but only one female. Both Smith and Saunders describe all sorts of varieties of this species, quite apart from the red-tailed form, which, in his latest work, the last-named author says has not yet been found in this country. Neither Smith's specimens, nor yet any other of the many British examples that I have seen, justify the description of our authors. One would rather say that in England *B. soroënsis* is a fairly constant species, or at least shows no very great variation. Of *B. cullumanus* K. there is a short series of males and also two supposed females, which appear to have been accepted by Saunders as belonging to the males. I cannot myself see any structural character to separate these from the common *pratensis*, but Smith considered "the abdomen shorter and broader" and Saunders "the face shorter and squarer" than

in the other. If these females really belong to *callumanus*, then from his description it appears that Kirby's *Apis donoranella* was also the same, and this name, being prior, will have to be used for the species in place of *cullumanus*.

Amongst the commoner bumble-bees are a few interesting and remarkable varieties and a good many pairs taken *in cop*. The series of *Psithyrus* call for no special remark, except to note that *P. barbutellus* is a mixture of *barbutellus* K. and *quadricolor* Lep., all the ♀♀, excepting one, which was bred from a nest of *B. pratorum*, belonging to the former, all the ♂♂ but one to the latter.

(To be continued.)

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*Dorset Coleoptera*.—The following are some of the more local beetles occurring in this neighbourhood:—*Curabus niteus* L., common on swampy heaths from March to May; *Notiophilus substriatus* Wat.; *Acupalpus dorsalis* F.; *Acupalpus exiguus* Dej., var. *luridus* Dej.; *Harpalus punctatulus* Duft., *H. discoideus* F., one, Morden, 22.vi.'14; *Seybaleus oblongiusculus* Dej., two, at Ringstead, 22.iv.'15, under stones, on a humid spot; *Anisodactylus nemorivagus* Duft., var. *atricornis* Steph., widely distributed on our heaths; *Zabrus gibbus* F., sometimes to be seen in numbers, on the roads over which carts, carrying the harvest, have passed; *Platyderus ruficollis* Marsh.; *Pterostichus dimidiatus* Ol., *P. lepidus* F., Studland and Parley heaths, *P. oblongopunctatus* F.; *Amara patricia* Duft., one, Ringstead, 28.viii.'13, *A. orata* F.; *Bembidium rufescens* Guér.; *Cymindis axillaris* F., Ringstead; *Pelobius tardus* Herbst; *Cocleambus norenlineatus* Steph., Morden; *Agabus femoralis* Payk.; *Helochares lividus* Forst.; *Berosus luridus* L.; *Aleochara lata* Gr., *A. brevipennis* Gr.; *Oryzola nigrina* Wat.; *Ilyobates nigricollis* Pk.; *Myrmedonia limbata* Pk., including a specimen with the left fore-tarsus 5-jointed, *M. cognata* Märk.; *Callicerus obscurus* Gr.; *Alianta plumbea* Wat.; *Homalota pavens* Er., ♂, *H. littorea* Shp., *H. aquatica* Th., *H. oblita* Er., *H. pygmaea* Gr.; *Myrmecopora uvula* Er.; *Hygromoma dimidiata* Gr.; *Oligota inflata* Mann.; *Hypocyrtus seminulum* Er.; *Conosoma pedicularium* Gr.; *Tachyporus solutus* Er., very common, *T. pallidus* Shp., *T. tersus* Er.; *Megacronus cingulatus* Mann.; *Quedius cruentus* Ol., *Q. xanthopus* Er., *Q. molochinus* Gr., type and black variety, *Q. nigriceps* Kr.; *Staphylinus stercorarius* Ol., *S. latebricola* Gr.; *Ocyptus similis* F., *O. fuscatus* Gr., *O. ater* Gr., *O. compressus* Marsh., common; *Philonthus addendus* Shp., *P. decorus* Gr., *P. cephalotes* Gr., *P. micans* Gr.; *Castus fucicola* Curt., *C. sericeus* Holme; *Xantholinus ochraceus* Gyll.; *Lathrobium multipunctum* Gr.; *Achenium depressum* Gr.; *Stilicium geniculatus* Er.; *Medon brunneus* Er.; *Smivus filiformis* Latr., *S. diversus* Aubé; *Paederus riparius* L., *P. fuscipes* Curt., *P. caligatus* Er.; *Stenus ater* Mann., *S. aerosus* Er., *S. pallitarsis* Steph., abundant, *S. latifrons* Er.; *Oxyporus rufus* L.; *Coryphium angusticolle* Steph.; *Homalium riparum* Th.; *Anthobium minutum* F., *A. sorbi* Gyll.; *Megarthritis affinis* Müll.; *Agathidium atrum* Pk.; *Liodes humeralis* Kug.; *Anisotoma dubia* Kug., *A. nigrita* Schm.; *Necrophagus vestigator* Hers., common; *Silpha*

*tristis* Ill., *S. sinuata* F., common, *S. atrata* L., var. *brunnea* Herbst; *Cholera angustata* F., *C. anisotomoides* Spence, *C. grandicollis* Er.; *Seydmacrus pusillus* Müll.; *Claviger testaceus* Preyss.; *Bythnius curtisi* Denny; *Rybaensis sanguinea* L.; *Ptenidium formicetorum* Kr.; *Phalacrus brisouti* Rye; *Olibrus corticalis* Pz.; *Suboccinella 24-punctata* L.; *Anisosticta 19-punctata* L.; *Mysia oblongo-guttata* L.; *Anatis ocellata* L.; *Halysia 16-guttata* L.; *Micraspis 16-punctata* L.; *Hyperaspis reppensis* Herbst; *Chilocorus similis* Rossi, *C. bipustulatus* L.; *Evochomus quadripustulatus* L.; *Dacne rufifrons* F.; *Ditoma crenata* F.; *Hister succicola* Th.; *Myrmetes piceus* Pk.; *Cercus bipustulatus* Pk.; *Epuraea melina* Er.; *Meligethes lumbaris* Stm., *M. murinus* Er., *M. erythropus* Gyll.; *Pityophagus ferrugineus* F.; *Rhizophagus depressus* F.; *Psammoechus bipunctatus* F., very common; *Nausibius dentatus* Marsh.; *Byturus sambuci* Scop.; *Antherophagus silaceus* Herbst; *Cryptophagus setulosus* Stm.; *Micrambe villosa* Heer; *Scaphisoma agaricinum* L.; *Litargus bifasciatus* F.; *Dermestes undulatus* Brahn.; *Floritanus muscorum* L.; *Helocerus claviger* Er.; *Syncaelypta spinosa* Rossi; *Cytilus varius* F.; *Elmis volkmari* Pz.; *Parnus algericus* Lucas; *Dorcus parallelepipedus*, L. common in beech and ash; *Oonthophagus fracticornis* Preyss., *O. nuchicornis* L.; *Aphodius foetens* F., *A. depressus* Kug., unicolorous form; *Trox sabulosus* L.; *Hoplia philanthus* Füssl., Morden and Studland; *Homalophia ruricola* F., not uncommon at Upper Boekhampton and in Yellowham Wood; *Serica brunnea* L.; *Rhizotrogus solstitialis* L.; *Anomala frischei* F., Morden, where I once saw, also, a very dark green, unicolorous specimen, which escaped; *Agrilus angustulus* Ill.; *Athous longicollis* Ol. (1 ♀ to 5 ♂'s); *Sericosomus brunneus* L.; *Agriotes sobrinus* Kies.; *Corymbites tessellatus* F., *C. holosericeus* F.; *Campylus linearis* L.; *Cyphon padi* L.; *Podabrus alpinus* Pk.; *Cantharis (Telephorus) thoracicus* Ol.; *Rhagonycha testacea* L.; *Malhodes guttifer* Kies., *M. pellucidus* Kies.; *Malachius viridis* F.; *Anthocomus rufus* Herbst, in a swampy wood at Morden; *Dasytes aerosus* Kies.; *Psilotherix nobilis* Ill., very common on the coast on *Armeria*; *Thanasinus formicarius* L.; *Drilus flarescens* Rossi; *Asemum striatum* L. (and var. *agreste* F.), Moreton and Morden, whence I have a specimen 24 mm. long; *Cullidium violaceum* L.; *Leptura livida* F.; *Leiopus nebulosus* L.; *Pogonochaerus dentatus* Fourer.; *Bruchus loti* Pk., *B. villosus* F.; *Donacia dentipes* F., *D. bicolora* Zsch., *D. clavipes* F., *D. semicuprea* Pz., *D. affinis* Kunze, common; *Clythra quadripunctata* L., common; *Cryptocephalus parvulus* Müll., Bloxworth and Morden, *C. moraei* L., *C. fulcus* Goeze; *Chrysomela marginulalis* Duft., *C. banksi* F., *C. orichalcia* Müll., *C. haemoptera* L., common, Tadnoll, in September, *C. goettingensis* L., *C. hyperici* Forst.; *Melasoma populi* L.; *Phylodecta viminalis* L.; *Phylodecta cavifrons* Th.; *Phyllobrotica quadrimaculata* L.; *Galerucella sagittariae* Gyll., *G. lineola* F., *G. calvariensis* L., *G. tenella* L.; *Longitarsus anclusae* Pk., *L. atricillus* L., *L. ochrotucus* Marsh., including a var. with unicolorous femora, *L. gracilis* Kuts., and var. *poueri* All.; *Haltica tamaricis* Schr., *H. ericeti* All.; *Hermacophaga mercurialis* F.; *Phylotreta nigripes* F., *P. punctulata* Marsh., *P. atra* Pk., *P. cruciferae* Goeze, *P. exclamationis* Thunb.; *Aphthona lutescens* Gyll., *A. venustula* Kuts., *A. virescens* Foudr.; *Crepidodera helvinae* L., *C. chloris* Foudr.; *Hippodamia modeeri* L.; *Chaetocnema subcoerulea* Kuts., *C. hortensis* Fourer.; *Cassida murraea* L., not uncommon on *Mentha hirsuta*, *C. nobilis* L., *C. flavicola* Thunb., *C. equestris* F.; *Palorus ratzeburgi* Wiss.; *Cistela*

*murina* L., Portland; *Cteniopus sulphureus* L., occurs inland at Tadnoll; *Salpingus castaneus* Pz.; *Mordella aculeata* L., Yellowham Wood, 10.vii.'15\*; *Mordellistena abdominalis* F., Moreton, *M. pumila* Gyll.; *Anaspis pulicaria* Costa; *Notoxus monoceros* L.; *Anthicus tristis* Schm., Ringstead; *Xylophilus populneus* Pz., Upper Bockhampton, 11.x.'16; *Lytta vesicatoria* L., one specimen picked up, near Burton cross-roads, 3.vii.'12; *Apoderus coryli* L.; *Attelabus curculionoides* L.; *Byctiscus betuleti* F., not uncommon in both its green and blue forms; *Rhynchites aeneovirens* Marsh.; *Apion immune* Kirb.; *Otiorhynchus tenebriosus* Herbst, very abundant, *O. scabrosus* Marsh.; *O. rugifrons* Gyll.; *Strophosomus faber* Herbst; *Phyllobius*, all our species occur, including var. *cineripennis* Gyll., of *P. pomonae* Ol.; *Atactogenus exaratus* Marsh.; *Sitones cambricus* Steph. and var. *cineruscens* Fähr., *S. waterhousei* Walt., *S. brevicollis* Sch.; *Rhinocyllus latirostris* Latr.; *Cleonus nebulosus* L., common on the heaths; *Larinus carlinae* Ol.; *Lipurus coronatus* Goeze; *Orchestes ilicis* F., *O. ucellunae* Don.; *Dorytomus melanophthalmus* Pk.; *Acalyptus rufipennis* Gyll.; *Elleschus bipunctatus* L.; *Tychius squamulatus* Gyll., *T. pygmaeus* Bris.; *Sibinia primita* Herbst; *Gymnetron antirrhini* Pk.; *Cionus scrophulariae* L.; *Cryptorrhynchus lapathi* L.; *Coelodes quercus* F., *C. ruber* Marsh.; *Ceuthorrhynchus ericæ* Gyll., I have not taken the type-form here, but only a lighter or darker red variety, *C. geographicus* Goeze; *Rhinoncus castor* F.; *Limnobaris T-album* L.; *Balaninus venosus* Grav., *B. nucum* L., *B. turbatus* Gyll., *B. pyrrhocerus* Marsh.; *Hylastes opacus* Er., *H. palliatus* Gyll.; *Myelophilus piniperda* L. Mr. H. Donisthorpe has kindly given me most valuable help.—F. H. HAINES, Brookside, Winfrith, Dorset; May 10th, 1917.

*Cis bilumellatus* Fowl. (= *munitus* Blackb.) near Guildford.—Mr. Pool, in his paper entitled "The Coleoptera of the Family Cissidae found in Britain" (P. Z. S. 1917, pp. 83-93), gives several additional localities for this species—Orpington, Kent, Richmond Park, and Highgate.† It is therefore advisable to record the capture of a ♂ specimen by myself, from a *Polyporus* on lime, at Loseley Park, near Guildford, on May 26th. I also have a pair of it from Hobart, Tasmania, sent by Mr. A. M. Lea. The author, in the same article, describes two new species of *Cis*—*C. lineatosetosus*, found in a fungus from the "South Sea Islands," and *C. latifrons*, from the New Forest. The last-named is said to be nearly allied to *C. abni* Gyll., and to have been found by its describer in a small brown fungus on a rotten beech, as well as by other collectors, but very rarely. The Australian specimens were named *munitus* by Blackburn, not *minutus* as stated by Mr. Pool.—G. C. CHAMPION, Horsell, Woking; June 11th, 1917.

*Coleoptera in Surrey and Cornwall.*—The following captures are, I believe, worth recording. At Witley, Surrey—*Prionus coriarius* L., occasionally in this district, flying in the evening; *Asemum striatum* L., plentifully, and the var. *agreste* F., sparingly, during the past month, on fir-stumps in a wood near here, where timber is being felled for use in France; *Tetropium gabrieli* Weise,

\* Mr. Haines has sent me this example for examination. I have seen no record of it from Dorset.—G. C. C.

† Mr. Pool, in the same periodical (p. 93), describes a new *Cryptorrhynchus*, *C. harrisoni*, from Frinton-on-Sea, Essex. This is doubtless an introduced exotic, probably from Tropical America, there being nothing allied to it in the European fauna. It is suggested (*l. c.*) that it may be an importation.—G. C. C.

one specimen, flying in my garden; *Molorchus minor* L., on hawthorn blossom and on sallow, in June; *Pachyta cerambyciformis* Schrank, on flowers, and by sweeping in long grass. At Perranporth, Cornwall—*Cassida murraea* L., in quantity, in May 1916, near the buried church.—EDWARD J. NEWILL, Witley Vicarage, Godalming: May 30th, 1917.

[*Asemum* is attached to pine, *Tetropium* to larch, and *M. minor* to spruce, the last-named usually frequenting hawthorn or other flowers in the vicinity of the spruce in which it breeds. I have taken it in three localities in Surrey—at Hydon's Ball, near Milford, on hawthorn blossom, beneath spruce; at Compton, near Guildford, on the wing, beneath spruce, during the past month; and at Mickleham, both on hawthorn flowers and in a large decaying spruce, from the trunk of which it was once found emerging in numbers by Mr. R. W. Lloyd and myself.—G. C. C.]

*Note on Trogoderma khapra* Arrow, a recently described Dermestid granary pest.—In the current number of the Ann. & Mag. Nat. Hist., ser. 8, No. 114, pp. 481-2 (June 1917), Mr. G. J. Arrow describes, under the name *Trogoderma khapra*, a new and destructive Coleopterous pest from India attacking grain, especially wheat. On July 30th, 1908, while examining screenings of barley from Karachi, at Messrs. Horsnail & Reynolds's granary at Strood, Kent (well known to Coleopterists), I found a few specimens, mostly defunct, of a species of *Trogoderma*. These have hitherto remained in my collection without a name, and are identical with Mr. Arrow's insect. A few larvae of this beetle (which I failed to rear) were also present, as well as *Latheticus*, *Tribolium*, *Silvanus*, etc., more or less commonly, and the two ordinary *Calandras* in great abundance. I have not seen the *Trogoderma* in subsequent visits to the granary, but I understand that it has been taken in England by Mr. Tomlin and Mr. G. B. Walsh.—JAMES J. WALKER, Brockenhurst: June 1917.

*Ceuthorrhynchus alliarie* Bris., in Cumberland.—On May 22nd, 1915, I beat a couple of specimens of a small black *Ceuthorrhynchus* from Hedge Mustard growing by the roadside, near Wreay in this county, which I identified as *alliarie* Bris. Fowler (Col. Brit. Isls. v, p. 353) says it is confined to the London and Southern districts, while in Vol. vi, p. 314, its distribution is extended northward to Theddlethorpe in Lincolnshire. Feeling doubtful of their correct determination, I submitted my specimens to Mr. E. A. Newbery, who says they are "certainly correctly named." My friend Mr. F. H. Day tells me that he and Mr. H. Britten took this species at Great Salkeld in 1908. It has thus occurred in two stations in Cumberland some 12 miles apart, and probably occurs in other northern localities if searched for, as it appears to be a very local insect.—JAS. MURRAY, 2 Balfour Road, Carlisle: June 4th, 1917.

*Psylla ulmi* Först., in Oxfordshire.—Whilst examining an unusual-looking elm-tree growing in private grounds at Oxford, on July 10th, 1916, I was much surprised to find numbers of a green *Psylla* on the undersides of the leaves, although I had never been able to find any species of *Psylla* on our native elms. On sending examples to Mr. J. Edwards, he identified them as *Psylla ulmi* Först., and stated that his examples came from the European white elm, *Ulmus pedunculata* Foug. The Oxford elm proves to be

the same species,\* and probably the *Psylla* will be found wherever this tree has been planted.—H. BRITTON, Myrtle View, Windmill Road, Headington, Oxon. : June 3rd, 1917.

*Psylla aeruginosa* Först., a British insect.—On June 19th, 1915, by beating oak branches at Shotover, Oxon., I captured a pair of a pale green *Psylla* which appeared to be *P. mali*, but on setting them I found that, unlike this insect, they had black rings on the antennae and black-veined wings. Unfortunately I was unable to follow it up at that time, but in July 1916 I again visited the tree and succeeded in obtaining a few male and a number of female examples. Some of these were sent to Mr. J. Edwards, who informs me he has no doubt that they are *Psylla aeruginosa* Först., which is an addition to our list of *Hemiptera-Homoptera*.—H. BRITTON, Myrtle View, Windmill Road, Headington, Oxon. : June 3rd, 1917.

## Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY : May 10th, 1917.—MR. H. J. TURNER, F.E.S., President, in the Chair.

The death of two members was announced, Mr. A. J. Scollick and Mr. F. H. Stallman, the latter from wounds in France. Mr. R. Adkin exhibited specimens of *Rhyacionia (Retinia) pardeyi* taken in Lewisham and read notes on the history of the species as British. Mr. Blair, a stem of aspen burrowed by the larva of the beetle *Saperda populnea*, a Longicorn, in which the burrows were slit open no doubt by birds. Mr. Hugh Main, specimens of the oil-beetle *Meloe* from near Woodford, with photographs of phases in its life-history. Mr. Newman, stems of nut from Otford with large gall-masses on them; and living larvae of *Agriades thetis* and remarked on their great scarcity this year, where last year they were in great abundance. He also made remarks on the lateness of *Celastrina argiolus*, the late flowering of the blackthorn, and the scarcity of the larvae of *Arctia villica* and *A. caja*. Mr. Priske noted the fact that *Pieris rapae* went to rest under the heads of daffodils, thus gaining protection. Mr. Frohawk said that both *P. rapae* and *P. brassicae* selected pale leaves as roosting-perches. Mr. Frohawk, a series of aberrations of *Pyrameis atalanta*, a species rarely liable to vary naturally, (1) with divided red band on fore-wing, (2) white clouds in red band fore-wings, (3) increase of size of white spots in apex and in bands, (4) reduction of white apical markings, (5) extremely large and small specimens, (6) marginal bands clouded on hind-wings, (7) black spots of hind-margin of hind-wings absent, etc.—H. J. TURNER, Hon. Report Secretary.

ENTOMOLOGICAL SOCIETY OF LONDON : Wednesday, February 7th, 1917.—DR. C. J. GAHAN, M.A., D.Sc., President, in the Chair.

The President announced that he had nominated Dr. T. A. Chapman, Dr. G. B. Longstaff, and the Honble. N. Charles Rothschild as Vice-Presidents for the ensuing year. The President also announced the death of Mr. C. O. Waterhouse, a former President of the Society, and a vote of condolence with his daughter was passed on the motion of Mr. Champion, seconded by

\* I am indebted to Professor S. H. Vines, F.R.S., for the identification of this elm.—J. J. W

Mr. Bethune-Baker. Mr. A. W. Rymer Roberts, M.A., Rothamsted Agricultural Experiment Station, Harpenden, and The Common, Windermere, was elected a Fellow of the Society. Mr. A. H. Jones exhibited, on behalf of Captain E. F. Studd, R.F.A., a Fellow of the Society at present serving with the British Expeditionary Force at Salonica, various Lepidoptera taken by him in 1916, in the neighbourhood of Salonica. Commander Walker said that in 1878 he had taken almost all the species exhibited in the neighbourhood of Port Baklar near the Boulair Lines. The President and Mr. W. G. Sheldon commented on the abundance of butterflies in Macedonia, the latter observing also that North Macedonia and Albania were among the least known of European localities for Lepidoptera. Mr. G. Talbot exhibited, on behalf of Mr. J. J. Joicey, a series of *Agrias claudia* Schulz showing its distribution and local forms. Dr. E. A. Cockayne exhibited a series of *Pararge egeria*, bred Nov. and Dec. 1916 and Jan. 1917 from ova laid by several females taken in August, at Limber, N. Lincolnshire, showing considerable variation. An aberration of *Polygonia c-album*, the hind-wings being nearly black and the fore-wings with costal spots united into a crescent. Two partial gynandromorphs of *Polyommatus icarus*. A female *Agriades coridon* with one hind-wing marked with blue like *ab. semisygrapha*, the other hind-wing having only a thin sprinkling of blue scales over the same areas. Mr. Bacot read a further note dealing with the question of the specific identity of *Pediculus capitis* and *Pediculus humanus (vestimenti)*.

#### SPECIAL MEETING.

The Special Meeting summoned to consider the new Bye-law proposed by the Council was then held.

The Secretary read the proposed Bye-law, which runs as follows:—

“CHAP. xxiii. *Prohibition in respect of Funds*.—The Society shall not make any dividend, gift, division or bonus in money unto or between any of its members.” This Bye-law was needed to comply with the Act of Parliament regulating the Registration of Scientific Societies so that they may be free from local rates. On the motion of Mr. Bethune-Baker, seconded by Mr. Stanley Edwards, it was passed without discussion.

*Wednesday, March 7th, 1917.*—The President in the Chair.

The death of Mr. A. E. Gibbs, a member of the Council, and for five years a most valued member of the Business Committee, was announced. Mr. E. A. Butler exhibited two species of S. Indian Hemiptera, *Urentius echinus* Dist. and *Apollodotus praefectus* Dist., received from Mr. T. V. Campbell, M.B., who captured them at Chikkaballapura in the Mysore State; also several recently described species of S. Indian *Fulgoridae*, together with the ♂ of *Eurybrachys tomentosa* Fabr., which has only recently been recognized. Prof. Poulton read some notes on mimicry in Oriental butterflies recently received from Col. Jermyn. A male *Ammophila sabulosa* with two, instead of three, submarginal cells in each fore-wing was exhibited to the meeting by Prof. Poulton. The President stated that, at Prof. Poulton's request, he had recently examined the specimen from the Burchell collection (No. 1330), which was shown that evening, and he had no hesitation in saying that it was either a larva or female of the group Phengodini. The females of this group are completely larviform. Both larvae and females may be distinguished from Elaterid larvae by the fact that

the tenth abdominal segment is somewhat conical or tubular in form, and projects beyond the ninth segment so as to be visible from above. Mr. O. E. Janson exhibited the four new species of *Cetoniidae* of the genera *Clerota*, *Pseulocalcothea*, and *Anatona*, described in the paper subsequently read, and made some remarks on their characters. Mr. A. Bacot desired to call attention to a very valuable paper, by Barnes and Grove, in the 'Memoirs of the Department of Agriculture in India' (Nov. 1916, Vol. iv, No. 6), dealing with the insects attacking stored wheat in the Punjab, and the methods of combating them. The Secretary said that Mr. E. E. Green had offered to the Society a valuable Binocular Microscope, for which objectives of 2" to  $\frac{1}{8}$ " were required, and asked whether any Fellow had spare objectives which he would present.

The following papers were read:—"On new and little-known *Lagriidae* from S. America," by G. C. Champion, A.L.S., F.Z.S., F.E.S. "Additions to the Knowledge of the *Cetoniidae* of British India," by O. E. Janson, F.E.S. "The Condition of the Scales in leaden Males of *Agriades thetis* and other *Lycaenids*," by E. A. Cockayne, M.A., M.D., F.E.S. "Some Notes on Butterfly Migrations in British Guiana," by C. B. Williams, M.A., F.E.S.

*Wednesday, March 21st.*—The President in the Chair.

Messrs. David Hunter, M.A., M.B., The Coppice, Nottingham; Nicholas J. Kusnezov, The Imperial Academy of Sciences, Petrograd; and Percy A. H. Muschamp, Charterhouse School, Godalming, Surrey, were elected Fellows of the Society.

Dr. T. A. Chapman exhibited a supposed hybrid between *Callophrys aris* and *C. rubi*. Mr. Donisthorpe exhibited two specimens of an *Elater* from Ireland, not in the British list, taken in Co. Kerry, in June 1902.\* Mr. Collin said that he had observed that certain Diptera usually to be seen about sunset were also on the wing about dawn, and enquired whether the same fact had been observed in other Orders. The President asked whether any Fellow could state from his personal knowledge that *Anobium domesticum* taps in the manner known as the "death-watch." *Xestobium tessellatum* and *Atropos divinatoria* both tap with the mandibles, and this was shown by Derham to be a sexual call.

*Wednesday, April 4th, 1917.*—The President in the Chair.

Mr. Thos. W. Kirkpatrick, The Deanery, Ely, and Sir Charles Langham, Bart., Tempo Manor, Co. Fermanagh, were elected Fellows of the Society.

Mr. G. Talbot exhibited, on behalf of Mr. J. J. Joicey, specimens of *Papilio (Troides) priamus coelestis* Roths., from Rossel Island and St. Aignan, and the allied race *urvilleana* Guér., from New Ireland and the Solomons. Mr. A. Bacot exhibited egg-masses of *Stegomyia fasciata*, the "yellow-fever mosquito." The President exhibited a live specimen of *Xestobium tessellatum*, and demonstrated its marked power of "ticking" in response to tapping on the table on which the box stood in which it was contained.

The following paper was read, illustrated by the epidiascope:—"Revision of the Genus *Tarucus*," by G. T. Bethune-Baker, F.L.S., F.Z.S.—GEO. WHEELER, *Hon. Secretary*.

\* Mr. Donisthorpe ('Irish Naturalist,' June 1917, pp. 99-100) refers this species to *E. praestus* F.—EDS.



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VOLUME LIII.

AUG 27

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Chingford Branch. The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.

AUG 27 1917

From June 7th to 28th Mr. G. C. Champion and I were the guests of our old friend Dr. D. Sharp at Brockenhurst, and the experiences during this time of two entomologists, who may fairly lay claim to the title of "veterans," in this classic locality, may not be devoid of interest. Our visit was attended, on the whole, with very fair results as regards collecting, and the only drawback to its complete enjoyment was the fact that our genial host, owing to indifferent health, was unable to accompany us on any of our excursions.

We were favoured with excellent weather during practically the whole of our stay, and the Forest was looking its very best, and teemed with insect-life, including the inevitable biting Tabanid flies, which were in more than their usual force, and the still more annoying and insidious "midges," which in some shady situations made continuous work almost impossible. The abundance of dragon-flies, especially of the beautiful blue and green *Colepteryx*, along the forest streams and in the moist parts of the enclosures, was also noteworthy. One feature of the season was the dryness of the bogs, as it was possible to venture on many places which at ordinary times are quite inaccessible; but this condition was not favourable to the pursuit of aquatic beetles, and at no time were we tempted to use the water-net.

Much of our time was spent in long tramps to remote parts of the Forest in search of timber fit to work for *Coleoptera*, but it has always been our experience that to find really good wood for this purpose is an event of the rarest occurrence, and that trees in the right condition are indeed few and far between. It is true that there were numbers of huge oak boughs on the ground, broken off in the last winter by the weight of snow, as well as many beeches, some of very large dimensions, torn up by the roots by the wind and lying prostrate; but these, almost without exception, were in too fresh condition to yield anything of value. This was also the case with the new stumps in the enclosures, where the trees, chiefly pine, oak and birch, were being felled wholesale by gangs of Canadian and Portuguese lumbermen, but we were glad to see that the fine old oaks and beeches of the Forest proper were spared so far. Some of the productive dead trees that I had known in previous years had disappeared, and most of those remaining were as dry as tinder, and too far gone in decay for the majority of wood-frequenting beetles. Still, we occasionally came across a fairly good stump or pile of cord-wood, and our captures on these included *Pyrochroa coccinea* and *Cistela cerambyoides*, rarely; *Synchita juglandis*, also rare, on a small and very dry

dead beech; *Tillus elongatus*, including one of the black variety *ambulans* F., and *Leptura scutellata*, fairly commonly; and occasional specimens of *Scydmaenus exilis*, *Cicones variegatus*, *Plegaderus dissectus* (nowadays one of the common Forest beetles), *Thymalus limbatus*, *Pediacus dermestoides*, *Melasis buprestoides*, *Mycetochares bipustulata*, *Clinocara tetratoma*, and other species characteristic of the locality. *Tomoxia biguttata* was widely distributed, and was met with in large numbers on a standing dead beech, running and flying with great agility, and by no means easy to secure without damage. One specimen of *Colydium elongatum*, a beetle which in recent years has been taken more freely than of old, was found in the course of our last morning's walk, running on a large oak log. The well-known timber-yard at Brockenhurst produced *Phloeotrya rufipes* rarely, and *Laemophloeus duplicatus* in numbers, emerging from the cracks in newly-sawn oak butts. My companion found a large ♀ example of *Athous rhombeus* under loose beech bark, and I obtained two pupae, one of which shortly afterwards produced a fine ♂, so dark in colour that at first sight I thought I had only the common *Melanotus rufipes*. *Liodes orbicularis*, *Enicmus testaceus*, and *Sphindus dubius* were found more or less commonly in powdery fungus under loose bark.

A small oak, long known to both of us as one of the few trees in the Forest infested with *Cossus*, gave us each one specimen of the great prize of our visit, *Velleius dilatatus*, as well as *Tachinus scapularis*, *Quedius maurus* Sahlb. (*fugeti* Thoms.), *brevicornis*, and *subapicalis* Joy, *Lathrobium elongatum* var. *fraudulentum*, *Hister merdarius*, *Epuraea decemguttata* (in numbers) and two or three specimens of an *Omalium* which Dr. Sharp says is *O. florale* var. *nigrum* Grav.

The hawthorn and holly blossom, which had been of very short duration this year, were practically over on our arrival, but *Orsodacna lineola* and its var. *humeralis* were beaten in some numbers from one holly tree which still retained a few flowers. Besides swarms of Lepidopterous larvae of ordinary kinds, among which the beautiful caterpillar of *Polyphoca ridens* was specially abundant, the oak boughs produced nothing better than an occasional *Silpha quadripunctata* or *Corymbites metallicus*, with *Rhynchites pubescens* in fair numbers. *Polydrusus flavipes*, in beautiful fresh condition, came freely off birch with *Deporaus megucephalus* sparingly; and crab-apple produced *Pogonochaerus dentatus* and *Rhynchites coeruleus*, with *Anthonomus pomorum* in numbers. Several very small and stoutly built examples of the latter insect proved to be dwarf males of the species, a form neither of us had previously met with. One specimen only of *Agrius viridis* was beaten out of an

old sallow tree. On the whole, it appeared to be rather too late in the season for the special *Elateridae* of the Forest; *Elater sanguinolentus*, which at this time last year could be beaten *ad libitum* from furze bushes and small pines, was now very scarce and presented no varieties of any note; *E. elongatulus* was twice swept off bracken, one *E. miniatus* was taken on the wing, and one *Corymbites bipustulatus* was found walking on an old stump.

The sweeping-net was constantly in use, at any rate by myself, and the freshness and luxuriance of the herbage and flowers in the Forest paths gave promise of many good insects, but the results were, on the whole, somewhat scanty. The best species taken by this method were *Homalota hepatica* (one fine ♂), *Amphicyllis globus*, *Triarthron märkeli*, *Hister purpurascens*, *Meligethes pedicularius*, *Throscus carinifrons*, *Dorcatoma chrysomelina* (not met with in its usual habitat), *Cryptocephalus bipunctatus* var. *lineola* and *C. fulcratus*, *Lamprosoma concolor*, *Phyllobrotica 4-maculata*, *Phyllotreta tetrastigma*, *Conopalpus testaceus*, *Mordellistena abdominalis* (♀ ♀ only), *Atactogenes exaratus*, *Bagous lutulosus* (1), etc. Sweeping in boggy places produced *Paederus caligatus*, *Chaetocnema confusa*, and *Bagous limosus*, besides *Orchestes iota*, just appearing on *Myrica gale*, and *Donacia comari* in endless variety of colouring; *D. crassipes* was taken sparingly on floating leaves of *Nuphar luteum* on one of the streams. *Strangalia nigra* was apparently less common than usual, but *Anoplodera sexguttata* turned up all over the Forest in rose and bramble flowers, and was to be found in plenty at its head-quarters in New Park Enclosure on the umbels of *Conopodium denudatum* (earth-nut) and *Oenanthe crocata*. One specimen of a rare but recurrent unicolorous black variety of this Longicorn was taken here on June 18th. *Carabus nitens* and *Calosoma inquisitor*, though common Forest species enough, were welcome to one who had never before seen either of these conspicuous beetles alive. We were somewhat disappointed to find that the best locality for *Tychius quinquepunctatus* had been spoiled, for the time being at any rate, by the herbage having been cleared away in the ride where its food-plant, *Lathyrus macrorrhizus*, grows most plentifully, and only a very few specimens of this beautiful weevil could be obtained.

The season promised exceedingly well for the Forest butterflies, some of which were appearing in great force towards the end of our visit. On our arrival, *Cyaniris argiolus* was still on the wing, and *Brenthis selene* was abundant and in beautifully fresh condition, its congener, *B. euphrosyne*, being still plentiful but decidedly *passé*. This was also the case with *Pararge egeria*, of which a few specimens of a new

brood were observed during our last week. *Epinephela ianira* was true to its usual time of appearance on June 16th, but the first specimens of *Argynnis adippe* and *Lycæna ægon* were noticed on the 18th, followed the next day by *Limenitis sibylla* and *Dryas paphia*, surely a very early date for all these species. The two last mentioned were fully out and abundant by the 22nd, and *L. sibylla* even began to show decided signs of wear before we left. One pupa of *D. paphia*, a veritable jewel in its brilliant silver ornamentation, was found suspended from the under side of a fallen beech trunk; and a single specimen only of the var. *valezina* was seen to settle (of course well out of reach) on a flower of the yellow water-lily which we were watching at the time for *Donacias*. *A. adippe*, though not as numerous as its larger relative, was fairly common, and of the few examples that I netted, one ♀ was quite a nice variety, with enlarged spots, darkened borders, and ground-colour much suffused with olivaceous. Specimens of *Pyrameis atalanta*, presumably immigrants, were first noticed on June 15th, and were often seen about the Forest afterwards, some of them being almost in "cabinet" condition. An immigration of *Colias edusa* also appears to have occurred this year, as I heard of specimens having been seen about Brockenhurst, and on June 22nd a large ♀ in quite good order was netted in the "Queen's Mead." She was kept for eggs with all due care, but could be induced only to yield a very limited number, and a post-mortem examination showed that she was practically "laid out." A few *Hemaris fuciformis* were observed at the flowers of *Ajuga* and rhododendrons, and one, apparently in good condition, was seen as late as June 27th.

Some attention was given to the other Orders, especially to the *Hemiptera*, but except as regards the *Capsidae* it was rather too early in the season for these insects. The abundance of the nymphs of *Tropicoris rufipes* was quite a feature of the collecting, twenty or thirty of these at a time coming down into the umbrella when an oak was beaten, those of *Podisus luridus* being much scarcer, and fully-developed examples of both were as yet exceedingly rare. *Eysarcoris melanocephalus* turned up now and then in the sweeping-net, and *Metatropis rufescens* was found, commonly enough as before, wherever *Circaea lutetiana* grew in shady places. One ♀ specimen of *Cicadetta montana* was beaten out of a small oak, a long way from its reputed head-quarters, and the conspicuous *Ledra aurita* occurred on crab-apple. The pretty and very active Fulgorid *Oliarus leporinus* was swept in numbers from rushes etc. in two widely separated boggy localities. In the *Hymenoptera* we found a ♀ of the curious Siricid, *Xiphydria dromedarius*, at rest on a small birch log.



We had one day at Lymington Salterns, but a strong westerly breeze made collecting in so exposed a situation rather difficult, and our captures included only a few of the well-known beetles of the locality, such as *Cilenum laterale*, *Tachys scutellaris*, *Trogophloeus halophilus*, *Micralymma brevipenne*, *Anthicus salinus* and *humilis* (both in plenty), *Chrysomela haemoptera*, *Otiorrhynchus rufifrons*, *Polydrusus chrysomela*, and *Sibinia arenariae*, the latter in numbers, but mostly in rather worn condition under its usual food-plant.

Aorangi, Lonsdale Road, Summertown, Oxford.]

July 13th, 1917.

PEDLICUS DEPRESSUS HERBST, A SPECIES FREQUENTING  
PINES IN THE WOKING DISTRICT.

BY G. C. CHAMPION, F.Z.S.

Some years ago my friend Mr. Barton brought me for determination a specimen of a *Pediacus*, *P. depressus*, which he had found in a pine-stump near Woking (*cf.* Ent. Mo. Mag. xlv, p. 248, 1909). Since that time I have constantly been on the look out for the insect in the pine-woods here, but without success till July 14th of the present year, when I succeeded in capturing a dozen examples. They were found between stacked pine-planks and logs, which had evidently been undisturbed for a considerable time, as evidenced by the growth of fine mould between them, at the places where the pieces of cut wood were placed one across the other. Some of the specimens were slightly immature, and it seemed probable that they had bred in fungoid growth in the thin crevices, feeding on the larvae of the other beetles, *Typhaea*, *Coninomus*, *Corticaria*, etc., found with them. The Cuenjid-genus *Pediacus* and its allies are certainly carnivorous, and some of them live under the bark of various trees, *e. g.* the common *Silvanus unidentatus*, the latter being now fairly abundant in the pines at Woking, though in my experience it is usually connected with oak or beech. The rediscovery of *P. depressus* at Woking, therefore, confirms Mr. Barton's capture, as well as its association with conifers, and this observation is again substantiated by the finding by myself of a specimen of the same species beneath the bark of a fir (*Abies pectinata*) at Gabas, in the Basses-Pyrenees, in July 1914.\*

Reitter ('Fauna Germanica,' iii, p. 50, 1911), in his table of the three European representatives of the genus *Pediacus*—*depressus*, *dermestoides*, and *fuscus*,—states that the first two are found beneath the bark of deciduous trees (*dermestoides* in oak), and the third, *fuscus*, under that of fir [*Abies* or *Picea*]. Ganglbauer says much the same,

\* An example of *Colydium elongatum* put in an appearance on this fir-stump while I was examining it, a beetle not previously seen by me on a conifer.

except that he adds for *P. dermestoides*, "especially oak." I have taken the last-named insect from oak, beech, and hornbeam, more freely from hornbeam (at Epping) than from the other trees. *P. depressus* was introduced as British by Rye (Ent. Mo. Mag. vii, p. 205, 1871) on specimens found by J. Ray Hardy in 1870, "in chinks of a very rotten oak, in a yellowish, minute, dusky fungus, like mould," at Knutsford, Cheshire, and he also gives Stretford, in the Manchester district, as a locality. Subsequently, in 1876, Mr. A. Reston found the same species in abundance on the wing at Stretford, in a timber-yard, which must have contained pine as well as oak, though I believe he labelled his insects as having come from the oak. He sent me a long series of it at the time, and these were the only British examples in my collection up to the present year. There is still another Cheshire record of *P. depressus*, in the "seventies," from Cossus-burrows in Dunham Park\* (*Chappell*), a locality that produced *Lymexylon navale* in those days.

