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WITH THE ASSISTANCE OF

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A WORKING LIST OF BRITISH BUTTERFLIES.

It is from no desire to complicate the tangle of nomenclature or to revive controversy that I have compiled the following catalogue of British butterflies. It is rather with a view to provide the 'Entomologist' with an up-to-date list and to secure some uniformity of nomenclature in its pages; and further, to avoid unnecessary duplication and reduplication of index references. Contributors, therefore, are earnestly requested, so far as possible, in their papers and notes to adopt the generic and specific names hereunder set forth, since the old method of lumping numerous genera under one generic name, largely adopted by Staudinger and Rebel in the 'Catalog' of 1901, in the light of all later (and much earlier) research work is indefensible, and often absurd. British lepidopterists long ago recognised, e.g. that the Blues can no longer be included under the simple generic Lycaena any more than that the majority of the Hesperiids are amenable to the same "omnibus" treatment. The late Mr. Tutt, in his monumental, and unfortunately unfinished work, clearly demonstrated the scientific necessity for complete revision of generic names, though, in my opinion, he adopted certain specific names for which there is no historical warrant. My purpose here, however, is merely to provide authors with a working list, taking advantage of such discoveries as seem to indicate a necessary departure from the obsolete generic nomenclature of the earlier systematists.

HESPERIDES.

Adopeua lineola, Oehs.; A. flava, Brunn.
Thymelicus actaeon, Esp. [L. Augiades sylvanus, Esp.; A. comma, A. flava, Brunn.
Cyclopides palæmon, Pallas.
Hesperia naevæ, L.
Nisoniades tages, L.

PAPILIONIDES.

Chrysophanus pileas, L.; C. dispar, Haworth.
Callophrys rubi, L.
Thecla w-album, Knoch; T. pruni, L.
Zephyrus quercus, L.; Z. betula, L.
Lampides boeticus, L.

ENTOM.—JANUARY, 1918.
Aricia medon, Esp.
Lycaena arion, L.
Nemeobius lucina, L.
Iphiclides podalirius, L.
Papilio machaon, L.
Aporia crataegi, L.
Pieris brassicae, L.; P. rapae, L.;
P. napi, L.
Pontia daplidice, L.
Euchloe cardamines, L.
Leptosia sinapis, L.
Colias hyale, L.; C. edusa, Fabr.
Gonepteryx rhamni, L.
Dryas paphia, L.
Argynnis aglaja, L.; A. adippe, L.
Issoria lathonia, L.
Brenthis euphrosyne, L.; B. selene,
Schiff; B. dia, L.
Melitaea aurinia, Rott.; M. cinxia,
L.; M. athalia, Rott.

* The accepted type form egeria, L., does not occur in the British Isles, except possibly as a very rare ab. The name given our northern form, egerides, Stph., in all probability falls before egeria, Ernst. & Engr., 1779.

A few doubtful British species, the names of which are not infrequently cited, are included in the above list, and I have presented several misspelt names in their proper form. The specific names are limited to the type form, or form occurring in the United Kingdom.

H. R.-B.

RARE HEMIPTERA-HETEROPTERA IN THE NORTHEASTERN COUNTIES WITH NOTES ON OTHER FORMS

By J. W. Heslop Harrison, D.Sc.

The work of investigating the obscurer groups of insects in Durham and Northumberland has been pursued during the past few eventful years with all the energy a limited leisure and other retarding influences have permitted. In spite of the fact that the Zooccecidia have claimed the major portion of attention, the present group has not been neglected, and some sixty or seventy species have been added to Bold's original list.

Of these the more noteworthy are selected for consideration now and incidental facts concerning their habitats given.

Acompsus rufipes, Wolf.—Last year I swept an immature example of this species from mixed herbage in the Trollius Marsh in Billingham Bottoms, thereby increasing its known range very considerably. The Trollius Marsh is a very typical piece of fenland situated in South-East Durham, and probably represents the last remains of formerly extensive fen formations.
in the area. I am told that, except for the absence of buckthorn scrub, it closely approximates Wicken Fen in general appearance, and I can say from personal observation on ecological survey work that its vegetation very nearly coincides with that recorded for Wicken by Prof. Yapp,except for the quite unexpected Alpine or Sub-Alpine element typified by the Globe Flower (*Trollius europaeus*) amongst plants. This Alpine factor is not confined to plants alone, for such insects as Coremia *munitata* are not infrequent, although the marsh is only 10 ft. above sea-level.

In May and June this year I found minute larvae of *Acompus rufipes* feeding in myriads on the flowers of the Great Valerian (*Valeriana sambucifolia*) and the Small Valerian (*V. dioica*). Later, in September, in sampling the Carices for *Livia crefel-densis*, great numbers of adult forms of both sexes of *A. rufipes* were swept up, accompanied by one solitary *Livia*. On the same occasion I was gratified to add a long-hoped-for spider to our already extensive lists, to wit, *Pirata latitans*. On account of the manifest similarity of the ground to Wicken the occurrence of this Arachnid had long been predicted.

*Phytocoris pini*, Kbm.—Not on record for England, but beaten from Scotch Fir (*Pinus sylvestris*) in an extensive pine-wood lying above Lanchester in Durham, which incidentally yielded several new Cecidomyids to the British Fauna.

*Plagiognathus albipennis*, Fall.—Again a species not recorded from the North previously. This was beaten in goodly numbers from the Sea-wormwood (*Artemisia maritima*) fringing the northern edge of the saltmarsh at Greatham. When it was first secured four or five years ago, the Psyllid *Aphalara pilosa* accompanied it, but during the last two years the Psyllid has not turned up. The rarer *Artemisia*-feeding *Coleophorae* were beaten, not uncommonly, on all occasions. It is to be noted that Saunders does not record *Artemisia maritima* as a food-plant, although his localities in several cases are very suspicious. He only mentions *A. abrotanum* and *A. absinthium*.

*Salda pilosa*, Fall.—This Saldid is very plentiful indeed amongst the *Salicornia europaea* on the south side of Greatham Marsh. It frequents soft muddy spots just in the process of being colonised by such halophytes as *Salicornia* and *Spergularia*. With it I captured three species of Thrombid mites, two new to science and one only on record for Clare Island previously. These will be dealt with by the Rev. J. E. Hull later. These patches of newly-colonised ground also yielded a new species of Psocid—a *Pterodela* resembling *P. pediculatrix*, but blacker and with stouter legs and different genitalia. I have named it *Pterodela halensis*, and hope to describe it shortly.

It is remarkable that the only *Salda* on the north side of Greatham Fleet is the ubiquitous *Salda saltatoria*.

*The New Phytologist,* vol. viii, nos. 2 and 3, February and March, 1908.
Salda elegantula, Fall.—A minute species much smaller than the last, occurring in the saltmarsh, but under different conditions. It lives further into the marsh amongst the tangle under the Sea Lavenders (Statice limonium et S. bahusiensis). It seems to shun the barer spots. Almost the only insects accompanying it are Agdistis bennetti and Orthezia urticae.

Salda morio, Zett.—An Alpine insect very abundant around Whitfield Lough in Northumberland. This is a small mountain lake with a very rocky bottom and shores, situated at a height of about 2000 ft. on Whitfield Fell. The lake is almost without an aquatic flora, probably on account of its open situation and its incessant motion. The bug occurs amongst the boulders on the shore. The only other insects considered worthy of note there were the multitudes of Larentia cesiata of all shades and a few caddis flies (Phygamea grandis). The vegetation around it was interesting, firstly because of the abundance of the Cloud-berry (Rubus chamaemorus), and secondly, on account of the fact that it appears as if the lake were contracting its area and yielding ground to this plant and heather (Calluna vulgaris).

On the road to the Lough we got belated Ceranonympha tiphon, which gives a new Northumbrian locality.

During the past summer I had the pleasure of seeing the same Salda under very similar conditions in Durham. This was on the shores of the reservoir on the moor at Waskerley. The only other insect I noted near by was the Coccid Eriococcus devoniensis distorting the Erica tetralix, which approached very close to the water.

Salda riparia, Fall.—This turned up not uncommonly with Salda morio at Whitfield Lough. It was also captured in some numbers around peaty pools situated on the ridge on the other side of the West Allen. There, since the pools ran up to the perpendicular face of the peat, the insect had different habits. Normally it rested in the little inlets, but when alarmed it took little journeys well into the pools, swimming very vigorously as it did so.