The sudden appearance of this *Pediacus* and other beetles in pine-woods, mostly in numbers, in well-worked localities, not only in Surrey, but elsewhere, is very extraordinary, and only to be explained at present by the suitable conditions—new clearings in woods, with timber or small branches ready for attack, fires, with the resulting required fungi on the charred trees, etc.—prevailing at the moment for the multiplication of the insects in question. Such Coleoptera are, *Melunophila acuminata*, *Crioccephalus fesus*, *Pterostichus angustatus*, *Anchomenus quadripunctatus*, *Pediacus depressus*, *Silvanus bidentatus*, *S. similis* (found by myself at Esher, in September 1874, in profusion, in stacked cut pine-tops), *Corticaria eppelsheimi*, *Pissodes notatus*, etc. Most of them are soon gone, and at least in one case in my own 25 years' experience in the Woking district, that of *Anchomenus quadripunctatus*, it is 15 years later before the insect is again met with. Others, like *Silvanus similis*, disappear altogether. Where these creatures exist at other times is a mystery, as, at least in the case of Carabids, there can scarcely be any possibility of introduction of some of them in inland localities.

The pines felled at Woking in 1916 now contain innumerable larvae, pupae, and imagines of *Tomicus laricis* and *Hylastes palliatus* in their bark, but *Myelophilus piniperda* and *Hylastes ater*, both destructive at times in the district, are only just in evidence, these latter attacking more recently felled trees.†

Horsell: July 17th, 1917.

\* This record, like that of *Silvanus bidentatus* from oak, from the same locality (Ent. Mo. Mag. xvi, p. 184), requires confirmation. The same remark applies to Chappell's capture of the Histerid *Platysoma oblongum* from pine in the Manchester district, commented upon by Rye (*op. cit.* xii, p. 62).

† A few days after this note was written pupae and a few imagines of the *Myelophilus* were seen in small pines injured by fire early in the present year, and specimens of *Lyctus brunneus* and *Hylotropes bajulus* taken from the cut pine timber.

A NOTE ON THE BIOLOGY OF *STENUS SIMILIS* HERBST.

BY K. G. BLAIR, B.Sc., F.E.S.

(Published by permission of the Trustees of the British Museum.)

A single full-grown larva of this species was captured at Callington, Cornwall, on June 22nd, on the underside of a leaf of Burdock (*Arctium lappa*), and two cocoons of the same species, each containing a pupa, were found on other leaves of the same plant.

As *S. bipunctatus* Er. appears to be the only member of this genus whose larva has been described (Schiödte, Nat. Tidsskr. 1872, iii, 8, pp. 548-552, t. 18. figs. 1-9\*; Fowler, Col. Brit. Isl. ii. p. 328), and nothing is recorded of its mode of life or pupal state, these incomplete notes on the life-history of *S. similis* may be of interest.

The larva is very similar to that figured by Schiödte, with very long and slender antennae, palpi, and legs, but shows various minor points of difference. The anterior clypeal margin instead of being rounded with six small teeth is truncate in front with three small teeth, one median and another at each angle of the truncate margin. The ocelli, six in number on each side, form an open ring with a gap behind large enough to contain an additional one; in *S. bipunctatus* the ring is complete. The long basal joint of the anal cerci is rather strongly expanded in the middle.

The cocoon is a double structure, spun flat against the under side of the leaf: it is white, and very similar to that of *Conwentzia (Coniopteryx) psociformis*, though larger and of not so close a texture. The inner cocoon is regularly elliptical, measuring  $7\frac{1}{2} \times 4\frac{3}{4}$  mm.; the outer one, more irregular in its outline, measures about  $16 \times 11$  mm.

When first found it was possible to distinguish vaguely the pale whitish pupa within its double envelope, but when examined on my return home, on July 4th, the beetles had emerged from both, and one was already dead. It is a matter for regret that the pupa was not more closely observed.

The situation in which they were found was in an orchard on some steeply rising ground about 100 feet above and 150 yards distant from a small stream. Though diligent search was made, no further specimens were found on neighbouring plants. The larvae had probably been feeding on some Aphids inhabiting the same leaves.

British Museum (Nat. Hist.),  
Cromwell Road, S.W.

July 16th, 1917.

\* Reproduced by Ganglbauer, Käf. Mitteleur. ii. 1895, pp. 547, 551, ff. 25, 26; Reitter, Fauna Germanica, ii. 1909, t. 52. f. 1.

EXCESSIVE ABUNDANCE OF THE LARVAE OF  
*CHARAEAS GRAMINIS* IN JUNE 1917.

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

The occurrence of the larvae of *Charaeas graminis* in excessively abnormal numbers, both in Britain and on the Continent in occasional years, usually at long intervals, has been known to entomologists apparently since the year 1741; but in point of numbers and area affected, the present year has probably exceeded all previous records, at any rate so far as the United Kingdom is concerned. The area affected extended to some sixty miles, in Cumberland, Westmorland, Lancashire, Derbyshire, Cheshire, and Yorkshire. The larvae were in millions. The localities included the Peak District; extremely abundant at Kinver End, Whaley Bridge, and near Castleton; on all the high moors between and around Hayfield and Glossop; moors north of Heywood; and in certain of the Lake District Fells; Chinley, Buxton, Chapel-en-le-Frith, Edale, Comb Moss, Kinder, Hope Woodhead, Clitheroe, Lowgill, Gaping Gell; Hawes Junction to Sedbergh, especially in the Dent, Garsdale, and Cautley Valley; Deepdale, Uldale, Fellgate; and near Penistone at Dunford Bridge, Boadhill, Saltersbrook, Woodhead, etc. In nearly all cases the trouble originated on the grassy parts of the moorlands and hillsides, and when every vestige of grass was eaten off in such situations, the larvae migrated to the lower slopes, crossing roads etc. in prodigious numbers to find more food. In the Penistone district the roads were so infested that it is reported the parish steamroller was actually brought out to crush them; and in some localities the sheep-feeding districts were so bared of grass by the larvae, the sheep had to be removed, nothing having been left for them to eat!

Dr. A. D. Imms, of the Dept. of Agricultural Entomology at the Manchester University, made a careful investigation of the matter, and reported thereon to the 'Journal of the Board of Agriculture.' I have not as yet seen that report, but Dr. Imms has kindly given me some of the inferences he arrived at, and very courteously allows me to make use of them in these notes. He says the "attacks were almost exclusively confined to the grass known locally in Derbyshire as 'Bent grass.' No good meadow grass or corn crops were found to be attacked. Upland pastures and sheep-runs at an altitude of 750 feet and over were attacked, but not below that elevation. This is, I think, mainly because the poor kind of grass (Bent grass) has been eradicated, and replaced by good

meadow grass. Couch grass (*Triticum repens*) and the more succulent and finer grasses were not touched. Vast numbers of the larvae were seen personally, and wherever the attacks were bad, the grass was eaten away, leaving dry bare hillsides. Farmers whose lands were confined to upland areas lost severely from the destruction of the grassy fields. Causes of the outbreak are seemingly due to—(1) scarcity of birds, more especially the Lapwing; (2) the effects of the severe winter, which sealed up the ground from the attentions of birds for an exceptionally long period; (3) the absence of intermittent mild spells when birds make considerable inroads into insect life; (4) Defence of the Realm Rules, which have restricted the burning of moorlands and mountain grass areas.”

That Dr. Imms found only the “Bent grass” \* to be attacked is noteworthy, as in my one experience in rearing a considerable number of the larvae, sent to me from Clitheroe during the similar occurrence in the Pendle Hill district in 1881, I found they would eat greedily any grass offered to them. And this has been the experience of others who have reared the larvae since then; as it was also of the late William Buckler (*Larvae of British Butterflies and Moths*, vol. iv, p. 67).

An anonymous correspondent of the ‘Yorkshire Post’ of June 19th, but who evidently knew what he was writing about, gave a list of the records of the serious devastations of these larvae as follows:—

1741 and 1748.—Sweden, ravages so vast as to be a national calamity.

1816 and 1817.—Hartz Mountains.

1827.—Skiddaw, Cumberland, level part of 60 acres of grass devoured.

1881.—Clitheroe, Lancashire, Pendle Hill area.

1884.—Glamorganshire, a 50 miles area west of Rhondda Valley

1885.—Selkirkshire, a 35 miles area of hill-pastures.

1897.—Carnarvonshire, about 19 acres.

1902.—Cumberland, mountain area.

1917.—Peak District, Derbyshire etc.

It is as well to place these instances on a more permanent record.

Elm Lea, Dalton, Huddersfield.

July 11th, 1917.

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\* Dr. Imms tells me that the “Bent grass” has been identified at Kew as *Nardus stricta*.—G. C. C.

REMARKS ON THE BIOLOGY OF *CHARAEAS GRAMINIS* L.

BY A. D. IMMS, M.A., D.Sc.

Reader in Agricultural Entomology, Manchester University.

During the month of June 1917, I had occasion to investigate a severe infestation of the larva of this species in the Peak District of Derbyshire. As the enquiry was conducted on behalf of the Board of Agriculture, a full report thereon will be published elsewhere, but certain features in the biology of the insect appear to merit separate reference. The points which have specially come under my notice are as follows:—

(1) *Oviposition*.—During August 1916, I observed several females of this species on the moors above the village of Rowarth, near Marple. They were flying in the late afternoon among upland grasses, and their motion was slow and hovering, often remaining in the air but a few inches from the ground among the grass stems. On further investigation, it could be clearly seen that they were engaged in oviposition. Their hovering flight was so slow in these instances that, on three occasions, I was able to distinctly observe the egg in the act of falling from the body of the female moth into the grass beneath. The spots were easily located, and the egg on each occasion readily discovered, low down among the grass, near the roots of the latter. According to Miss Ormerod (Rept. on Injurious Ins. 1885, p. 13), it is stated that “the eggs are laid in little heaps in the ground.” I have, however, been unable to trace the original source of this statement, and it is certainly contrary to my own experience, as I have only found the eggs scattered singly among the grass.

(2) *Hibernation*.—Does *Charaeas graminis* hibernate in the larval or the egg stage? According to Ritzema Bos (quoted by Miss Ormerod, Report for 1895, p. 14), the eggs hatch in about three weeks after being laid, and it is a well-known fact that the insect winters in the larval stage! Kollar (‘Insects Injurious to Gardeners, Farmers, etc.’; Engl. transl. p. 137) also mentions that the winter is passed in the larval condition. Taschenburg, in his ‘Praktische Insektenkunde,’ states that the larvae moult twice before finally undergoing hibernation. Reh (in Sorauer’s ‘Handbuch der Pflanzenkrankheiten,’ vol. iii, 1913, p. 369) says that the eggs hatch in about three weeks, and the young larvae pass the winter in the earth. Siebke (‘Enumeratio Insectorum Norvegi-corum: Lepidoptera,’ p. 53) remarks: “Larva in graminibus, pratos interdum valde vastans, sublapidibus semiadultula hibernat.” Finally, R. Service, who has had considerable experience of this insect in S. Scotland, states (Entom. 1894, pp. 279–280) that in a lot of eight snow-buntings, shot one January, he found an average of eight or nine

undigested larval skins of *C. graminis* in each stomach. A little further on in the same article he refers to larvae having "just emerged from the hibernating stage."

On the other hand, Barrett ('Lepidoptera of the British Islands,' vol. iv, 1897, p. 130) definitely says that the winter is passed in the egg-stage, and Meyrick ('Handbook of British Lepidoptera,' 1895, p. 75) gives April to June as the months when the larvae occur. Buckler ('Larvae of British Butterflies and Moths,' vol. iv, p. 69) states that the eggs hatch some time in spring, the exact date depending upon the character of the season. It is clear, however, that Buckler had the eggs under observation in captivity, and had not searched for larvae in the field.

The above directly opposed series of statements render it evident that further enquiry is needed to definitely settle this point.

(3) *Larval Habits*.—During the present infestation I have seen many thousands of larvae actively moving about, apparently seeking fresh food, and only on very few occasions were any of them noticed actually feeding. According to Barrett (*loc. cit.* p. 130), they "feed at night on the grass leaves, hiding away among the roots by day." Again, this appears to be at variance with my own observations, as very few larvae were met with among the grass roots in comparison with the number crawling about in the broad daylight. Furthermore, most of those which were among the roots and turf had gone there for purposes of pupation.

(4) *Do the Larvae attack Corn?*—This point is of economic importance, more especially so in the light of the statements of Reuter in Finland, and Kaltenbach in Germany, to the effect that wheat, rye, oats, and barley may be attacked. In the present outbreak I personally investigated cases of reported injury to grain crops, but found all were unfounded. In two instances oat-fields were only separated by a few yards from unreclaimed moorland, where the larvae were abounding, but no damage to the oat crop had taken place!

These few notes are written with the object of calling attention to certain features in the biology of one of our common insects which require further enquiry. Possibly other entomologists who may read this article may be in a position to enlighten us by recording their own observations.

July 12th, 1917.

[Some pupae of *C. graminis* were found by myself in moss on the Dartmoor Tors above Bridestowe at the end of July last. These produced moths, ♂ ♀, about the middle of August.—G. C. C.]

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THE BRITISH SPECIES OF *APHELOCHIRUS* (HEMIPTERA).

BY E. A. BUTLER, B.A., B.Sc., F.E.S.

In the year 1899, Dr. Horváth, of Budapest, published a synopsis enumerating four species of this genus (*Termesz. füzet.* xxii, pp. 256–267), two of which, *A. aestivalis* Fabr. and *A. montandoni* Horv., are therein mentioned as inhabitants of Britain. In his “Guide to the study of British Water-bugs” (*‘Entomologist,’* xxxiii, p. 151), the late Mr. Kirkaldy pointed out some years ago that the latter of these two species corresponds to what has hitherto been known amongst British Hemipterists as *A. aestivalis*, while the former seems to have been recorded by Horváth as British under a misapprehension. The facts are as follows:—Towards the close of the 18th century, two macropterous specimens were taken in France by the entomologist Bose, and these formed the material upon which the original description of *Naucoris aestivalis* was based by Fabricius in 1794. Long after, one of these, a ♀, was sent by the administrators of the Museum of the Jardin des Plantes, where Bose’s collection was deposited, to Prof. Westwood, and he, in 1833, separated this insect from *Naucoris*, on the ground of the non-raptorial character of the anterior legs, founding for it the genus *Aphelochirus* (*‘London’s Magazine of Natural History,’* vi, pp. 228–229). Under this same species, which now stood as *A. aestivalis* Fabr., he included some brachypterous specimens which had a little while before been taken in England; these, however, are now known to be specifically distinct, and really represent the species named by Horváth *A. montandoni*. The figure of *A. aestivalis* Fabr. given by Westwood in his *‘Modern Classification of Insects’* was taken from Bose’s French specimen, and he distinctly states that all his British examples were brachypterous. Through the courtesy of Prof. Poulton, I have been able to examine Bose’s specimen, and I find that Westwood’s figure of it is too brightly coloured, and it is inaccurate in the outline of the genital segment. This same French insect afterwards did duty for the figure contained in Douglas and Scott’s *‘British Hemiptera,’* published in 1865, although no such form had been found in Britain. This figure is similarly inaccurate in the genital segment, while the terminal joints of the antennae are made to appear as if they were spines on the pronotum. In the description given by Douglas and Scott, the brief diagnosis appears, from the colour mentioned, to refer to this French macropterous specimen, while the detailed account refers also partly to the brachypterous ones, *i. e.* to *A. montandoni*. The figure given by



Saunders, in his 'Hemiptera-Heteroptera of the British Islands,' published in 1892, represents ♀ *A. montandoni* Horv., and the accompanying description is that of the same species. No British examples of the true *A. aestivalis* Fabr. are known, and our only species should therefore stand under the name of *A. montandoni* Horv. As *A. aestivalis* has been taken in France, it may yet be found in Britain, and I therefore append a table of the most easily recognizable differences between the two species:—

<i>A. aestivalis</i> Fabr.	<i>A. montandoni</i> Horv.
i. Colour flavo-testaceous, more or less variegated with fusco-testaceous.	i. Colour blackish fuscous except the head and metanotum and sometimes parts of the pronotum, which are stramineous.
ii. Abdomen equally contracted in front and behind.	ii. Abdomen more contracted in front than behind.
iii. Dorsal genital plates of ♀ extending considerably beyond angles of preceding segment.	iii. Dorsal genital plates of ♀ not, or very slightly, extending beyond angles of preceding segment.

No macropterous form of *A. montandoni* is yet known, though both forms occur in *A. aestivalis*. It may be mentioned here that our British specimens are rather larger than the Continental examples of the same species; ours measure 10 mm. in length by 7 mm. in greatest breadth, whereas the measurements given for Continental *A. montandoni*, and borne out by specimens in the British Museum, are  $8\frac{1}{2}$ –9 mm. in length by  $6\frac{3}{4}$ –7 mm. in breadth.

Ussing, in a report recently issued from the Freshwater Biological Laboratory at Lyngby, Denmark, has given some interesting particulars about the life-history of *A. montandoni*. He found the species in the estuarine waters of the Gudenaa, near the town of Randers, which is at the head of the Randers Fiord, and he observed that the eggs are laid, generally irregularly, upon the shells of several species of Mollusca, especially *Paludina vivipara*, *Cardium*, *Scrobicularia*, and *Tellina*. In the case of the bivalves, they were found only on dead shells, and always on the outer surface of these. The eggs are regularly oval, yellowish, and covered with a network of hexagonal cells. They are laid about midsummer, although some that were kept in an aquarium did not hatch till the end of September or the beginning of October. Larvae, however, were found in March and May, from July to September, and again in November, while imagines were met with in May, and from July to October. The larva differs from the brachypterous imago chiefly,

besides size, in the paler colour, in the absence of the rudimentary elytra, and in not having the abdominal segments terminating in spines.

The author considers that the imagines live more than one year, and that the species passes the winter either as larva or as imago. The eggs yielded numbers of the minute hymenopterous parasite, *Prestwichia aquatica* Lubb.

In their estuarine occurrence, in places which were, apparently, very devoid of aquatic vegetation, these Danish specimens differ widely from British examples, so far as at present known. The latter have most frequently been found associated with a broad-leaved *Potamogeton* in inland streams, where certainly there would be no chance of their meeting with the bivalve Mollusca mentioned above. Nevertheless, after a careful comparison, I can see no difference other than that of size between the British and Continental examples, and I do not think size alone could justify their separation.

Gadeau de Kerville took the species abundantly in the Seine, and found it there feeding upon the larva of the Coleopteron *Haemonia*, and he believes that it preys also upon the Mollusca *Paludina vivipara* and *Bythinia tentaculata* (see Kirkaldy, *op. cit.* p. 152).

56 Cecile Park,  
Crouch End, N. 8.  
June 30th, 1917.

*Salpingus ater* Payk. in East Lothian.—I have to record the capture of an example of *Salpingus ater* Payk. This flew into our mess-room on the evening of June 10th. I have since had the opportunity of comparing it critically with *S. aeratus*, and certainly its perfectly black legs appear to differentiate it, although one is inclined to think that the two species might well be merged into one.—J. E. BLACK, Penston, East Lothian: July 1917.

*Metatropis rufescens* H. S. in Berkshire and Oxfordshire.—On June 9th, 1917, in Bagley Wood, Berks., I was delighted to find the elegant bug *Metatropis rufescens* H. S. while sweeping *Circaea lutetiana* L., and on carefully examining some large patches of this plant, saw the insect in considerable numbers. Commander Walker tells me that he swept single examples of *Metatropis* from its food-plant in Prattle Wood, near Islip, Oxon., on June 5th and July 3rd, 1917.—H. BRITTON, Myrtle View, Windmill Road, Headington, Oxon.: July 16th, 1917.

*Ploiariola baerensprungi* Dohrn in Oxfordshire.—On June 16th, 1917, while searching beneath loose pieces of bark, on a very large old oak-tree at Thame Park, Oxon., for the little Coleopteron *Trinodes hirtus* F., I found a

very nice male example of *Ploiariola baerensprungi* Dohrn, hiding beneath one of the pieces, its colour making it very difficult to detect, as it rested among the loose spiders'-webs which covered the inner side of the bark.—II. BRITTEN: *July 16th, 1917.*

*Berytus clavipes* F. in *Oxfordshire*.—While sweeping *Ononis* at Bayswater, near Headington, Oxon., on July 14th, 1917, I was much pleased to find a fine female *Berytus clavipes* F., and also two immature examples in the next sweep. On carefully working over the patches of this plant I secured two more fully developed specimens, one of each sex, with several more of the insect in its earlier stages.—II. BRITTEN: *July 16th, 1917.*

*The food-plant of Calocoris alpestris* Mey.—There appear to be no British records of a food-plant for this fine bug, but Mr. Butler informs me that on the Continent it has been found on nettle, and on several other plants which are not British, and also on pine in the Carpathians. Having lately met with the species in some small numbers, it will be of interest to record the following facts:—On June 16th Mr. Routledge and I were working through the Gelt Woods when a casual capture of a specimen on the wing reminded us that the species had formerly been taken in the locality by Mr. Murray. Careful search resulted in our finally running it down to a thick tangle of herbage in a moist part of the woods, consisting of Nettle, Dog's Mercury, a common kind of Hemlock, some coarse grasses, and here and there small patches of the Wood Woundwort (*Stachys sylvatica*). Each plant was considered in turn, and in the end we found that it was from the last-named that *C. alpestris* came. Owing to the rank growth of the herbage searching was difficult work, and most of our captures were made by sweeping, but wherever the *Stachys* grew the bug always turned up in the net, while where the plant was absent from the herbage so was the insect.\* On the same plant *Dicyphus stachydis* Reut. was common.—F. H. DAY, 26 Currock Terrace, Carlisle: *July 18th, 1917.*

*Two Dragon-flies new to Cumberland*.—On June 30th I met with *Leucorhina dubia* Lind. on Cumwhitton Moss, about ten miles to the east of Carlisle. The day being warm and sunny the insect was very active, but I managed to secure examples of both sexes, the female being scarcer than the male. Although a northern insect *L. dubia* has not hitherto been recorded from Cumberland, but Lucas records it from Westmorland. Cumberland has not, however, had much attention paid to its *Odonata*.

*Agrion pulchellum* Lind. was taken by me in the Penrith district on June 25th, 1905, somewhat sparingly, and I have not seen it since. I know of no previous Cumberland record. According to Lucas this seems to be mainly a southern species. He, however, gives one locality farther north than Cumberland, namely, Argyllshire.

These two species bring up the list of Cumberland *Odonata* to thirteen.—F. H. DAY: *July 18th, 1917.*

\* I have seen it in abundance at Vissoye, Switzerland, resting on Umbelliferae.—G. C. C.

## Review.

'A YEAR OF COSTA RICA NATURAL HISTORY.' By A. S. and P. P. CALVERT. Pp. 577 and numerous illustrations. Macmillan Company, New York, etc. 1917. Price 12s. 6d. net.

For many years past Prof. P. P. Calvert, of the University of Pennsylvania, has made a special study of the American dragon-flies, or Odonata, and numerous papers by him on these insects have been published from time to time in scientific journals, not only in the United States, but in Britain also, one of his most important memoirs having appeared in the 'Biologia Centrali-Americana,' in 1901-1908. The investigation of the tropical forms fascinated him to such an extent that he decided, soon after the last-named work was finished, to visit Costa Rica to study the life-history, seasonal distribution, etc., of some of these insects on the spot. Accordingly, on May 1st, 1909, Calvert and his wife arrived at Limón, the Atlantic port of that little Republic. They resided in Costa Rica till May 1910, when the terrible earthquake at Cartago on the 4th of that month put an abrupt end to their sojourn there, and they were lucky enough to escape with their lives, the destruction of that city, the second in importance in the country, notwithstanding. The railways now open enabled them to cross to Puntarenas on the Pacific, and to visit the extensive Banana regions along the Atlantic coast, locomotion therefore being comparatively easy, compared with the difficulties they would have encountered in the adjacent Republics, where most of the travelling has to be done on horseback or on foot, even at the present time. The volume under review is the result of their twelve months' labour. It is chiefly devoted to observations recorded in their diary, which deal with a variety of subjects—the habits and distribution of plants and animals (especially insects), on human life and manners, on earthquakes and volcanoes, etc.—the technical results having been already published elsewhere, and the book is as interesting to the general reader as to the specialist. Amongst the most important entomological discoveries made by them, at a place named Juan Viñas, was the life-history of a peculiar long-bodied dragon-fly, *Mecistogaster modestus*, which was found to pass its earlier stages in the rain-water accumulated in the leaf-bases of certain epiphytic pineapple-like Bromeliads on the branches of trees. There are valuable notes on the other animals living in these same plants, on migratory moths and butterflies, on the use of the anal brush in the male of the butterfly *Lycorea atargatis*, on the use of the horns on the prothorax in the males of various Lamellicorn beetles, on luminous Elaterid larvae, on the ants (*Pseudomyrma*) living in the bull's-horn thorn (*Acacia costaricensis*), etc. Two volcanoes were ascended, Irazu and Poás, and the craters examined. Costa Rica and Nicaragua are, perhaps, amongst the richest fields for the naturalist in the whole world, especially as regards their exuberant bird-life. The former country is now of easy access in peace-time, and it is well worth the journey, even from Europe, before it shares in the changes that will inevitably be brought about by the opening of the Panama Canal. The authors' description of the parts of Costa Rica visited by them would apply, as they state, almost equally well to the adjacent regions, and the present reviewer, who has spent some years in the neighbouring Republics, north and south, for similar purposes, can vouch for the accuracy of this statement. The book is extremely well edited, freely illustrated, and printed on good unloaded paper.

—G. C. C.

## Obituary.

*Antoine Henri Grouvelle* died on June 9th last, at the age of 74. By his death entomology has lost one of its most useful and industrious workers on the systematic side. Attached to the French Government Service, in which he attained the position of Director of the State Tobacco Factory, his leisure, for nearly half a century, was devoted to a patient study of some of the smallest and most difficult of the Coleoptera. He was attracted early in life to the investigation of the obscure and neglected but immensely numerous little beetles constituting the Clavicorn families, and with admirable persistence he steadily refused to allow the rival attractions of less exacting but more showy objects of study to divert him, even temporarily, from his chosen task. He retired from the public service in 1907, and from that time until the end worked incessantly at the subject upon which he had become the recognized authority, and upon which he has left more than 150 memoirs, some of them of considerable length and all characterized by a degree of thoroughness and accuracy far from common in work of its kind. He served his term as President of the Entomological Society of France, but was of a particularly modest and unassuming nature, although extremely charming and genial in private life. His very large and valuable collection of Coleoptera is left to the Paris Museum.—G. J. A.

## Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :  
*May 24th, 1917.*—MR. H. J. TURNER, F.E.S., President, in the Chair.

Mr. Sperring exhibited a short series of *Pieris napi* from Sligo strongly tinged with yellow. Mr. Edwards, specimens of the British Cicada, *Cicadetta montana*, from the New Forest. Mr. H. Moore, *Manduca atropos* from Durban. Mr. Main reported that his Scarabaeids were very busy trundling their balls of horse-dung and actively engaged in excavating their cells and other domestic matters.

*June 14th, 1917.*—The President in the Chair.

Mr. H. Moore exhibited a field-cricket, *Brachytrypis membranaceus*, and a stag-beetle, *Lucanus* sp., from Durban. Mr. H. J. Turner, specimens of *Euchloë cardamines* showing minor aberration:—(1) Large ♂ from Cannes, intense orange patch, edged with yellow shade, and reaching the anal angle; (2) a ♂ from Wisley with apical blotch extending nearly to anal angle and about double in width by a cloud of black scales; (3) a ♀ from Box Hill with very dark apical blotch on fore wings and distinct discoidal dot on hind wings; (4) a ♀ from Amersham with very light apical blotch which was intersected throughout by parallel bars of white; (5) a ♂ from Ox-bolt with basal half of under-side clear light yellow. Mr. Turner also showed a copy of Jacob Christian Schäffler's work, date 1763, and called attention to the coloured plates illustrating the life-history of *Parnassius apollo*, including the eversible fork on neck of larva, flimsy cocoon for pupation, structure of fore legs, and details of

the curious copulatory pouch; mostly magnified. Mr. Frohawk, the *Anosia pleurippus* captured last year in Ireland. Reports on the Season showed that insects were up to date and generally common.

June 28th, 1917.—The President in the Chair.

Mr. H. Moore exhibited the nest of a wasp, *Icaria* sp., from Demarara. Dr. Chapman, a pair of living *Chrysophanus dispar* v. *rutilus*, naturalised in Britain for three generations, and also specimens of the egg-laying of the sawflies *Cladus riminalis* in the petioles of the poplar, and of *Lophyrus pini* in a groove in needles of *Pinus sylvestris*. Mr. Main, living beetles from Sicily. Mr. West (Greenwich), the rare Heteropteron, *Calocoris alpestris*, from Cumberland, and a living larva of *Stauropus fagi* from the New Forest. Mr. Bunnnett, larval cases and living imagines of *Coleophora palliatella* from Crohamhurst, and cases with an imago of the Psychid known as *Fumea casta*. Mr. Turner, varied series of *Coenonympha iphis*, *C. arcania*, and *C. satyrion*, including several of the named forms, and summarised the current opinion as to the specific value of the three. Remarks were made by several members on the season. Members had seen *Colias edusa*, *Vanessa io*, *Pyrameis atalanta*, larvae of *Celastrina argiolus*, and second broods of *Pieris rapae* and *P. napi*.—HY. J. TURNER, Hon. Ed. of *Proceedings*.

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ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, May 2nd 1917*.—Dr. C. J. GAHAN, M.A., President, in the Chair.

Mr. Arthur Dicksee, 24 Lyford Road, Wandsworth Common, S.W. 18. was elected a Fellow of the Society.

Mr. O. E. Janson exhibited specimens of *Euchroea coelestis*, a rare and beautiful Cetoniid from Madagascar. Mr. W. J. Kaye exhibited two cases of *Caligo* species from the collection of Mr. J. J. Joicey as well as from his own collection, together with a number of microscopical mountings of the male genital organs. The Rev. F. D. Morice, a set of six photos showing the ovipositor and apex of the ♀ abdomen in three species of subspecies of the Siricid genus *Paururus*, viz. *juvencus* F., *noctilio* F., and *cyaneus* F. The President remarked that the *Xestobium* which he had exhibited at the previous meeting was still living, and that he had discovered that it was a ♀. It had tapped when touched on the head with a bit of paper, and when this was continued had extruded its ovipositor.

The following papers were read:—"New and Little-known Heterocera from Madagascar," by Sir George Kenrick, F.E.S.; "A Preliminary Catalogue of British *Cecidomyiidae*, with special reference to the Northern Gall-flies," by R. S. Bagnall, F.E.S., and J. H. Harrison, M.Sc.

*Wednesday, June 6th, 1917*.—The President in the Chair.

Dr. H. G. Breijer, Ph.D., Director of the Transvaal Museum, Pretoria, Transvaal, S. Africa, and Dr. Alfred E. Cameron, M.A., D.Sc., The Entomological Laboratory, Agassiz, British Columbia, were elected Fellows of the Society.

Mr. E. E. Green exhibited two new and (at present) undescribed species of British *Coccidae*, both belonging to the genus *Lecanium* and both occurring on the birch (*Betula alba*). Mr. W. J. Kaye, *Morpho adonis*, three males and a fine female from British Guiana, also on behalf of Mr. J. J. Joicey *M. adonis* males and one ♀ from French Guiana, and *M. eugenia* males and one ♀ also from French Guiana, together with preparations of the genitalia of both to show that there was no room for doubt that *M. eugenia* Deyr., 1860, is a distinct species from *M. adonis* Cram. Mr. G. Talbot, on behalf of Mr. J. J. Joicey, (1) a white-banded mimetic group of African Heterocera from the Cameroons, composed of *Massaga maritona* Butl. and *Massaga* sp.? (*Agaristidae*), *Hypochrosia massagaria* Karsch (*Geometridae*), and *Ommatothelcis grandis* Druce (*Tineidae*); (2) an example of resemblance which is not mimetic, seen in *Scoriopsis infamata* Warr., from Peru, a Geometrid bearing a strong likeness to a Lymantriid species from Angola; (3) a mimetic group from Dutch New Guinea: species of *Tellerro*, which are essentially Danaïne in character, probably serving as models for the ♂ of the Satyrine *Drusillopsis dohertyi* Ob., and with which is associated the black and white *Neptis*; (4) two forms of *Tellerro* from the Island of Misol: this is further confirmatory evidence of the existence of at least two species in this puzzling genus; (5) *Papilio erlaces*, with its races, including a new race from North Peru, and showing the mimetic ♀ of *P. harmonidius* Doubl., from the same district. Prof. Poulton said that on the previous day (June 5th) Mr. H. Britten had seen a swallow capture a Lycaenid butterfly. Prof. Poulton said that, after the above note had been written, as he was bicycling to the Museum that morning, a bird darted from out a garden and struck a *Pieris*, flying heavily after rain: the bird was frightened by the bicycle and darted back, leaving the butterfly fluttering in the road. He got off his bicycle and, looking back, saw the bird return and carry the insect into the garden. The bird flew up into a tree and, finally, still carrying the butterfly, across the road. The butterfly was *P. napi* or *rapae*, almost certainly the latter. The bird could not be observed very clearly, but from its size, colour, markings (so far as seen), and flight, was evidently a female chaffinch. The persistent pursuit in all these observations was worthy of note. Prof. Poulton exhibited the mimetic *Papilio polytes* L., females of two series recently sent to him by Dr. R. Hanitsch of the Raffles Museum, Singapore. He also read an observation recorded in a letter written to him Jan. 18th, 1917, by Dr. Carpenter, throwing further light on the storing of *Hesperidae* by *Bembecides*. Prof. Poulton exhibited and described a set of predaceous insects captured 1913-16 by Dr. Gregorio Bondar in the S. Paulo district of S.E. Brazil.

The following paper was read:—"On a Collection of Lepidoptera made in East Africa by Mr. W. A. Lamborn, F.E.S.," by H. Eltringham, M.A., D.Sc., F.E.S.—GEO. WHEELER, *Hon. Secretary*.

NOTES ON TROPICAL AMERICAN LAGRIIDAE, WITH DESCRIPTIONS  
OF NEW SPECIES.

BY G. C. CHAMPION, F.Z.S.

(Continued from p. 154.)

20.—*Disema ochreostigma*, n. sp.

♂. Moderately elongate, widened posteriorly, dull above, shining beneath; piceous, the large opaque depression on the elytra ochreous; clothed with scattered bristly hairs. Eyes extremely large, almost contiguous. Antennae long, stout, strongly serrate from the third joint, 11 a little longer than 9 and 10 united. Prothorax uneven, subquadrate, rounded at the sides in front, the basal margin feebly raised; closely impressed with intermixed coarse and fine punctures, triangularly depressed at the base, and shallowly sulcate anteriorly. Elytra moderately long, at the middle more than twice the width of the prothorax; finely, deeply crenato-striate, the punctures transverse, the interstices convex, becoming narrow towards the sides, 3 and 5 with a few scattered setigerous impressions, 1 also with two others near the apex; the ochreous, opaque lateral depression transversely grooved, elongate-oval, extending from the fifth stria to near the margin. Ventral segment 5 unimpressed, truncate at the apex, leaving the genital armature partly exposed, the latter consisting of a pair of long, curved, slender hooks, two shorter and stouter pieces, and a compressed downwardly curved aedeagus. Legs comparatively smooth, the femora more or less grooved beneath; anterior tibiae feebly sinuate within, the others almost straight, simple.

Length 7, breadth  $2\frac{1}{2}$ -3 mm.

*Hab.*: BRAZIL, Bahia (*Reed*).

Two males. A small form, piceous in colour, with strongly serrate antennae, very large eyes, a subquadrate, uneven, coarsely punctured prothorax, a large opaque ochreous stigma on each elytron, and almost simple legs. The genital armature, so far as visible, is characteristic.

21.—*Disema fulvipes*.

(PLATE II, fig. 11, anterior tibia, ♂.)

♂. *Barsenis fulvipes* Pasc., Ann. & Mag. Nat. Hist. (5) xx, p. 18, pl. 1, fig. 6 (1887).

♂. Antennae long, joints 3-10 flabellate, 11 as long as 9 and 10 united; eyes extremely large, contiguous; anterior tibiae strongly bowed inwards, broadly arcuato-explanate on its lower external edge, concave and sericeous within; elytra with a large, oblique, elongate, opaque lateral patch extending between the striae 4 and 9.

*Hab.*: AMAZONS, Ega [type] and Santarem (*H. W. Bates*); BRAZIL, Jatahy, Province of Goyas (*Pujol, ex coll. Fry*).



Pascoe's description of *B. fulvipes* ( $\sigma$ ) is incomplete and misleading: the very peculiar form of the anterior tibiae, the opaque lateral patch on the elytra, and the row of setigerous impressions along each dorsal interstice, were not mentioned; the insect, in fact, is incorrectly stated to be subglabrous, and its sex was not suspected. Numerous males, including the type, have been examined, two from Santarem having the prothorax rufo-testaceous and the elytra in great part testaceous. The pallid coloration of the femora and tibiae seems to be constant. A female from Ega, ferruginous in colour, with simple antennae and legs, much smaller eyes, the opaque lateral patch on the elytra wanting, and the setigerous impressions on the alternate interstices mostly obsolete, almost certainly belongs to the same species. The flabellate  $\sigma$ -antenna is simply an exaggeration of the strongly obliquely serrate corresponding organ of *D. serraticornis* Mäkl.

22.—*Disema cisteloides*, n. sp.

$\sigma$ . Elongate, broad, much widened posteriorly, somewhat depressed, dull above, shining beneath; piceous or reddish-brown, the legs and antennae usually ferruginous; clothed with long, scattered bristly hairs. Eyes extremely large, separated by a narrow line only. Antennae very long, strongly serrate, joint II about equalling 8-10 united, curved, shallowly grooved and asperate on its inner face. Prothorax transverse, slightly wider than the head, feebly rounded at the sides anteriorly, the basal margin moderately prominent; impressed with scattered intermixed coarse and fine punctures, canaliculate anteriorly, and depressed in the centre at the base. Elytra long, broad, rapidly widened to the middle, and there about three times the breadth of the prothorax, arcuately narrowed thence to the apex: finely crenato-striate, the interstices broad, rather convex, 1, 3, 5, 7, and 9 each with a series of scattered minute tubercles followed by a small setigerous impression. Ventral segment 5 unimpressed. Legs very long; femora compressed, almost smooth, more or less sulcate beneath, the intermediate pair with an opaque, elongate pad at about the middle.

Length  $11\frac{2}{3}$ -13, breadth  $4-4\frac{1}{2}$  mm.

*Hab.*: BRAZIL (*Miers*, in *Mus. Oron.*). Constancia and Petropolis (*J. Gray and H. Clark*, Jan. & Feb. 1857), Rio de Janeiro (*Fry*).

Twelve specimens, apparently all males. A large Cisteliform Lagriid, differing from all the species of *Disema* described by Mäklin\* and Pic in wanting the opaque lateral patch on the elytra in  $\sigma$ . *D. longicornis* Mäkl., also from Petropolis, must have similarly elongate antennae, etc. The present species seems to be fairly common in the district of Rio de Janeiro. A  $\text{♀}$  in the Oxford Museum (*ex coll. Miers*), with shorter and more feebly serrate antennae, smaller head and eyes, and the minute

\* The insect here identified as his *D. (Stalira) obscura* excepted.

tubercles on the alternate elytral interstices almost obsolete, may belong to it? There are several allied unnamed S. American forms in the collections before me, all too imperfect to describe, the following two excepted.

23.—*Disema sulcicollis*, n. sp.

Elongate, broad, widened posteriorly, somewhat depressed, feebly shining; piceous, the antennae (joints 1 and 2 excepted) ferruginous, the prothorax and elytra with a brassy or greenish lustre; clothed with a few bristly hairs. Head rather small; eyes very large, narrowly separated; antennae comparatively slender, very feebly serrate, not reaching to the middle of the elytra, joint 11 a little longer than 9 and 10 united. Prothorax considerably wider than the head, transverse or about as broad as long, rounded at the sides, constricted before the prominent basal margin; sparsely impressed with intermixed coarse and fine punctures, deeply triangularly excavate in the middle at the base, and sulcate on the disc anteriorly. Elytra broad, moderately elongate, rapidly widening to the middle, somewhat acuminate posteriorly; finely punctato-striate, the interstices broad, more or less convex, 1 and 3, and sometimes 5 also, with several inconspicuous setigerous impressions. Legs long, simple.

Length  $9\frac{1}{2}$ – $10\frac{1}{2}$ , breadth  $3\frac{1}{2}$ –4 mm. (♀.)

*Hab.*: UPPER AMAZONS, Ega (*H. W. Bates*).

Three specimens, somewhat imperfect. Smaller and less elongate than *D. cisteloides*; the elytra with a metallic lustre, the setigerous impressions reduced in number, small, and evanescent; the antennae comparatively slender. The male doubtless has these organs more strongly serrate. The much longer third antennal joint, etc., separate *D. sulcicollis* from the Central American species of *Epicydes*.

24.—*Disema obliterated*, n. sp.

Moderately elongate, rather convex, widened posteriorly, feebly shining; fusco-castaneous, the head rufescent, the eyes black, the antennae and legs rufo-testaceous; clothed, the legs included, with scattered bristly hairs. Head small, coarsely punctate between and behind the eyes, the latter moderately large, well separated; antennae rather slender, feebly serrate, long, joint 11 equalling 9 and 10 united. Prothorax wider than the head, about as long as broad, rounded at the sides anteriorly, constricted before the feebly raised basal margin; impressed with intermixed coarse and fine punctures, depressed in the centre at the base, and sulcate anteriorly. Elytra moderately long, rapidly widened to the middle, and there more than twice the width of the prothorax, somewhat acuminate posteriorly; finely punctato-striate, the interstices feebly convex, 3, 5, 7, and 9 with a series of fine scattered setigerous impressions, 1 also with two or three others near the tip. Legs simple, the anterior femora stout.

Length  $7\frac{1}{4}$ – $7\frac{1}{2}$ , breadth  $2\frac{1}{2}$ –3 mm. (♀?)

*Hab.*: BRAZIL, Rio de Janeiro (*Fry*).

Two specimens. Another example, from Santarem, reddish brown in colour, with the intermediate and posterior femora infuscate in their outer halves, and a series of small setigerous impressions along the first elytral interstices, may belong here. Very much smaller than *D. cistelloides* and *D. sulcicollis*, the eyes smaller and more distant, the antennae feebly serrate, the prothorax and elytra shaped much as in *D. (Barsenis) fulripes* Pas., the elytra with setigerous impressions on the alternate interstices.

#### MENISCOPHORUS Champ.

##### 1.—*Meniscophorus opacipennis*, n. sp.

♀. Elongate, rather broad, parallel-sided, opaque above; black, the bases of the palpi, the head (except behind the eyes), the prothorax (an oblique patch on each side at the base excepted), the basal halves of the femora, the intermediate and posterior tibiae to near the tip, and the tarsi in part, testaceous, the humeri and inflexed elytral margin obscurely rufescent; the head and elytra with a few bristly hairs. Head alutaceous, obsoletely punctulate, the broad neck and the post-ocular portions coarsely punctured, transversely depressed and with conspicuous setigerous impressions between the eyes, the latter moderately large and somewhat distant; antennae thickened from joint 3 onward [5-11 missing]. Prothorax longer than broad, as wide as the head, subcylindrical, feebly bisinuate at the sides, the basal margin moderately thickened; rather coarsely, closely punctate, the disc with two oblique impressions towards the base. Elytra moderately elongate, flattened on the disc, one-half wider than the prothorax, parallel, rounded at the tip; with rows of closely placed transverse crenate punctures separated by narrower subcostate interstices; the depressed opaque stigma small, greyish, oblong, placed along the margin at about one-third from the tip. Legs slender, the femora and tibiae smooth.

Length  $7\frac{1}{4}$ , breadth  $2\frac{1}{2}$  mm.

*Hab.*: UPPER AMAZONS, San Paulo [de Olivenca] (*H. W. Bates*).

One specimen. A form of the Central American *M. costatus*, with a more coarsely punctured prothorax, which is unimpressed on the disc anteriorly and has the black lateral portion reduced to an oblique streak at the base, the elytra almost wholly black. *M. opacipennis* can scarcely be a colour-variety of *M. amazonicus* Champ. (♂) from the same locality, the latter having large eyes, a narrower neck, and a narrower, less coarsely punctate prothorax, the sexes of *M. costatus* not differing in this manner. The apical joint of the labial palpi is crescentiform.

##### 2.—*Meniscophorus signifer*, n. sp.

♂. Moderately elongate, narrow, depressed, somewhat shining; nigropiceous, the bases of the femora and the trochanters and coxae testaceous; almost glabrous (? abraded). Head large, sparsely minutely punctate, longitudinally excavate in the middle between the eyes, the latter very large, somewhat narrowly separated; antennae rather slender, moderately long

[joints 8-11 wanting]. Prothorax much narrower than the head, considerably longer than broad, rounded at the sides, the latter converging and constricted towards the base, the basal margin raised; densely, conspicuously punctate, canaliculate down the middle. Elytra about one-half wider than the prothorax, moderately long, subparallel in their basal half, rounded at the tip; closely, rather finely seriato-punctate, the interstices narrowly costate, the punctures arranged in irregular double series on the disc from the base to beyond the middle; the depressed, opaque stigma greyish, long, narrow, placed along the margin at about one-third from the apex. Legs long, slender, simple, the anterior femora stout, the others feebly clavate.

Length  $6\frac{1}{2}$ , breadth  $1\frac{2}{3}$  mm.

*Hab.*: VENEZUELA (*ex coll. Fry*).

One specimen, apparently ♂. Narrower and more elongate than the Central American *M. costatus*, the eyes much larger and more approximate, the antennae slender, the prothorax less uneven and closely punctate, the punctures on the dorsum of the elytra irregularly geminate between the costae, the narrow lateral stigma similarly placed.

#### SIPOLISIA Fairm.

##### 1.—*Sipolisia serricornis*.

♂. *Sipolisia serricornis* Fairm., Compt. rend. Soc. Ent. Belg. xxxiii, p. xlix (1889).

Antennae long, stout, sharply serrate in ♂, shorter and more feebly serrate in ♀, joint 11 in ♂ equalling 8-10, in ♀ 9 and 10, united, asperate on its inner aspect; elytra with the depressed, opaque, velvety, lateral stigma large and elongate in ♂, small in ♀; posterior femora somewhat curved, thickened towards the apex, and hollowed thence to near the base; aedeagus with the median lobe attenuate and curved upward at the tip.

*Hab.*: BRAZIL, Minas Geraes (type of Fairmaire), Rio de Janeiro (*Fry*).

There is a pair of this remarkable insect, the type of the genus, in the Fry collection. It bears a considerable resemblance to a Brenthid, and this is accentuated by the flavous line extending down the second elytral interstice to beyond the middle. The head is narrow and exerted (as in *Statira longiceps* \*); the antennae in both sexes have joints 3-10 broad and triangular (much as in *Uroplatopsis*); the femora are clavate; the prothorax is elongate and almost smooth; the elytra are long and narrow, striato-punctate to near the tip, the first row of punctures placed in a rather deep stria, the interstices 1 and 2 broader than the others, 1 with setigerous punctures scattered throughout its length, the opaque lateral patch present in ♂ and ♀. Two other species of the genus were described by Pic in 1912, *S. saturalis* and *S. gounellei*, both from Brazil.

\* Cf. Trans. Ent. Soc. Lond. 1917.

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THE LONDON NATURAL HISTORY SOCIETY, which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

Hon. Sec.: J. Ross, 18, Queen's Grove Road, Chingford, N.E.

Chingford Branch. The Chingford Local Branch meets at the Avenue Café, opposite Chingford Station, at 8 p.m., on the 2nd Monday in each month.



## UROPLATOPSIS Champ.

1.—*Uroplatopsis ochreofasciata*, n. sp.

(PLATE II, fig. 12.)

Elongate, narrow, widened posteriorly, rather dull, the legs shining; black, the basal joint of the maxillary palpi, the apical joint of the antennae, a large outwardly-widened patch on each elytron before the apex (nearly reaching the suture and extending forwards along the inflexed margin), and the intermediate and posterior femora at the base, testaceous or ochreous; the head, elytra, and legs set with long, erect or projecting, bristly hairs. Head very coarsely, confluent punctate, transversely depressed between the eyes, the latter rather small, transverse, distant from one another and from the base of the head; antennae long, stout, the joints 3-10 triangular, broad, 3-7 gradually becoming wider, 8-10 diminishing in size, 11 a little longer than 10. Prothorax not longer than broad, about as wide as the head, rounded at the sides and constricted before the base; very uneven, rugosely vermiculate, with two broad, curved, transverse, tuberculiform elevations on each side of the disc, the basal and apical margins raised. Elytra very elongate, much broader than the prothorax, widening from the base to near the apex, rounded at the tip; with closely packed series of broad, transverse impressions separated by conspicuous shining ridges, the interstices narrowly costate throughout. Metathoracic episterna deeply grooved along their inner edge. Legs long, very coarsely punctate, the femora clavate.

Length  $9\frac{1}{4}$ , breadth 3 mm.

*Hab.*: ECUADOR (*Buckley*).

One specimen, sex not identified. Very different from any of the described species, and recognizable by its black body, the unusually elongate, posteriorly widened elytra, which have a broad ochreous subapical fascia, the quadri-tuberculate, vermiculate prothorax, the rugose head, etc.

2.—*Uroplatopsis peruviana*.

*Uroplatopsis peruviana* Pic, Mélanges exot.-entom. i, p. 9 (Nov. 1911).

Var. *inornata*, n. var. Elytra wholly black, the humeri excepted; the head usually much smoother and polished before and behind the deep transverse inter-ocular sulcus.

*Hab.*: PERT (type of Pic), Nauta (*Mus. Brit.*); UPPER AMAZONS, Ega, Tumantins, Para (*H. W. Bates*: *Mus. Brit.*, *Mus. Oxon.*).

A dozen specimens before me from the Amazon-region seem to be referable to *U. peruviana* Pic, four having the elytra coloured as he describes (black, with an elongate humeral patch and a common post-median fascia, which are sometimes coalescent laterally, ochreous or

testaceous), and nine having the elytra black, with a small reddish humeral patch only. The dark variety is coloured like *U. nodosa* Champ., also from Ega, but the latter has three smooth, transverse, tuberculiform elevations along each side of the middle of the disc of the prothorax, instead of a very deep transverse excavation extending across the centre as in *U. peruriana*. The head in the maculate form is very rugose, almost smooth in the dark variety, intermediate examples occurring. The antennae usually have one or two of the terminal joints ochreous, 11 being a little longer than 10 in ♂. The metathoracic episterna are deeply sulcate along their inner margin. The closely packed seriate punctures on the elytra are coarse and deep, the interstices narrowly costate.

3.—*Uroplatopsis annulipes*.

(PLATE II, figs. 13, 13 a, ♂.)

*Uroplatopsis annulipes* Pic, Mélanges exot.-entom. v, p. 14 (March 1913) (♀?).

♂. Eyes large, narrowly separated; antennae with joints 3–10 flabellate concave on their anterior aspect, tapering towards the apex, 11 narrow, nearly as long as 8–10 united.

*Hab.*: BRAZIL (*Mus. Brit.*: ♂), Tijuca (type of Pic: ♀?), Rio de Janeiro (*Fry*: ♂).

Pic's description of *U. annulipes* applies to the four examples before me, except as regards the rather stout, subfiliform antennae, these organs in the present insect being flabellate and formed as in the male of *Disema (Barsenis) fulvipes* Pasc. The specimens examined have the head quite small, roughly punctate; the prothorax coarsely, closely punctate on the disc and excavate towards the outer margin, the sides broadly, and those of the elytra also to a variable extent to near the apex, testaceous, the rest of their surfaces nigro-piceous; the elytra with closely packed series of transverse crenate punctures, the interstices 4–9 narrowly costate; the legs piceous, the femora with a flavous or reddish annulus beyond the middle; the metathoracic episterna without groove. One of the males in the Museum was acquired in 1843. The locality Tijuca is not far from Rio de Janeiro.

4.—*Uroplatopsis* (?) *pallidipes*.

*Uroplatopsis pallidipes* Pic, Mélanges exot.-entom. v, p. 14 (March 1913).

*Hab.*: FRENCH GUIANA, Kourou (type); UPPER AMAZONS, Ega (*H. W. Bates*).

A ♀ from Ega agrees very nearly with Pic's description of *U. pallidipes*, except that the head can hardly be described as "grosse," or the antennae as "très robustes," but these may be sexual differences. An elongate, shining insect, piceous in colour, with the head at the sides and in front, the sides of the prothorax broadly, a narrow submarginal vitta on the elytra, and the legs (a dark ring on the femora excepted) pale testaceous; the head almost smooth, obliquely narrowed behind the eyes, excavate and longitudinally sulcate between them, the eyes small, transverse, somewhat distant, the neck broad; antennae with the third and following joints [6-11 missing] stout; the prothorax transverse, wider than the head, smooth, with a very deep, large, subtriangular excavation on each side of the disc; the elytra closely erenato-striate, with narrow, costate, faintly uniseriate-punctate interstices, the eighth widened and convex; the legs slender; the raised intercoxal portion of the prosternum extremely narrow; the metathoracic episterna without groove along their inner edge.

It is doubtful if this species really belongs to *Uroplatopsis*.

#### EMYDODES Pascoe.

##### 1.—*Emydodes collaris*.

♂. *Emydodes collaris* Pascoe, Journ. Ent. i, p. 56, pl. 3, fig. 3.

♂. Antennae long, joints 3-10 stout, triangular, bifid at the apex as seen from within.

♀. Antennae shorter, simply serrate.

*Hab.*: AMAZONS, Para [type: ♂], Ega, San Paulo [de Olivenca] (*H. W. Bates*).

There are six examples of this species in the Museum, including the type. The remarkable form of the ♂-antenna (which may be said to be biramose or bipeetinate in ♂) is not shown in Pascoe's rough figure. The thickening of the intermediate and posterior tibiae, due to the matting of the hairs in the type, is exaggerated in his illustration, and the three other males before me show no trace of this character. The head varies from red to black. *E. nigriceps* Pic, from the Rio Mixiollo, Peru [L'Echange, xxiii, p. 183 (1907), and xxvii, p. 158 (1911)], seems to be based on a black-headed ♀ of the same species.

(To be concluded.)

## AN INSTANCE OF A DOUBLE PUPAL SKIN.

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

(PLATE IV.)

The specimen, the occurrence of which I report, is of *Pieris brassicae*.

I was preparing examples of the terminal segments of pupae to place on microscopic slides, and it is much to be regretted that, in regard to the sample in question, I removed the sixth abdominal and following segments and put them to macerate and soften, but rejected the remainder, and this was no longer discoverable when I found it to be a very desirable object. My observations therefore refer only to these last five abdominal segments.

The specimen was a full pupa, not an empty pupa-skin, and when softened I proceeded to remove the interior from the pupa-skin, but was very much astonished to find that in doing so I removed also an interior skin that had all the characters of a pupa-skin. The pupa-skin, in fact, contained not the imago simply but the imago enclosed in an interior or second pupal skin.

I placed both these on a slide, and the Plate shows photographs of them. I appear to have placed one of them with the outer and one with the inner face upwards, so that the photographs show them reversed. I have, however, placed them on the Plate so as to be easily comparable. They are opened out and laid flat on the slide, the incision just below the spiracles on one side was, of course, made in both by the same operation. I have placed on the figures a *d* to mark the medio-dorsal line and a *v* to mark the ventral line. It will be noticed that the inner skin is smaller than the outer; this would naturally be so, but it is so much smaller that I think its less mature tissues have shrunk under the action of alcohol and benzole. This probability seems the greater when we see that this inner skin has very satisfactorily flattened out, being fairly soft and pliable, whilst the outer one has been more refractory and got folded in consequence, as it happens in the region of the genital and anal structures—these can, however, be seen to be ordinarily developed, though now distorted.

The outer skin is that of an ordinary (female) pupa of *P. brassicae*, with dorsal ridge, various black markings, the usual pen-shaped extremity with cremastral hooks. The eighth abdominal spiracle, though obsolete, is very distinct, and the intersegmental membrane is seen to be full, laterally, between the sixth and seventh segments, where movement is possible in the living pupa.

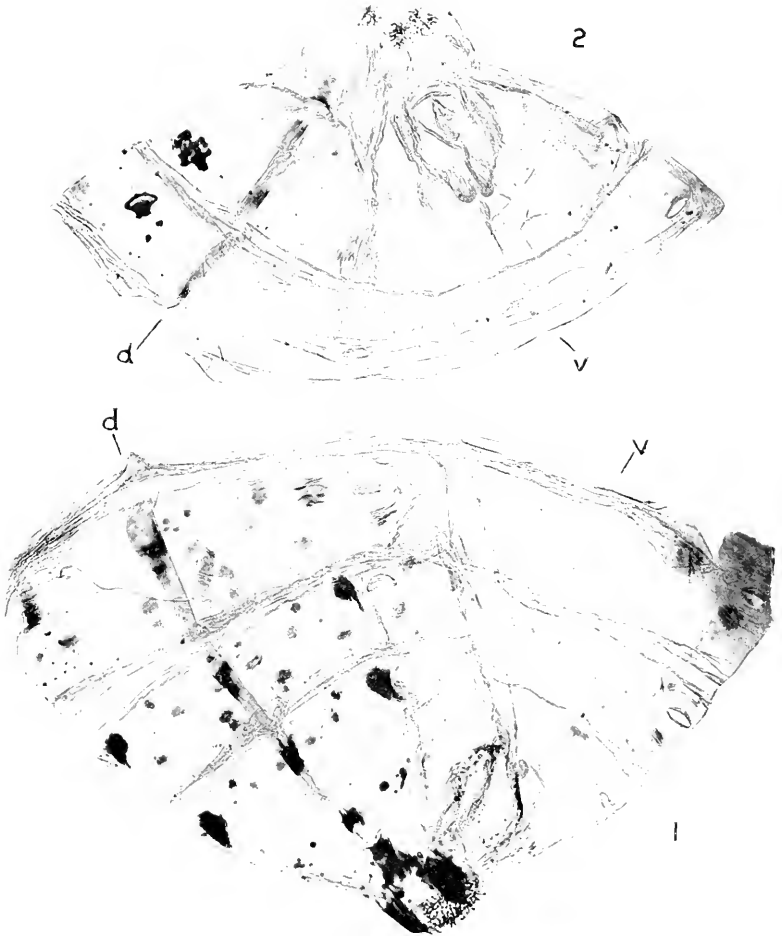


Photo. F. N. Clark.

DOUBLE PUPA CASE OF PIERIS BRASSICAE



The inner pupal skin is seen to be less robust; except on the dorsal ridge, there are no black markings (the black markings on one side in the photograph are due to air-bubbles). It is particularly remarkable that this inner pupa has a cremaster about as efficiently provided with hooks as the outer one. The anal and genital openings or depressions, the suspensory tubercles, etc., are developed much as in an ordinary pupa, but perhaps a little less solidly. The folding in the preparation of the outer skin prevents a detailed comparison, but, compared with another pupa, the only difference is the absence of black markings.

This duplication of the pupal skin is very difficult to understand. So far as the portion preserved shows, the inner and outer skins fitted to and corresponded to each other exactly, so that one is led to suppose that both were assumed at the same time at the moult to pupa. But otherwise this seems to be a very doubtful hypothesis. How the inner skin could be assumed later, without moulting the outer one, also presents difficulties. Indeed, the difficulty is to form any hypothesis as to how there could be two pupal skins.

It seems very likely that when the butterfly matured it would have emerged in much the same way as in the case of the ordinary single pupal skin.

I do not remember to have read or heard of such a case, and as regards my own experience, I have never met with the same condition before, though thousands of pupae and pupa-shells have passed through my hands, and in hundreds of cases with close enough observation to have detected such a condition if present.

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#### DESCRIPTION OF PLATE IV.

Fig. 1.—Shows the outer pupal skin of the last five segments of the pupa of *Pieris (Mancipium) brassicae*, opened down one side and spread out flat. It resisted the flattening sufficiently to become wrinkled down below the spiracles on one side and in the ventral surface of the last segments. The letters *d* and *v* mark the dorsal and ventral lines.

Fig. 2.—Shows the inner pupal skin of the same specimen, reversed in the Plate, to bring the corresponding portions into comparison with fig. 1. It is smaller and less solid and colored than fig. 1. The smaller size probably partly due to shrinking in preparation of the softer and more delicate texture, otherwise the two portions are alike. Both are  $\times 10$ .

Betula, Reigate.

Aug. 4th, 1917.

## ANDRENA BUCEPHALA STEPH. AND NOMADA BUCEPHALAE PERK. IN DEVONSHIRE. AND NOTES ON THEIR HABITS.

BY R. C. L. PERKINS, D.Sc., M.A., F.E.S.

One day in the first half of last May, on the coast near Paignton, I happened to come across the local *Andrena bucephala* and its still more local parasite *Nomada bucephalae*. This *Nomada* was wrongly considered by Smith and Shuckard to be the *N. lateralis* of Panzer, and also wrongly by E. Saunders to be a mere variety of *N. ruficornis* L. In the January No. of this Magazine (*ante*, pp. 12, 13) I have recently discussed the specific characters and habits of the whole *ruficornis* group of *Nomada*.

In several years previously I had made special but unsuccessful efforts to find *A. bucephala*—in fact, ever since I casually captured a single ♂ of its parasite a few years ago,—and it was by the merest chance that I found it this year. A *Nomada* seen hovering over a small bank was recognized at once by the distinctive abdominal markings (conspicuous enough, as it hovered) as a female *N. bucephalae*. Before any attempt to capture it could be made, it had disappeared down the burrow, which it had been investigating in the usual manner of its kind on the wing. A large glass-bottomed box having been placed over the burrow, I walked away to see if other specimens of the parasite or its host were to be found in the neighbourhood, for it is sometimes a considerable time before a bee that has entered a burrow will come out again, even in hot bright weather. Returning after some minutes, I was much surprised to see about half a dozen of the *Andrena* flying around or actually settling on the box, while as many more were to be seen inside this, and no fewer than three females of the *Nomada*. The returning specimens of the *Andrena* were heavily laden with pollen and so were allowed to enter the burrow. Subsequently it was seen that dozens of females were carrying their store into this one nest. All the short time that I could give to field-work was spent in watching these bees, and altogether in May and June I visited the locality on four occasions, spending an hour or two there each time. In all, three burrows of *Andrena bucephala* were found, two of which—one being the original one—were quite close together, or not more than a yard apart, while the other was placed in another bank, or slope, some thirty or forty yards away. From the number of bees seen to enter these three burrows and from the males observed flying round the bushes within a few yards of them, I estimated that those females which were using and the males which had emerged from these three burrows amounted to at least several hundred and probably to not less than a thousand individuals. When the species was at the height of its



abundance, the females were continually entering the burrow fully laden and issuing from it unladen, so as to compare in numbers with those of a weak nest of one of our common wasps. I do not think the *Nomada* was more than one to ten of its host, and no ♂ of the parasite nor yet of the *Andrena* was seen to enter either of the burrows. The males of the latter flew wildly round the bushes close to the burrows, rarely settling on flowers, generally in company with those of *A. trimmerana* (auct. plur., nec K.), which they greatly resemble on the wing. Occasionally a ♂ of the *Nomada* was seen with them, but the parasites mostly flew lower about the bushes or over the herbage, occasionally settling on a bare stone in the hot sunshine. Not a single example of these vagrant males, either of host or parasite, was found beyond a radius of fifty yards from the burrow, so that both insects were extremely local.

On April 15th these species were at the height of their abundance and both sexes were in beautiful condition, although many of the *bucephala* already carried great loads of pollen. My last inspection was on June 18th, when I took one of my boys, who was away from school on that date, to the locality, he being anxious to see the species alive and their burrows. On that occasion the female *Andrena* was much faded and nearly over, and only one *Nomada* was seen. Males were quite over. I had some idea of digging out one of the nests to study the mode of nidification, but, unfortunately, two of the burrows appeared to have been scratched out by some predaceous animal, and I did not care to interfere with the remaining one. Possibly the common entrance leads to some cavity in the rocky ground and the pollen-masses are either deposited there or separate burrows start from that point. It has been stated by a Continental writer that colonies of *Halictus quadricinctus* are formed with a single common entrance, but I have seen nothing of this kind with any British species of that genus that I have examined. Certain Fossors, however, e. g. *Crabro leucostoma* and *Pemphredon lugubris*, appear to form such colonies, though not as a regular habit. Amongst the long-tongued bees some *Megachile* and *Osmia* form their nests, several or many together, with a common entrance. This may take place in the soil or in various other situations, e. g. pipes, door-locks, etc., but in the latter cases the entrance is not the work of the bee itself. It is curious that F. Smith and others, who for many years had the large colony of *A. bucephala* that used to exist at Hampstead under observation, recorded no peculiarity in the habits. Possibly these vary, as in the case of the Fossors mentioned above. It would be interesting to know whether the allied *A. ferox* Sm. has similar habits, as, if so, this might partly account for the infrequency with which this widely-distributed species has been met with.

Aug. 8th, 1917.

*AYLAX TARAXACI* (ASHM.), A CYNIPID (*HYMENOPTERA*) NEW TO THE  
BRITISH FAUNA, AND NOTES ON OTHER GALL-WASPS.

BY RICHARD S. BAGNALL, F.L.S., F.E.S.

*Aylax taraxaci* (Ashmead).

*Gilletea taraxaci* Ashmead, 1897, 'Psyche,' viii, p. 69.

*Aulax taraxaci* Kieffer, 1902, Bull. Soc. Metz, ser. 2, x, p. 95.

*Aylax taraxaci* Dalla Torre and Kieffer, 1910, *Cynipidae* in 'Das Tierreich,' xxiv, p. 68D.

I first found old galls in the form of swellings in the midrib (chiefly basally) of dandelions in the autumn of 1916, at Washington and Penshaw in County Durham, but it was only last month (July) that I discovered fresh galls and was thus enabled to examine the occupants—larvae of the Cynipid and of a Chalcid parasite, many of which have since been bred out. The galls were taken on Penshaw Hill in all stages (thanks to Mr. A. M. Oliver, who was with me a day or two after the discovery).\*

The species is a small one, length ♂ 1.1 mm. and ♀ 1.5 mm., and is clearly described in von Dalla Torre and Kieffer's volume on *Cynipidae* in 'Das Tierreich,' pp. 680–681, where it is recorded from Minnesota, U.S.A.: and galls from France and Germany are reputed to be referable to the same species. As a matter of fact, the galls (Houard, No. 6089, Cynipid, on p. 1043 of his Monograph) are recorded from Northern and Central Europe. In 1889, Focke (Rev. biol. Nord France, Lille, i, p. 417) described a gall which is almost certainly referable to *A. taraxaci*, though he recorded it as a *Cecidomyid* gall. In 1893, Thomas (Ent. Nachr., Berlin, xiv, pp. 290–293) records the gall, whilst Lagerheim (1905, Arch. Bot., Upsala, iv, p. 20) writes of it in a paper on Baltic Animal Galls (*Baltiska Zooecidier*).

\* \* \* \* \*

A comparison of von Dalla Torre and Kieffer's Monograph with Cameron's 'Monograph of the British Phytophagous Hymenoptera,' Vol. IV. *Cynipidae*, would enable us to clear up certain matters in regard to synonymy, etc. I notice the following in a casual glance, so far as gall species other than those galling oak are concerned:—

*Aylax latreillei* (Kieffer).

*Aulax glechomae* Hartig, Cameron, and others (*nee Cynips glechomae* Linn.).†

\* Since this was written, Mr. Oliver has taken the gall on the Northumbrian coast, north of Warkworth.

† Cameron (iv, p. 47) writes: "Obs.—The *Cynips glechomae* Linn. is not this species, as shown by the teras 'thorace villosa.'"

This species is known from Britain, Germany, Austria, France, Italy, and North America, whilst the true *Aglax glechomae* (Linn.) is only known from Sweden and Germany.

*Aglax minor* Htg. and *A. graminis* Cam.

Both these names are instated as good species. Regarded by Cameron as forms of *A. papaveris* and *A. hieracii* respectively.

Penshaw Lodge,  
Penshaw, Co. Durham.  
August 7th, 1917.

OBSERVATIONS ON BRITISH COCCIDAE; WITH DESCRIPTIONS OF  
NEW SPECIES.

BY E. ERNEST GREEN, F.Z.S., F.E.S.

No. III.

The following notes are strictly in continuation of my two previous papers, published in this Magazine (under slightly different titles) in May-June 1915 and Feb. 1916.

*Lecanium bituberculatum* Targ.

This species was observed, on the 26th March, occurring abundantly on a small section of Hawthorn hedge, in the town of Camberley. White scars showed where many of the insects had been picked off by birds.

*Lecanium capreae* L.

Dr. Imms has sent me an example of *capreae*, taken upon *Myrica gale*, at Pwllheli, Carnarvon. I have also received the same insect on the common evergreen laurel (*Cerasus laurocerasus*), from Woking, where it was found by Mrs. H. D. Taylor. Both these plants constitute new records for the species.

*Lecanium nigrum* var. *depressum* Targ.

A *Lecanium*, answering closely to the description of *depressum*, was observed in the Palm House of the Royal Botanic Gardens, Kew, in December of last year (1916). It was especially abundant on the under-surface of the fronds of a species of *Musa*, and occurred more sparingly on *Chrysophyllum*, *Malacantha*, and *Ficus* spp. Though the structural

characters of *depressum* are indistinguishable from those of *nigrum* (of Nietner), I think that the present form deserves varietal rank. In colour it ranges from castaneous to chocolate-brown, with a dull surface—often flecked with white secretion. In form it is oval, slightly narrowed in front, and moderately convex. A slight medio-longitudinal carina can usually be distinguished. Typical *nigrum*, on the other hand, is very strongly convex, of a deep black colour, with a smooth and shining surface.

*Lecanium persicae crudum*, n. subsp.

In an earlier paper in this Magazine (Feb. 1916) I mentioned the receipt of an unusually flattened form of *L. persicae*, affecting the foliage of *Aralia*. Mr. Scott subsequently sent me fresh living material of this same form, from the same plant. The early adult females exhibit the characteristic black bands described by Newstead for typical *persicae*. Older females are of a pale putty-colour, thinly sprinkled with white powdery secretion. The colour darkens, with age, to castaneous brown; but the scale remains depressed and never becomes so hard and dense as in the type. The females commence ovipositing quite early, while still in a soft pale condition, and the ova are white instead of pinkish. I have been unable to find any structural differences between this form and the type; but it will be convenient to distinguish it, as a subspecies, by the name *crudum*, signifying its "underdone" or "half-baked" appearance.

*Lecanium hesperidum* L., var.

Dr. Imms has submitted specimens of a *Lecanium* which is "flourishing on an orange plant reared from seed in the botanical laboratory here (Manchester)." The insect is of a clear castaneous colour, slightly mottled with darker brown. It occurs on the under-surface of the foliage. A microscopical examination shows characters identical with those of *L. hesperidum*, to which species I must attach it, although it differs from the ordinary forms in its coloration—more particularly in the absence of the usual dark patch on the venter.

*Lecanium signiferum* Green.

On *Polypodium aureum*; in one of the plant-houses at the Royal Botanic Gardens, Kew; Dec. 1916.

This species has hitherto been recorded from Ceylon and India only. It is possible that it may be—as suggested by Sanders—a

varietal form of *L. hesperidum*; but, if so, its very characteristic colour-pattern (green or olivaceous, with strongly marked purplish or black longitudinal stripe and two transverse bands) make it deserving of a distinct name.

*Lecanium zebrinum*, n. sp

Adult female circular or very broadly oval; sometimes transversely ovate: very strongly convex, often approximately hemispherical; usually sloping more gradually on the hinder half of the body; margins of anal cleft upturned. Smooth, or with shallow transverse sulcae; marginal area

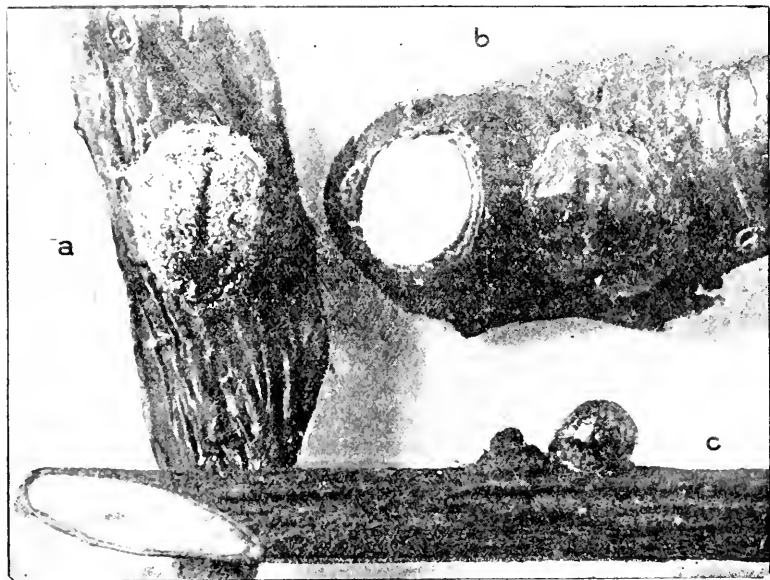


Fig. 1.—*a*, *Lecanium zebrinum*, dorsal view,  $\times 4$ .

*b*, " " " denuded of secretion,  $\times 4$ .

*c*, *Lecanium transcittatum*, side view,  $\times 4$ .

coarsely punctate. Fresh, living examples have the dorsum almost completely but thinly covered with a greyish-white secretion, leaving exposed a narrow median longitudinal stripe and a curved series of irregular bare patches on each side (see fig. 1, *a*). The secretory covering is of a web-like nature intermixed with powdery matter, giving the insect the appearance of being mildewed. The actual colour of the dorsum (which may be revealed by brushing off the secretion or dissolving it in ether) varies from ochreous, with a narrow medio-longitudinal and broader transverse bands of deep black (see fig. 2, *e, f*), to deep brown, through intermediate shades of castaneous, according to the age of the insect. In the older and darker examples the black markings are correspondingly obscured.

Length of living insect 4.75-7, breadth 4-6 mm.

Antenna (fig. 2, *a*) 8-jointed, 3rd joint longest, 8th next longest, the remainder much shorter; or 7-jointed (fig. 2, *a'*) by confluence of the normal 3rd and 4th joints. There is a pair of unusually long whip-like hairs on each of the 2nd and 5th (or 2nd and 4th) joints. In the 7-jointed form (which may be the result of parasitization) the 3rd joint equals in length the subsequent three together. Mouth-parts large and conspicuous. Legs (fig. 2, *c*) small and slender. There is frequently a fold partially crossing the middle of the femur. In parasitized examples the femur is proportionately shorter and

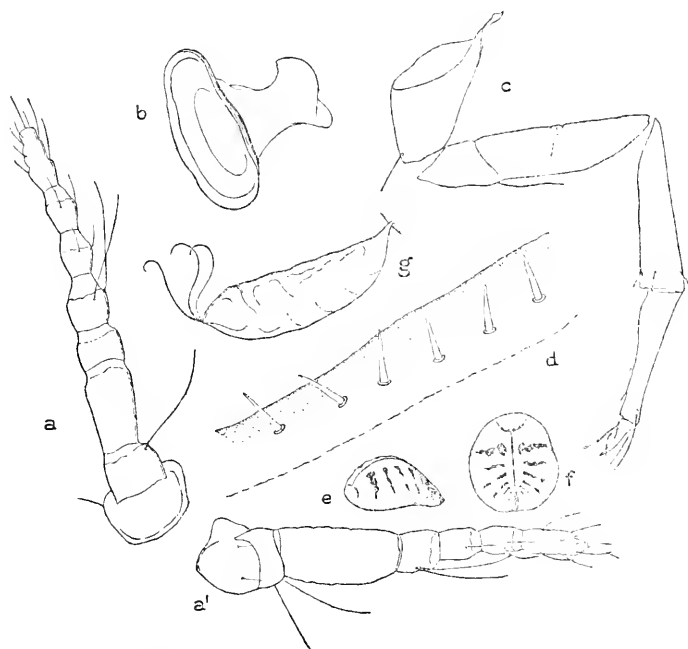


Fig. 2.—*Lecanium zebrinum*: *a*, antenna, 8-jointed, normal form,  $\times 176$ ; *a'*, antenna, 7-jointed form,  $\times 176$ ; *b*, posterior spiracle,  $\times 176$ ; *c*, mid leg,  $\times 176$ ; *d*, marginal spines,  $\times 176$ ; *e*, adult female, side view,  $\times 2$ ; *f*, adult female, dorsal view,  $\times 2$ ; *g*, haltere of adult male,  $\times 176$ .

stouter. The tibia is conspicuously widened distally, and the tarsus conspicuously thickened proximally; tarsus and claw together as long as the tibia. Claw long and slender; digitules slender, slightly dilated at extremity; the unguals rather stouter than the tarsals. Spiracles comparatively large, especially the posterior pair (fig. 2, *b*), in which the diameter of the external aperture is equal to the length of the tibia of the mid leg. Valves of anal operculum with from 7 to 10 long stout setae on the apical area. Anal ring with 6 stout setae. Derm with scattered circular pores, but without conspicuous dermal cells, except on the denser parts where the pores appear to be enclosed in paler areoles. Margin with a series of acute spines (fig. 2, *d*),

the space between each being about equal to the length of one of the spines. The stigmatic areas are indicated by one or two stouter, shorter, and more obtuse spines.

Male puparium elongate ovate, rather strongly convex; colourless, translucent, glassy. The surface is strongly rugose, but is entirely without the subdivisions which are so conspicuous in the male puparia of many species of *Lecanium*. There is a well-defined rounded median carina upon which is superimposed a series of seven opaque rectangular glassy excrescences, and there are two similar series (making five in all) on each side of the median carina. The margin is closely set with longish cilia and a stout opaque white tuft projects from each stigmatic area.

Length 2, breadth 1 mm.

Adult male with head and thorax (which is unusually ample) of a very dark brownish castaneous colour; the abdomen rather more reddish; legs and antennae paler. The wings are ample, translucent whitish; the costal nervure orange-red; the costal area tinged with reddish yellow. There are eight large prominent black ocelli, four of which are on the under surface, two on the upper surface, the remaining pair having a lateral position. The minute rudimentary eyes are situated laterally, on the genae. Antennae 10-jointed, with three knobbed hairs on the apical joint. Halteres with three long stout hooked setae at the distal extremity (fig. 2, *g*). Caudal extremity with a pair of long opaque white filaments. Sheath of penis slender, acute, approximately three-quarters the length of the abdomen.

Length, from frons to extremity of genital sheath, 1.75 mm. Wing expanse 4 mm.

*Hab.*: On the branches and young stems of Birch (*Betula alba*); more commonly on sapling plants; also on sapling Aspens (*Populus tremula*). Camberley: May, June. The adult male that was under observation emerged on June 2nd. Young larvae were escaping from beneath the scales on June 22nd.

The female insects are extensively parasitized by two different species of Chalcids. The old dead scales are frequently found to be perforated with seven or eight exit-holes; but this extensive parasitization does not prevent the production of larvae.

The species is very closely related to *L. ciliatum* of Douglas, which occurs on oak. In fact, the microscopical characters are almost identical; but no one could see the two species, side by side, and fail to separate them. They are completely dissimilar in external appearance. *L. zebrinum* is a more strongly convex insect; it has no conspicuous marginal cilia: living examples are distinctly banded with black, and the secretory covering is disposed in a different manner. The only constant difference in the microscopical characters that I have been able to detect is in the antenna, the terminal joint of which is always considerably longer than

the preceding joint; while, in *ciliatum*, the 8th joint is seldom longer (and often shorter) than the 7th.

There is, however, a well-marked difference in the male puparia of the two species. That of *ciliatum* has a well-defined median area surrounded by a raised border (the so-called "corona"), and there are transverse ridges demarking an anterior and a posterior area. The male puparium of *zebrinum* is without any indication of these subdivisions.

*Lecanium transvittatum*, n. sp.