The same pools produced shoals of the caddis fly, Phygamea obsleta, and the dragon fly, Eschna juncea, the latter being easily captured as they were drying their wings on the cotton grass.

In Durham, Salda riparia was very rare on Waldridge Fell, a locality with a purely sub-alpine flora and fauna, but at no great elevation above sea-level.

Gerris coste, H.S.—This was discovered by the Rev. J. E. Hull, at Ninebanks, in a deep ravine in the mountains, the occasion being marked by the discovery of the Ring Ousel nesting. On the same day I took it in a very similar ravine on Great Ayton Moor in Cleveland, and at the same time I likewise found the nest of the Ring Ousel for the first time.
Corixa selecta, Fieb.—This is to be found fairly freely in some of the brackish pools round the Teesmouth on the Durham side, the only insect accompanying it being the very common Gerris thoracicus.

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Newcastle-on-Tyne.

NOTES ON THE DIPTERA OF DERBYSHIRE (II).*


The only attempt at a list of Derbyshire Diptera with which we are acquainted is that in the 'Victoria County History,' vol. i, 1905. In that list nearly all the localities are in South Derbyshire; the north of the county thus appears to have been practically unworked. In the 'Entomologist,' vol. xlix, December, 1916, pp. 273–275, we published a list of Syrphids containing twenty-five species not previously recorded for Derbyshire, and adding records for many more in the north-east of the county.

During 1916 and 1917 much attention was paid by us to the Diptera, with the result that 104 species hitherto unrecorded for Derbyshire were captured, and many others previously determined from the south of the county only were found in the north and north-east.

We have pleasure in acknowledging our indebtedness to the authorities at the British Museum (South Kensington) for permission to consult the collections at that institution, and to Dr. Gahan for his kind help with the literature.

**BIBIONIDÆ.**

* Dilophus febrilis, L. Barlow.  
* D. fémoratus, Mg. Barlow.  
* Bibio pomone, F. Cordwell.  
* B. variipes, Mg. Cathole.  
* B. johanniS, F. Loads, Cathole, Spital.  

**CHIRONOMIDÆ.**

* Tanypus melanops, Mg. Spital.  

**LIMNOBIDÆ.**

* Dicranomyia lutea, Mg. Barlow.  
* Erioptera flavescens, Mg. Sutton.  

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**Tipulidæ.**

*Pachyrrhina histrio*, F. Wingerworth, Spital, Barlow.
*Tipula pagana*, Mg. Loads.
*T. scripta*, Mg. Barlow.
*T. lateralis*, Mg. Grange Hill.
*T. paludosa*, Mg. Ramsley Moor, Barlow, Ley's Fen, Cathole, Heath.
*T. ochracea*, Mg. Spital.

**Stratiomyidæ.**

*Sargus iridatus*, Scop. Barlow.
*Beris morrisri*, Dale. Spital.

**Leptidæ.**

*Leptus tringaria*, L. Holymoorside, Spital, Barlow.
*L. conspicua*, Mg. Linacre, Ley's Fen, Spital, Freebirch.
*L. lineola*, F. Barlow.

**Empidæ.**

*Rh. umbripennis*, Mg. Cathole, Sutton.
*Rh. flava*, Fln. Grange Hill.
*Empis opaca*, F. Loads.
*E. trigramma*, Mg. Barlow, Holymoorside, Linacre.
*E. vitripennis*, Mg. Oxton Rakes.
*Ocydromia glabricula*, Fln. Barlow, Spital.
*Tachydromia annulata*, Fln. Cathole.

**Dolichopodidæ.**

*D. unguulatus*, L. (æenus, Deg.). Holymoorside, Spital.

**Lonchopteridæ.**

*Lonchoptera lacustris*, Mg. Spital.

**Pipunculidæ.**

*Pipunculus campestris*, Ltr. Barlow.

**Syrphidæ.**

*Cheilosia vernalis*, Fln. Barlow.
*Ch. proxima*, Ztt. Barlow, Hault Hucknall, Spital, Cordwell.
*Ch. carbonaria*, Egger. Barlow, Millthorpe.
NOTES ON THE DIPTERA OF DERBYSHIRE.