Adult female (fig. 1, *c*) very strongly convex; hemispherical or even sub-globular, the sides overhanging the margin which is itself slightly out-turned;

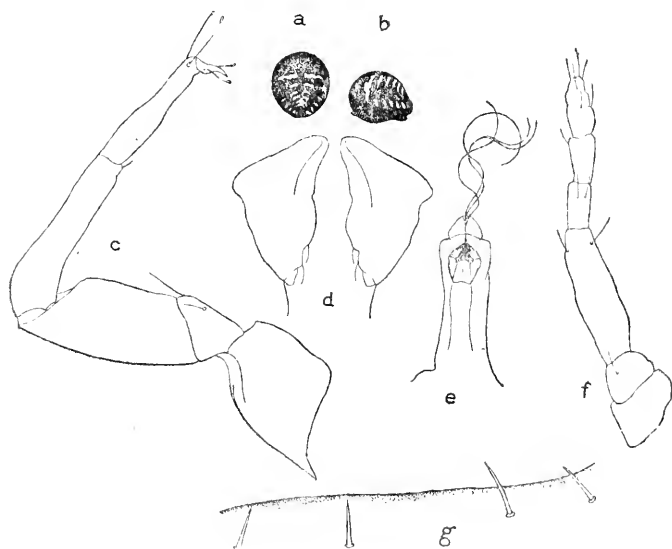


Fig. 3.—*Lecanium transvittatum*: *a*, adult female,  $\times 2.4$ ; *b*, adult female, side view,  $\times 2.4$ ; *c*, mid leg,  $\times 176$ ; *d*, anal operculum,  $\times 108$ ; *e*, rostrum and mouth-parts,  $\times 24$ ; *f*, antenna,  $\times 176$ ; *g*, marginal spines,  $\times 176$ .

margins of anal cleft strongly upturned. In coloration it approaches some forms of the early adult of *L. capreae*, having ivory-white bands upon a dark particoloured ground (see fig. 3, *a*, *b*) which varies from ochreous-brown in parts, through shades of castaneous to deep blackish brown. The white bands, of which there are five or six, are interrupted on the median line, except on the posterior abdominal segments, where they are continuous; and all but the first band are interrupted again on each side; the first band is the broadest and has irregularly sinuous edges. The colour-pattern fades out and becomes almost obliterated after the death of the insect. Surface smooth and



shining, with one or two small groups of impressed spots on each side of the mesothoracic area.

Dimensions of three living examples, in millimetres:— $3 \times 2.9 \times 2.5$ ,  $3.25 \times 3 \times 2.5$ ,  $4 \times 3.75 \times 2.5$  (the third measurement, in each case, representing the height of the insect).

Antenna (fig. 3, *f*) 6-jointed; the 3rd joint longest, almost equalling the length of the terminal three joints together; 6th joint next longest, but not greatly exceeding the 4th or 5th, which are subequal. The mouth-parts, owing to collapse of the ventral tissues after oviposition, are placed on the summit of an elongate rostrum (fig. 3, *e*). Limbs comparatively small, the anterior pair smaller and relatively stouter than the other two; in the mid leg (fig. 3, *c*) the proximal end of the tibia is rather conspicuously swollen, and the tarsus is slightly more than three-quarters the length of the tibia. Claw long and falcate; digitules slender, the unguals stouter than the tarsals, slightly dilated at extremity. Valves of anal operculum (fig. 3, *d*) roughly triangular, the base shorter than the inner and outer edges, the inner edge strongly sinuous. Margin with slender, acutely pointed spines, spaced at distances of from two to three times their own length (see fig. 3, *g*). Stigmatic areas rather sharply indented; stigmatic spines indistinguishable from those of the general margin. Spiracles with broadly dilated exterior orifice. Derm without conspicuous cells, except on the marginal area where there are scattered oval paler areoles. The derm immediately surrounding the anal orifice and extending for some distance on each side of the anal cleft is more densely chitinous and thrown into folds, which form a delicate tracery of sinuous lines, suggestive of the pattern of a human finger-print.

It should be noted that the description of the structural parts is drawn up from a preparation of a single example, and may possibly require modification when more abundant material is available.

On Birch (*Betula alba*); Camberley: June 1917. The species appears to be extremely scarce, many hours of diligent search having resulted in the discovery of four examples only, which were, in each case, completely isolated on separate trees. Three of them were found on the lateral branches of sapling trees, and the fourth on a small branch of an older tree. Young larvae commenced to appear on June 23rd.

#### *Lecanopsis longicornis* Green.

This species was described from three examples taken in 1915. In the following year (July 1916) the insect was found in comparative abundance, upon *Carex ovalis*, in damp meadows on the outskirts of Camberley. In its later development it constructs a cylindrical white ovisac, which readily becomes detached from its support and falls to the ground, where it is protected by the surrounding herbage. Young larvae were emerging from the ovisacs on July 18th.

*Lecanopsis butleri*, n. sp.

Adult female (fig. 4, *a*) elongate-ovate, without stigmatic clefts or indentations; flattish at first, afterwards somewhat convex dorsally. Colour light testaceous, paler on venter; at first of a uniform tint, but older examples show two fuscous longitudinal streaks extending the whole length of the insect. Antennae rather small; 5- to 7-jointed (fig. 4, *b, c, d, e*); the joints irregular in size and form, often showing deep constrictions suggesting the confluence

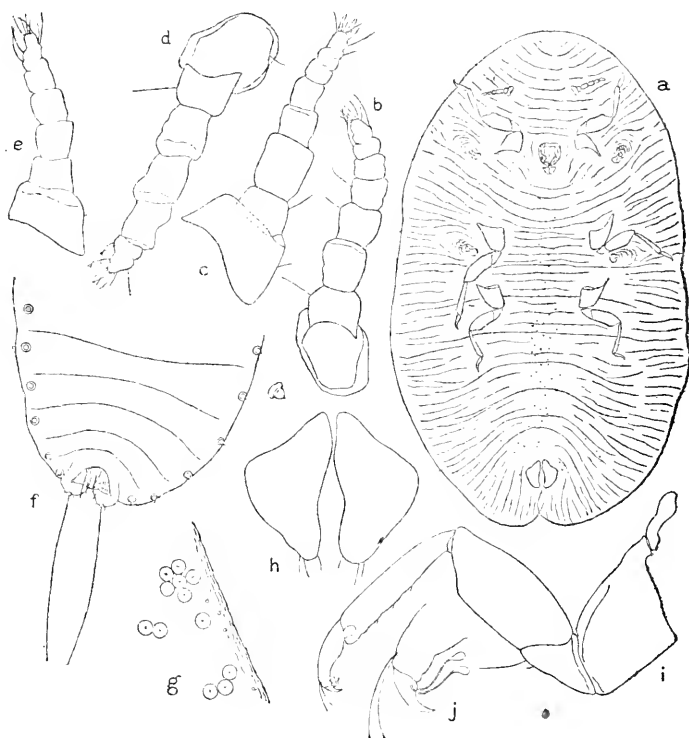


Fig. 4.—*Lecanopsis butleri*: *a*, adult female, opt. sect.,  $\times 14.4$ ; *b-e*, various forms of the antennae,  $\times 104$ ; *f*, abdominal extremity of young larva,  $\times 176$ ; *g*, thoracic margin of larva,  $\times 360$ ; *h*, anal operculum of adult female,  $\times 104$ ; *i*, mid leg,  $\times 64$ ; *j*, foot,  $\times 224$ .

of two or more joints; the terminal joint with from 8 to 10 stout hairs towards its apex. Legs moderately stout; almost hairless (fig. 4, *i*); the tarsus strongly curved, less than half the length of the tibia; tarsal digitules slender, minutely knobbed at extremity; unguinal digitules broadly dilated distally (fig. 4, *j*); claw strongly falcate. The limbs of examples from Royston Heath are rather smaller than those of the Camberley specimens. Spiracles large and conspicuous, surrounded by a densely chitinous area and irregularly concentric folds, and with a scattered trail of ceriferous pores extending towards the margin of the insect. Some larger pores are disposed around the genital

orifice and in a medio-longitudinal series on the dorsum. Anal cleft short, about one-tenth the length of the body. The whole dorsum is thrown into delicate transverse folds, and the median area of the venter has a roughened shagreen-like surface. There are sparsely scattered pores and minute setae on the dorsum, but there are no specialized marginal hairs or spines, and no stigmatic spines.

Length 3.75-4.5, breadth 2-3 mm.; average of nine examples  $4 \times 2.42$  mm.

Newly hatched larva elongate-ovate; pinkish ochreous. Antenna 6-jointed. Abdomen (fig. 4, *f*) with a marginal series of what at first appear to be large ring-shaped pores, but which, when viewed in profile, are seen to consist of an aculeate cupula-shaped spine on a ring-shaped base. Margin of thorax (fig. 4, *g*) with groups of large circular pores which vary in number and position. Posterior extremity with prominent rounded lobes (each bearing a long seta) which differ in form and structure from the same parts in most Lecaniid larvae.

Length 0.5 mm.

This new species was first brought to my notice by Mr. E. A. Butler, who swept it from grass, at Royston Heath, Herts, on Whit Monday (May 28th, 1917). Mr. Butler reports that the insects seemed to be fairly common on one part of the heath. He remarks that, although he has swept over the same part of the heath on many previous Whit Mondays, he has never noticed the insect before. These examples, though apparently adult, were not quite fully grown.

Subsequently, on June 22nd of the same year, Professor Newstead and I discovered fully mature examples, with ovisacs, at Camberley. The ovisacs, which are of a loose silky composition and of a more or less globular form, were full of rosy-pink eggs, each measuring 0.4 mm. in length. The parent insects remained attached to the ovisacs, partly entangled in the structure; they were mostly dead—distended by the attacks of Chalcid parasites, which subsequently emerged in considerable numbers. The ovisacs were found low down at the base of the tufts of grass, usually underneath a growth of moss that covers the ground between the plants. Young larvae commenced to emerge on July 5th.

It is probable, from the circumstances of their discovery, that the insects—for a short period before oviposition—ascend towards the top of the plants. The fact that they had not been observed by Mr. Butler, on his previous visits to the locality, may perhaps be accounted for by such visits not having exactly coincided with this period. I have much pleasure in naming this interesting species after its original discoverer.

*Parafairmairia gracilis* Green.

Examples taken on July 14th of the present year had only just commenced the secretion of the covering scale, which was still quite

transparent, completely revealing the castaneous colour of the insect. I have still been unable to determine the exact food-plant of the species, as the herbage (consisting of grasses and sedges) upon which it occurs is so closely intermingled; but I believe that it more particularly affects various species of *Carex*.

*Eriopeltis festucae* Fonscol.

Neither Signoret nor Newstead has described the male puparium of this species, though the former figures it—on a very small scale. I have found examples on the upper surface of the leaves of *Festuca*, in close proximity to the female sacs. The puparium is elongate, with rounded extremities; of a granulate, semi-transparent, glassy texture, with a slight indication of a medio-longitudinal carina; a large operculum covering the hinder extremity, but without other subdivisions. Length 1.75, breadth approximately 0.5 mm.

*Luzulaspis luzulae* Dufour.

This species occurs, at Camberley, on *Carex ovalis*, in addition to its normal food-plant (*Luzula*). Newstead states that "the eggs remain throughout the winter in the ovisae, the larvae hatching in spring." This is probably the normal condition; but a few larvae have hatched out, in my laboratory, in the middle of July, from freshly constructed ovisacs taken early in the same month. There is possibly a partial second brood, while the bulk of the eggs remain as such through the winter. The newly hatched larvae already have the stout stigmatic spines strongly developed.

*Ceroplastes rusci* L.

Examples of this beautiful little species have been sent to me, on the fruit of green figs imported from Italy. Though it cannot be regarded as an indigenous British Coecid, it is in the same category with *Parlatoria zizyphi* and *Lepidosaphes citricola*, which are included in the British list on the strength of their occurrence upon imported fruit in our markets.

Way's End, Camberley.

August 5th, 1917.

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*A note on Rhizotrogus ochraceus* Knoch.—Dr. Sharp informs me that some doubt is supposed to exist as to the specific distinctness of this insect from *R. solstitialis* L. For many years I have been well acquainted with both species, which occur in a part of north Cornwall frequently

visited by me, namely, the parish of St. Merryn, near Padstow, and the adjacent districts. To one who is familiar with the insects in their native habitat no doubt is possible as to their distinctness specifically.

When quite freshly caught they differ greatly in colour, *R. ochraceus* is a bright brown, while *R. solstitialis* is quite distinctly greenish brown; in addition, the former is, on the whole, a smaller insect. The difference in habits is, however, quite striking and decisive, although both occur about the same part of the year, namely, the middle of July.

*R. solstitialis* is well known to the local people as the "cliff beetle." Its flight is crepuscular, lasting for about an hour after sundown. In some seasons the insect is extraordinarily abundant. Its favourite haunt is round the tamarisk bushes, which are planted along the tops of all of the slate-built boundary-walls of the fields and roads, especially near the coast, the plant forming one of the characteristic features of the district. The beetles fly swiftly till they meet with such a hedge and then circle round the bushes (especially round the higher branches) in great numbers; the individuals mostly do not fly along the hedge lines, but in general maze, to and fro and up and down. Correlated with this liking for the highest branches of the bushes is another habit. The house at which I stayed this summer was at some distance from others, and was the highest object in the neighbourhood. The insects flew in clouds, like a swarm of bees, round the chimney-stacks and roof-ridges; each stack had many hundreds round it on a suitable evening. In their blundering flight many collide with the inner edge of the chimney-pot and fall into the rooms below, where they fly swiftly round; if the windows be opened, nearly all at once escape, though I have never seen any of those flying by the house enter by the window. In some years the number that collect in rooms in this way are sufficient to amount almost to a pest. The flight ceases as suddenly as it starts; I have some evidence that there is a second (probably smaller) flight before sunrise. In the daytime most of the individuals have disappeared, although a few may be found resting on the tamarisk; if these are disturbed, they may either fly off in a lumbering manner or lie where they fall to the ground.

The habits of *R. ochraceus* are totally distinct. The insect appears to be restricted to colonies on the cliff-borders in places where the turf has been undisturbed for many years, and consists of thrift and other seaside plants mingled with the grass. I originally found the species on such a cliff-edge overlooking Porthcothan Bay, and it was there in fair numbers this July; I have also seen it at various spots between Mawgan Porth and Stepper Point, notably at a point on the cliffs above Bedruthan, the cliffs between Cataclews Point and Mother Iveys Bay (where I have seen several flying simultaneously), and above Stepper Point. Doubtless other colonies occur on that coast. This insect flies for about two hours round about midday; its flight is a rapid mazing one above and among the herbage—in fact, it flies very like a large *Bombus*, and can readily be mistaken at a distance for one of the paler species. In these places one never sees *R. solstitialis*.

I am not aware of any anatomical enquiry having been carried out on the two species, but, in view of the totally distinct facies and habits, I am quite sure they are distinct.

It may be worth recording that colonies of *Anomala frischii* F. occur on the sand-hills at Constantine Bay and Harlyn Bay in the same district.—C. G. LAMB, M.A., B.Sc., Engineering Laboratory, Cambridge.

[To the above account of the differences between these two species it is only necessary to add that the male characters confirm their distinction.—D. SHARP.]

*Rhyssa persuasoria* L. in the South of Scotland.—In 1910 I received a female of this fine Ichneumon-fly which was captured in Roxburghshire that summer. Early in June of the present year Mr. Lyford Pike showed me a specimen which he had caught the previous day in the valley of the North Esk, Midlothian, where on subsequent days in the same month and part of July I found numbers about dead firs in two different spots. Males were at first much more plentiful than females, but in the end only the latter were seen. The few previous Scottish records seem to be confined to the northern parts of the country.—WILLIAM EVANS, 38 Morningside Park, Edinburgh: *August 8th*, 1917.

*Xiphydria dromedarius* in the New Forest: a correction.—The Rev. F. D. Morice has examined the *Xiphydria* recorded by me under this name (*ante*, p. 172), and he pronounces it to be *X. camelus* F. The capture of a specimen of the latter in the New Forest was noted by him in this Magazine in March 1904 (*cf.* Ent. Mo. Mag. xl, pp. 33, 49).—J. J. WALKER, Aorangi, Lonsdale Road, Oxford: *August 11th*, 1917.

## Review.

“THE BIOLOGY OF DRAGON-FLIES.” By R. J. Tillyard, M.A., B.Sc., etc., etc. xii + 396 pp. Cambridge Zoological Series. Cambridge University Press. 1917. 15s. net.

Students of the Odonata can at last place upon their bookshelves a text-book dealing with the biology of their particular group of insects. It is true that a most useful introduction to the study of the Order was presented by Dr. P. P. Calvert in 1893, but, owing to the way in which it was published, it can only be consulted by those who have access to large libraries. The volume before us is exactly what was wanted—a lucid, well-arranged, and authoritative statement of all the most recent information upon every aspect of the subject. Nothing of importance has been omitted, and nothing has been treated of at undue length. It is very far from being a mere record of the labours of other workers in the same field of knowledge, for it possesses the great merit of incorporating quite a considerable body of original research, much of which is now made known for the first time.

One of Mr. Tillyard's special subjects of study during the last year or two has been the venation of the wings of Dragon-flies, as elucidated by the antecedent tracheation, and, as a result of his enquiries, he has been able to make some important additions to our knowledge of a subject which had been dealt with in so masterly a manner by Prof. J. G. Needham. The full meaning of the cubito-anal cross-vein which has received the name of “anal crossing” now

stands revealed, and a proper understanding of the constitution of the "anal loop" in the hind wings of Anisoptera has been arrived at. It is not at all certain, however, that the phylogeny of the nodus, as deduced from the unusual condition of that structure in the fossil *Mesophlebia* (p. 54), will meet with such ready acceptance. As the nodal region of the wing is figured (fig. 19, C), one might almost be excused for seeing in what is called the "nodal cross-vein" an anterior branch of the radius, which has abruptly terminated the course of the subcosta, and so brought about the characteristic break in the costal margin. The subnodus, which has been regarded hitherto as the base of the radial sector, is now looked upon, alternatively, as a modified cross-vein, so that two different explanations of the same structure are put forward at one and the same time. Again, one meets with a highly debateable proposition which will be familiar to those who have followed Tillyard's most recent writings, but which one would not have desired to see stated, without qualification, in a text-book for students not possessing any previous acquaintance with venational problems. It will be found embodied in the definition of the Sub-order Zygoptera (p. 273), in the following terms:—"Radius unbranched. An extra branch of the media (the Zygopterid sector *Ms*) takes the place of *Rs* in the Anisoptera. No bridge or oblique vein (except in *Lestidae*)." Although our author admits that the Anisoptera have the radial sector two-branched and the media not more than four-branched, he contends that in the Zygoptera the radial sector is without any branch, while the media has as many as five branches. In other words, upon the same six longitudinal veins, which together form the radius and the media, he places one interpretation for the Zygoptera and another for the Anisoptera. In addition to the balance of probabilities involved here, a further indication that the six veins in question are really homologous, and not merely analogous, in the two groups may be found in the possession of a bridge and oblique vein by *Epiophlebia* and undoubted Zygoptera like *Chlorolestes*, *Syolestes*, and the *Lestinae*. All Anisopterous wings exhibit the oblique vein and bridge, characters which all are agreed are intimately associated with the presence and peculiar position of the radial sector in that Sub-order. Notwithstanding the original ontogenetic evidence which Tillyard has brought forward in support of his interpretation of Zygopterous venation, it is difficult to resist the conclusion that these special characters, like the more general considerations previously discussed, must have the same signification in the Zygoptera as in the Anisoptera.

In his classification of the Zygoptera, Tillyard adopts the bold expedient of referring to the single family *Lestidae* all the forms mentioned above as possessing a bridge and oblique vein (p. 276). It is not at all clear, however, that by so doing we get a natural group. While the much-discussed insect *Epiophlebia superstes* Selys, undoubtedly resembles the *Lestinae* in some of its characters, it differs from them in other respects to such an extent that Handlirsch considered himself justified in placing it, together with certain fossil genera, in a separate Sub-order, the Anisozygoptera. Another assemblage of genera, the natural character of which is open to serious doubt, is the tribe *Libellagini* (p. 284), which is now made to embrace such Neotropical forms as *Dieterias* and *Heliocharis*, as well as the Ethiopian and Oriental forms which properly belong to it.

The chapter on zoo-geographical distribution will probably be considered

the least satisfactory one in the volume. The discussion of this always difficult subject is here complicated by the division of the World's Dragon-fly fauna into three groups, named the palaeogenic, the entogenic, and the ectogenic groups, or, as they may be called in nearly equivalent terms, the archaic, the endemic, and the introduced groups. The palaeogenic fauna is made up of surviving members of ancient groups found scattered over the World's surface. The entogenic and ectogenic faunas are composed of groups which are still dominant, and the usual zoo-geographical regions are treated of under each of these headings, with the disadvantage that the same regions are passed in review on two separate occasions. According to a census of the Odonata of the World with which the chapter concludes, the total number of species now known is 2457, a number which would have been greater but for the recent introduction in the Libellulinae of the trinomial system of nomenclature.

On p. 277 the Agrionidae are characterised as possessing two antenodals only (exc. *Neurolestes* and *Thaumatoneura*). To this list of exceptions must, of course, be added *Neuragrion* and *Trineuragrion*, to say nothing of fossil genera.

The author anticipates that readers will not fail to discover a very strong Australian "flavour" in the book, owing to its having been written by an Australian worker and upon Australian soil (p. ix). This state of things is not one to be regretted, for it has made available, for purposes of illustration, a Dragon-fly fauna which in point of interest could scarcely be surpassed. Dragon-flies from other parts of the World likewise receive their share of attention, and quite a British character is imparted to the book, both by the chapter specially devoted to British species, and also by the frequency with which such species are figured in other portions of the volume.

No space remains now for even the briefest notice of the chapters on the imago, the nymph, the alimentary and excretory systems, the nervous system, the sense organs, the circulatory system, the respiratory system, the body-wall and muscles, the reproductive system, embryology, coloration, the geological record, and bionomics, each of which really merits a separate paragraph to itself. Not only are they enriched with the fruits of original work, but in a good many cases statements made by previous writers have been subjected to the test of fresh dissection or experiment before being presented to the reader.

Very few clerical errors have been detected during the perusal of this book. Wherever a fresh edition is called for, however, it will be as well to correct "*Diastatomma* Brauer" (p. 307, footnote) to "*Diastatomma* Burmeister," and "*Phenacolestes mirandus* Scudder" (p. 315, in two places) to "*Phenacolestes mirandus* Cockerell." Again, in the table of genera on p. 285 the names *Notholestes* and *Amphilestes* are redundant and should be struck out: the first of them is a synonym of *Caliphuea*, while *Amphilestes*, being a homonym, is replaced by *Rhinagrion* (vide Appendix C). In the same table the Ethiopian genus *Stenocnemis* is wrongly referred to the Oriental Region. Where *Cora* is mentioned on p. 311, no doubt *Anisopleura* is the genus to which reference is intended to be made, and "Tetragrammidæ" (p. 330) should apparently have been written "Trichogrammidæ" (Trichogrammatidae).

The illustrations are plentiful, and add very greatly to the usefulness and attractiveness of the volume. In addition to 188 figures in the text, by the author and Mrs. Tillyard, there are four plates, two of which are in



colour. But it is a great pity that the explanations of these last were not printed separately, instead of upon the plates themselves, for in one case, at least, the lines of type are so densely packed together as to be almost illegible. Mr. Tillyard's fellow-workers are well acquainted with his skill as an entomological artist. Indeed, he is to be numbered among the very elect few who can make a satisfactory drawing of a Dragon-fly's wings, and there is little to choose, in point of accuracy, between these venational studies of his and figures which are produced by photographic means.—HERBERT CAMPION.

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## Obituary.

*Reginald James Champion*, Lieutenant Scots Guards, was killed in action on the Western front on July 18th. He was the youngest son of one of our Editors, and his early death, at the age of 22, will certainly be a loss to entomology, as shown by the four papers contributed by him to this Magazine in 1914-16, one of these, written in conjunction with his eldest brother, on the life-history of *Methoca ichneumonides*, being of distinct bionomic value. Educated at Guildford Grammar School and Jesus College, Oxford, he joined the Public Schools and University Corps on the outbreak of the War, and subsequently saw a great deal of active service on the Continent, both in the London Irish Rifles and in the Scots Guards, having been wounded in 1915 and again in 1916. He had made a considerable collection of Aculeate Hymenoptera, and of the Micro- and Macro-Lepidoptera also, in Surrey, not only at Horsell, where he was born, but in the neighbourhood of Guildford, Godalming, etc. From his boyhood onward he was the constant companion of his father or one or the other of his brothers in their excursions in these places, and thus very early acquired a taste for entomological work.—J. J. W.

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## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *July 12th*, 1917.—MR. H. J. TURNER, F.E.S., President, in the Chair.

Mr. Ashdown exhibited a long series of aberrations of *Coccinella variabilis* taken this year in Surrey. Mr. Turner, the life-history of *Coleophora palliatella* on oak, and parts 1, 2, 3, 4-7 of the rare book Thunberg's 'Dissertatio Entomologica Insecta Suecica,' 1784-94, all dealing with Lepidoptera. Mr. Frohawk, a series of *Cupido minimus* from Coulsdon, Surrey, showing much individual aberration, including an asymmetrical example which appeared to be gynandromorphic. Mr. West (Greenwich), Coleoptera taken recently in the New Forest, including *Elater lythropterus*, *E. miniatus*, *Pyrochroa coccinea*, *Tomoxia biguttata*, etc., the last around the burrows of a wasp. Mr. Barnett, varied series of *Ematurga atomaria* and of females of *Polyommatus icarus* from near Coulsdon, Surrey. Mr. Edwards, a series of *Papilio polytes* and remarked on the dimorphism expressed in continental and island forms. Mr. Moore, *Papilio aristolochiae* from the Nilgherry Hills, India. Mr. Bunnett, newly-hatched larvae of *Fumea casta*, and a living example of *Porthesia similis* which emerged from a pupa the cocoon of which was surrounded by a number of the cocoons of an *Ichneumon*. Mr. Leeds reported that *Chattendenia w-ulbum* was out at Monkswood

on June 24th; Mr. Frohawk, *Argynnis aglaia* in Kent on June 25th, and *Aglais urticae* common at Horsley on June 17th; and Mr. Pearson, *Argynnis paphia* and *Limenitis sibilla* in numbers in the New Forest. Mr. Main described a successful method of getting the larvae of the Coleopteron *Dytiscus marginalis* to pupate in confinement.

July 26th, 1917.—The President in the Chair.

The 'Proceedings' for 1916-17 were announced as ready for issue.

Mr. Ashdown exhibited a series of the pale and dark races of *Setina irrorella* from Mickleham Downs, and larvae, pupae, and imagines of *Anisosticta 19-punctata* from Surrey. Mr. H. Main, a pupation-chamber of *Dytiscus marginalis* with pupa *in situ*, and several chrysalids of *Tanessa io* most of which had gold markings. Mr. Edwards, various exotic species of *Hesperiidae* and read a note on the distribution of the family. Mr. West (Greenwich), a number of *Vespidae*, *Ichneumonidae*, and *Chrysididae* taken by him recently in the New Forest. Mr. Hy. J. Turner, a specimen of *Argynnis cydippe (adippe)* with silver points in several of the large black spots on the under surface, a phase of aberration not previously known to him. Attention was called to the swarms of the three common species of "whites" which had appeared in many places recently. *Polygonia c-album*, *Celastrina argiolus* (2nd brood), and *Cosmia trapezina* were also reported as abundant locally.—HY. J. TURNER, Hon. Ed. of Proceedings.

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## INJURY TO PUPA AND MALFORMATION OF IMAGO.

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

I met recently with an example of a pupa having been injured, apparently whilst the imago was in a very early stage, with the result that the imago, though it thoroughly matured, did not, and I suppose could not, emerge owing to certain malformations that seemed to have some bearing on questions of regeneration and recovery from injury and loss of parts. The pupa was one of *Gastropacha quercifolia*. It had not emerged at the expiry of about a fortnight after its fellows, and on examining it it appeared to be dead. It turned out, however, to be alive, though its vitality was very low. The imago had obviously been mature for some time, but unable to emerge; the wings, unexpanded, were dry, stiff, and hard, showing the due season of emergence had elapsed for some days at least; the abdomen was bathed with the meconial fluid that escapes on emergence. When freed from the pupal skin it could move the wings and antennae and third legs. The first two pairs of legs were malformed and immovable, though easily freed from the pupa-case. The pupa-case had been bruised and broken across these legs and a crack had extended across the left wing. There had been enough bleeding to cement the pupa-case in this region to the cocoon in a way that was not released by maceration.

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THE MUSEUM, HULL;

AND

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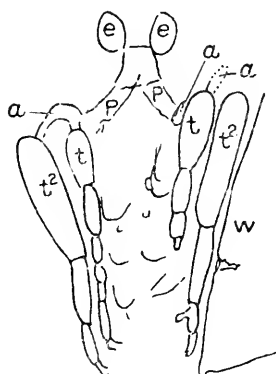
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The crack across the wing resulted in a small imperfection in the costa of the left fore wing, but the rest of the wing under the outer portion of the crack was unaffected. The condition of the palpi and first and second pairs of legs pointed to the injury having seriously affected all these parts, and especially to its having caused the loss and displacement of tissues, probably, at the date of the injury, of almost fluid consistence.

The most curious result and evidence of this was that the palpi, or what represented them, and that had apparently developed no scaled surface, had their extremities widely separated and ending behind the femora of the first legs, and were organically fixed to the tissues behind them and to the tops of the first femora. These femora were, in fact, difficult to distinguish, except the inner margin of the left one, and were



Rough diagram of specimen viewed ventrally: *e*, eyes; *p*, palpi; *t*<sup>1</sup>, first tibiae; *t*<sup>2</sup>, second tibiae; *a*, accessory developments; *w*, left wing,

solidly soldered to the thorax behind them (I speak as viewing the parts from their ventral aspect, as in the diagram). The second femora were in similar case, and in all four the tibiae were also so far soldered to the representatives of the femora that they were immovable. In the middle line the coxae, or sternal pieces, were represented by irregular and asymmetrical nodules. On the right side the first two femora, or the tibio-femoral articulations, were connected by a loop of tissue, without any scaling. Two processes of similar tissue protruded from the first tibio-femoral articulation on the left side.

The third pair of legs were apparently normal, being safe beneath the wings, but of the first two pairs of legs only tibiae and tarsi could be recognised. They possess scaling of a fairly normal character. The

first tibiae are very much reduced: on the right side are five tarsal joints and claws, on the left two moderate joints and a third as a mere nodule. The second tibiae carry on the right side two tarsal joints, the second with claws, and on the left three joints without claws, and the second one with a small diverticulum.

The antennae on both sides are thinned and narrowed for a number of joints at about half their length, chiefly by shortening of the pectinations.

It would seem, then, that besides the lesser injuries to wing and antennae, the semifluid tissues representing the palpi and first two pairs of legs were much bruised and mixed up, some even escaping by the wound, and that in consequence the palpi, some sternal pieces, the coxae, trochanters, and femora were unable to develop as distinct and recognisable pieces; that the tibiae and tarsi should have been rather more successful in their development may be due to these parts having each a separate encasement that retained some of their proper embryonic material.

Reigate.

*Aug. 4th, 1917.*

---

NOTES ON TROPICAL AMERICAN LAGRIIDAE, WITH DESCRIPTIONS  
OF NEW SPECIES.

BY G. C. CHAMPION, F.Z.S.

(*Concluded from p. 195.*)

PSEUDOLAGRIA, n. gen.

Maxillary and labial palpi (figs. 14, 14*a*) with the apical joint oblong-ovate, slender, the former obliquely truncate at tip; ligula broad, widely emarginate in front; mentum (fig. 14) strongly transverse, arcuately dilated on each side anteriorly; mandibles (fig. 14*b*) unemarginate at the tip, feebly toothed before the apex beneath; labrum well developed, transverse; head short, broad, deeply inserted into the prothorax, constricted into a neck behind, the epistoma very short and limited by a deep transverse groove; eyes large, feebly emarginate; antennae long, serrate, feebly so in ♀; prothorax short, immarginate laterally, margined at base; scutellum subtriangular; elytra long, about twice as broad as the prothorax, confusedly punctate, with prominent humeri, the epipleura reaching to near the tip; anterior coxae oval, exerted, almost contiguous, the extremely narrow intercoxal portion of the prosternum depressed, the cavities closed by the inwardly extended narrow epimera; mesosternum well developed anteriorly, carinate down the centre in front; intermediate coxae narrowly separated; metasternum long, the episterna broad; intercoxal process of abdomen narrow, subtriangular; legs slender, simple, tibial spurs wanting, penultimate tarsal joint dilated, emarginate above, basal joint of posterior pair elongate, tarsal claws long and slender; body elongate, hairy.



Type, *P. mutabilis*.

The Brazilian forms included under this genus are deceptively like small Oedemerids of the genera *Sisenes*, *Techmessa*, *Cycloderus*, etc., and the five here dealt with were found placed amongst them in the collections at the British Museum. The anterior coxal cavities, however, when examined with the prothorax detached, prove to be closed behind, much as in *Lagriia*, *Arthromacra*, etc., and the genus therefore must be included in Lagriidae. The only other described S. American Lagriid\* with a similarly depressed intercoxal process of the prosternum is *Emydodes* Pasc. Two of the species here included under *Pseudolagriia* are so variable in colour that the selection of a definite type is simply a matter of choice. *P. lycoides* and *flavifrons* may be said to mimic Lycids.

1.—*Pseudolagriia mutabilis*, n. sp.

(PLATE II, figs. 14, 14 a, 14 b, mouth-parts, ♂.)

Narrow (♂), broader (♀), moderately elongate, shining, thickly clothed, the legs included, with long, soft, erect or projecting, pallid hairs, the antennae also pilose; nigro-piceous or black, the prothorax and scutellum, the tip of the elytra, and in one specimen the sides also from a little below the base to near the apex, the abdomen in part, the legs (apices of tibiae excepted), and sometimes the head and mesosternum, testaceous. Head coarsely punctate, eyes large, well separated in both sexes; antennae (♂ ♀) very long, slender, feebly serrate, joint 3 slightly longer than 4, 11 one-half longer than 10 in ♂, shorter in ♀, constricted towards the apex. Prothorax short, transversely cordate, as wide as (♀), or a little narrower than (♂), the head; impressed with a few, intermixed coarse and finer punctures towards the sides and base, sometimes with two larger foveae on the disc posteriorly. Elytra long, about twice as wide as the prothorax, flattened on the disc, very gradually widening for about three-fourths of their length, and then abruptly narrowed to the apex, the apices somewhat acute; coarsely, closely, subconfluently punctate. Beneath sparsely, the sides of the metasternum closely, punctate.

Var. *α*. Prothorax, scutellum, elytra (the apical margin, and in one specimen the sides also to near the apex excepted), and legs (the bases of the femora excepted), black or piceous.

Var. *β*. Prothorax, the suture (broadly to near the apex), sides (from below the humeri to near the tip) and apices of the elytra, mesosternum, and legs (apices of tibiae excepted) testaceous.

Var. *γ*. Prothorax, basal third and apical margin of elytra, legs (apices of tibiae excepted), and under surface testaceous.

Length 6-7, breadth 2-2½ mm. (♂ ♀.)

*Hab.*: BRAZIL (*Miers*, in *Mus. Oxon.*), Rio de Janeiro (*Beske*, *Fry*).

\* *Statirepsis* Borchm. is unknown to me.

Sixteen examples—eight of the form selected as typical, six of the var.  $\beta$ , and one each of the others. The form with a testaceous prothorax is labelled *Megalocera (Lagria) collaris* Oliv. in the Fry collection, a determination that cannot be accepted, Olivier's type, from an unknown locality, having blue elytra, etc., and his rough figures of it do not accord with the Brazilian insect. The type of *Megalocera*, *M. rubricollis* Hope, from "Resin animé" [E. Africa], is very different from the species here described.\*

### 2.—*Pseudolagria diversa*, n. sp.

Extremely like *P. mutabilis*, and representing that species in the Amazon region: differing as follows: antennae ( $\sigma$ ) still more elongate, reaching to far beyond the middle of the elytra, joints 3–10 obliquely produced at the inner apical angle, this appearing strongly serrate, 3 longer than 4, 11 testaceous, equalling 9 and 10 united, ( $\text{♀}$ ) much as in *mutabilis*; eyes larger, subcontiguous in  $\sigma$ , slightly more distant in  $\text{♀}$ ; elytra a little more coarsely punctate; general coloration equally variable.

*Typical form*.—Nigro-piceous or black, the head in front, the antennae wholly or in part (the apical joint constantly), the prothorax, a sharply defined transverse patch at the apex of the elytra, and the legs and under surface in part or entirely (the apices of the tibiae excepted), testaceous. ( $\sigma$   $\text{♀}$ .)

Var.  $\alpha$ . Nigro-piceous, the elytra with a narrow oblique streak extending down the disc anteriorly, and the apex, the prothorax (a transverse mark on the disc excepted) and palpi, and the legs and under surface in part, testaceous. ( $\text{♀}$ .)

Var.  $\beta$ . As in  $\alpha$ , but with the streak on the disc of the elytra dilated into a broad stripe extending down two-thirds of their length (leaving a triangular scutellar patch, the suture and sides, and a common, broad, curved subapical fascia, infuscate); the legs testaceous, the apices of the femora and tibiae excepted. ( $\text{♀}$ .)

Var.  $\gamma$ . Testaceous, the head (except in front), and the elytra with the base and a common, broad, curved, subapical fascia, infuscate. ( $\text{♀}$ .)

Length  $5\frac{1}{2}$ –8, breadth  $2$ – $2\frac{2}{3}$  mm. ( $\sigma$   $\text{♀}$ .)

*Hab.*: AMAZONS, Ega, Santarem (*H. W. Bates*), Coary (*Trail*).

Eight specimens, five of which belong to the form selected as typical. The colour-variation, it may be noted, is not quite homologous with that of *P. mutabilis*, no wholly dark form occurring in the series of the Amazonian insect, for which a separate name is required.

### 3.—*Pseudolagria flavifrons*, n. sp.

$\sigma$ . Narrow, moderately elongate, shining, thickly clothed, the legs included, with long, soft, erect hairs; black, the anterior portion of the head, a streak around the eyes behind, the tips of the tarsi and palpi, the apical joint

\* Cf. Ent. Mo. Mag. 1917, pp. 7, 8.

of the antennae, the sides of the prothorax, the humeral callosities and extreme tip of the elytra, and the bases of the femora, flavo- or rufo-testaceous. Head coarsely, confluent punctate, the eyes very large, narrowly separated; antennae about reaching the middle of the elytra, joints 3-10 broad, serrate, 3 longer than 4, 7-10 gradually decreasing in width, 11 cylindrical, nearly equalling 9 and 10 united. Prothorax subquadrate, not so wide as the head, rounded at the sides anteriorly, feebly constricted before the base; irregularly, confluent, foveolato-punctate on the disc, the punctures separate one from another on the lateral portions, the transverse basal groove sharply defined. Elytra long, feebly convex, very gradually widening to far beyond the middle, and then arcuately narrowed to the apex; coarsely, closely confusedly punctate, the narrow interspaces transversely confluent.

Length 6, breadth 2 mm.

*Hab.*: AMAZONS, Ega (*H. W. Bates*).

One male. Narrower, less depressed, and more shining than *P. lycoides*, ♂, the antennae broadly serrate and with a rufo-testaceous apical joint, the eyes larger and more approximate, etc. The less elongate, broadly serrate antennae, and the subquadrate, more rugose prothorax, separate *P. flavifrons* from any of the varieties of *P. mutabilis* and *P. diversa*. The general coloration is common to various Lycids.

#### 4.—*Pseudolagria flavomarginata*, n. sp.

♀. Elongate, rather narrow, gradually widening posteriorly, shining, thickly clothed, the legs included, with long, soft, pallid, erect hairs; piceous, the head black, the anterior and post-ocular portions of the latter, the palpi, the sides of the prothorax broadly, a marginal stripe on the elytra (including the episterna), extending from a little below the humeri to near the apex, as well as an incomplete narrow vitta near the suture and the extreme tip, and the legs in great part (the outer third or more of the tibiae excepted), testaceous. Head coarsely punctate, the eyes large, well separated; antennae rather stout, moderately long, serrate, joint 3 about one-half longer than 4 [8-11 broken off]. Prothorax as wide as the head, subquadrate, feebly rounded at the sides; irregularly, confluent, foveolato-punctate, with a few smaller punctures intermixed, the disc with a smoother space in the centre in front. Elytra feebly convex, long, gradually widening to near the apex, at the base about twice as wide as the prothorax, the apices somewhat produced, the marginal carina thickened and laterally projecting; coarsely, closely, confusedly punctate.

Length 8, breadth  $2\frac{3}{4}$  mm.

*Hab.*: BRAZIL, Bahia (*Fry*).

One specimen, wanting the anterior legs, etc., but so different from its allies as to be worth naming. *P. flavomarginata* is, perhaps, nearest related to *P. flavifrons*, differing from it in the explanate lateral margins of the elytra, the elytra themselves being also bivittate. The roughly sculptured prothorax, and the more convex elytra, etc., separate the

present species from the vittate varieties of *P. mutabilis* and *P. diversa*.