Platycheirus podagratus, Ztt. Loads.
Catabomba selenitica, Mg. Grange Hill, Ley's Fen, Oxton Rakes.
Syrphus nitidicollis, Mg. Loads.
Eristalis intricarius, L. var. furvus, Verrall. Spital, Woodthorpe.

TACHINIDÆ.

Gymnochaeta viridis, Fln. Cathole.
Somolia rebaptizata, Rnd. Spital, Barlow.
Siphona cristata, F. Sutton.
S. geniculata, Deg. Spital, Barlow, Boythorpe.
Oonesia sepulchralis, L. Spital, Barlow.
Sarcophaga atropos, Mg. Barlow.
S. agricola, Mg. Calow.

MUSCIDÆ.

Morellia simplex, Lw. Common everywhere.
Calliphora erythrocephala, Mg. Common everywhere.
Lucilia sericata, Mg. Grange Hill, Spital, Boythorpe.
L. ruficeps, Mg. Barlow, Boythorpe.
L. splendida, Mg. Barlow, Boythorpe.

ANTHOMYIDÆ.

Polietes hirticrura, Mde. Barlow, Spital.
P. albolineata, Fln. Cathole.
Hyetodesia marmorata, Ztt. Hasland.
Spilogaster duplicata, Mg. Spital, Calow, Barlow, Millthorpe.
Limnophora litorea, Fln. Barlow.
Hydroœa irritans, Fln. Common everywhere.
H. dentipes, F. Sutton, Spital, Ashover.
Drymia hamata, Fln. Barlow, Ley's Fen, Ashover, Calow.
Pogonomyia alpicola, Rnd. Grange Hill.
Hylemyia variata, Fln. Calow, Barlow.
H. lasciva, Ztt. Loads.
H. flaripennis, Fln. Barlow.
H. setierura, Rnd. Calow.
H. strigosa, F. Barlow, Spital.
H. nigrimana, Mg. Cathole, Linacre.
Anthomyia sulciventris, Ztt. Loads, Grange Hill.
Chortophilus arenosa, Ztt. Holymoorside.
Phorbia flaccosa, Mcq. Spital.
Ph. pudica, Rnd. Cathole, Spital.
Ph. ignota, Rnd. Spital, Boythorpe, Sutton, Ley's Fen.
Pegomyia hæmorrhoum, Ztt. Cathole.
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P. bicolor, W. Barlow.
P. nigritarsis, Ztt. Barlow.
Homolamyia scalaris, F. Barlow.
H. coraciina, Lw. Spital.
H. verrallii, Stein. Hasland.
H. postica, Stein, Spital.
A. zetterstedti, Rnd. Loads.
Atherigona varia, Mg. Spital.

CORDYLURIDÆ.

Scatophaga suilla, F. Hault Hucknall.
S. merdaria, F. Barlow, Spital, Cathole, Brimington.
S. squalida, Mg. Moorhall.

HELOMYZIDÆ.

Helomyza pallida, Fln. Cathole.

HETERONEURIDÆ.

Trigonometopus frontalis, Mg. Spital.

TRIPETIDÆ.

Spilographa abrotani, Mg. Spital.

SAPROMYZIDÆ.

Sapromyza decempunctata, Fln. Barlow.
S. rorida, Fln. Moorhall, Barlow, Tansley.
Lauxania hyalinata, Mg. Barlow, Spital.

OPOMYZIDÆ.

Pelethophila flavia, L. Barlow.

SEPSIDÆ.

Sepsis nigripes, Mg. Barlow, Spital, Cathole.
S. cynipsea, L. Cathole, extremely abundant on Calluna.

CHLOROPIDÆ.

Centor cereris, Fln. Barlow.

BORBORIDÆ.

Borborus niger, Mg. Cathole.
B. geniculatus, Meq. Cathole.
Limosina crassimana, Hal. Holymoorside.
Phoridae.

Trineura velatina, Mg. Grange Hill.

The insects mentioned below are listed in the "County History" from South Derbyshire only. We have taken them all in the north-east of the county, within a radius of ten miles round Chesterfield.

Bibionidae: Bibio marci, L.; B. Venosus, Mg.; B. laniger, Mg.
Chironomidae: Tanypus varius, F.; T. nebulosus, Mg.
Culicidae: Culex pipiens, L.
Limnobiidae: Limnobia triplunctata, F.; Ichipidia maculata, Mg.; Limnophila ochracea, Mg.; Trichocera hiemalis, Deg.
Stratiomyidae: Sargus cuneatus, L.
Tabanidae: Haematopota plurialis, L.
Leptidae: Chrysopilus auratus, F.
Asilidae: Dioctria rufipes, Deg.
Syrphidae: Chrysogaster solstitialis, Fln.; Cheilosia scutellata, Fln.; Ch. illustrata, Harr.; Syrphus bifasciatus, Fabr.; Bacca obscuripennis, Mg.; Rhingia rostrata, L.; Eristalis nemorum, L.; Xylota sylvarum, L.
Conopidae: Conops flavipes, L.
Tachinidae: Melanota culculus, F.; Olivieria lateralis, F.; Sarcophaga carnaria, L., and var. similis, Mde.
Helomyzidae: Blepharoptera serrata, L.
Trypetidae: Acidia heraclei, L.
Sapromyzidae: Lanuxia aenea, Fln.
Opomyzidae: Opomyza florum, F.
Piophilidae: Piophila casei, L.
Borboridae: Borbornus vitidis, Mg.; B. equinus, Fln.; Sphe- rrocera subsultans, F.; Limosina fungicola, Hal.

Spital, Chesterfield.
PERONEA CRISTANA: ITS LIFE-HISTORY, HABITS OF THE IMAGO, DISTRIBUTION OF THE VARIOUS NAMED FORMS, AND SOME SPECULATIONS ON THE PRESENT TREND OF ITS VARIATION.

By W. G. Sheldon, F.E.S.

(Concluded from p. 273.)

In Epping Forest melanism is more pronounced than even in the New Forest, but it is interesting to note that it has taken in certain respects a different direction; some of the melanic forms which occur in the New Forest are not found at Epping, and others which are abundant in the latter locality are rarely found in the former.

The outstanding feature of the Epping Forest P. cristana is that a vast majority of them are modifications of the true ab. profana of Fabricius. There is, I take it, no record of the locality from which the type specimen or specimens came, further than Fabricius's note, "Habitat in Anglia, Mus. Dom. Francillon," but, in view of the fact that Francillon was a Londoner, it seems most probable that his specimens came from near London. The old collectors of seventy or eighty years ago used to get many of their "buttons" from Hainault Forest, which, of course, adjoined Epping Forest, and where it was very abundant.

Whether this locality was discovered before the species was discovered in Epping Forest I am unable to say, but at any rate it has been known from the latter locality for a great number of years. I remember the late Thomas Eedle, about the year 1884, acquainting me with a spot there which I have worked successfully for the species during the past three years. He was then an elderly man, and I gathered that he had known this locality since his boyhood; this would date his knowledge of it from 1850 at the latest.

I have been unable to find a single record of the forms to be found in the old times in Epping and Hainault Forests, nor have I been able to trace a specimen of that date from them in any collection, and therefore it is impossible to say positively what they were and what they were not; but I trust if any reader of this article has knowledge of any such specimens, he will not fail to publish it, or will communicate it to me, so that I may do so, and thus enable some light to be thrown on a most interesting chapter in the history of the species.

There is, however, some available evidence on this point, which, although not conclusive, seems to me probable. I refer to the series in the Doubleday Collection, now at the Natural History Museum, South Kensington. There is no data attached to these specimens, and thus one cannot say positively that they
originated in the Essex localities, but from the fact that Henry Doubleday lived all his life within a few miles of Hainault Forest, and actually within the borders of Epping Forest, and from the general run of the forms in his collection, and the abundance especially of certain aberrations that are now common Epping Forest forms, such as abs. profanana and subunicolorana, it seems probable that the majority of the speciments in the series are of Essex origin.

The series of 223 specimens consists of, so far as I have been able to make out—cris
tana, type, 17; abs. chantana, 2; fusca
na, 3; subchantana, 2; albi
punctana, 1; ochreapunctana, 1; alboflamman
a, 6; alborittana, 4; nigropunctana, 2; ruficosta
na, 4; xanthovic-
tana, 2; striana, 17; substria
na, 2; cristalana, 13; subcris
talana, 4; fulcorittana, 3; subfulcorittana, 1; sequana, 4; gampinana, 4; subcapucina, 2; desfontainiana, 21; modifications of the last
named form, 2; consimiliana, 1; seminustana, 17; bentleyana, 3; brunnea, 8; unicolorana, 19; subunicolorana, 28; profanana, and spadiceana, 14.