5.—*Pseudolagria lycoides*, n. sp.

(PLATE II, fig. 15, ♀.)

Elongate, rather broad, widened posteriorly flattened and usually opaque or subopaque above, shining beneath, thickly clothed, the legs included, with long, soft, erect hairs; black, the anterior portion of the head (the labrum and mandibles excepted), a space around the eyes behind, the sides of the prothorax, and the bases of the femora, testaceous or rufo-testaceous; the elytra with a common, triangular or elongate, scutellar mark and a very large apical patch, often united along the suture, black, and the rest of their surface ochraceous. Head coarsely punctate, the eyes moderately large, somewhat widely separated in both sexes; antennae (♀) very long, slender, feebly serrate, joint 3 longer than 4, 11 a little longer than 10, (♂) stouter and more strongly serrate [joints 7–11 wanting]. Prothorax narrower than the head, subquadrate, very feebly constricted before the prominent basal margin; coarsely, irregularly, confluent punctate. Elytra long, twice as wide as the prothorax, flattened on the disc, gradually widening to near the apex, the apices slightly produced; rather coarsely, closely, confluent punctate. Beneath somewhat closely punctured.

Var. ♂. Elytra black, with a common rhomboidal spot at the middle of the suture, and an oblong streak on each side of it near the margin (together forming an interrupted fascia), and a humeral patch, ochraceous.

Length  $7\frac{1}{2}$ –9, breadth  $2\frac{2}{3}$ – $3\frac{1}{2}$  mm. (♂ ♀.)

*Hab.*: BRAZIL (*ex coll. Laferté*: ♂; *Miers*, in *Mus. Oxon.*, var., ♂), Rio de Janeiro (♂ ♀), Santa Catharina (♀) (*Fry*), Espirito Santo (*Mus. Brit.*: ♀).

Described from two males and four females—two females from Espirito Santo acquired in 1855, a male (labelled *Lagria?*) from the Laferté collection, and possibly from that of Dejean, a male from Rio de Janeiro, and two females from Santa Catharina. The variety (♂) in the Oxford Museum, captured in 1843, now has a ♀ abdomen attached to it. The markings of the elytra vary, according to the predominance of the ochreous or black coloration, just as in various Lycids, Telephorids, Hispids, etc., the two males having the scutellar and apical patches coalescent. The insect is duller and flatter than the allied forms, and very like a Lycid.

---

[Since the publication of the preceding portions of this paper the imperfect ♂ *Disema* (No. 12), provisionally referred by me to *D. brasiliensis* Pic, *ante*, p. 149, has been named *championi* by the same author, *Mélanges exot.-entom.* xxv, p. 16, Aug. 1917.]

---

## EXPLANATION OF PLATE II.

- Fig. 1 ♀. *Colparthrum bicinctum*, n. sp. [Peru].  
 ,, 2 ♂. ,, *fasciatum* Mäkl. [Brazil]; 2 *a*, sixth ventral segment and penis-sheath; 2 *b*, ditto, in profile.  
 ,, 3 ♂. ,, (?) *subsignatum*, n. sp. [Brazil].  
 ,, 4 ♂. *Disema inlateralis* (= *arcuatipes*) Pic [Brazil]; 4 *a*, anterior leg.  
 ,, 5 ♂. ,, *sinuatipes*, n. sp. [Amazons]; 5 *a*, genital armature.  
 ,, 6 ♂. ,, *plicatilis*, n. sp. [Amazons]; 6 *a*, tip of antenna.  
 ,, 7 ♂. ,, *macroptera*, n. sp. [Brazil].  
 ,, 8 ♂. ,, *appendiculata* Pic [Brazil]; 8 *a*, intermediate femur.  
 ,, 9 ♂. ,, *obscura* Mäkl. [Brazil], intermediate leg; 9 *a*, posterior leg.  
 ,, 10 ♂. ,, *xanthostigma*, n. sp. [Brazil].  
 ,, 11 ♂. ,, (*Barsenis*) *fulvipes* Pasc. [Brazil].  
 ,, 12. *Uroplatopsis ochreofasciata*, n. sp. [Ecuador].  
 ,, 13 ♂. ,, *annulipes* Pic [Brazil]; 13 *a*, genital armature.  
 ,, 14 ♂. *Pseudolagria mutabilis*, n. gen. and sp. [Brazil], mentum, labial palpi, etc.; 14 *a*, maxillary palpus, etc.; 14 *b*, mandible.  
 ,, 15 ♀. ,, *lycoides*.

## A NEW BARID FROM A COSTA RICAN BROMELIAD.

BY G. C. CHAMPION, F.Z.S.

In the Ent. Mo. Mag. for 1913, pp. 2-7, an account was given of various beetles, etc., found in epiphytic Bromeliads in Costa Rica. Shortly afterwards Dr. P. P. Calvert sent me numerous other insects from the same plants for determination, including a fine new weevil, a description of which is appended below. The publication of his interesting book on the Natural History of Costa Rica\* has reminded me of the Coleoptera received from him, and still in my possession, to be handed over to the British Museum when named.

*Diastelhus bromeliarum*, n. sp.

♀. Broad, rhomboidal, moderately convex, flattened above; polished, brassy-green, the rostrum and antennae black, the knees, tibiae, and tarsi nigro-violaceous; glabrous above, the coarser punctures beneath each bearing a curled, squamiform hair. Head transversely depressed between the eyes, sparsely punctate; rostrum longer than the head and prothorax, abruptly curved downward, rather slender, moderately thickened towards the base, sparsely, finely punctate, the antennae inserted at about the basal third. Prothorax broader than long, deeply sinuate at the base, the sides arcuately converging to the narrow, tubulate anterior portion; very sparsely, finely punctate. Scutellum broad, short, smooth. Elytra much wider than the prothorax, rounded-triangular, hollowed down the suture, transversely depressed on the disc at and beyond the middle, and more broadly so at the base, the humeri tumid; finely striate, the sutural stria deeply impressed,

\* Reviewed, *ante*, p. 181.

the sutural and outer striae with conspicuous oblong punctures, the others finely punctate, the interstices flat, 2 very broad, all very sparsely minutely punctate. Beneath sparsely, finely, the metasternum very coarsely, punctate, the prosternum grooved down the middle, roughened on each of this, and almost smooth between the coxae; intercoxal portion of the metasternum very broad, simple. Femora each with two transversely placed teeth. Tibiae rounded externally.

Length 6, breadth  $3\frac{1}{2}$  mm.

*Hab.*: COSTA RICA, Juan Viñas, alt. 3300 ft. (*P. P. Calvert*, 26.iv.'10).

Described from one of several specimens captured by Dr. Calvert. *D. bromeliarum* is related to various Tropical American forms included by Schönherr under his genus *Centrinus*, and by myself, under *Diastethus* Pase. Its nearest ally is *Centrinus lucens* (Germ.) (= *micans* Boh.), from Brazil, from which it may be separated by its depressed form, brassy-green colour, uneven elytra, more shallowly grooved prosternum, very coarsely punctured metasternum, etc. The only recorded Central American species approaching *D. bromeliarum* is *D. violaceus* Champ., which has dense patches of white scales on the under surface, much as in the type of *Diastethus*, *Centrinus tumidus* Boh., this latter having the metasternum tumid between the coxae.

*Aug. 3rd, 1917.*

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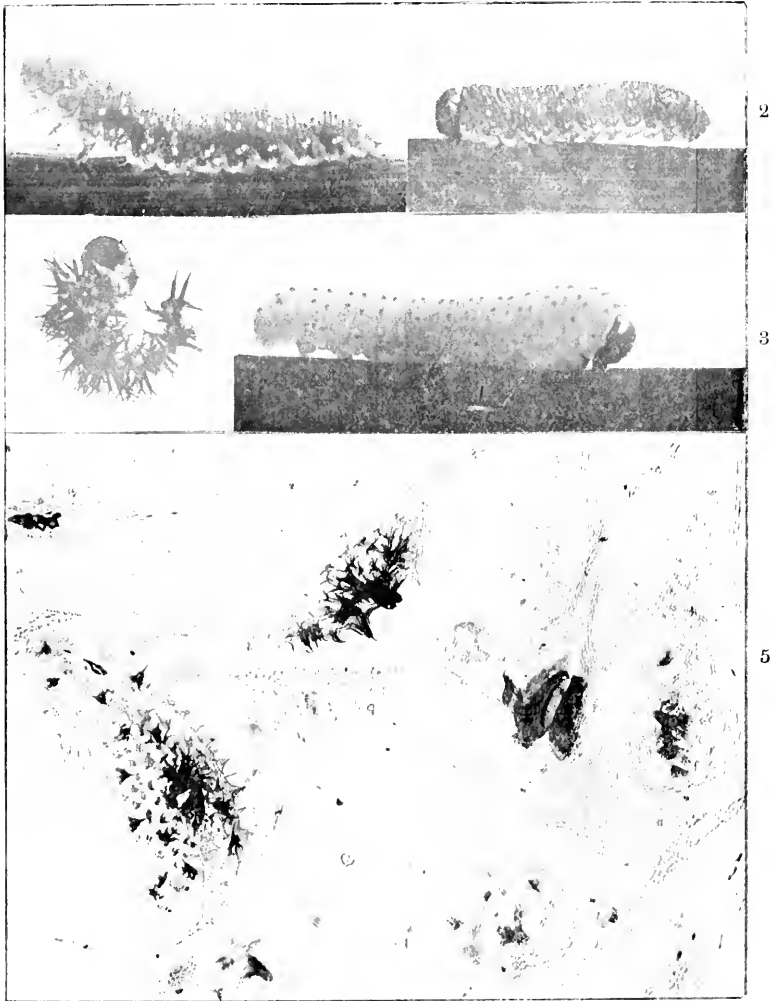
THE LARVAE OF *RHADINOCERAEA MICANS* KLUG AND OF  
*PHYMATOCERA ATERRIMA* KLUG.

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

(PLATES V-VII.)

My interest in *Phymatocera aterrima*, aroused by Mr. Morice's account of it to the Entomological Society (Presidential Address, 1912), induced me to examine its method of egg-laying (*Ent. Record*, 1915, vol. xvii, p. 145). In consequence, I was led to a desire to know something of *Rhadinoceraea micans* Kl. (*Monophadnus iridis* Kalt.), when Mr. Champion told me of a sawfly, unidentified at first, appearing commonly at Woking amongst *Iris pseudacorus*, and on receiving specimens I was able to identify it. Its interest in connection with *P. aterrima* is in its extremely close resemblance to that species. Amongst the Blennocampids there are several black species, but these appear to be the most so, *P. aterrima* has, indeed, paler front tibiae, but *R. micans* is entirely black; both are practically glabrous, *micans* is really almost so; *aterrima* has some hairs, especially on the antennae.

Mr. Morice, who first noticed *R. micans* as British in 1907 (*Ent. Mo. Mag.* vol. xliii, p. 79), visited Mr. Champion's locality in due season

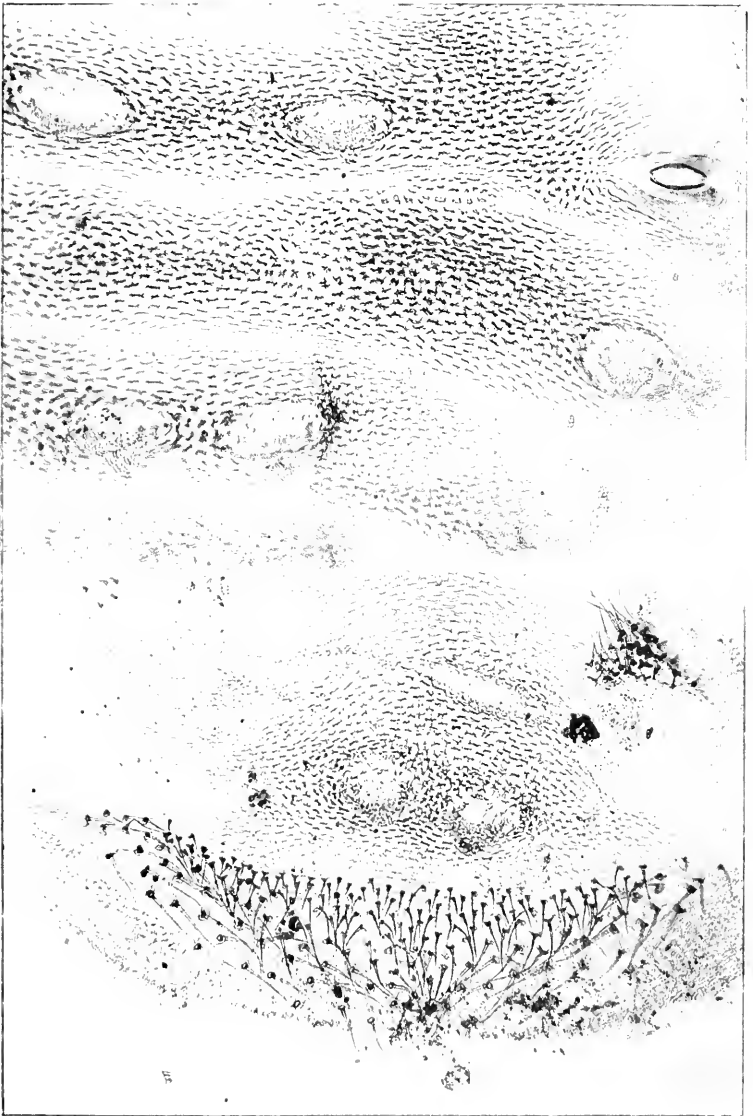


*Photo. F. D. Morice and F. N. Clark.*

LARVÆ OF *R. MICANS* KL., *P. ATERRIMA* KL., AND *PERICLISTA* sp.







Photo, F. N. Clark.

RHADINOCERAEA MICANS KL., LARVAL SKIN STRUCTURES  $\times 60$ .





*Photo. F. N. Clark.*

PHYMATOCERA ATERRIMA KL.  $\times 60$  AND  $\times 30$ .



and found the larvae abundant on *Iris*, and most kindly afforded me examples. The oviposition was not observed. There appears to have been no record of the insect as British since 1907 till the present year.

The larva of *Phymatocera aterrima* is described by Cameron (Phyt. Hymenopt., vol. i, p. 232), but that of *Rhadinoceraea micans* does not, I think, possess any English description. Cameron's account of *P. aterrima* is obviously not original, and is not, perhaps, quite correct in one or two particulars, so that descriptions of both seem not altogether unnecessary.

The larva of *Phymatocera aterrima* is 17 to 18 mm. long, 3 mm. thick at the 2nd and 3rd thoracic segments, 2.5 at the abdominal ones, a little more when not extended, and then the enlargement or clubbing of the thoracic segments is more marked. The colour is a light lavender-grey or pale leaden colour, paler, almost pink, as to the last segments and to a slight degree also in front; paler also beneath, but only slightly so, the tints graduate into each other, without any distinct demarcation, and are, in truth, only slightly different. With all the larva has a translucent almost transparent aspect. Certain black points are quite conspicuous. The subsegmentation on the abdomen presents (dorsally) six subsegments, the first and third carry the black spots, the others are without. The incisions between segments are so exactly similar to those between subsegments, that if it be asserted that the first subsegment is really the one I have called the sixth of the preceding segments, I am not sure that I can prove that I am correct.

A little above the spiracles these subsegments merge in the complications of the lateral flange; subsegment 1 may claim an enlarged area that includes the spiracle, and extends across half the segment, but has a fold between it and the 1st subsegment proper, 2 and 4 come to a point just behind this and 3 a little higher between them, 5 and 6 reach with doubtful folds to below spiracular level, 2 and 4, that have no black points above, each have one here just above spiracular level.

The black spots consist of enlarged skin points in groups, of which the central one is a short black cone, two or three close to it smaller and then smaller and smaller till they merge in the surrounding skin points. They are on a slight raised surface or eminence of which the central black cone forms the apex. The spots on each segment (abdominal) on either side are two dorsal, on subsegments 1 and 3, and two subdorsal on the same subsegments, nearly half-way from the dorsal spots to the spiracles; there are also the two, already mentioned, behind the spiracles.

The 9th abdominal segment is like the others, except that it has only one spot at spiracular level. The 10th (abdominal) segment has on each side a dorsal spot and a lower one at outer angle of anal plate, and some minute points between these on the plate. The prothorax has one spot above spiracle and three in a row dorsally on 4th (2) subsegment. The 2nd and 3rd thoracic segments have two dorsal and two subdorsal, but the anterior of these is lower than on the abdominal segments, so does not range with the other subdorsal. There is a large spot in line with the supra-spiracular of prothorax, and perhaps of the same series as the abdominal post-spiracular. There is also a spot above the legs ranging with faint ones above the abdominal prolegs. The legs are

black, the head is black or dull blue-black, when magnified, with cell tessellations, each cell with blacker centre and numerous fine short white hairs arising from the angles of the tessellations.

When disturbed enough the larva curls up, not in a coil like *Trichiosoma*, but with head and tail together, and falls.

The larva of *Rhadinoceraea micans* is 23 mm. long, 2.6 thick, uniformly so throughout. The colour is a pale ochreous, over-tinted with darker to almost leaden colour, least pronounced on segments 2, 3, 4, 8, 9, 10, in which the general translucency, not assertive on the darker areas, is more pronounced. At spiracular level is a very narrow pale line, really the tracheal tube shining through, beneath which the colour is of a decidedly much paler tint than that of the upper surface, though in some specimens 8, 9, and 10 are as pale above. The dorsal vessel above shows darker, owing to intestinal contents below it. Above the tracheal line is a broad darker band reaching up to the subdorsal spots, darker actually, but looking even darker owing to being without the white spots. These spots consist (on abdominal segments) of two dorsal spots (on each side) on the 1st and 3rd subsegments, and below each of these on the same subsegments, two others; there are also two behind each spiracle and at about the same level. The dorsal pair are always present, but of the two below each, one or other is often absent on one or more subsegments, but never both. Of six specimens noted in this matter not one had all the rows complete and one was six spots short, and one specimen had no spots on one side of pro- and mesothorax. On the prothorax there are usually four spots on a rather oblique line; the meso- and metathorax are much like the abdominal segments, except that the third spot is rarely present, and there are one or two lower spots, one of which aligns with the post-spiracular one and the other is not strictly with the abdominal ones. The white spots are prominences of shining white or almost colourless material, narrow and flattened from before backwards, and highest, though hardly pointed at the centre. Their surface is in fine raised rounded dots, essentially the same as the shagreened points of the general surface. The subsegmentation is practically identical with that of *Phymatocera aterrîma*. The head is rounded, black, smooth, and shining, with cell tessellations, which have duller black points at some of the angles. There are no hairs, unless microscopic representative points be so considered.

The spiracles are vertical slits, each with a plate in front and behind, a little darker than the general surface, and broader below than above. The spiracles in *P. aterrîma* are almost identical.

The skin surface instead of being covered with skin-points, as in *P. aterrîma*, is smooth, with a fine tessellation of smooth flat plates.

These descriptions refer to the larvae in their last feeding instars, but each species proceeds to another instar in which it does not feed, in which it is smaller, having no contents to the alimentary canal. In one the black points and in the other the white spots are practically lost, and the colours are more dull and uniform. In *R. micans* the white dots are represented by a similar set of minute plates as in the preceding skin, but hardly raised above the general surface, and of about the same colour; the surrounding skin-plates however, form a border or frame, as in the fully developed spots. The head is

pale and, instead of being opaque (and black), the cranium when mounted is transparent, with some irregular lines and a number of small circular, hemispherical pits, each with a minute circle at the bottom. In *P. aterrima* the head is similarly black and solid in the last feeding instar, and in the final instar is transparent, but has no hairs. It has pits very like those in *R. micans*, but the intermediate areas are occupied by plates of much the same size as the cups, and separated from each other by narrow channels. The skin in *P. aterrima* in this last instar has no longer the sharp skin-points of the preceding instars, but has merely a tessellation of cells; in the position of the black points the area is marked out by the tessellation being rather more plainly marked, in a definite oval area, the central cells being the larger. In the skin structure in this last instar the two species, previously so different, are now very much alike.

It is curious that the presence of hairs in the imago of *Phymatocera aterrima*, which so easily distinguishes it from *Rhadinoceraea micans*, obtains also in the larva, the head having hairs and the skin-points being sharp.

Cameron refers to various sawflies changing their colour previous to moving off to find a place for pupation, but he says little as to the change occurring by means of a moult, after which no food is eaten. In specific descriptions he does not mention whether this special moult does or does not occur. I do not think the circumstance is noted in detail by any English authority, but my ignorance of the literature of sawflies is, no doubt, the reason I cannot refer to any such record.

There is, of course, little doubt that the change has reference to a search for a place in which to make a puparium, just as a similar change (but without a moult) is so well known to occur in many Lepidoptera, and, no doubt, makes the larva much less conspicuous. But these sawfly larvae pass the winter in their puparia and only pupate in the following spring, and it is probable that the change of colour being acquired by a moult has some reference to acquiring a smoother and more uniform coat, which will be more comfortable and especially, probably, will not permit so much evaporation and so avoid desiccation.

There is another difference between the two instars in the size of the spiracles, which are distinctly larger in the pupating than in the feeding one. This difference is much more pronounced in *Lophyrus pini*, in which the hibernating spiracles are nearly twice the diameter of those in the feeding instar. This may have some reference to the unquestionable fact that in the cocoon there is no need to defend the spiracles from any foreign objects, but it probably also refers in some way to more ready use of the restricted supply of air.

Mr. Morice tells me of the larva of a species of *Periclista* (probably *melanocephala*) whose larva has abundant bifid spines but on this last moult gets rid of them altogether and goes down with a smooth skin. *Lophyrus pini* makes a similar moult with little change in appearance.

In *L. pini*, to whose spiracles I have already referred, in the last feeding stage, each segment has a considerable number of tubercles, each consisting of a little upright spine with rounded top, and the black marks are apparently actual chitinous plates. In the pupating instar there are no spines,

which are merely represented by minute circles, and the black marks are in quite flexible skin and consist of the dots outlining the skin-points being black. These minute points are, on the dark and pale skin, arranged in little lozenge-shaped groups, in the feeding instar they are in transverse lines. The head is very pale and of apparently quite soft consistence, though the mandibles are almost the same as in the feeding instar, except that they have brown chitination only along their dentate margin. It is difficult to suppose these mandibles to have any function. The skin cast at pupation by *Lophyrus pini* in its cocoon, presents the head as a small pale flap and the skin proper as a roll behind this. It is rolled up in two revolutions, the last segments being the inner ones. The skin is apparently thrust backward as it is cast, and the end is rolled up in this way against the cup-shaped end of the cocoon.

Larvae differ much in the state which their cast skins take up. Most Lepidoptera in cocoons thrust the skin back, and it folds up, segment by segment, in accordion folds. *Trichiosoma*, which moults to pupa under conditions apparently identical with those of *L. pini*, has the skin disposed in the Lepidopterous manner.

*Lophyrus pini* is quite willing to make its cocoon on the tree and amongst the pine-needles, so is probably in no need of a change in appearance, but the change in structure is as definite as in *Phymatocera* or *Rhadinoceraea*, strongly confirming the view that these changes refer to some necessities of hibernation in the cocoon.

*Trichiosoma*, however, whose conditions seem so similar to those of the species so far discussed, makes no such moults, but spins its cocoon still in its last feeding instar.

*Trichiocampa viminalis* differs again. The larva when quite young is green, when older and when full grown each extremity becomes orange, and when it starts on its search for a puparium becomes entirely orange. It is, however, probably orange throughout previously, and the green middle portion is due to food-contents, which are absent in the smaller travelling larva, and here there is no moult to produce the change of colour, which seems due to the emptying of the *primæ viæ*. The young green larva as well as the older bicoloured one are very inconspicuous, even ranged in the ranks in which it feeds; the wholly orange one probably is a case of warning coloration or a mimicry of such colouring.

#### EXPLANATION OF PLATES V-VII.

##### PLATE V.

- Fig. 1.—Larva of *Rhadinoceraea micans* Klug,  $\times$  about 3.  
 „ 2.— „ „ „ „ „ „  $\times$  about 2.  
 „ 3.—Larva of *Phymatocera aterrima* Kl.,  $\times$  about  $2\frac{1}{2}$ .  
 „ 4.—Skin cast by a species of *Periclista* on assuming the smooth covering suitable for making a puparium,  $\times$  about  $1\frac{1}{2}$ .

These four figures are of various enlargements, from photographs kindly given me by the Rev. F. D. Morice.

- „ 5.—Photograph of portion of prepared skin of *Phymatocera aterrima*,  $\times$  60, by Mr. F. N. Clark; it includes a spiracle. The spiracles have much the same appearance in *R. micans*.



## PLATE VI.

Skin of full-grown larva of *B. micans*, portion of dorsum and of last segments  $\times 60$ , by Mr. F. N. Clark. The skin elements (cells) of both the warts and general surface are flat or rounded.

## PLATE VII.

Skin of full-grown larva of *P. aterrima*, portion of dorsum  $\times 60$ , and of last segments  $\times 30$ , by Mr. F. N. Clark. The skin elements (cells), both of warts and general surface, are spinous or spicular.

Reigate.

Aug. 11th, 1917.

NOTES ON THE COLLECTION OF BRITISH HYMENOPTERA  
(ACULEATA) FORMED BY F. SMITH.

BY R. C. L. PERKINS, D.Sc., M.A., F.E.S.

(Concluded from p. 162.)

Turning to the *Diploptera*, or true wasps, the solitary species belonging to the subgenus *Ancistrocerus* of *Odynerus* were not well understood in Smith's time, nor, in fact, until Saunders (following Thomson) gave good characters for the separation of the more difficult of these. In the collection, therefore, *O. parietum* L., *parietinus* L., and *callosus* Thoms. are mixed up under the names *parietum* and *quadratus* Panz., and there are other errors.

*O. reniformis* Gmel. is wanting, the specimens so named being—the one a very small *Ancistrocerus antilope* Panz., the other a common-place *A. parietum* ♀. *Symmorphus crassicornis* is represented by two females, one from "Darenth Wood, July 1837," the other from Abergavenny, 1868, where it also appears to have been found more recently by Dr. Chapman (Saunders, Hym. Acul. p. 169). Smith's supposed ♂ of *crassicornis* (marked with a ?) is only a *parietinus*.

In the social wasps we may note the specimens of *Polistes gallicus* supposed to have been taken near Swanage by Mr. Horne, and a *P. biguttatus*, a species imported on ships to London, Liverpool, and Penzance in 1866, '67, and '68. The series of *Vespa austriaca* Panz. (*arborea* Sm.) consists of males and females and a supposed worker, which is a quite ordinary *rufa* ♀. One supposed ♂ also obviously belongs to the latter species, and one ♀ is much more red-marked than ordinary *rufa* ♀, but is a true *arborea*. From the nest of *V. rufa* Smith bred *Chrysis ignita* and the Ichneumonid *Chrysonomon vesparum*, the latter also from *V. vulgaris*.

In the Fossorial *Hymenoptera* there is a series of *Methoca*, ♂ and ♀, once considered a very rare insect, and of *Sapyga clivicornis* from

Yorkshire. The original specimens of *Pompilus approximatus* Sm., collected by Dr. D. Sharp in Dumfriesshire, are of gigantic size. The females of *P. nigerrimus* Sc. (*niger* F.) in Smith's collection are, most of them, well above the average in size, but the largest *approximatus* is about twice as large as any of them! *P. acuminatus* Sm. (= *sericeus* V. de L.) is represented by a single specimen only. The red-bodied Pompilidae were too difficult for Smith, and a number of our species of *Pompilus* he did not distinguish at all, although he had specimens of them, nor yet the two common species of *Salix*, *S. pusillus* Sch. and *parvulus* Dahlb. In consequence, his series of *P. gibbus* F. contains *wesmaeli* Thoms. ♂ and ♀, *riaticus* Linn. ♂ var. small, *ungicularis* Thoms., *chalybeatus* Sch., many females, *gibbus* comparatively few, *pectinipes* V. de L. ♂ and ♀, and small ♂♂ of *Salix exaltatus* F. The ♂ of *P. chalybeatus* was given to *P. pectinipes*, as Saunders rightly observed (*op. cit.* p. 62).

The two females assigned to a species supposed to be *Salix notatus* Rossi (= *notatulus* E. Saund.) are large examples and truly *notatulus*, but other specimens of this were mixed with *exaltatus*, while two of the males are not *Salix* at all, but belong to *P. chalybeatus*. One of these, indeed, is labelled "type from Shuekard collection, *P. sericatus*." Distinct as it is, *S. notatulus* has not been very well understood in this country. At one time Saunders confused the ♂ with the very different *Calicurgus hyalinatus* F., and one of his female examples, the actual type, if I remember rightly, now in the British Museum, is only the common *exaltatus*. Later, he seems to have doubted whether any of the so-called females really belonged to his ♂ *notatulus*, and to have thought it possible that the black ♀ *Salix*, found in the New Forest, and referred to *S. propinquus*, might be the same species as that ♂! The scarce *Ceropales variegatus* F. is represented by a single pair from Weybridge, there is the typical series of *Miscophus maritimus* Sm. from Deal, and a single *Dinetus pictus* F. from "Sandhurst, 1837," all these being of interest. The examples of *Oxybelus* which Smith took from *Astata boops* Schr., are preserved, as well as the ordinary Pentatomid prey. Excepting three specimens, all the series of *Nysson interruptus* F. is wrongly named, the others being only *spinosus* F. The small black *Crabronidae*, standing under the names *Crabro proximus*, *luteipalpis*, *varius*, *transversalis*, *obliquus*, and *pallidipalpis*, are much mixed, each name being generally represented by several distinct species. I find no black-bodied males of *C. dimidiatus* F., such as Smith records, and I think he must have meant to refer to melanic examples of *C. 4-maculatus* Dahlb., small specimens of which

are to be found not only under this name, but also confused with the species of the very different subgenus *Crossocerus*. Females of *C. lituratus* Panz., the ♂ of which was described as *vestitus* by Smith, are to be found in his series of *cephalotes* Panz. and *aylurgus* Shuck. (= *chrysostoma* Lep.). Of more interest is the pair of the remarkable *C. clypeatus* L. taken at Weybridge, a species which, like several others in the Kirby and Smith collections, awaits rediscovery.

Of several local species, e. g. *C. pubescens* Shuck., *walkeri* Shuck. (= *aphidum* Lep.), *capitosus* Shuck., *anxius* Wesm. (= *exiguus* Sh.), *gonager* Lep. (= *ambiguus* Dahlb., and by a *lapsus* labelled *exiguus* Dahlb.), and *scutellatus* Schev. (= *pterotus* F.), Smith had only one or at most three examples, though most of these are to be obtained in numbers at times. Two of his series of the common *Oxybelus uniglutinis* L. were specially labelled "Deal," no doubt as being considered aberrant, since the others are unlabelled. These two are *O. mandibularis* Dahlb., while the unique Devonshire example of *O. nigripes* Oliv. needs comparing with authentic Continental examples of that species, since there appears to be considerable doubt as to the correctness of the names attached to many of the European species one finds in collections. The type of *Ceratophorus anthracinus* Sm. appears in every way identical with those others named *C. morio* F., and the naming in *Passaloecus* and *Diodontus* is not always correct. There are three old specimens of *Mimesa atra* F. (without locality labels), and a very fine series of *Philanthus* from the Isle of Wight. The unique example named *Cerceris emarginata*, taken at Kingsdown, is of some interest. Saunders remarks (*op. cit.* p. 119) that it is "undoubtedly referable to this species," which, he says, has "a deeply striate basal area of the propodeum." He apparently quite overlooked the fact that Smith's specimen has this area almost smooth and very similar to that of *C. ornata*. However, the colour, sculpture, etc., are so different from that of the latter, that it really appears to be an aberration of *emarginata*.

As to the Ants, of which the collection is large, I need only remark that of the two examples labelled "*gagates*," one is from Bournemouth, the other from the Isle of Wight, and that the early records of *Ponera contracta* are very probably mostly erroneous. I think the earliest correctly named examples in Smith's collection are a pair of workers from Mickleham, collected, I believe, by Dr. Sharp, those taken before this (e. g. in St. James's Park) being all *punctatissima*, as also is a ♀ labelled "Manchester."

Park Hill House, Paignton.

September 1917.

AYLAX ROGENHOFERI (WACHTL), A CYNIPID (HYMENOPTERA)  
NEW TO THE BRITISH FAUNA.

BY RICHARD S. BAGNALL, F.L.S.

When I brought *Aylax taraxaci* forward in the September number of this Magazine I scarcely thought that I should find it necessary to record another species within such a short space of time.

The gall of *Aylax rogenhoferi* is found in the heads of the large knapweed (*Centaurea scabiosa*), and takes the form of an ovoid swelling, 3-6 mm. long by 2-3 mm. broad, generally situated at the base of an *involucral* bract on the inner face. The insect emerges from the gall in the late spring of the second year. I have searched for this gall on several occasions without success, but this afternoon, whilst out with two geological friends, it was met with in plenty at two widely separated localities. A few specimens were situated somewhat high up the bract, instead of at the base.

The deformation is not noticeable on the outer side of the head; the whole of the achenes of a flower, preferably dying, should be removed, and a finger rubbed round the base of the inner side of the *involucre*, when the swellings, if present, may be readily detected. The species is also known to gall the achene of the same plant.

*Aylax rogenhoferi* (Wachtl).

*Isocolus rogenhoferi* Wachtl, 1880, Verhandl. zool.-bot. Ges. Wien, xxx, p. 542, pl. xviii, figs. 6-6 E.

*Hab.*: DURHAM, Sunderland district, in quarries at Fulwell and Ryhope respectively, Sept. 8th, 1917.

Previously known from Central Europe, France, and Italy.

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I may add that I have, in the past, discovered old tenantless workings of what I consider to be two other Cynipids, viz. of *Aylax jaceae* and *Phanacis centaureae*, the former affecting the achenes and the latter the stem of *Centaurea nigra*. Neither is known as British, and search should be made for them; on the Continent, both species occur on several species of *Centaurea*.

Penshaw Lodge,  
Penshaw, Co. Durham.  
Sept. 8th, 1917.

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*Rediscovery of Tapinotus sellatus F.*—Coleopterists should be pleased to learn of the reoccurrence of this very rare and pretty Curculio in the Norfolk Fens after a lapse of seventy-one years. In June last I spent a week in the neighbourhood of Horning with the object of making a thorough search for *Tapinotus sellatus* and *Bagous binodulus*, two of our rarest *Curculionidae* that had long ago occurred there, and after much hard work and constant torment from biting and stinging *Diptera*, I had the gratification of finding a fine specimen of the *Tapinotus* by grubbing at the roots of the dense vegetation on the bank of one of the numerous dykes, on June 9th, the last day but one of my stay there. I had previously most carefully searched the foliage, stems, and roots of its reputed food-plant, *Lysimachia vulgaris*, without success, and there was none of this plant, nor of *L. thyrsoiflora*, observable anywhere near the spot where I found the beetle.

Only two authentic British specimens of *Tapinotus* were previously known, the first of them was found in moss at Horning, March 6th, 1838, by the Rev. Laundry Brown—this was in the Power collection and is now in the British Museum; the second, which is merely stated in Fowler's "Coleoptera of the British Islands" to be in the Wollaston collection, is, I find, fully recorded in the "Zoologist," 1846, p. 1517, and was taken by T. V. Wollaston at Whittlesea Mere, in June 1846—this specimen is now in the Crotch collection at the Cambridge University Museum, and Mr. Hugh Scott has obligingly given me an opportunity of examining it. Wollaston, in his record, states that he had been told by Mr. Walton that there was a specimen in the possession of Curtis said to have been taken in Suffolk; but this specimen seems to have never been recorded, as far as I can discover, and is now untraceable.

*T. sellatus* in its white and black coloration bears some resemblance to *Poophagus sisymbrii*, which occurs rather plentifully about Horning, but is rather larger and of a heavier build, and the conspicuous saddle-like black patch across the elytra, from which it takes its name, renders it too distinct to be likely to be mistaken for that common and widely distributed species. It certainly seems strange that it should have remained undetected for so many years in a locality that is so well worked over by Coleopterists. There is a characteristic figure of it by Rye on the cover of the "Entomologist's Annual" for 1871.

I may add that I failed to find *Bagous binodulus* although I spent many hours in dragging dykes in which its reputed food-plant, *Stratiotes aloides*, grows in abundance.—O. E. JANSON, 95, Claremont Road, Highgate: September 17th, 1917.

*The genus Paraphytosus mihi: synonymical note.*—In the June number of this Magazine, *ante*, p. 125, I used the above generic name for an insect captured by myself at Port Stanley in the Falkland Islands, and determined as *Phytosus atriceps* Waterh. This determination proves to be incorrect, the species being really referable to *P. darwini* of the same author, from the same Islands, a closely allied form. Moreover, Dr. Fenyés has drawn my attention to a paper in the Report on the "Deutsche Süd-polar-Expedition," vol. x, Zoology, vol. ii, pt. iv, 1908, p. 377, in which Enderlein has taken the *P. atriceps* of Waterhouse as the type of a new genus, *Antarctophytosus*.

I have compared the types of *P. atriceps* and *P. darwini* in the British Museum collection, and have no doubt they are congeneric. Enderlein, however, states that the front tarsi are 4-jointed, the others 5-jointed. In the specimens of *P. darwini* I have examined as microscopical preparations the tarsal formula is 4. 4. 5; the description of the mouth-parts agrees with that published by me, and I think Enderlein's account of the tarsi must be incorrect. In any case, the name *Paraphytosus* must give way to *Antarctophytosus* for these species, both of which are recorded by him from the Crozet Is.—MALCOLM CAMERON, 9 Blessington Road, Lee, S.E. 13: *September 8th*, 1917.

*The fool-plant of Evomias pellucidus* Boh.—I swept this species commonly at the end of May 1916, within a small area, in a garden at Meole Brace, near Shrewsbury. Careful research showed that it was living on the Germander Speedwell, *Veronica chamaedrys* L. I can confirm Fowler's record of *Evomias araneiformis* as a strawberry pest. It is to be found, not at all uncommonly, burrowing into the ripe berries.—J. R. LE B. TOMLIN, Lakefoot, Alexandra Road, Reading: *September 12th*, 1917.

*Anchomenus sexpunctatus* L. in Berks.—It is a great pleasure to be able to record the reappearance of this species in some numbers. Since its disappearance from Wimbledon Common, no certain locality seems to have been known for it, and in the last fifteen years I only know of two captures—by the late Mr. L. H. Jabn at Dove Dale, and by Canon Fowler in the Wellington College district, in each case only a single specimen.\* I first came across it on May 30th of last year, in damp ground, about a quarter of a mile from Wellington College Station, running in the sunshine—on the same day and in the same clearing where I first found *Pterostichus angustatus* Duft. It continued to occur there in some numbers until early autumn, and I fancy that a second brood comes out early in August; at any rate, I saw specimens which were very soft and immature in the first or second week of August, both last year and this. It has also occurred sporadically in several other localities in the same district, including the banks of King's Mere, where Canon Fowler took his specimen, and has been not at all uncommon throughout this summer. *A. sexpunctatus* also appeared early last June on the edge of a small pond on Burghfield Common, Berks, and seems likely to establish itself there. At any rate, it has been noticed there several times subsequently.—J. R. LE B. TOMLIN.

*Nanophyes gracilis* Redt. in Berks.—In June last I found a specimen of this weevil running on mud on the edge of a small pond on Burghfield Common—the pond where *Anchomenus sexpunctatus* L. also occurs. Subsequent examination of its food-plant, *Peplis portula* L., proved that the beetle was far from uncommon. I also found a *Haltica*, as yet undetermined, feeding on the same plant.—J. R. LE B. TOMLIN.

*Silpha subrotundata* Steph. in the Isle of Man.—On reading recently the late Dr. Bailey's note on this species in the Ent. Mo. Mag. Oct. 1902, pp. 238-9, I notice that he states that only the brown form occurs in Man, though both

\* I have taken it once or twice at Woking, singly.—G. C. C.

black and brown forms occur in Ireland. I possess in my collection a black specimen of this species which I took under a stone at Fleshwick Bay, near Port Erin, on June 21st, 1914. The brown form occurred to me at Port St. Mary in the same month.—WM. J. FORDHAM, The Villa, Bubwith, Selby, Yorks: *Sept. 13th, 1917.*

*Note on Heterocerus britannicus* Kuv.—My friend M. René Oberthür has recently sent me several specimens of *Heterocerus maritimus* Guér., captured by himself on the Channel coast, in the Anse de Moldrey, Monchy, on July 24th last, with a note stating that they are certainly conspecific with *H. britannicus* Kuv., the types of which are in his possession. Guérin's type of *H. maritimus* was from Tréport, Normandy, and those of Kuwert's species from Scotland and our southern coast. Brisout, in 1873, added Andalusia and Algeria to the distribution of *H. maritimus*. This small *Heterocerus* stands in most of our collections under the name *sericans* Kies., an insect with the same number of joints to the antennae, viz. eleven, seven of which form the club. Kuwert's name, in any case, falls as a synonym, but whether we really have the true *sericans* in Britain has still to be ascertained, as remarked by Fowler in 1891 (*Col. Brit. Isls. v, Appendix, p. 463*). My specimens of *H. maritimus* are from Dumfries, Belfast, Gravesend, Sheppey, Cowes, and Hastings. I also have it from Gibraltar (*J. J. Walker*).—G. C. CHAMPION, Horsell, Woking: *Sept. 10th, 1917.*

*Arena octavii* Faur. on the Lancashire coast.—Whilst regarding a short series of *Phytosus balticus*, taken by me some years ago (1902) near Southport, I detected a stranger amongst them. Upon a closer investigation I suspected it to be *Arena octavii*, and Mr. E. A. Newbery, to whom I sent the specimen, kindly confirmed my suspicions. I believe the species has not previously been recorded from a locality so far north as Lancashire.—R. WILDING, 52 A Orrell Lane, Aintree, Liverpool: *Sept. 1917.*

*Sphinx concolculi* Linn. in Lancashire, Cheshire, and Yorkshire.—The following records of *Sphinx concolculi*, recently taken in the district immediately to the south of Manchester and on the Yorkshire coast, may be of interest. On August 26th a female was picked up in Old Trafford, Manchester, and brought to Mr. G. F. Gee; it laid a few eggs whilst in his possession, and the larvae appeared on September 15th. Mr. H. de W. Marriott informs me that he was shown two that had been taken at Sale, Cheshire, on or about August 31st, and on that date a female was found on a gate-post in Bowdon, Cheshire, and was brought for my inspection by Mr. K. Nuttall. On September 10th Mr. J. C. Thurgarland sent me one which he had captured in Hale, Cheshire, a few days before, when at dusk it was settling on an old grey gate-post. Mr. G. W. Temperley tells me that at the end of the first week in September, he found one dead in the gardens on the sea-front at Scarborough, Yorkshire. As no June or July immigration appears to have been noticed, it is probable that these moths had recently arrived.—T. A. COWARD, Bowdon, Cheshire: *Sept. 1917.*

*Black pupae of Abraxas grossulariata*.—Last year (*Ent. Mo. Mag. 1916, p. 206*) I recorded the occurrence from my wild larvae of *Abraxas grossulariata* of a few pupae of a uniformly glossy black colour, without any trace of the

usual golden rings. This year considerably more of these black pupae occurred, but not from the wild larvae, of which from some 2000 I did not notice a single one. But they occurred in three distinct broods from my hibernated larvae in the proportion of, I think, quite 7 or 8 per cent., though I did not count them. None of the broods were from last year's black pupae, as they produced only the most ordinary forms of the moth, and were not paired. This year's produced good varieties, following their parents. It did not occur to me either year to pair a couple of moths from the black pupae, as I now wish I had done, to ascertain whether they would have produced a strain of entirely black pupae. This could have been done this year from good varieties of the moth, and if a similar opportunity arises again, I hope to do it.—GEO. T. PORRITT, Huddersfield; *September 3rd*, 1917.

*Further note on the habits, etc., of the Rhododendron-Tingid, Leptobyssa rhododendri* Horv.—In Vol. LII of this Magazine, pp. 207, 208, Sept. 1916, I appended a supplementary note to Mr. E. E. Green's record of the capture of this insect in Surrey. Further interesting particulars as to its life-history, etc., as observed by Mr. E. L. Dickerson and other entomologists in the Eastern United States, are to be found in the "Journal of the New York Entomological Society," vol. xxv, June 1917, pp. 105-112, pl. 8.\* Mr. Dickerson figures the falcate anal claspers of the male, the saw-like ovipositor used by the female in depositing its eggs in the leaf-tissue, the egg *in situ*, etc. Apparently there are only four nymphal instars, instead of five as in some of the allied New World forms. The same writer states that *L. rhododendri* Horv. (= *explanata* Heid.) is a native American species and that it has evidently been introduced into Europe on rhododendrons imported from the United States.—G. C. CHAMPION, Horsell, Woking; *Sept. 4th*, 1917.

*Note on an old specimen of Andrena vaga* Panz. (*ovina* Kl.), a species not recorded as British.—When I first examined the Walcott collection of Aculeate Hymenoptera at Cambridge nearly twenty years ago, I removed to the duplicate drawer a very old and dirty example of an *Andrena*, which was supposed to represent *A. polita* Sm., since it evidently did not belong to that species. Some time ago I again examined and partially cleaned this specimen and found it to be a rather small ♂ of the well-known Continental species *A. vaga*, which is allied to *A. cineraria*. No doubt this example was taken in Britain, and its capture would certainly date back to some year earlier than 1850. All Walcott's specimens were certainly British, excepting a few duplicates received from the British Museum and a few that he purchased from Pelerin, and all these were specially labelled. Moreover, *A. polita* was supposed to be peculiar to England in Walcott's time, and a representative could not have been obtained from the Continent. Superficially most like *A. cineraria*, *A. vaga* is very distinct from it by the very long third antennal joint, not to mention the genital characters. I have a very robust, faded ♂ of *A. albicrus* which slightly resembles Walcott's *vaga*, but, of course, the resemblance is entirely superficial, and apart from the entirely different 8th ventral segment, the lack of the conspicuous pale apical ciliation of the ventral segments

\* In this periodical, pp. 112-122, pl. 9, there is also a valuable contribution on the life-history of a Corixid-bug, *Arctocorixa alternata*, by H. G. Hungerford.—G. C. C.



of the latter distinguishes it at a glance.—R. C. L. PERKINS, Park Hill House, Paignton: *Sept. 11th*, 1917.

*Cannibalism in phytophagous larvae when in confinement.*—Has any satisfactory explanation been given to account for this well-known fact? Does it ever occur in larvae living in natural conditions? I am led to ask these questions from reading Mr. Ling Roth's comprehensive study of "The Growth and Habits of *Carausius morosus* Br." (Trans. Ent. Soc. 1916, pp. 345-386). Dealing with cannibalism (p. 381) he ascribes it to insufficiency of food, but admits two cases where cannibalism occurred when food was in plenty. My experience with large numbers of the same species and with numerous other species of phytophagous larvae has led me to reject altogether this explanation and to favour that of irritation due to confinement in the same company. To confirm this theory it must be shown that larvae known to develop this habit in confinement are blameless when at large in a natural condition. Hence this query.—E. G. BAYFORD, 2 Rockingham Street, Barnsley: *September 14th*, 1917.

*Aylax taraxaci* Ashm. in Derbyshire.—I was much interested in Mr. Bagnall's note on this species in the Sept. no. of the Ent. Mo. Mag. I have a specimen of this gall on the petiole of a dandelion leaf from Eyam, Derbyshire, Aug. 19th, 1902, which up to the present has remained in my collection unidentified. The petiole is swollen, slightly distorted, and when fresh was somewhat reddish in colour, and on section recently appears of a similar consistence to the gall caused by *Aylax hieracii* Bouché on hawkweed. I failed to breed the fly.—WM. J. FORDHAM: *Sept. 13th*, 1917.

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## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *August 9th*, 1917.—MR. HY. J. TURNER, F.E.S., President, in the Chair.

The Rev. A. O. Loames, M.A., F.E.S., Bromley, Kent, was elected a Member.

Mr. Ashdown exhibited *Tipula gigantea* from the New Forest, and the Tachinid *Echinomyia grossa* from the same place. Mr. Edwards, a living pupa of the stag-beetle, *Lucanus cervus* from Blackheath, and specimens typical of the groups of exotic *Hesperiidæ*. Mr. Hugh Main, a food-mass of *Copris lunaris* (Coleoptera) containing a nearly full-fed larva, and living larvae and pupae of *Gortyna ochracea* in stems of thistles, and pointed out the exit arranged for the emergence of the imago, closed by a thin "door" of epidermis. Mr. Turner, a very light grey aberration of *Amorpha populi* bred from the egg, and two males of *Hyponomeuta cagnagellus* united with one female. Mr. B. Adkin, an aberration of *Argynnis cydippe* (*alippe*) from Kent, with silver dots in some of the black blotches on the underside of fore wings. Mr. Brooks reported an abnormal pairing of *Ptychopoda aversata* ♀ and *Camptogramma bilineata* ♂. It was generally noted that the three species of *Pieris* were almost everywhere in considerable abundance. *Vanessa io* was also locally abundant, and *Eugonia polychloros* had been seen about twenty miles from London.

August 23rd, 1917.—The President in the Chair.

The decease of Mr. A. C. Vine of Brighton, a Member since 1889, was announced.

Mr. Frohawk exhibited the following aberrations of British butterflies:—*Cupido minimus*, with jet-black streaks on the upper surface of the left hind wing; *Agriades coridon*, a female with thin bright blue streaks on right hind wing; another female, an abnormal asymmetrical underside, right side 21 mm. in expanse, and unusually pale ground of hind wings and abnormal markings on both wings, left side 18 mm. in expanse, of normal colour and markings; *Adopaea flava (linea)*, three males, (1) straw-yellow, (2) washed silver-bronze, (3) rich coloured bred example: *A. lineola*, (1) pale ochreous, (2) broad dark margins and generally dusky. Mr. Edwards, exotic butterflies, a *Neptis venilia* collected by Wallace, *Mycalopsis nicotia*, *M. lepcha*, and *Abisara neophron* from Burmah, with *Linnaus jarbas*, and *Smyrna blomfieldia* from Bogota. Mr. Gibb, on behalf of Mr. Jaeger, specimens of a second brood of *Amorpha populi* bred in confinement. Mr. H. Moore reported that he had found *Pararge megera* numerous and generally distributed in Herts this year, and had also seen *P. aegeria* in the county, both species of the second brood. Various members gave seasonal notes.—HY. J. TURNER, Hon. Ed. of *Proceedings*.

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NOTES ON CERTAIN BRITISH (OR RECORDED AS BRITISH) SPECIES  
OF *OXYBELUS* LATR.

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

1.—*O. argentatus* Curtis=*mucronatus* Smith, Saunders, etc. (*nec* F.?).

It seems to be not so certain as is generally supposed that the beautiful British *Oxybelus*, which we now call *mucronatus* F., is really identical with the (German) species described under that name by Fabricius (Ent. Syst. 1793). It was added to our List by Curtis (1833), who described it (from a ♀) as a new species, and called it *argentatus*, because of the brilliant silvery pilosity, which distinguishes it at a glance from our other representatives of the genus. F. Smith, however (Ent. Ann. 1857), as Wesmael had done previously in 1852 (Rev. Crit. Fouiss. Belg.), sunk the name *argentatus* as a synonym of the earlier *mucronatus* F., and this identification has been generally accepted, both by British and Continental hymenopterists (*e. g.* Saunders and v. Dalla Torre), though the typical German *mucronatus*, as has been pointed out by Gerstaecker—who, however, accepts Wesmael's identification—is, at least superficially, very unlike the insect described by Curtis, having differently coloured spots (much deeper yellow) and lacking also the conspicuous silver pilosity which is so characteristic of the British insect. Kohl, in 1884, published a list of the known species of *Oxybelus*, in which he included *argentatus* Curtis as a species distinct from *mucronatus* F., but he did not give his reasons for distinguishing them; and

the fact that he *did* distinguish them is not mentioned in the synonymy given in v. Dalla Torre's "Catalogus." But, as far as I know, only one author has stated that he was himself acquainted with both forms and that he considered them distinct. This author was Marquet (1896), who not only separated *argentatus* Curtis from *mucronatus* F., but called the former "une espèce bien différente," and added that *mucronatus* but not *argentatus* was known to Gerstaecker, and *argentatus* but not *mucronatus* to Edw. Saunders. There is, in fact, no specimen of typical *mucronatus* in Saunders's collections at South Kensington.

I have myself found, in Germany and Switzerland, *mucronatus* F. (typical) only; whereas, in this country, I have only met with *argentatus*. The latter occurs also in Northern France. Marquet gives Dunquerque and Lille as localities, and in Saunders's collection at S. Kensington there are three specimens from St. Briac (Bretagne) and one from the Channel Islands. From Belgium too, apparently, it is described by Wesmael under the name *mucronatus*, as a great rarity (two ♀♀ only from the sand-dunes near Ostend). It does not seem to have been recorded from any other country; but Sájó (1884) described from Hungary a species which he called *treforti*, characterizing it in a manner which at once suggests *argentatus*! A pair of *treforti* Sájó (received from the author) are now in the general collection at South Kensington, and having carefully compared them with specimens of British *argentatus*, neither Mr. R. Turner nor myself can discover any character by which they can be distinguished. *Treforti* Sájó has been recognized as a "good species," distinct from *mucronatus* F., by Kohl (*l. c.*), and is entered as such in v. Dalla Torre's "Catalogus." Whether or no *argentatus* Curtis be, as I incline to believe, identical with it, it appears to me that either both these or neither should be accepted as distinct from *mucronatus* F. And if the two are identical and a "good species," the name *argentatus* Curtis has, of course, priority by many years over *treforti* Sájó.

Unless, as I suspect, *argentatus* and *treforti* are identical, it would appear from the available records that *argentatus* occurs only in Britain, the Channel Islands, North France, and Belgium; while *mucronatus* is limited to Central and Southern Europe. This would suggest that the two are local forms (= "subspecies") of a single species, for I must own that, apart from colour and pilosity, I fail (even after comparison of the ♂ genitalia) to discover any character by which they can be separated. Marquet speaks of slight differences in the shape of the *mucro* and mandibles; but his material was obviously extremely limited, and such differences as he mentions might fairly be considered as merely

“individual.” I at least have failed to recognize them in the specimens of both forms now before me.

Still, I cannot but think that the constant and striking dissimilarity of the two forms in their pilosity (especially the ♀ ♀) and also, as it seems to me, in the normal colour of their abdominal spots, is good enough to justify their separation. In that case, our species should have Curtis’s name *argentatus* restored to it, and *mucronatus* F. must disappear from the British List.

The alternative, apparently, is to consider *mucronatus* F. as a species with certainly two—perhaps three—subspecies, viz. :—

1. *mucronatus*, typical (Germany, etc.).
2. . . . . *argentatus* (Britain and North France).
- 3 (?) . . . . . *treforti* (confined to Hungary ?).

But, personally, I think it would be simpler and more satisfactory to call our insect “*argentatus* Curtis,” and treat it as distinct specifically from the non-British typical “*mucronatus* F.”

2.—*O. mandibularis* Saunders, etc. (*nec* Dahlbom) = *sericatus* Gerst.

The *Oxybelus* species which we call *mandibularis* Dahlb. was introduced as British by Saunders in his “Synopsis” from ♂ ♂ only. It has since been taken not unfrequently in several localities, and both sexes are described under the name *mandibularis* in Saunders’s later work (“Hymenoptera Aculeata,” 1893). There can be no doubt that it is the species which C. G. Thomson referred to “*mandibularis* Dahlbom,” and it is also clear that Saunders accepted the identification chiefly on the strength of Thomson’s decision. His frequently expressed extremely high opinion of Thomson’s judgment may in this case have been reinforced by the supposition that a species described by Dahlbom would probably be known to the other great Swedish hymenopterist.

The species, however, to which v. Dalla Torre, Kohl, and most recent Continental authorities refer Dahlbom’s description is quite another insect from that of Thomson and Saunders, and has never, I believe, been detected in this country. It is that which has been described by Wesmæl (1852) and Gerstaecker (1867) as *variegatus*. The latter very careful and accurate author declared himself unable to identify any species known to him with Dahlbom’s very unsatisfactorily characterized species. He was acquainted, however, as it appears to me, quite certainly with the insect which we call *mandibularis*; but it seems never to have occurred to him that it could possibly be the

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## THE NATURALIST:

A MONTHLY ILLUSTRATED JOURNAL OF

NATURAL HISTORY FOR THE NORTH OF ENGLAND

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**RILEY FORTUNE, F.Z.S.**

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VOLUME LIII.

[THIRD SERIES—VOL. III.]

◆

“J’engage donc tous à éviter dans leurs écrits toute personnalité, toute allusion dépassant les limites de la discussion la plus sincère et la plus courtoise.”—*Laboulbène*.

◆

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The Chair will be taken punctually at 8 o'clock.

---

THE LONDON NATURAL HISTORY SOCIETY, which meets at 7 p.m. on the 1st and 3rd Tuesdays in each month, at Room 20, Salisbury House, Finsbury Circus, E.C., will be glad to welcome at its Meetings any French or Belgian entomologists now staying in this country, and to give them the benefit of its library and collections. Communications should be addressed to the Secretary, Salisbury House, E.C.

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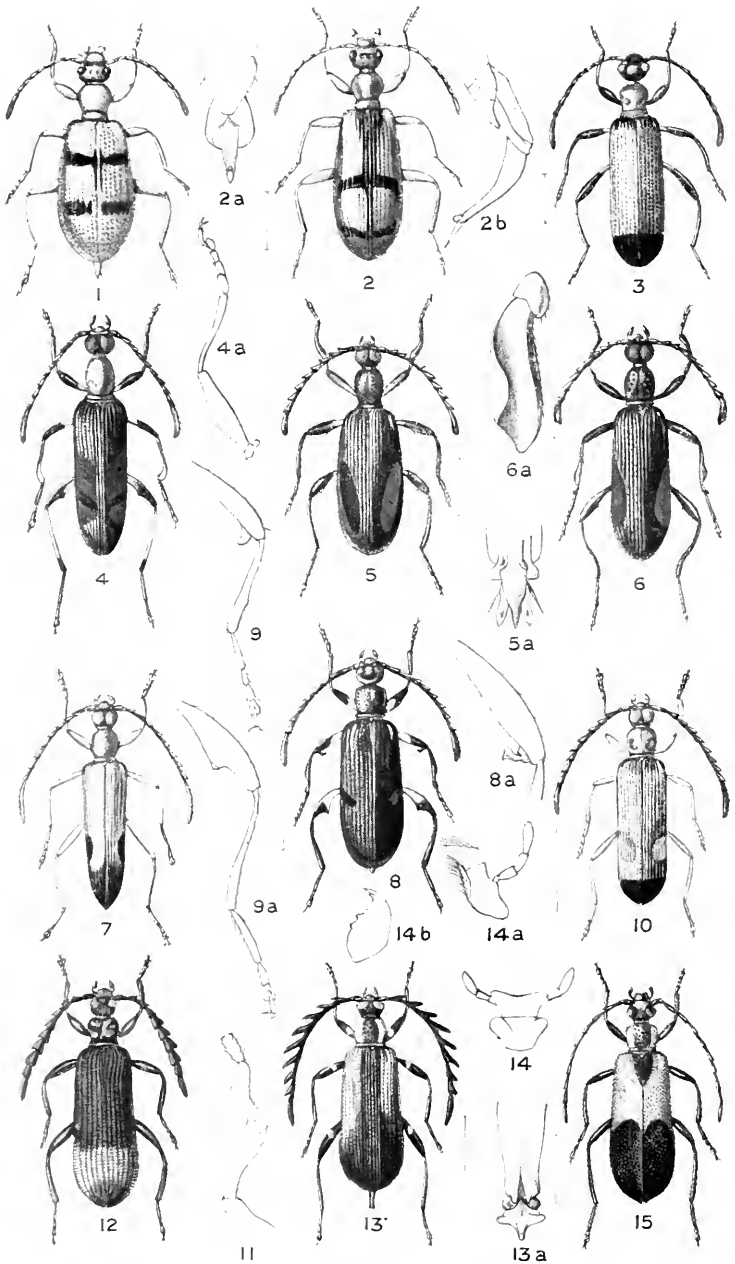


### NOTICE.

By an oversight, Plate II (illustrating Mr. Champion's Article on Tropical American Lagriidae) was omitted from the last number, and is issued herewith.







Horace Knight, del.

SOUTH AMERICAN LAGRIIDÆ.

Dahlbomian species, for he described it without hesitation as a new species under the name *sericatus*. And this is the name—*sericatus* Gerstaecker—which our insect, if it be not really *mandibularis*, ought to bear.

Had there been any reason to think that Dahlbom's *mandibularis* was a Swedish insect, one would hesitate to question Thomson's identification of it. But, on the contrary, it was almost certainly not so! Dahlbom was not acquainted with it when he composed his volume on "Sphex in sensu Linnaeano," and introduced it for the first time, without any regular description but merely in a synoptic tabulation of species, in his "Supplementum" to that work. He gives as locality not Sweden, nor Scandinavia, but simply "Europe," from which it may perhaps be fairly inferred that he did not know its precise habitat, and had not taken it himself, but received it from a correspondent on the Continent.

As has been already said, Dahlbom gives no regular *description* of the species, but the characters attributed to it in his table are as follows:—

1. Colour of abdominal markings "albida"—not "flavida."
2. "Mucro" oblique, robust, somewhat obtuse—not slender, linear, and subemarginate—not emarginate.
3. Abdomen with 4 to 10 spots. Mandibles yellow. Anus rufopiceous. (It is by these last characters only that it is said to differ from *uniglumis*!)

This is actually all we are told of the species except that it occurs in Europe, and if these characters, such as they are, be compared with those of British "*mandibularis* (?)" it will be found that not one of them is conclusive for the identification of the two insects, while some of them decidedly suggest the contrary. It is true that "yellow mandibles" are a character of British "*mandibularis*"; but they are normal also in many European species, and *may* occur in almost any species (*e. g.* in *argentatus* Curtis certainly (!) and, I believe, even in *uniglumis*). They occur, so far as I have seen, invariably in the *mandibularis* of v. Dalla Torre, etc. (= *variegatus*). Then, the markings of British "*mandibularis*"—differing in this respect from those of *uniglumis*—are rather "flavida" than "albida"! Nor is the anus in our British insect normally red, but coloured, as a rule, just as in *uniglumis*—whereas it *is* red in *variegatus*! Nor does the number of abdominal spots in our species (though it varies to some extent) usually exceed 4, and it sometimes falls to 2—in this respect *variegatus* certainly answers better to Dahlbom's account of his *mandibularis* than does our species.

The really important characters by which Thomson and Saunders define their "*mandibularis*"—the sparse abdominal puncturation, silvered ("frosted") antennae of the ♂, etc.—are not alluded to at all by Dahlbom, and there is no reason to think that his species exhibited them.

If, on the other hand, we turn to Gerstaecker's description of his *sericatus* we find that in all really important characters it suits our species perfectly. Thus, he notes (1) that the mucro is slightly longer than that of *uniglumis*—Thomson remarks the same of "*mandibularis*"; (2) that the bases of the ♂ antennae have a frost-like clothing of very short silvery hairs—Saunders especially notes this as a character of our species; (3) that the mandibles are not simply yellow, but yellow at the base, then testaceous, and at last (at the apices) black—this differs only from Saunders's and Thomson's descriptions as being more exactly true to the actual facts of the matter than either of them; (4) he describes the colour of the legs as differing in the two sexes just as Thomson remarks that it differs in *mandibularis*; (5) his description of the puncturing, etc., of the abdomen in the two sexes of *sericatus* differs only from what Thomson and Saunders say as to *mandibularis* by going more minutely into details. In one point only his (Berlin) specimens seem to have differed from ours, namely in having, as a rule, more pairs of spots on the abdomen. (With us there are seldom more than two pairs and occasionally one only!) But I have specimens from the Alps determined by Kohl as "*sericatus* Gerst." which are spotted exactly like the so-called *mandibularis* taken by Saunders and myself in our own (Woking) district.

In Saunders's own collection there are no specimens called "*sericatus*," and none but *British* ones called "*mandibularis*." He had a few of what v. Dalla Torre, Kohl, etc., call "*mandibularis*," but they were sent to him as *variegatus*, and I do not suppose it ever occurred to him to reconsider his—or rather, Thomson's—interpretation of Dahlbom's species, as he would certainly have done, if he had possessed specimens of Continental *sericatus* and been able to compare them with Gerstaecker's admirable description, which could not but have recalled to him the characters he had attributed to *mandibularis*.

After long consideration of the whole matter I have come to a very decided opinion (1) that the true *mandibularis* of Dahlbom can hardly have been our British *mandibularis*, but may not improbably have been (as v. Dalla Torre's Catalogue says) identical with *variegatus* as described by Wesmael and later by Gerstaecker; and (2) that our species is certainly Gerstaecker's *sericatus*, which name it ought to

bear—our own list (and also the synonymies of *mandibularis* and *sericatus* in v. Dalla Torre's Catalogue) being altered accordingly.

### 3.—*O. nigripes* Ol. (*nec* Smith, Saunders).

This species was described as British by Shuckard from a single old specimen in the British Museum; but he says of it: "I cannot learn where it was taken," and it seems more than doubtful whether it is not really one of the foreign captures of Dr. Leach, which are believed, and, in fact (*teste* F. Smith!), actually known, to have been incorporated by a mistake in the British part of the National Collections.

The specimen in question—a ♀—is certainly the *nigripes* Ol. of Continental authors, and agrees well with Olivier's original description. Its chief distinguishing characters are pointed out quite correctly by Shuckard, *e. g.* the mucro "curved, very obtuse, canaliculated above," the postscutellar squamae "black," the legs "black with the inside of the anterior pair fulvous; all the tarsi piceous with their extreme joint red," the abdomen (N.B.) "delicately punctured," etc. It will be seen on comparing Shuckard's description with that of E. Saunders that the two by no means agree! This is because the latter author drew up his diagnosis, not from the specimen (still at South Kensington) described by Shuckard, but from an insect in Smith's collection, which that author considered—erroneously beyond all doubt—to be a second British specimen of *nigripes* Ol. Saunders had not seen Shuckard's type, nor, apparently, any other example of *nigripes* Ol., British or foreign, for he says expressly: "I have only seen one example of this, which was taken by Mr. Stevens in Devonshire and described by Smith. This has been kindly lent to me by Dr. P. B. Mason" (Hymen. Acul. Brit. Isl. p. 123). So that he evidently accepted this Devonshire insect as the true *nigripes* Ol. simply on the authority of F. Smith.

Smith's collection is now, as readers of this Magazine need scarcely be told, fortunately in the possession of a most able and accurate specialist on Hymenopterological questions, Dr. R. C. L. Perkins. After examining at my request Shuckard's "type" at S. Kensington, he was good enough to bring his own "*nigripes* Smith" (which, as said above, was also the type of E. Saunders's *nigripes*) to the Museum for comparison with it, and he saw at once that (as might be supposed from a comparison of the descriptions) the *nigripes* of Smith and Saunders is a totally different species from the *nigripes* of Shuckard and the Continental authors, having a distinctly *bifid* mucro, *pale*, not black, postscutellar squamae, differently coloured legs, a different punctuation, etc., etc.

What this insect, which seems to be genuinely British, though no other example of it has been recorded from these islands, really is, I do not venture to say. It *may*, though this seems unlikely, be a species confined to Britain. More probably it is a local form (now, perhaps, extinct or on the verge of extinction) of some Continental species, though I should hesitate to refer it to any of those known to me in nature or in collections; nor do I know any description which completely suits it.

As for the true (Shuckard's) *nigripes*, it has never been since recorded from Britain, and, as we have seen, there is no reason to think that it ever occurred there! It should certainly therefore be omitted from the British List.

The *nigripes* of Smith and Saunders, on the other hand, is (or was?) a British species, but has been called *nigripes* in error. I do not propose, however, to re-name it, since I fully expect that, whenever the Palaearctic forms of *Oxybelus* are dealt with comprehensively, its true affinities will be ascertained, and it will be included in the synonymy of some already described European species.

(To be continued.)

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NOTES ON THE COLEOPTERA, ETC., RECORDED FROM "RESIN ANIMÉ" BY THE REV. F. W. HOPE (2).

BY G. C. CHAMPION, F.Z.S.

The Rev. F. W. Hope's papers on "Succinic Insects" [Trans. Ent. Soc. Lond. i, pp. 133-147 (1836), and ii, pp. 46-57, pl. 7 (1837)] were overlooked by me in my Notes on the three beetles described and figured by the same author in 1842, from specimens found embedded in the recently-formed product "Resin Animé" (Ent. Mo. Mag. 1917, pp. 7, 8). A careful study of Hope's second paper, which is accompanied by a good coloured plate, has enabled me to identify, and give definite localities for, several of his insects, without examination of the actual specimens, which are said to have been contained in the superb collection of Mr. Strong, of Long Acre, London. The names of these beetles, nine in number, are also omitted from the "Munich" Catalogue, and it is desirable to again call attention to them, the synonymy of at least one genus being affected. In two cases Hope ventured to give "Habitat in India Orientali," but this must be incorrect, the identified forms inhabiting Africa or Madagascar. The nine Coleoptera, all figured on his plate 7, are additions to my first list, making twelve in all:—

4.—*Osovirus brunnicornis*, fig. 1: Staphylinidae. Generic identification doubtless correct



5.—*Temnoderia testacea*, fig. 2: Pselaphidae. This new genus is not mentioned by Raffray in the list given by him in Wytsman's "Genera Insectorum." It may come near *Trichonyx* Chaud.

6.—*Mecynocanthus unicolor*, fig. 3: Elateridae. A valid new genus recognisable by the greatly prolonged spiniform anterior angles of the prothorax. *Enoploderes* Schwarz, 1898 (renamed *Centrostethus* by the same author in the same year), type *Tylotarsus cuspidatus* Klug, 1840 (= *boieldieui* Cand.), from Madagascar, is certainly congeneric, and was based upon the same character, Hope's generic name having priority. His *M. unicolor* is probably a pallid example of *T. cuspidatus* Klug. The locality "India Orientalis" given for the former must have been a mere guess.

7.—*Ctenicerus eximius*, fig. 4: Elateridae. This is obviously a ♂ of *Ctenicera nobilis* Illiger, the type of which was from Madagascar.

8.—*Elater wallesii*, fig. 5: Elateridae. This insect must be a *Cardiophorus*, and it appears to be conspecific with several examples from Angola labelled with the MS. name *C. welwitschii* Janson in the British Museum.

9.—*Tillus 9-maculatus*, fig. 6: Cleridae. Doubtless belongs to *Stenocylidrus* Spinola, of which there are many very similar albomaculate forms in Madagascar.

10.—*Stigmatium 2-fasciatum*, fig. 7: Cleridae. Generic identification possibly correct. It appears to be related to *S. neglectum* Boh. from Natal, etc.

11.—*Brenthus nasalis*, fig. 8: Brentiidae. This peculiar insect is almost certainly conspecific with *Anisognathus distortus* Westw. (1849), the type of which was from Natal, Hope's specific name having priority. The last-named author compared *B. nasalis* with forms from Mysore [? *Cyphagogus* Parry].

12.—*Eumorphus castaneus*, fig. 9: Endomychidae. Probably belongs to *Trycherus* Gerst., of which there are various somewhat similarly maculate forms in W. Africa.

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Two species of Hymenoptera (the generic names of which appear in the lists of Agassiz and Scudder), one of Hemiptera, and one of Homoptera are also described in the second paper:—

#### HYMENOPTERA.

*Calotelea* (Westwood) *aurantia* Hope, fig. 10: Proctotrupidae. Numerous American forms have been referred to this genus by Ashmead. The type was almost certainly from E. Africa.

*Calyza* (Westwood) *staphylinoides* Hope, fig. 11: Bethylinidae. Westwood subsequently, "Thesaurus Ent. Oxoniensis," p. 157, pl. 29, figs. 1 (♂), 2 (♀) (1874), redescribed this insect from specimens (not in gum) from Natal.

#### HEMIPTERA.

*Enicocephalus nasalis* [no fig.]: Reduviidae [Henicocephalidae]. This insect was described by Westwood on a preceding page, 23, of the same volume under the name *E. fulvescens*. Both names were omitted from Lethierry and Severin's Catalogue of 1896.

#### HOMOPTERA.

*Cercopis strongii*, fig. 12: Cercopidae. Probably belongs to *Locris* Stål, which includes African forms.

Horsell, Woking.

Oct. 1917.

#### NEW HAWAIIAN CARABOIDEA.

BY R. C. L. PERKINS, D.Sc., M.A., F.E.S.

The following Carabidae, including ten new species, were amongst those collected by me between 1902 and 1906 in the Hawaiian Islands.

##### 1.—*Atelothrus metromenoides*, sp. n.

Ferrugineus, elytris pedibusque pallidioribus, capite quam pronotum saepe obscuriore, aut plus minusve infusato, satis depressus. Pronotum haud aut parum evidenter transversum, postice fortius angustatum, angulis posterioribus rotundatis. Elytra subtilius striata, humeris fortiter rotundatis. Tarsorum articulus quartus anticorum fortiter lobatus, posticorum articulo tertio quam quartus longiore, lobis quarti distinctis, mediocriter magnis. Long. circiter 7 mm.

HAB. In montibus (circiter 2000 ped. alt.) Oahuensibus, Waianae juxta, vitam similiter ac *Metromenus mutabilis* degens.

Obs. This species has the facies of *Metromenus mutabilis* and its allies and is not like any described *Atelothrus* with which I am acquainted.

##### 2.—*Atelothrus cheloniceps*, sp. n.

Brunneus, antennis pedibusque pallidioribus, capite quam pronotum multo angustiore, oculis parum fortiter convexis. Pronotum latum, paullo latius quam longius, margine posteriore quam anticus latiore, lateribus antice leviter intus curvatis, postice fere rectis, subparallelis, angulis posterioribus distincte rectis. Elytra sat profunde striata, lateribus late explanatis, apices versus

parum fortiter sinuatis. Tarsorum anticorum articulus quartus minus fortiter lobatus, posteriorum tantum subleviter emarginatus. Abdominis segmentum ultimum ventrale ♀ setis utrinque tribus munitum. Long. 7.5 mm.

HAB. In montibus insulae Molokaiae altioribus et humidis mense Februario 1902 captus.

*Obs.* This remarkable species appears to be unlike any described *Atelothrus*, but rather to resemble such species as *Metromenus audax* (described below) and *M. latifrons* or some species of *Mesothriscus*. Though the pronotal setae are wanting, the punctures or papillae, where they were inserted, are quite conspicuous.

### 3.—*Atelothrus debilis*, sp. n.

Angustus, elongatus, ferrugineus, capite plus minusve infuscato, pedibus, antennis palpisque flavescentibus. Caput nitidum, oculis parum fortiter convexis. Pronotum fere aequae longum ac latum, vix transversum, angulis anterioribus parum fortiter productis, posterioribus fere rectis. Elytra nec nitida, nec fortiter striata. Tarsorum anteriorum articulus quartus parvus, tertio minor, haud lobatus. Long. 6.5 mm.; lat. elytrorum vix 2.5 mm.

HAB. In Haleakala, monte Mauiensi, ad altitudinem pedum 3000 multis ante annis captus.

*Obs.* Allied to *A. longicollis* Sharp, but not much more than half the size of a specimen of that species with which I have compared it. The pronotum by actual measurement is a little less long (in the middle line) than its greatest breadth, though it has an elongate appearance, the elytra are dull and less deeply striate, the eyes considerably less convex, a character which at once separates it from most of the other species of the genus.

### 4.—*Atelothrus fractistriatus*, sp. n.

Piceo-niger, nitidus, elytris nigris, pedibus rufescentibus, antennarum basi pallide rufa. Caput nitidum, oculis sat fortiter convexis. Pronotum nitidum, transversum, aut haud elongatum, lateribus subaequaliter curvatis, margine postico et antico fere aequilatis, hoc parum emarginato. Elytra anterius subtiliter striata, fortiter conspiciunt utrinque suturam versus lineatim trifoveata, striis nonnullis posterioribus irregularibus sive interruptis, serie fovearum striae exterioris permagnarum fortiter impressa. Tarsorum anticorum et intermediarum articulus quartus profunde lobatum fissus. Long. 5.75-6.5 mm.

HAB. In montibus Oahuensibus Honolulu juxta et alibi, plerumque supra duo millia ped. alt. captus, nec frequens.

*Obs.* This species appears to be out of place in *Atelothrus*, but I can suggest no other more suitable. The shoulders of the elytra are

very much rounded off and effaced, while the tarsal sculpture is fine, sometimes even obscure.

5.—*Metromenus audax*, sp. n.

Nitidus, minus depressus, capite pronotoque castaneis aut nigrocastaneis, pedibus testaceis, elytris nigris, margine elevato rufescente. Caput angustum. Pronotum nitidum, leviter aut vix transversum, lateribus postice parum sinuatis, angulis posterioribus distinctissimis et fere rectis, margine posteriore et anteriore subaequilatis. Elytra nitida, fortius striata, marginibus apices juxta fortiter intus sinuatis. Tarsorum posteriorum articulus quartus haud quaquam bilobatus. Long. circiter 6 mm.

HAB. In montibus Oahuensibus, Waianae versus, supra duo millia pedum alt. bis a me captus anno 1902.

*Obs.* This species is most nearly allied to one in the Koolau range which I have considered to be *M. protervus* Blackb., but it is distinct by the different shape of the pronotum, which is less narrowed behind, so that the hind margin is even wider than the front one. It also appears to be a more shining insect.

6.—*Metromenus hilaris*, sp. n.

Ferrugineus, pedibus pallidis, capite nigricante aut nigrocastaneo, elytris nigricantibus aut nigrofuscis, limbo lato pallido ubique circumdatis, sutura etiam pallida; nitidus et depressus. Caput nitidum, oculis fortius convexis. Pronotum paullo latius quam longius, postice angustatum, lateribus distincte sinuatis, angulis posterioribus obtusis sive rotundatis. Elytra minus fortiter striata. Tarsorum anteriorum articulus quartus bene lobatus, et, lobis inclusis, tertio multo major; posteriorum lobis articuli quarti minoribus, articulo tertio quam quartus majore. Long. circiter 6 mm.

HAB. In montibus Oahuensibus juxta Waianae supra duo millia ped. alt. captus.

*Obs.* One of the brightest-coloured Hawaiian Carabidae, the conspicuously bordered elytra making it, in its group, as conspicuous as *Metrothorax oahuensis* Blackb. is amongst the smaller species.

7.—*Chalcomenus molokaiensis* Sharp.

I cannot distinguish examples taken on Hawaii (where it is locally common) from those of this species found on Molokai and Maui. Indeed, I have not found it always easy to distinguish between *C. molokaiensis* and *C. corruseus* Er. of Oahu. I have seen scores of specimens of both species and many variations.

8.—*Mecyclothorax perpolitus*, sp. n.

Nigricans, perpolitus, pronoto utrinque et postice elytris pallido-marginatis, pedibus antennarumque basi pallidis. Pronotum sat latum, transversum (circa 4 : 3) lateribus basim juxta parum sinuatis, angulis posterioribus obtusissimis, fere rotundatis. Elytra basim versus depressa, punctorum seriebus 2 aut 3 plus minus distinctis, secunda haud ad basim elytrorum extensa, tertia vix distinguenda aut absente. Long. 4.5 mm.

HAB. In insula Hawaii, Kilaueam juxta, et forsitan in insula Maui etiam rarissime prehensus.

Obs. The specimen I have chosen as type is labelled Haleakala, Maui, but I suspect this is an error, as a year or two later (July 1903) I took what appears to be the same species at Kilauea, Hawaii.

9.—*Thriscothorax subunctus*, sp. n.

Nigro-brunneus aut castaneus, perpolitus, pedibus antennis palpisque pallidioribus. Pronotum haud fortiter transversum (circa 6 : 5) cordatum, angulis posterioribus distinctissimis. Elytra nitidissima, stria suturali basim versus subtiliter punctata, punctorum etiam serie secunda brevi et nonnunquam tertia obsoleta parum distincte adumbratis. Long. circa 4.25 mm.

HAB. In montibus Hawaiiensibus, Kilaueam juxta, sub cortice rami cujusdam arboris, "Cheirodendron" dictae et alibi mense Julio anno 1903 prehensus.

Obs. Allied to *T. unctus* Blackb., but smaller and with less wide thorax, more shining elytra, etc. I have an immature example collected by Mr. W. M. Giffard which differs from the type in having a more definite neck at the base of the pronotum, so that the hind angles are sharper and rather more prominent. The punctures on the elytra are more developed, the inner rows more distinct and extending further back, while in all four rows are more or less evident. Mr. Giffard had at least one better example than this, and it is probable that I attached the name *T. subunctus* to his specimen. Further material is necessary to decide whether two or one species are included by me under this name.

10.—*Metrothorax carteri*, sp. n.

Niger, nitidus, elytris vix aenescentibus, ore, antennarum basi, pedibus elytrorumque margine explanato rufescentibus aut testaceis. Pronotum transversum (circa 4 : 3) haud cordatum, lateribus fere ad angulos ipsos posteriores rotundatis, angulis tamen ipsis distinctis, perpaullo exstantibus. Elytra striata, stria haud evidenter punctatis, stria suturali et secunda distinctis et quam caeterae, quae levissimae sunt, profundioribus. Long. circa 3 mm.

HAB. In montibus Waianaeensibus insulae Oahu supra pedes 2000 alt. captus.

*Obs.* Not closely allied to any other Oahuan species. There is a minute sinuation just before the hind angles of the pronotum rendering these quite distinct, though there is no basal neck. Named after Mr. George Carter, who, when Governor of the islands, was with me on a collecting trip to the Waianae Mountains some years ago, when several new species were obtained.

11.—*Metrothorax oahuensis* Blackb.

This pretty species, which resembles *Metromenus hilaris* in the unusually bright colour of the elytra, seems to be rare, and I have taken but few examples. These were found at a very low elevation near Honolulu, in fact below 1000 ft. The only other native beetle that could be found there was the Longicorn *Callithmysus koebeli*. The spot where they occurred happened to be free from the ant *Pheidole megacephala*, though it abounded in the surrounding neighbourhood. Probably *M. oahuensis* was chiefly, if not solely, found at very low altitudes.

12.—*Metrothorax rotundicollis* Sharp.

This species, described from Molokai, appears to be unmodified in the mountains of Oahu near Honolulu. It was first found there many years ago at the roots of long grass on the summit of Mt. Tantalus, but has since been obtained in other spots. It is certainly of very infrequent occurrence on either island.

13.—*Nesocidium auratum*, sp. n.

Angustum, elongatum, nitidissimum, aureo-viride, antennarum basi rufescente, pedibus atro-piceis. Pronotum nitidissimum, minutissime (vix evidenter) rugulosum, ad basim paullo fortius sculpturatum. Elytra elongata, ovata, parum profunde punctato-striata, posterius laevigata, ante media foveis duabus vagis impressa.

HAB. In montibus insulae Hawaii, juxta Kilaueam, inter folia marcida occurrit.

*Obs.* This species most nearly resembles *N. smaragdinum* Sharp from Molokai, but the comparatively feeble striation of the elytra with rows of finer punctures, which are not in general so closely placed in the rows, separates it with ease.

Park Hill House, Paignton.

October 1917.

TWO ADDITIONS TO THE LIST OF BRITISH HEMIPTERA-  
HETEROPTERA.

BY E. A. BUTLER, B.A., B.Sc., F.E.S.

I have lately received from two correspondents in Cumberland, Messrs. F. H. Day and Jas. Murray, five specimens of a Capsid new to the British list, *Orthotylus virens* Fall. Mr. Day sends both ♂ and ♀, taken on sallows at Cumwhitton Moss, 12.vii.'17; Mr. Murray a single ♂, taken on alder at Spa Well on the River Edèn, 23.vii.'17. The two localities are about 12 or 13 miles apart, and the discovery was made by the two observers quite independently of one another. Mr. Day has kindly presented me with two of his specimens.

The sexes of *O. virens* are unlike; the ♂ is elongate, parallel-sided, dull green above, with long, scattered, pale pubescence, and black beneath, sometimes variegated with yellowish or greenish; head inclining to fuscous, sometimes black, but with yellowish margins to the eyes; vertex carinated; pronotum trapezoidal with sides sinuate, transversely striated behind the callosities; callosities and base of scutellum more or less fuscous (this colour sometimes extends over the whole of both pronotum and scutellum); extreme base of corium and apex of cuneus yellow; membrane blackish, with cell-nerves partly luteous, and a hyaline spot in smaller cell and at apex of cuneus; rostrum yellowish, with apex black; antennae black, nearly as long as body; legs yellowish-green, with apex and extreme base of tibiae fuscous; tarsi black; genital segment very large, right forceps with a strong spine on outer margin.

The ♀ is much like that sex in *O. flavinervis*, but smaller and narrower, and with pubescence longer and more scattered, not parallel-sided as in ♂, but slightly rounded, light green above and beneath, the abdomen only being slightly infuscated; head and callosities of pronotum yellowish, especially after death; membrane not so dark as in ♂, and with yellowish nervures to the cells; pubescence, rostrum, and legs as in ♂; antennae greenish testaceous, last two joints black.

The length given by Reuter is ♂  $5\frac{1}{4}$ - $5\frac{1}{2}$  mm., ♀ 5 mm.; our British specimens are a little smaller than this, barely reaching 5 mm.

On the Continent, this insect occurs on willow, and has been found in Scandinavia, Finland, Northern Russia, France, Germany, Hungary, and Rumania, and also in Siberia; it is, therefore, mainly a northern species. As several species which occur on willows are also found on alder, there is no reason why alder, as recorded by Mr. Murray, should not be a food-plant as well as willow; but Mr. Murray tells me that, though the alder-tree stood alone, there was a willow not far off, and hence the occurrence on alder may be merely casual. Mr. Day reports that in his locality the insect was fairly common on willows and on the herbage beneath them, although he did not take more than four; the locality, he says, is "a typical Cumberland peat-moss."

The other addition to our list is the Tingid *Acalypta platychila* Fieb. A few specimens of this insect were sent me for naming about two years ago by Mr. W. West, who had received them from Mr. B. S. Harwood; Mr. Harwood states that they were taken by his brother at Brandon, 29.v.1912. I should have brought forward this addition before, but that I hoped more specimens might turn up and so render a fuller account possible; there seems, however, no chance of this at present, and the announcement should no longer be delayed.

The nearest allies of this insect in our British Fauna are *A. nigrina* and *A. macrophthalma*, to which it bears considerable superficial resemblance; it differs from them in having the marginal membrane of the pronotum angulated instead of rounded in front, and composed of from three to four rows of meshes instead of two or three as in the other species. *A. platychila* exists in two forms, and Mr. Harwood was fortunate enough to capture both. The brachypterous form has the hemielytra rounded at the apex as in other members of the genus; but the macropterous has them elongated, thus acquiring a form more like that of a *Monanthia*.

Length, macropt. 3-3½ mm., brachypt. 2¼-2½ mm.

Horváth has already recorded this species from Britain, but on what evidence I do not know. It has been found also in Sweden, North-western Russia, France, Holland, Germany, and Austria-Hungary; Reuter records it also from Siberia.

14 Drylands Road, Hornsey, N. 8.

Oct. 15th, 1917.

#### NOTE ON *APHELOCHIRUS AESTIVALIS* FABR.

BY DR. E. BERGROTH, C.M.Z.S.

In the August number of the present Volume of this Magazine, pp. 180-182, Mr. E. A. Butler has published a paper to the effect that the British representative of this genus should bear the name *A. montandoni* Horv. I feel sure, however, that it should retain its old name, *aestivalis* Fabr.

Horváth, in his monograph of the genus, described seven species (not four, as Mr. Butler says), three of which are recorded from Northern and Central Europe. Of these, the new species *montandoni* is said to have been confounded with *aestivalis*, and the other, *nigrita*,



is founded on one macropterous specimen from Hungary and two brachypterous examples from Finland. Since then further specimens, more or less agreeing with the description of *nigrita*, have been found in Finland and Sweden. In 1912, Reuter (Öfv. Finsk. Vet. Soc. Förh. liv, 7, pp. 73-75) gave at length his reasons why he regarded *nigrita* (as represented by the brachypterous specimens) and *montandoni* as merely colour-varieties of *aestivalis*. In the same year Horváth himself (Ann. Mus. Hung. xx, p. 609) stated that *montandoni* is inseparable from *aestivalis*; he did not even maintain it as a variety. Finally, Montandon, the recognised authority on aquatic Hemiptera, remarked in 1913 (Bull. Ac. Roum. i, p. 220) that he, after examination of a long series of specimens from different countries, had found "tous les passages qui permettent de réunir" *montandoni* and *aestivalis*. With these authors I perfectly agree. When Horváth's monograph was published I set about examining my material of the genus. I then possessed only a series of specimens which Fairmaire had sent me with the note that they all were from the Seine, and I found at once that I was unable to name them, as they agreed with *aestivalis* in the colouring, whereas in the female genitalia they corresponded to Horváth's description and figure of *montandoni*.

As a matter of fact, neither the slight structural differences nor the coloration can be relied on. Reuter suggested that the single known macropterous specimen of *nigrita* might represent a distinct species, as the head is a little longer, but compared with its own breadth the head is *not* longer in the macropterous *nigrita* than in *aestivalis*: it is *apparently* longer because the pronotum is a little shorter in the middle, the median length of the pronotum being somewhat variable. I am therefore convinced that we have but one species in Northern and Central Europe. In northern waters only dark specimens occur. The specimens found in Finland and Sweden are all more or less typical *nigrita*; Kolenati and others have found *montandoni*-coloured specimens in the clear brackish estuary water of the Neva near Petrograd. Why the black pigment only partly develops in many mid-European specimens is still an open question. Montandon (*l. c.*) argues that the coloration depends on "le degré de pureté ou de limpidité des eaux," but Frey-Gessner has stated that almost black specimens (*nigrita*) and specimens with the ochraceous colour much extended live promiscuously together in the little river Aabach in Switzerland.

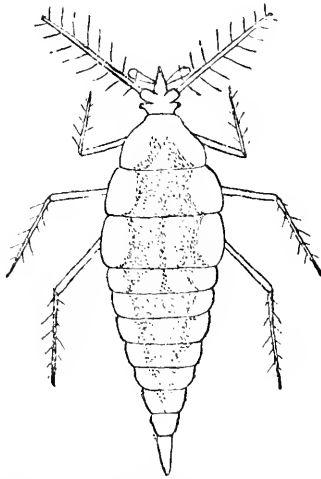
Jämsä, Finland.

Sept. 9th, 1917.

THE LIFE-HISTORY OF *CONWENTZIA PSOCIFORMIS* CURT.

BY GILBERT J. ARROW, F.E.S.

Extremely little has been recorded as to the early stages of the *Coniopterygidae* and, so far as I am aware, no representation of the larva of any species has ever been published. All that is known of this interesting family of Neuroptera has been collected together by Dr. Enderlein in his "Monographie der Coniopterygiden" (Zoolog. Jahrb. Syst. 1906, xxiii), but as to the life-history this contains little more than the statements that all the species are rare, that they appear to be restricted to a single generation in the year, and that the larva forms a cocoon like

*Conwentzia psociformis* Curt., × 17.

a spider's-nest, in which it passes the winter. The first two of these statements are incorrect and the third is only partially correct.

It is probable that our scanty knowledge of these insects is really due, not to their rarity, but simply to their small size having caused them to escape observation. During the past summer I have found the species, of which the larva is here represented, in great abundance at Putney, Barnes, Streatham, and Ashted, and have also seen an unidentified species of another genus in my own garden at Putney. *Conwentzia psociformis* was also sent to me from Henley-on-Thames a few years ago by the Rev. J. F. Perry, who found it in some abundance.

In all the localities in which I found this species it occurred upon the leaves of oaks infested with *Phylloxera*, upon which its larvae were

preying, attacking the pseudova, larvae, and adults with great voracity. The larva is an active long-legged insect, with beautifully fringed antennae, which measure about a third of the length of the body. It is of a chalky-white colour, with a large, variable, interrupted brown mark, occupying the middle of the back. The body is smooth, clothed only with a few extremely fine and inconspicuous hairs, and without the peculiar waxy secretion characteristic of the adults. The legs and antennae are glistening and translucent, and the visible mouth-parts consist of a short conical snout, formed by the conjoined mandibles and maxillae, and a pair of very stout club-shaped labial palpi. The extremity of the body is used as a sucker, as in the related *Chrysopid* larvae, and if touched the animal retains his hold by this alone and flings himself convulsively backwards.

The statement has been made, and is not rejected by Enderlein, that the larva of this species is an internal parasite, but although it can probably adapt itself to circumstances dietetically, it is certainly no true parasite. I first noticed the insects on July 5th, by which date, although many were only half-grown, great numbers were already beginning to pupate upon the oak-leaves, sometimes upon the upper surface but more commonly underneath. The cocoons have a quite distinctive appearance, being almost exactly circular, and are very conspicuous. A white silk of extreme fineness is produced from the posterior end of the larva's body, the tail being extended and moved from side to side in vigorous sweeping movements, much like those of the fore-part of a caterpillar when engaged in a similar operation, the body rotating slowly at the same time. In this way a flat, round platform or roof, about a third of an inch in diameter, is built over the insect, and within this is spun a second enclosure of one-third the diameter of the first, forming a flattened sac in which the pupal state is assumed. Enderlein repeats the statements of earlier entomologists that the cocoon is constructed upon the trunks of trees, in moss, etc., adding that, according to his own repeated observation, the larva passes the winter in the cocoon, not pupating until the spring. It is evident from this that the summer cocoons have been overlooked, the fact being that there are two annual generations with different methods of pupation. The summer generation seems to pupate almost entirely upon the leaves, and larvae which began to construct their cocoons in July emerged as adults within a fortnight. This is generally done by biting a curved slit, forming rather more than a semicircle, through the inner and outer layers together and pushing up a flap almost corresponding with the size of the inner envelope. When newly emerged the little flies are pale yellow in colour,

ch transparent wings and quite free from the characteristic white waxy substance which soon afterwards makes its appearance on both body and wings.

The pupae are subject to attack by a black Chalcid parasite, of which the eggs are apparently laid within the silken covering, as I have seen the female fly tearing the latter with her jaws and inserting her head.

The adult Coniopterygidae probably take little food, although I have seen them licking up tiny drops of honey-dew from the leaves. By July 25th those which had emerged first in captivity were dead and, although I failed to discover the eggs, about the same time minute newly-born larvae made their appearance, their bodies colourless and very short. The Phylloxera were becoming much diminished in numbers, I believe chiefly owing to the activities of the Conwentzias, which, although accompanied by a variety of other aphidivorous insects (*Scymnus capitatus*, *Heimerobius*, *Chrysopa*, etc.), greatly outnumbered them all. By the end of August the oaks had become practically free from *Phylloxera* and the second generation of *Conwentzia* larvae had, in the main, reached their full growth (they appeared to me to attain a rather larger size than those of the summer generation). They showed no disposition to spin cocoons upon the leaves, like the latter, but instead left them and made their way to the trunk of the tree, over which, during the first week of September, numbers of them were running backwards and forwards, evidently in search of convenient crannies in which to hibernate. Probably most of them construct their cocoons high up, but many descend almost to the ground. The cocoons are often in groups of two or three and, having to be adapted to recesses of varying shape, are, of course, irregular, and not circular like the summer cocoons. Larvae of the second brood kept in confinement refused to spin upon leaves, unless quite dry, or upon smooth bark, but preferred the angle at the bottom of the jar in which they were kept. The silken envelopes were sometimes extremely thin, so that they could be quite easily seen through them. As stated by Enderlein, they do not change their form, but lie motionless with the body bent into a semicircle, all the legs brought together but the antennae extended.

As to the correct determination of the species here described, it is no doubt the same as that recently named by Mr. Bagnall in this Magazine *Conwentzia cryptoneuris* (Ent. Mo. Mag. 1915, p. 192), its wing-venation agreeing; but I see no reason for separating it from the *C. psociformis* so long ago described by Curtis. It is not *C. pineticola*,

with which Bagnall compares his form, the venation being as represented by Enderlein for *C. psociformis*, although the latter's figure being diagrammatic only it is not possible to determine whether, in his *C. psociformis* the cross-vein, from which Bagnall has named his form, is or is not weaker than the rest. In tabulating the British species of Coniopterygidae (Entom. Record, xxvii, 1915, p. 241), Mr. Bagnall distinguishes *C. psociformis* from its allies by its lighter colour and larger number of antennal joints (38 to 43). Whether the wing-venation is different from that of *C. cryptoneuris* can probably only be decided by the examination of Curtis's type, which, if still in existence, is presumably in Australia! The present insect is wholly pale in colour and has about 40 joints in its antennae, and if, as seems likely, it is the commonest species in the South of England, it is in all probability the true *C. psociformis*.

The wing-venation is by no means constant, as Enderlein has recognised in describing the var. *furcilla* of *C. pineticola*. I have even seen a specimen of the present species in which one fore-wing is of the *furcilla*-type, while the other is normal.

9 Rosedale Road, Putney, S.W.

September 17th, 1917.

## TWO NEW INDIAN SPECIES OF COSMOPTERYX.

BY E. MEYRICK, B.A., F.R.S.

The two following species have been recently bred from the larvae in the offices of the Indian Imperial Entomologist, and are of interest; their full life-history will be published by Mr. Fletcher. The perfect insects need very accurate discrimination.

### *Cosmopteryx phaeogastra*, n. sp.

♂ ♀. 7-8 mm. Head dark bronzy-grey, with fine white lines on crown and above eyes, face bronzy-whitish. Palpi white lined with black. Antennae black lined with white, four apical joints white, then three black, one white, one black, one white, one black, three white with dark bases. Thorax bronzy-blackish with white central line posteriorly. Abdomen uniform dark grey. Fore wings narrow-lanceolate, apex produced, acute; blackish; a fine white subcostal line from base to  $\frac{1}{4}$ , diverging from costa posteriorly, and short median and subdorsal lines beneath posterior portion of this, widely remote from base and band, subdorsal rather posterior; costal edge shortly white before band; a broad pale ochreous-yellow postmedian transverse band, edged by slender irregular golden-metallic fasciae, first nearly direct or slightly outwards-oblique, followed above middle by a black dot, second slightly inwards-oblique from costa, preceded by small indistinct blackish dot beneath costa,

interrupted in middle by a short pale yellow projection, whence a white line runs along termen to apex: cilia grey, with a whitish spot beyond band, and a fine white bar at apex. Hind wings dark grey; cilia grey.

BENGAL, Pusa, bred in July from larvae mining blotches in leaves of bean (*Fletcher*). Extremely like *ligyrodes*, but distinguished by uniform dark grey (not yellowish-mixed) abdomen, and pale ochreous-yellow (not orange-yellow) band of fore wings.

*Cosmopteryx bambusae*, n. sp.

♂ ♀. 8-10 mm. Head and thorax dark fuscous with three very fine white lines, face pale silvery-bronze. Palpi white lined with black. Antennae black lined with white, three or four apical joints white, then four black, one white, one black, two white, two black, three white. Abdomen grey, in ♂ bronzy-shining. Fore wings very narrow-lanceolate, apex long-caudate; dark fuscous, apical area beyond band grey; a very fine white subcostal line from base to beyond  $\frac{1}{4}$ , diverging from costa posteriorly, and extremely fine median and subdorsal moderate lines, median not nearly reaching base or band, subdorsal posterior, approaching band; costal edge shortly white before band; a broad pale ochreous-yellow postmedian transverse band, margined by narrow pale golden-metallic fasciae, first slightly outwards-oblique, followed by a black dot above middle and enlarged on lower half into an unusually raised round spot projecting posteriorly, second somewhat inwards-oblique from costa, interrupted above middle by a pale yellow projection, whence a white line runs along termen to apex: cilia light grey, with whitish spot on costa beyond band. Hind wings grey; cilia light grey.

BENGAL, Pusa, bred in October from larvae mining blotches in leaves of bamboo (*Fletcher*). Nearest *spiculata*, but the median line of basal area does not nearly reach base as in that species; the apical area much lighter than ground-colour is a noticeable feature, but is apparent though less marked in *spiculata* also; in the allied *manipularis* the apical area is concolorous with the basal. A pupa-case sent (very little decomposed by the emergence of imago through a small slit) shows only two abdominal segments free, the rest fixed, wing-cases reaching to end of penultimate segment.

Thonbanger, Marlborough.

October 10th, 1917.

*An alien at large.*—It may perhaps be worth mentioning that on a sunny morning in June last I was astounded to see a tropical *Papilio* in good condition, on the flowers in my rockery. It was black, the hind wings with light spaces between the veins, some crimson about the tornus, and I believe no tail. I hastened to the house to call my son, but on my return it had disappeared. Some years ago I recorded the introduction of a South American Syntomid by the local fruit shop, and I have had tropical spiders and cockroaches from the same source; possibly this *Papilio* may have been imported as a pupa by the same shop.—E. MEYRICK, Thonbanger, Marlborough; *Sept.* 22nd, 1917.

[Probably *P. bianor* Cramer, a species inhabiting China, Korea and Japan, specimens of which have been captured or seen at large near Lewes, Sussex, in June last, cf. E. J. Bedford. Ent. Record, xxix, p. 181 (Sept. 15, 1917). We have also heard of it from Horsham, Salisbury Green (near Southampton), Bishop's Waltham, Royston, Henley-on-Thames, Bracknell, and Shepperton. Mr. Bedford suggests that the Lewes examples may be some of those that escaped from the exhibition-cages in the Zoological Gardens, London.—Eds.]

*The season of 1917.*—Once more the old adage "A severe winter is the forerunner of a good Entomological season" has been fully justified, for in this district, and from what I hear in most others also, *Lepidoptera* have not been so abundant for very many years. An accident to my left knee at the beginning of February prevented my doing much outside my own garden, but I think I have seen more *Lepidoptera* in the garden this year than in all the previous nine years I have been here. The Tortricæ were in great force, the chief of them being the somewhat local *Sciaphila conspersana*. The garden in one part is bordered by a wood fence on which from end to end in one part of July this species abounded, and every tap at any branch of the row of apple-trees alongside it brought out numbers. I could have taken hundreds a day of it during the time the flight was at its full. Mr. L. S. Brady tells me he had just a similar experience this year with this species at Sheffield. The moth varied very much, from quite dark to a few almost as white as the Kent coast form; some were bright black-and-white and very similar to *S. octomaculana*. With them *S. pascuana* was also very abundant. Outside the fence is a large grass meadow in which the larvae of both species had no doubt fed. Immediately preceding these species, *S. virgaureana* had been almost equally plentiful. Various members of the genus *Tortrix* were in crowds, and sometimes at dusk were dancing around the trees in such swarms as I have never before seen. This is a poor district for butterflies, but the three common species of *Pieris* were all plentiful, although *brassicæ* was not unusually so until the second brood. A few *Vanessa urticae* and *V. io*, both usually of rare occurrence here, were about, and *V. atalanta* was fairly common. Of Geometers *Tanagra atrata* was in profusion all over the district, and was very much in evidence day after day even in the main roads almost in the town. Immediately following the larvae of *Abraax grossulariata*, too, the gooseberry-bushes were attacked by the larvae of *Halia ranaria* in excessive numbers. The larvae of the *Nectua Characæa graminis*, too, must have fed very freely on the grasses in the lowlands, as well as on the hills (see Ent. Mo. Mag. August 1917, p. 176), for the moth occurred in profusion all around and almost in the town, at the end of July and in August. During the ten minutes or so before the "obscuring of lights" in the evening, they came freely to my house lights, when quite a number could be seen together on a single window-pane. Another lepidopterist here told me that he had to close his windows in the evening, as *graminis* came in such crowds as to smother his gas lights! Single specimens of *Acherontia atropos* and *Sphinx convolvuli* have occurred with us. In other parts of the county two *Vanessa antiopa* have been taken—one near Bradford, the other at Bingley. Dr. H. H. Corbett tells me that *Sphinx convolvuli* was fairly common at Doncaster, and it has also been captured in one or more specimens at Sheffield, Barnsley, Bingley, and other places. As illustrating the South of England, my old friend Mr. C. M. Mayor of Dawlish writes me:—"I have never in the course of over twenty-

five years in South Devon seen butterflies so numerous. The other day I went into a small garden, walled in, and close to the town, and it is no exaggeration to say that there was a butterfly on almost every flower, including such things as dahlias and asters, not at all attractive ordinarily. There were hundreds of *Vanessa urticae*, and lots of *V. atalanta*. *V. io* has been very abundant, too, and *Colias edusa* is fairly numerous." Mr. Mayor also says that *Callimorpha hera*, although late in appearance, was exceptionally plentiful, and that *Sphinx convolvuli* was flying about the tobacco plants.

Unfortunately we shall know little as to how the *Noctuae* have been this year, as "Defence of the Realm Regulations" have almost entirely prevented "sugaring," or the use of "light" in any way at night.—GEO. T. PORRITT, Elm Lea, Dalton, Huddersfield: October 8th, 1917.

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OBSERVATIONS ON BRITISH COCCIDAE; WITH DESCRIPTIONS OF  
NEW SPECIES.

BY E. ERNEST GREEN, F.Z.S., F.E.S.

No. IV.\*

*Physokermes abietis* Geoffr.

This species occurs plentifully at Camberley, on some small spruces in my garden, and has also been observed on many other spruce trees in the neighbourhood. It is so extraordinarily well concealed by its similarity to the natural scale-buds of the tree, that I had entirely overlooked its presence until it was pointed out to me by Prof. Newstead, whose previous acquaintance with the insect enabled him to recognise it immediately. Examples under observation were producing larvae on July 25th.

*Gossyparia ulmi* Geoffr.

I have been keeping under observation the colony of this insect that was reported in an earlier paper on British Coccidae in this Magazine (vol. ii, p. 28, Feb. 1916). The young Cornish Elm, upon which the insects were found, was transplanted into my garden. As, to my knowledge, there are no other Elm trees growing in the immediate neighbourhood, I considered that there would be no danger of the insect escaping and becoming a nuisance.

During the winter, the young larvae remained quiescent in the crevices of the bark. They were then of a chocolate-brown colour, with glistening white points across each segment, and measured approximately 1 mm. in length.

On April 5th, it was noticed that some of the larvae had covered themselves with thin felted sacs of white secretion, of a long-ovate form,

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\* No. III, *ante*, pp. 201-210, Sept. 1917.



1.5 mm. long. On the 20th of the same month larval exuviae were extruded from these sacs. Dissection of the sacs showed that they contained male nymphs.

Apterous males commenced to emerge on the 28th. They are very active, of a uniform dull reddish colour, with no definite division between the thorax and abdomen; the thorax is without hardened notal plates; the antennae are 10-jointed, all the joints short; there are minute rudiments of wings; the genital sheath is short, slender, and acutely pointed; on each side of the penultimate segment is a prominent lateral tubercle; there are no caudal filaments.

The females still appeared to be in the larval stage; so it is difficult to understand the function of this untimely brood of apterous males. Signoret was probably referring to these apterous insects when he describes the finding of "great quantities of very agile male nymphs." He goes on to remark that he had never seen "complete males."

Female larvae were seen to be moulting and assuming the nymphal stage early in May.

On June 4th, adult females—recognisable by a thin mealy deposit on the marginal area—commenced to appear. In the meantime the apterous males had disappeared.

By June 9th, fully developed winged males were emerging, and copulation with the now adult females was observed. These winged males differ from the apterous form in the stronger development of the thorax and notal plates, the squarer and more chitinized head, ample wings, and long white caudal filaments. For some time before the actual emergence of the insects, these caudal filaments could be seen projecting from the hinder extremity of the puparia.

After fecundation, rapid growth occurred, accompanied by the development of the upturned secretory fringe, and fully matured females were observed by the middle of July.

Young larvae were observed, on September 25th, wandering about the stem of the tree before settling into their winter quarters in the crevices of the bark.

Mr. Fryer has reported the discovery of another small colony of *Gossyparia*, on a "Golden Elm," in a nursery-garden at Knap Hill.

*Eriococcus devoniensis* Green.

Dr. Imms has sent me typical examples of this species, taken at Newchurch Common, Delamere, Cheshire. Although this is the third

locality only (the other two being Budleigh Salterton, Devonshire, and Camberley, Surrey) from which *E. deconiensis* has been reported, it probably occurs wherever the "Cross-leaved Heath" grows freely. The peculiar distortion of the infested plant at the point of attack helps to conceal the insect itself, though this very distortion is a sure indication of the presence of the Coccid.

I must take this opportunity of correcting a mistake in the identification of the host-plant—which is *Erica tetralix* (not *E. cinerea*, as stated in the original description). I have not found it upon any other species of *Erica*.

*Rippersia halophila* Hardy.

Taken at Camberley, July 3rd, on roots of grasses, under stones. The presence of the insects was indicated by small patches of pulverulent white (or bluish) secretion.

*Pseudococcus nipae* Mask.

On April 28th Mr. J. C. F. Fryer sent me living examples of this species, found on a small Palm (*Kentia* sp.) bought in a London sale-

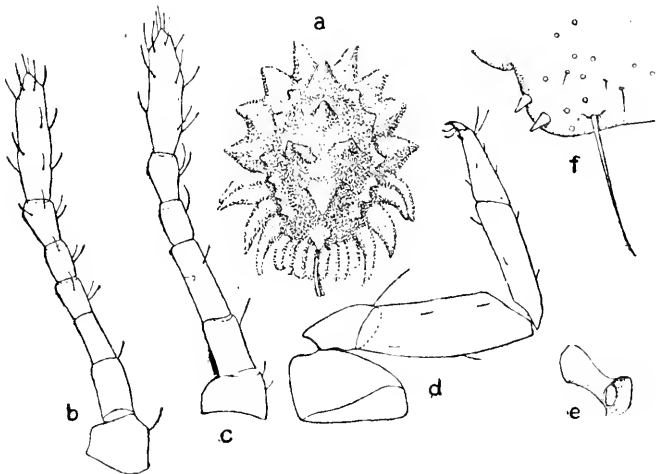


Fig. 1.—*Pseudococcus nipae*: a, adult female,  $\times 12$ ; b, antenna, normal 7-jointed form,  $\times 220$ ; c, antenna, 6-jointed form,  $\times 220$ ; d, mid leg,  $\times 220$ ; e, posterior spiracle,  $\times 280$ ; f, marginal lobe of posterior segment,  $\times 280$ .

room. The waxy covering of the female insects is of a distinct buff-colour, in strong contrast with the snowy white male puparia, of which

considerable numbers were present. The body of the female (beneath the waxy covering) is of an orange-yellow colour.

Winged males hatched out within the next few days. They are very minute and delicate; of a honey-yellow colour, with black ocelli; the body, wings, and limbs are dusted with white powdery matter; there is a pair of long, white, waxy filaments at the caudal extremity.

Subsequently, in December, this same species was found somewhat abundantly in the Palm House at the Royal Botanic Gardens, Kew, upon *Cocos*, *Keutiopsis*, and *Sabal*. Examples of the adult females, taken from sheltered positions, have a very characteristic appearance which (in addition to the unusual colour) makes them easily distinguishable from any other species found in the British Isles. Later—especially after oviposition—the marginal appendages become disarranged and confused, and the dorsal processes are either lost by abrasion or obscured by the presence of additional secretory matter.

In fresh, undamaged examples there are distinct marginal, dorso-lateral and medio-dorsal series of waxy processes (see fig. 1, *a*). The marginal series contains 24 processes (12 on each side), of which those on the thoracic area (4 on each side) are confluent and broader than the remainder; they are followed, on each side, by 4 rather longer tapering processes and 4 shorter cylindrical processes. The dorso-lateral series consists of a large conical anterior process, 6 small (often scarcely distinguishable) conical points on each side, and a large conical process immediately above the anal orifice. The medio-dorsal series contains a single very stout antero-median process, a pair of similar processes across the middle of the dorsum, and a single postero-median process. A pair of narrow, white, ligulate filaments projects from the anal orifice.

The normal number of antennal joints appears to be seven (fig. 1, *b*), though Maskell states that they may be of either seven or eight joints. The only variation in my examples is in the other direction, the number being occasionally reduced to six by a more or less complete fusion of the 3rd and 4th joints (see fig. 1, *c*).

This very distinct species is now recorded from the British Isles for the first time, but it has probably been established in the plant-houses at Kew for some years.

*Pseudococcus walkeri* Newst.

Mr. Horace Donisthorpe has sent me examples of this species taken, while sweeping for *Coleoptera*, at Goring Woods, on July 28th.

*Pseudococcus longispinus* Targ.

Bananas, bought in a fruit-shop at Camberley, on August 24th, were infested with living examples of *P. longispinus*. They were present in all stages of growth, clustered upon the stalks of the fruit. The male puparia contained living nymphs.

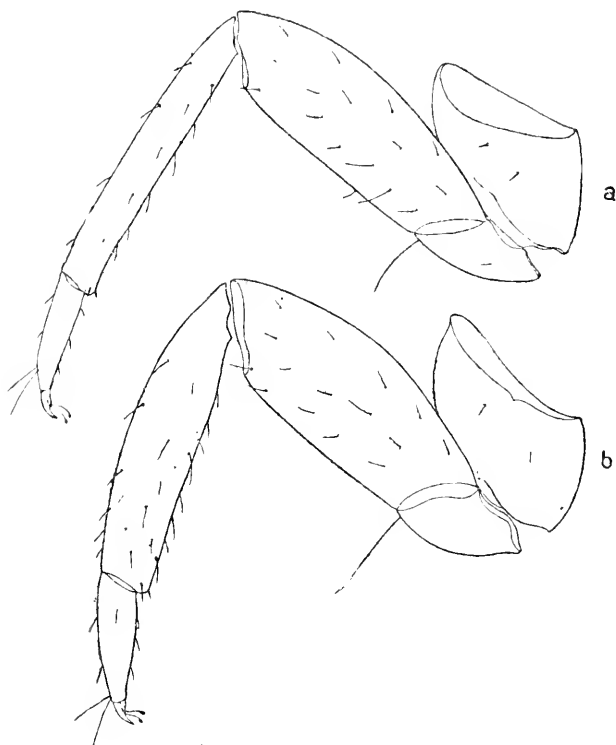


Fig. 2.—*Pseudococcus longispinus*: *a*, posterior limb of typical form,  $\times 135$ ; *b*, posterior limb of var. *latipes*,  $\times 135$ .

*Pseudococcus longispinus* var. *latipes*, nov.

Examples of *P. longispinus*, taken on Fuchsia in a greenhouse at Camberley, and others said to be infesting cactus-houses at Manchester, show a divergence from the type in the form of the limbs, which are markedly stouter, the tibiae—in particular—being conspicuously dilated (see fig. 2, *b*). In typical examples, the tibiae and tarsi are quite slender (see fig. 2, *a*).

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*Pseudococcus newsteadi*, sp. n.

Adult female ovate; without prominent anal lobes. Body pale purplish grey; limbs and antennae pale stramineous; venter thinly, dorsum rather thickly and evenly covered with white mealy secretion; terminal three or four segments of abdomen with short, stout, waxy tassels. Antenna 8-jointed; 8th much the longest, often approximately twice as long as the 2nd—which is the next longest; other joints subequal, but varying slightly in their relative lengths (see fig. 3, *c, d, e*); in some examples there is an ill-defined clearer band across the middle of the apical segment suggestive of an incipient (or suppressed) subdivision. The antennae are usually comparatively slender; but, in one

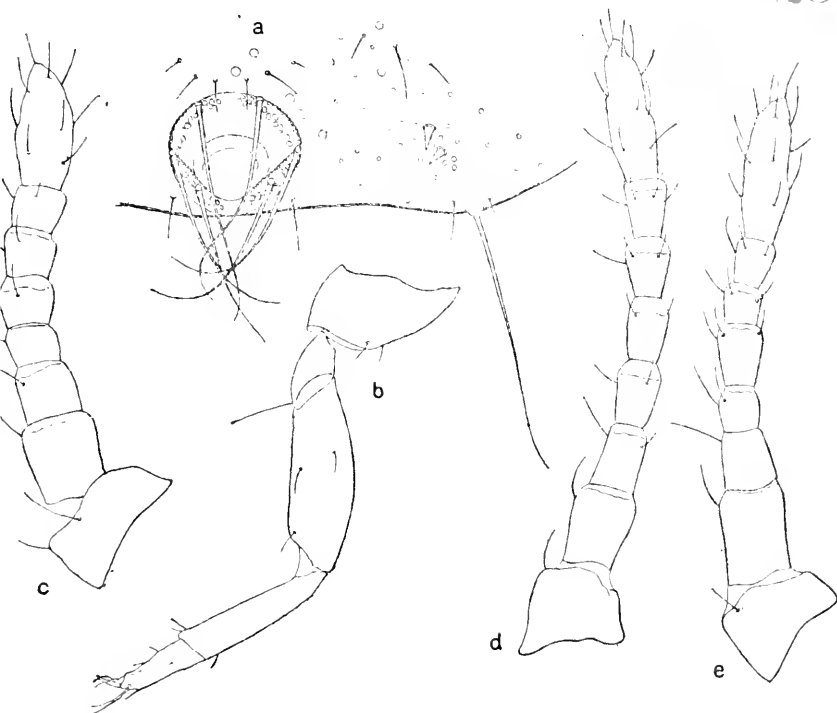


Fig. 3.—*Pseudococcus newsteadi*: *a*, posterior segment of adult female,  $\times 220$  ;  
*b*, mid leg,  $\times 135$  ; *c, d, e*, antenna (three forms),  $\times 220$ .

example (*c*), all the joints are relatively shorter and broader. Limbs well developed, moderately stout (fig. 3, *b*); the tarsus rather more than half the length of the tibia. Anal ring (fig. 3, *a*) with 6 stout setae, each of which is approximately three-quarters the length of the caudal setae. Ceriferous tracts inconspicuous, except on the terminal three (or occasionally four) segments, where they are marked by a pair of small but stout spines in a diffuse cluster of small circular pores (see fig. 3, *a*). Derm with numerous minute circular pores and short setae; the latter being larger and more crowded on the frontal area. Some larger circular pores around the genital orifice.

Nymph similar to adult; distinguishable by its smaller size and 7-jointed antennae.

Larva with 6-jointed antennae; spines confined to the three terminal segments of the body.

On Beech (*Fagus sylvatica*): Camberley.

Old females, with fully formed ovisacs, were first observed in August 1916, in crevices on the underside of stout branches of the tree. The ovisac is white and very conspicuous, closely resembling that of *Phenacoccus aceris*, though seldom quite so large as that species.

In December, young larvae were found to have migrated to the ends of the branches, where they had gone into winter quarters beneath the imbricating scales of the leaf-buds. Early in April of the following year, both larvae and small nymphs were occupying the same positions. During the next few weeks growth is rapid, for—by the end of May—fully grown nymphs and young adults were present in the angles of the smaller twigs and under the loose bud-scales that still adhered to the bases of the new shoots. The return migration to the larger branches takes place in June, by the end of which month fresh ovisacs were to be observed.

Larvae, presumably of the same species, have been found by Mr. E. G. Joseph, in unopened leaf-buds of Beech, at Chartridge, Bucks.

The new species is dedicated to Professor Robert Newstead, whose name is so deservedly identified with the Coccidae of the British Isles.

#### *Aspidiotus lataniae* Sign.

I have in my collection examples of *Asp. lataniae*, taken on *Dracaena* (under glass) at Tooting, in 1899. This species has, apparently, not yet been recorded from the British Isles. Newstead has not included the name in his "Monograph of the British Coccidae." But I am inclined to believe that his *A. spinosus* (*loc. cit.* vol. i, p. 114) is really referable to *lataniae*. I fortunately possess preparations from the type material of Signoret's species (*ex* Vienna Museum), and I find that the "huge marginal spines" mentioned by Newstead, are equally well developed in the type of *lataniae*.

#### *Lepidosaphes gloveri* Pack.

This species has not hitherto figured in the British lists, though examples are not infrequent on the rind of imported oranges. It may be distinguished from *citricola* (which occurs still more frequently on imported Citrus fruits) by the narrow, straight, parallel-sided scale of the adult female.

*Lepidosaphes desmidioides*, sp. n.

Scale of adult female (fig. 4, *a*) irregularly pyriform, the margins often sinuous; smooth; flattish; broadly dilated behind the exuviae. Colour white, rather thin and semitranslucent; exuviae ochreous.

Length 1.75, breadth 1-1.25 mm.

Male puparium (fig. 4, *b*) similar in colour and texture, but much narrower; smooth, the median longitudinal area raised.

Length 1.5, breadth 0.75 mm.

Adult female (fig. 4, *c*) somewhat resembling that of a Desmid of the genus *Tetmemorus*, or of one of the more elongate species of *Cosmerium* (e.g. *C. granatum* var. *elongatum*). The metathoracic segment is slightly narrower than the segments immediately preceding and following it, and is demarked from them by sharp transverse furrows. This character is more marked in freshly macerated specimens, before compression. The body is

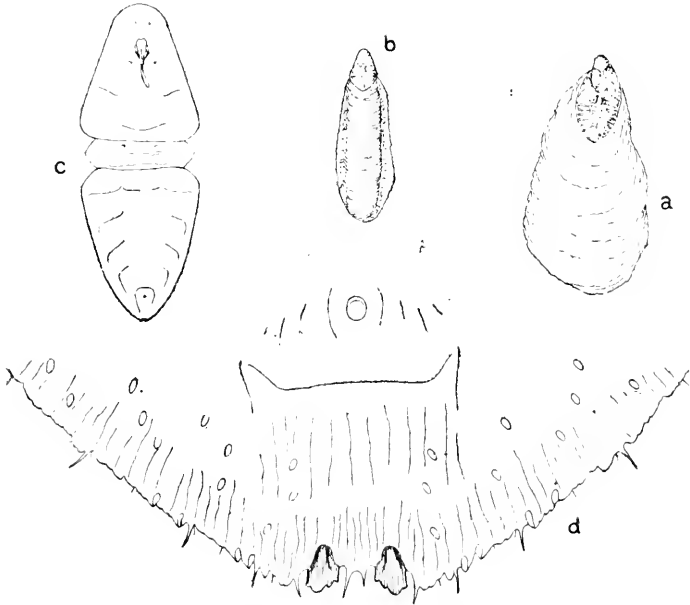


Fig. 4.—*Lepidosaphes desmidioides*: *a*, puparium of adult female,  $\times 15$ ; *b*, puparium of male,  $\times 15$ ; *c*, adult female insect,  $\times 35$ ; *d*, pygidium of adult female,  $\times 280$ .

widest across the mesothorax and first abdominal segments, from which points it tapers evenly to each extremity, the lateral margins of the abdomen being without any conspicuous indentations. The whole insect is densely and evenly chitinous. The colour is at first bright yellow; afterwards reddish. Spiracles minute and inconspicuous; no parastigmatic pores. Pygidium (fig. 4, *d*) with the median pair of lobes well developed, but scarcely projecting beyond the

margin, being recessed in a median excavation: their distal margins strongly indented at three points (one on the outer and two on the inner side of each). They are separated by a space equal to their own breadth, and bearing two spiniform squames—one of which is almost invariably longer than the other. There are no circumgenital ceriferous pores. Some conspicuous oval pores open on to the dorsal surface.

Length 1.25-1.5 mm.

On *Nephrodium* sp. (under glass), Royal Botanic Gardens, Kew. The scales are often partially concealed beneath the sporangia of the fern.

Leonardi has erected two subgenera (*Opuntiaspis* and *Mytilella*) to contain those species in which the cephalothorax is sharply demarked from the abdomen—as in *desmidioides*. This species is, however, debarred from inclusion in *Opuntiaspis*, as the puparia are without longitudinal ribs; it is equally excluded from *Mytilella* on account of the absence of circumgenital pores.

*Kuwania gorodetskia* Nasonow.

After reporting the occurrence of this species at Camberley, in 1914, I completely lost sight of it, though I searched the same trees and others in the neighbourhood each year. In June of the present year (1917) it reappeared in some abundance. I was again too late to observe the nymphal stage. At the time of their rediscovery the insects had already constructed ovisacs and were depositing their eggs. As before, a few obvious examples were noticed in crevices of the bark, usually near the base of the tree; but most of them had left the stems and had formed their ovisacs amongst dead leaves and rubbish at the base of the trees. They seem to prefer old leaves that have become plastered together by the action of the weather. Another favourite situation is within a tightly curled fallen leaf, in one of which as many as five or six individuals may be collected. In such cases the ovisacs are more or less confluent.

Three dead and partially decayed male Coccids were found entangled in the woolly material of the ovisacs; but I am doubtful if they can be really associated with this species. They had none of the special characters that are common to the males of other *Margarodinae*, but were more like those of a *Pseudococcus*, having simple eyes and a single pair of long, white, caudal filaments. The true male of *Kuwania* may be expected to exhibit compound, faceted eyes, and a tuft of long silky hairs springing from the dorsum of the penultimate segment of the body. Should these *Pseudococcus*-like males eventually prove to be truly associated with *gorodetskia*, the species must be excluded from the genus

*Kuwania* and returned to Nassonow's genus *Steingelia*, which—in its turn—must be removed from the subfamily *Margarodinae*.

The apparent disappearance of the insect for two years may possibly indicate an unusually prolonged nymphal period.

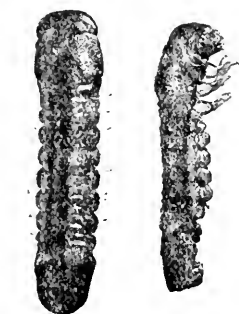
Way's End, Camberley.

October 15th, 1917.

#### THE LARVA OF *BYRRHUS PILULA* L.

BY G. C. CHAMPION, F.Z.S.

The larva of *Byrrhus pilula* has been described at length by various authors, and figured by Westwood, Chapuis and Candèze, Ganglbauer, and Reitter, but it is not very well known to British entomologists, or mentioned by Fowler in his "Coleoptera of the British Islands." The appended figures are taken from some apparently almost fully-grown



*Byrrhus pilula*, × 3.

examples captured by myself in S. Devon, during the past month. These Devonshire larvae agree perfectly with the published figures and descriptions of the above quoted authors, and an abraded imago of *B. pilula* was indeed found at the same place; that of the allied *B. fasciatus* F., according to Xambou (Ann. Soc. Linn. Lyon, xlii, pp. 60-63, 1895), having the last dorsal segment of the abdomen covered with long hairs at the tip. The greatly developed, coarsely, closely punctured dorsal plate of the prothorax is the chief characteristic of these

Byrrhid larvae, the two following thoracic segments being short and soft, and like the dorsal segments 1-7 of the abdomen. The last two segments of the latter are much longer and wider than those preceding, and capable of being curved forward from beneath, when the insect is in movement. The surface, above and beneath, is set with very scattered, conspicuous, stiff hairs, which (as seen from above) are somewhat clustered into tufts along the margins of the abdominal segments 1-7; these hairs are not indicated in the above-quoted published figures of the larva, and they do not show clearly in the accompanying illustrations, being unfortunately lost in the reproduction of the photographs. The antennae, variously described as 2-, 3-, or 4-jointed, are very short and small, and partly hidden in the cavity from which they arise, the terminal joint being slender. The mandibles are bifid at the apex, and armed with two short teeth on the inner edge

near the base above. Westwood's figure [Introd. Class. Ins. i, p. 175, fig. 17 (17)] was taken from one of several examples found creeping about the iron palisades of a London square, by Mr. Ingpen; he reared them through one moult, but none lived to maturity. Those here figured were taken, with many others, on two different rainy days towards the end of September, crawling on the straight-cut bare red clay bank at the foot of the downs bordering the cart-track along and above the eastern bank of the River Otter, between Otterton and Budleigh Salterton. The prevailing wet weather at the time may have washed them down from the grassy slope above, as none were seen later when the ground had dried again, or they may have been seeking for a place to pupate. These larvae were not recognized at the time, and were in a hasty moment transferred to my spirit-tubes just before I returned home, so that no attempt was made to rear them. Xamben states that the larvae of the allied *B. fasciatus*, as observed by him at Ria in the Pyrenees, were found deep down in the earth amongst the roots of plants, upon which the larvae of other beetles fed, but the actual food of this particular *Byrrhus* was not ascertained; he remarks that they were still young in October, and could then be found in the earth, and that they hibernated at the bottom of their subterranean gallery, regaining their activity with the return of fine weather, pupating after mid-July. Chapuis and Candèze merely say, of *B. pilula*, that the larva is found in the earth, beneath turf. To judge from the form of the mandibles, the larvae are certainly root-feeders. The figures here given are taken from spirit-specimens photographed for me by Mr. A. Cant; they show a little more detail than the very good one given by Ganglbauer.

Horsell, Woking.

Oct. 1917.

---

#### A REMARKABLE NEW SCIRTES FROM NYASALAND.

BY G. C. CHAMPION, F.Z.S.

Amongst the numerous interesting beetles captured by Mr. S. A. Neave in Nyasaland and elsewhere in Tropical Africa, there is a species of *Scirtes* very much larger than anything previously recorded as belonging to that genus. It is so like various *Halticidae* that it was found placed among them in the British Museum.

#### *Scirtes giganteus*, n. sp.

Hemispherical, moderately convex, shining; reddish-brown, the eyes, antennae (the apical joint and the under surface of the basal joint, which

are testaceous, excepted), anterior and intermediate tibiae, the posterior tibial carina, and the tarsi (except at the tip), infusate or black; thickly clothed with fulvous pubescence; the head, prothorax, and scutellum closely, minutely, the elytra a little more diffusedly and distinctly, punctate, the under surface and legs densely, minutely punctate. Antennae moderately long, slender, joint 3 short, barely one-half the length of 4, 4-11 very gradually decreasing in length. Prothorax short, sharply margined, rapidly narrowing from the base forward, the sides forming a continuous outline with those of the elytra, the margins of the latter moderately explanate. Posterior coxal plates small, contiguous along the median line, transverse, sharply angulate at the lower outer angle. Posterior femora enormously developed. Posterior tibiae with the upper spur about as long as the first tarsal joint, and twice the length of the curved lower one.

Length  $7\frac{1}{4}$ , breadth 6 mm.

*Hab.*: NYASALAND, Mlanje (*S. A. Neave*: 13-15, ii. 1912).

One specimen, sex not ascertained. The general coloration and vestiture are common to many of the smaller members of the genus. The species described by Guérin from Senegal must be very different from the present insect.

Nov. 1917.

NOTES ON CERTAIN BRITISH (OR RECORDED AS BRITISH) SPECIES  
OF *OXYBELUS* LATR.

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

(Concluded.)

4.—*Oxybelus* spp. formerly, but no longer, included in the British List.

In Shuckard's celebrated "Essay" (1837) no fewer than six forms of *Oxybelus* were introduced as additions to the British List. Three of these, namely, *bellicosus*, *nigripes*, and "14-guttatus" (*sic*, a slip for 14-notatus!), were identified with Continental forms diagnosed in 1811 by Olivier, while the other three—*ferox*, *nigricornis*, and *nigroaeneus*—were described as new to science.

*O. nigripes* has been discussed above, but it may be worth while to explain why the other names are no longer retained in our List, and are not mentioned at all (except *ferox* as a synonym) in Saunder's "Hymenoptera Aculeata," etc.

*O. ferox* was described from a single specimen in Shuckard's own collection, stated by him to have been a *male*, and to have been taken "somewhere near London." Practically all authorities are agreed that it is the ♂ of *argentatus* Curtis, of which species Shuckard says that he only knew the ♀. I do not know what has become of the type, but

there are now in the National Collection two specimens of *argentatus* labelled—apparently with especial care\*—the one “*argentatus*” and the other “*ferox*.” Both these, however, are very fine and quite unmistakable *females*!

All the other species were described, as Shuckard tells us, from examples in the British Museum, believed to be British, and placed as such in the Collection. But in every case he failed to get any information as to the locality in which they had been taken.

Representatives of all these forms—in all probability the actual specimens examined by Shuckard—may still be seen in the British collection at S. Kensington; and one specimen of each bears a label in F. Smith’s handwriting which indicates it as the “Type” of the species. I have recently had opportunity to study them carefully, and have made notes on them as follows. (For the most part, I should add, these notes only confirm the conclusions arrived at by authors who have studied Shuckard’s descriptions without examination of the actual types.)

1. *bellicosus*.—There is only one specimen (a ♂) of *lineatus* F. (= *bellicosus* Oliv.). Shuckard calls it a ♀—a mistake which F. Smith corrected in 1856, “it is certainly a male!” But, in 1858, Smith made the original confusion worse confounded by saying that “Shuckard described it as a ♂. It is certainly a female” (!!).

2. “14-*guttatus*.”—The collection contains 1 ♂ and 2 ♀♀ of 14-*notatus* Jur. (= 14-*notatus* Oliv.). Shuckard says, however, “I do not know the ♂.”

3. *nigricornis*.—There are two specimens so-called, both certainly (!) males, yet both Shuckard and Smith describe the two sexes and indicate certain differences between them. Were they simply mistaken? or is the ♀ lost, or removed to another part of the collection? The ♂♂, I feel sure, are both examples of *argentatus*, and therefore identical with *ferox* Shuckard! This seems strange; but he may have described the Museum specimens at one time and his own at another, without comparing them. Had he compared them, I think he could hardly have doubted their identity. (Or, possibly, his own “*ferox*,” like that now in the Museum, may, after all, have been a ♀. But as he knew and described “*argentatus* ♀” this seems unlikely!) (The name *nigricornis*, Shuckard tells us, was “given to him” by Samouelle, who was then in charge of the Collection.)

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\* The names are written with extreme neatness, not in ordinary “cursive,” but in an exact imitation of printed (italic) type. Mr. B. B. Woodward has helped me in comparing these labels with autograph letters, etc., of Shuckard, Stephens, Smith, Samouelle, etc., etc., but we could come to no conclusion as to who probably wrote them.



4. *nigroaeneus*.—The two specimens so named are both ♂♂ of *bipunctatus* Oliv. (The name *nigroaeneus* also was “given” to Shuckard by Samouelle.)

Except *ferox* and *nigricornis*, both of which I consider identical with *argentatus* Curtis, not one of these species has any claim to be reckoned as British other than such as may be founded on its inclusion in the Museum “British Collection.” There is, indeed, an example standing as *bipunctatus* in the Dale Collection at Oxford, and Professor Poulton kindly brought it to London that I might compare it with Shuckard’s specimens; but, after careful examination, I felt pretty sure that it was merely a variety of our common *uniglumis*. As to *lineatus* and *14-notatus*, no one has ever recorded a capture of them in this country; and they are so unlike anything known as British, that such a capture could hardly have been overlooked.

Shuckard (as we have seen), when he visited the Museum, probably about the year 1836, was unable to discover where any one of them was taken. But long after (viz. in 1858) Smith suggested that all of them, and also *nigripes*, were “very probably taken by Dr. Leach in Devonshire.” Why he thought so, he does not tell us. But, if it be true, we must believe that *four different species of the same genus*—not one of which has ever reappeared in Britain—were taken within a few years by one British collector in his own neighbourhood!! Surely this is quite incredible. There may, however, have been this element of fact in Smith’s statement—that these, like so many other specimens of Hymenoptera of all sorts, came into the Museum from or through Dr. Leach, who, besides being himself a keen collector, was constantly receiving (as the “Old Registers” now at S. Kensington prove) specimens, foreign as well as British, from many correspondents—Klug, Megerle, Latreille, etc.—some of which specimens he placed in the Museum, while others may have arrived there after his retirement and, perhaps, after his death. In fact, Smith himself later seems to have gradually come round to a different view as to some of Leach’s “Devonshire (?)” captures. In 1862 (*Ent. Ann.* p. 96), he says, “It has been ascertained that after the death of Dr. Leach a few insects from the Continent, supposed to have been captured in England, by accident were incorporated with the British collection.” And in his revised Catalogue of 1876 (Preface), he mentions that he no longer considers *Sphcodes fuscipennis* (another Leachian specimen in B. M.) to be a British insect. Yet even then, he still retains, in hopes of their re-discovery, several species, whose claims to a place in the British List

depend merely on the existence in B. M. of examples supposed to have been taken by Leach in Devonshire.

That Leach himself was ever mistaken as to the origin of specimens placed by him in the Museum, Smith has never suggested; he speaks only of an "accident" subsequent to Leach's death. But having lately had special opportunities for studying the Museum Collections, I am very much inclined to think that some of Leach's own statements as to insects placed by himself in the Collection, and still there, are similarly due to "accidents" occurring long before his death in 1836. For instance, I simply cannot believe that he really took *two species* of *Tarpa* (= *Megalodontes*) in England, though he recorded them, giving a British locality for each, in 1817, and placed a pair of each as "British" in the Museum, where they still exist. The "Old Registers" of B. M. show that Leach received a great many German *Lydini* from Klug, and I strongly suspect that the above specimens really reached him in the same way, and that he misinterpreted some note in his diary of captures as though it referred to them. Now that the range of most Palaearctic sawfly species and genera is better understood, and the discovery of a new British insect is something of an event, such a mistake would be unlikely to occur. But Leach was constantly discovering new genera and species in Britain; and he would have no reason to think it *a priori* unlikely that he should have met with a *Megalodontes* in England.

Again, it is on record that Leach himself collected on the Continent, and especially in South France and the Riviera. Smith tells us that he has ascertained that a certain Chrysid in the B. M. Coll. was "taken in South France by Dr. Leach." It was "in the neighbourhood of Nice" that he first discovered the n. sp. *Chrysis leachii* Shuck.; and he described "Thirteen species of Formicidae" from that district more than ten years before his death (viz. in 1825). Now I find in the B. M. "British Collection" specimens, standing as British, of the following Aculeates and Chrysid, all of which, from their apparent age and general appearance, might well be Leachian specimens; some actually ticketed with numbers such as he employed in registering Museum specimens, while none are so marked as to suggest that they came from any other source; and *all* (NOTA BENE!) characteristic members of the West Mediterranean fauna, such as any collector might expect to meet with in the district where it is known that Leach collected, while not one of them is believed to have occurred, or to be likely to occur (unless possibly by importation) in any parts of the British Islands:—

BEES: *Prosopis variegata* and *bifasciata*; *Sphcodes fuscipennis*;  
*Ceratina callosa* (wrongly identified by Smith as a var. of

*cyanea*), and *eucurbitina*; *Osmia adunca*, *rotundata*, *caementaria* (standing as *papaveris*), *sericans*, and *cornuta*;  
 † *Ammobates bicolor*.

FOSSORS: *Priocnemis variabilis*; † *Dolichurus corniculus*; *Nysson maculatus*; † *Lorra anathema*; *Gorytes* (*Arpactus*) *laevis*; *Cerceris interrupta* (Pz. nec Saunders!).

CHRYSIDS: † *Euchroeus quadratus* (= *purpuratus*); *Holopyga chloroidea*; *Hedychrum chalybacum*; *Chrysis caeruleipes* (= *cuprea*).

Of those marked thus †, not only the species, but the genus seems to be non-British!

It appears to me that the presence of the above specimens, and also of Shuckard's non-British *Oxybelus* spp. (viz. his *nigripes*, *bellicosus*, *14-guttatus*, and *nigroaeneus*) in the B. M. British Collection, can be most satisfactorily explained by adopting the following hypothesis, viz. :—

That most (and perhaps all) of them were collected by Leach about the year 1824 in South France or Savoy, and placed, through some mistake or accident (either by himself, or by Samouelle, who succeeded him at Bloomsbury), in that part of the National Collection which should have been, and was supposed to be, reserved for British specimens,—probably, however, not (as Smith supposed) *after* Leach's death in 1836, but sufficiently long *before* that date for the facts to have been forgotten when Shuckard visited the Museum to obtain materials for his "Essay," which is dated 1837.

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PHANACIS CENTAUREAE FÖRSTER, A CYNIPID (HYMENOPTERA) NEW  
 TO THE BRITISH FAUNA.

BY RICHARD S. BAGNALL, F.L.S.

This afternoon I spent two or three hours in Ryhope Dene with my friend Mr. H. S. Wallace. The large knapweed (*Centaurea scabiosa*) was in profusion, and after discovering a few examples of *Aglax rogenhoferi*, I made a close search for other galls. Those of *A. rogenhoferi* (recorded in the October number of this Magazine) were exceptionally local and rare. The leaf-pustules of the gall-mite, *Eriophyes centaureae*, were somewhat scarce, and in one patch of the plant I discovered quite a number of the leaf-vein swellings caused by the midge, *Loewiola centaureae*—a species I had not previously seen on this particular knapweed. My attention was then diverted to a clump of stunted

blackthorn. the leaves of which were galled by *Putoniella marsupialis*—a midge Dr. J. W. H. Harrison and I had searched for during the past two years without success,—and it was whilst gathering a supply of this gall I noticed two somewhat slightly swollen stems of the knapweed, due to the presence of *Phanacis centaureae*. Ultimately we found several stems so attacked, and one having two galls caused by another and better known Cynipid, *Aylax scabiosae*—the first record for the Northumberland and Durham area.

*Phanacis centaureae* Förster.

On *Centaurea scabiosa*, a slight and sometimes scarcely perceptible swelling of the stem, which may occupy a considerable length, with numerous elongated larval cavities, measuring 2 to 5 mm. in length by about 1 mm. in breadth. These cavities are situated at the confines of the pith and the skin, partly in each as a rule, and run parallel to the axis of the stem. When the insect is nearly mature an elongated fissure usually appears in the stem. The adult emerges in the second year.

*Hab.*: DURHAM, Ryhope Dene, on the coast, 3 miles south of Sunderland, in plenty, October 20th, 1917. Also from Easington.

Previously known from Central Europe, Denmark, and France.

When bringing forward *A. rogenhoferi*, I drew attention to both *A. jaceae* and *Phanacis centaureae*; my friend Harrison has recently taken the former species, so that both now are firmly established as British. This makes the fifth interesting addition to the British fauna of gall-wasps (*Cynipidae*) other than those attacking oaks from our northern counties; the five species are *Aulacidea pilosellae*, *Aylax taraxaci*, *A. rogenhoferi*, *A. jaceae*, and *Phanacis centaureae*.

Penshaw Lodge,  
Penshaw.  
Oct. 20th, 1917.

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*The "Vasculum."*—The Editors have sent us Nos. 2 and 3, June and September, 1917, of this useful little illustrated quarterly journal, which deals chiefly with the Natural History of the North of England, a special feature being simple accounts of all kinds of obscure or neglected "groups," such as the *Apterygota*, *Symphyla*, *Pauropoda*, etc. Each of these numbers contains a paper by Mr. Bagnall on primitive-tails, bristle-tails, and spring-tails, that in No. 3 being devoted to the *Protura*. Whether it is the proper medium in which to publish a description of a new genus and species of *Aleyrodidae*, *Tetralicia ericæ* Harrison, No. 3, pp. 60-62, is perhaps questionable, owing to the possibility of such a paper being overlooked by Continental or American students.—EDS.

*Notes on Devonshire insects.*—In the January number of this Magazine, pp. 14, 15, various insects were recorded by me from this county, all taken during July and August 1916. During the present year, Sept. 12th–Oct. 6th, I have again been staying at Budleigh Salterton, etc., but so far as one's captures are concerned, there is little to add to my previous list, mainly owing, perhaps, to the wet or unfavourable weather prevailing during the greater part of the time. The local *Ochthebius*, *Lesteva*, etc., were no longer to be found in their usual habitat, it being no doubt too late for them, as it certainly was for most of the Capsids. A few of the beetles observed are just worth noting for locality, as some of them are not mentioned from so far west in Fowler's "Coleoptera," though it is probable that all of them have been recorded from Devon. Such are—*Notiophilus rufipes*, *Anchomenus micans*, *Laccobius purpurascens* (fairly common as before), *Homalota divisa*, *Thamiaraea cinnamomea* (in *Cossus*-oak), *Philonthus marginatus* (common in wet moss in Harpford Wood), *Lathrobium fraudulentum*, *Medon brunneus*, *Stilicus geniculatus*, *Stenus lustrator*, *Ptilium kunzei* (on a dry fungus), *Anisotoma calcarata*, *Pediacus dermestoides* (in beech), *Epuraea longula*, *Meligethes brunnicornis*, *Cryptarcha* and *Soronia*, both species of each genus, in *Cossus*-oak, *Paramecosoma melanocephalum*, both light and dark forms, *Aphodius inquinatus* (in rabbit-holes), *Chrysomela banksi* and *haemoptera*, *Mniophila muscorum* (in moss, Harpford Wood), *Haltica lythri*, *Sciaphilus muricatus* (in very fresh condition), *Sitones suturalis* and *sulcifrons* (both evidently just emerging), *Sibinia potentillae*, *Pachyrrhinus 4-tuberculatus*, *Orthochaetes insignis*, and *Apion ebeninum* and *confluens*. Amongst the insects of other Orders, the following were captured: HEMIPTERA—*Metatropis rufescens*, freely on its usual food-plant, in Harpford Wood (it was equally common in the New Forest in June last), and *Gastrodes ferrugineus*, one specimen, from the planted pines in the vicinity. ORTHOPTERA—*Conocephalus dorsalis*, a few examples, ♂ ♀ (as in 1916, and also ♂ and ♀ pupae), amongst *Scirpus maritimus*, by the "Otter"\*. MALLOPHAGA—a black form, not represented in the British Museum, possibly *Colpocephalum maurum* Nitzsch (? = *piceum* Denny), one specimen, found in the sand on the Exmouth beach, doubtless dropped from a gull.—G. C. CHAMPION, Horsell, Woking: Oct. 22nd, 1917.

*Synonymic note on the group Arpediopsini.*—On page 123 of the current volume of this Magazine I described a new group and genus of *Staphylinidae* under the names *Arpediopsini* and *Arpediopsis* respectively, overlooking the fact that the latter title has been used by Ganglbauer for a subgenus of *Deliphrum* in "Die Käfer von Mitteleuropa," vol. ii, p. 724 (1895). It is therefore necessary to find new names for the group and genus described by me, and I propose to replace them by *Arpediomini* and *Arpediominus* respectively.—M. CAMERON, 7 Blessington Road, Lee, S.E. 13: Oct. 18th, 1917.

*Tetratoma fungorum* F. and *Deliphrum crenatum* Gr. in Peeblesshire.—I have pleasure in recording the occurrence of an example of *Tetratoma fungorum* F. here, under the bark of an ash log, on October 1st. *Deliphrum crenatum* Gr. is fairly common under beech bark.—JAMES E. BLACK, Lieut., Dawyck Camp, Stobo, Peeblesshire: Oct. 23rd, 1917.

\* The allied *Metrioptera brachyptera* is to be seen equally late in the season at Woking, and was noticed here a few days ago, on Oct. 15th.

*On the recent records of alien butterflies in England.*—With reference to Mr. Meyrick's note on "An Alien at large" (on p. 258 of the November number of this Magazine), I would draw attention to Mr. Cecil Floersheim's articles that appeared in three successive numbers (Oct., Nov., and Dec., 1915) of "The Entomologist." In these articles the author describes his interesting experiments in the breeding of various exotic *Papilionidae*, of two species of which (the North American *Laertias philenor* and the Japanese *Papilio bianor*) he remarks that he has "released . . . several hundreds each season" (see *loc. cit.*, Oct. 1915, p. 226). Commenting upon Mr. Meyrick's note, the editors refer to a suggestion by Mr. Bedford that an example of *P. bianor*, captured at Lewes, may have been an escape from the Insect House in the Zoological Gardens, London. I think it more probable, however, that the several examples, including the one seen by Mr. Meyrick, that have been noted during the past few years, originated in Mr. Floersheim's breeding-cages at Bagshot. It may seem a far cry from Bagshot to Marlborough, but it is actually only 45 miles, "as the crow flies," which would entail no great feat of endurance to a butterfly of this size. The distance from London would be 75 miles. Of the other localities mentioned, both Southampton and Lewes are exactly the same distance (45 miles) from Bagshot; while Royston would appear to be 10 miles farther.\* There is also to be considered the possibility that the insects may be gradually establishing themselves in this country. I know that *P. bianor* has bred naturally, on *Skimmia*, in nursery-gardens around Bagshot, and Mr. Floersheim has assured me that *L. philenor* oviposits freely and matures its larvae in the open, on *Aristolochia siphon* in his garden, and that *P. bianor* does the same on *Dictamnus fraxinella*. Should these two butterflies actually gain a footing in the south of England, it will be a matter for congratulation. Their food-plants are of no economic importance, and few owners of flower-gardens would grudge the small injury that might be done to the plants in question, in return for the pleasure of seeing such beautiful insects frequenting their premises.—E. ERNEST GREEN, Camberley: Nov. 10th, 1917.

*A further note on Aphelochirus.*—In his note on *Aphelochirus aestivalis* Fabr. in the November number of this Magazine, Dr. Bergroth, while apparently not demurring to my identification of the form we possess in this country, disputes the specific validity of *A. montandoni* Horv. I had, unfortunately, overlooked Reuter's remarks, to which Dr. Bergroth refers, although his papers were on my bookshelves all the time. Reuter considers that the differences in outline and in the genital plates of the ♀ may (*vernünftig*) be due to the state of repletion or otherwise of the bug at the time of capture, or to a certain amount of distortion produced in drying, and that the colour variations may (*wahrscheinlich, vielleicht*) depend upon the age of the specimens and the kind of waters, and the general physical environment in which they are found, and his conclusion is that *very probably* (he does not go farther than that) *A. montandoni* is a colour variety of *A. aestivalis*. Horváth, in Ann. Mus. Hung. x, p. 609, accepts the identity of *A. montandoni* and *A. aestivalis* without any comment. The fact that intermediate specimens have occurred on the Continent certainly lends colour to this conclusion, though I submit that the most irrefutable evidence, viz. that gained by breeding the species on a

\* We have also heard of a capture at Emsworth, Hants.—Eds.

large scale, is still to seek. But, however that may be, it is still the fact, so far as I have been able to gather, that we have in this country only a somewhat larger size of the colour form that has been known as *A. montandoni*, and it seems desirable to have some means of indicating that fact, though whether by calling it a distinct species or a variety (*i. e.* species in the making) does not, perhaps, so much matter. My mention of four, instead of seven, species as described by Horváth in his Monograph was an inadvertence, due to the fact that, although I had read the whole Monograph, I had for reference at the time of writing only a MS. copy of such part of it as had any bearing upon the question under consideration, and for the moment I forgot that this copy represented part only of the original.—E. A. BUTLER, 14 Drylands Road, Hornsey, N. 8: Nov. 9th, 1917.

*Limnophilus elegans* Curt. in Cumberland.—Among a number of Trichoptera recently sent to me for determination by Mr. G. B. Routledge, of Headsbrook, near Carlisle, I was very pleased to see a nice specimen of *Limnophilus elegans* which the sender had taken on Cumwhitton Moss, some ten miles from Carlisle, on June 30th last. Twelve years ago Dr. R. T. Cassal took the species freely at Ballaugh, in the Isle of Man, but, apart from those from this locality, very few specimens have been taken in Britain, and then only as casual captures. Besides the *L. elegans*, the other species sent, which Mr. Routledge says are new to his Cumberland List, were *Limnophilus sparsus*, *Micropterna sequax*, *Mystacides longicornis*, and *Oecetis ochracea*.—GEO. T. PORRITT, Huddersfield: November 5th, 1917.

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## Obituary.

*Richard S. Standen*.—The October No. of the "Entomologist" contains an obituary notice of this veteran entomologist. He was well known to many of us as an active Lepidopterist and Botanist, both at home and on the Continent, and as a very agreeable companion to those who had the pleasure of his society on their collecting excursions. In 1893 we made a trip together to Corsica, and the results of his experiences are recorded by him in the "Entomologist" for that year, and by myself in the "Transactions of the Entomological Society" for 1894. While he was living at Thorpe-le-Soken, Essex, in 1895, I also joined him in various collecting excursions in that neighbourhood. He was born at Oxford on Oct. 11th, 1835, and died at Romsey, Hants, on July 29th last, thus having reached the age of 82. His frequent trips to the Continent, often for months or more at a time, both in summer and winter, and to some extent his occasional changes of residence at home, afforded many opportunities for field-work, of which he was not slow to avail himself. His capabilities as an artist, musician, and collector of plants and insects are all duly alluded to in the above-mentioned sympathetic notice written by his friend Mr. H. Rowland-Brown. Standen was elected a Fellow of the Entomological Society of London in 1889, serving on the Council for part of 1906, and a Fellow of the Linnean Society in 1893, and was President of the South London Entomological Society in 1879.—G. C. C.

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## Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, October 3rd, 1917.*—  
Dr. T. A. CHAPMAN, M.D., F.Z.S., Vice-President, in the Chair.

Dr. George Granville Buckley, M.D., F.S.A., Holly Bank, Manchester Road, Stafford, was elected a Fellow of the Society.

The death of Dr. Emil Frey-Gessner, one of the Honorary Fellows, was announced, and a vote of condolence with his daughter was passed.

Mr. Donisthorpe exhibited the following Coleoptera:—(1) *Miarus campanulae* L., taken on the Downs at Findon (Sussex), June 14th, 1917, in a small species of buttercup; (2) *Lycoperdina succincta* L., taken at Barton Mills (Suffolk), Sept. 9th, 1917, in fungus; (3) *Cassida fastuosa* Schall., taken at Goring Woods (Sussex), July 28th, 1917, on *Inula dysenterica*,\* its first record on Fleabane; and all the specimens were of a bright yellow and black colour when alive, and not, as is usual, red and black. The Rev. F. D. Morice exhibited with the Epidiascope a set of photographs (mostly taken from living specimens feeding or resting on their usual food-plants) of various Sawfly larvae.

The following paper was read:—"Further notes on Recapitulatory Attitudes in Lepidoptera," by T. A. Chapman, M.D., F.Z.S.

*Wednesday, October 17th, 1917.*—Dr. C. J. GAHAN, M.A., D.Sc., President, in the Chair.

Mr. John Williams Hockin, Castle Street, Launceston, Cornwall; Col. Turenne Jermyn, Highcliff, Weston-super-Mare; Mr. Arthur Wallace Pickard-Cambridge, M.A., Balliol College, Oxford; and the Rev. Prebendary A. P. Wickham, East Brent Vicarage, Highbridge, Somerset, were elected Fellows of the Society.

Mr. Donisthorpe exhibited a number of small yellow cocoons which were taken on a fence at Putney on Sept. 15th last, and which had emerged from the body of a White Butterfly larva; on October 8th Hymenopterous insects began to emerge from the cocoons and were still doing so; these belonged to a hyper-parasite, parasitic on the *Apanteles*. Mr. Dicksee, a probable new subspecies of *Morpho rhetenor*, now received for the first time from Colombia. Dr. Chapman, an aberrant specimen of a wasp (*Vespa germanica*) and made observations upon it. Mr. O. E. Janson, a fine example of *Tapinotus sellatus* Fab., taken by him on June 9th last near Horning, Norfolk; only two British specimens were previously known. He also exhibited, on behalf of Mr. L. H. Bonaparte-Wyse, who was present as a visitor, a fine male specimen of *Notodonta bicoloria*, Schiff., taken by him near Killarney on June 7th last. Mr. Green, living larvae of a Dermestid beetle, *Tiresias serra*, found under dead bark of an oak-tree in the neighbourhood of Shrewsbury. Mr. Green also read an interesting note on the oviposition of the sawfly *Pteronus sertifer*.  
—GEO. WHEELER, *Hon. Secretary.*

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\* Bedel, Faune Bassin Seine, v, p. 331, gives *I. dysenterica* as its food-plant.—ELS.



**A SYNOPSIS OF THE BRITISH SIPHONAPTERA**, by the  
 Hon. N. CHARLES ROTHSCHILD, M.A., F.L.S., illustrated by Eight Plates  
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PRICE 81.

**LEISTUS**  
*ferrugineus* Linn.

**ELAPHRUS**  
*aureus* Mull.

**LOROCERA**  
*pilicornis* Fabr.

**BROSCOSOMA**  
*baldense* Putz.

**BEMBEDIUM**  
*fasciolatum* Duft.  
*articulatum* Gyll.

**CILLENUS**  
*lateralis* Sam.

**THALASSOPHILUS**  
*longicornis* Sturm.

**TRECHUS**  
*discus* Fabr.

**ANOPHTHALMUS**  
*hirtus* Sturm.  
*v. rostratus* Mots.

**PTEROSTICHUS**  
*lepidus* Leske.  
*cupreus* Linn.  
*infuscatus* Dej.  
*puncticollis* Dej.  
*crenatus* Dej.  
*barbarus* Dej.  
*carbonicolor* Sols.  
*nacer* Marsh.  
*aterrimus* Hrbst.  
*elongatus* Duft.  
*oblongopunctatus* Fabr.  
*angustatus* Duft.  
*melanoscelis* Chaud.  
*niger* Sehall.  
*vulgaris* Linn.  
*nigritus* Fabr.  
*minor* Gyll.  
*interstinctus* Sturm.  
*negligens* Sturm.  
*subsinuatus* Dej.  
*brevis* Duft.  
*caspicus* Men.  
*cognatus* Dej.  
*aethiops* Panz.  
*globosus* Fabr.

**PTEROSTICHUS**  
*cylindricus* Hrbst.  
*melas* Creutz.

**ABAX**  
*ater* Vill.  
*ovalis* Duft.  
*schuppelii* Pall.  
*v. reuschmidtii* Germ.  
*corsicus* Dej.

**MYAS**  
*chalybaeus* Pall.

**AMARA**  
*ingenua* Duft.

**ZABRUS**  
*chalcus* Fald.  
*heros* Fald.  
*seidlitzii* Schaum.  
*gracilis* Dej.  
*blapoides* Creutz.

**ANISODACTYLUS**  
*binotatus* Dej.  
*signatus* Panz.

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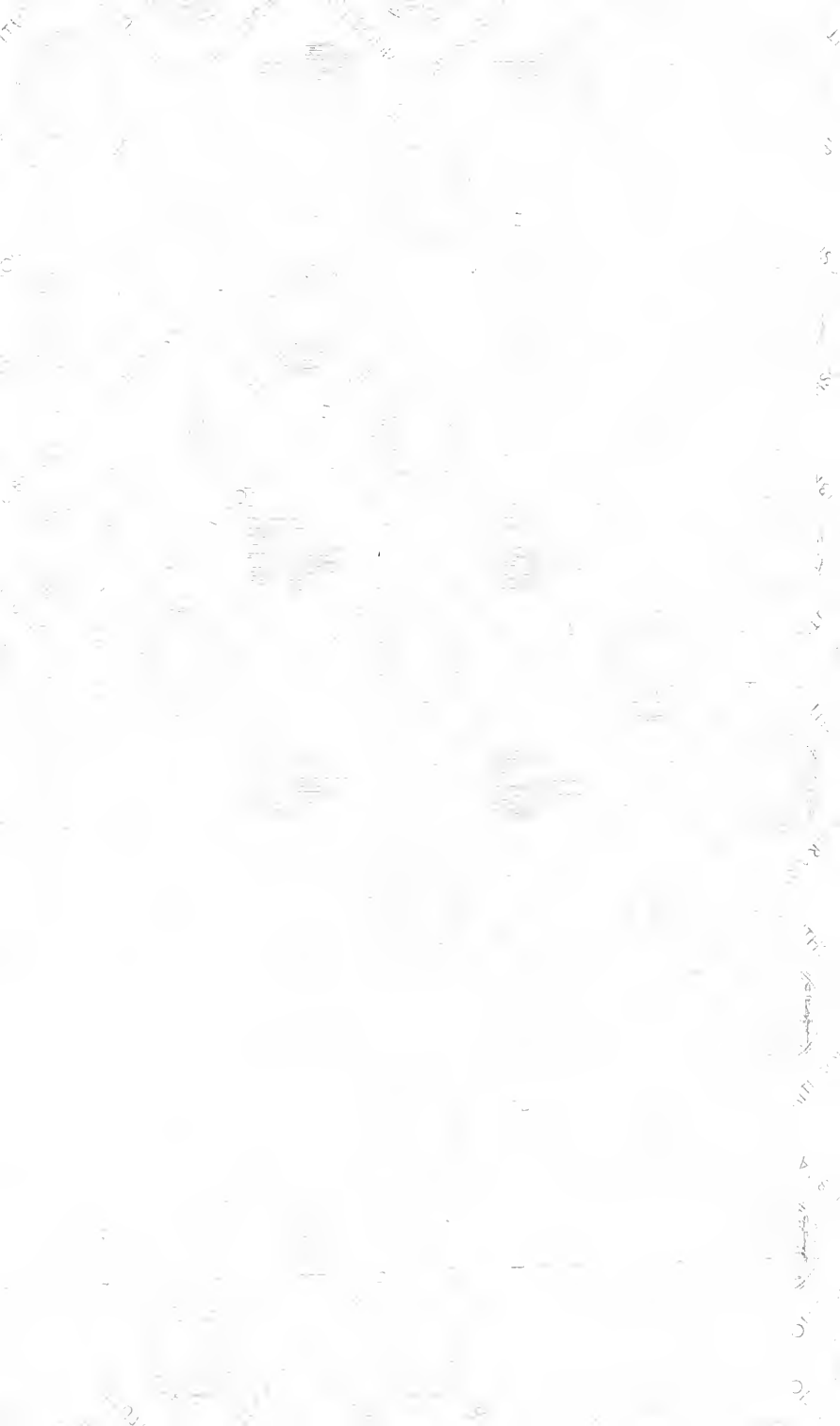
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