Turning now to the forms to be found in Epping Forest at the present time; from specimens taken by myself in 1915, 1916 and 1917 I am able to give the following list. I should say that as the great majority of these examples were taken in 1917, I have not kept a list of those taken in each year separate.

My specimens, which number 105, are—cris
tana, type, 3; abs. subnigrana, Image, 57; profanana, 7; subunicolorana, 13; merlana, 3; atrana, 1; nigrocostana, 1; alborflamman
a, 1; nigropunctana, 2; sep
iana, 1; striana, 2; substria
na, 2; sericana, 1; pro
canthorittana, 1; and a unicolorous form which in the lighter examples runs into ab. profanana, so that one cannot say to which form these belong, and in those which are the darkest the colour is a dull black—of this form there are 10 specimens.

It will be seen that the most abundant form, ab. subnigrana, accounts for over 51 per cent. of the total; and, taking all the forms that show a melanic tendency together, they represent 68½ per cent. of the whole.

I take it that half a century ago, before the advent of melanism at Epping, ab. profanana was much more abundant than is the case now. I cannot perceive any difference in the melanic forms, abs. merlana, atrana and nigrocostana, between those that come from the New Forest and those that originate in Epping Forest.

In addition to the list of forms taken by myself, I am indebted to the kindness of Prof. Image and Mr. O. E. Jansen, who unquestionably are better acquainted with the Epping forms than any one else at the present time, for the following list of additional aberrations met with by them—abs. albi
punctana, unicolorana, prostriana, ulotana, spadiceana, chantana, rufinigrana, seminustana, nigrocristana, subcris
talana, and desfontainiana.
These two lists give the names of twenty-five forms, which is the total number to be found in this locality at the present date, so far as I am aware.

For the variation at Folkestone I am entirely indebted to Mr. W. Purdey, who has kindly sent me a list of the forms he has met with in that locality. Mr. Purdey has worked the species during a lifetime, and he is too keen and good a collector not to have become acquainted with at any rate practically all the forms to be found in his locality.

Mr. Purdey's list consists of twenty-nine aberrations as follows—*cristana* type, abs. *ochreapunctata*, *nigrocristana*, *chantana*, *albipunctana*, *striana*, *substriana*, *fulstrostriana*, Dvs., *alborivittana*, *desfontainiana*, *ulotana*, *consimiliana*, *fulbrocristana*, *brunnecana*, *spadiceana*, *vittana*, *subcapucina*, *subunicolorana*, *cristalana*, *xanthorivittana*, *subfulvorivittana*, *suberivittana*, *sequana*, *semistriana*, *semiustana*, *bentleyana*, *chrlottana*, *tolana*, and *purdeyana*, Webb. The only information I have as to the rarity or otherwise of these forms at Folkestone is that one example of ab. *charlottana* and nine of ab. *purdeyana* have been taken by Mr. Purdey. These two forms and ab. *tolana* are, of course, exceedingly rare ones, and ab. *purdeyana* is, I believe, not known to occur elsewhere.

There are two remarkable features in connection with the Folkestone *P. cristana*; one of these is the almost total absence of any melanic tendency, and the other the number of the beautiful light-coloured forms that have been taken. One of these, ab. *subcapucina*, has, I believe, been found quite commonly; it is, of course, quite a rarity elsewhere. I take it that the comparative abundance of these light forms at Folkestone bears some relation to their environment of chalk subsoil.

There are only two forms in the list which show a melanic tendency, and in these the tendency is not by any means pronounced; they are abs. *nigrocristana* and *ulotana*. Of the other forms the most noticeable is ab. *suberivittana*, which, although rare elsewhere, is, I gather, abundant, or at least common, at Folkestone.

I have during the last few years taken a very few specimens at Ranmore Common, near Dorking; unfortunately they are too few to form any reliable data upon, but I give a list of them for what it is worth.

Probably the species is not uncommon there, but the undergrowth is very dense, and one cannot get inside the thickets; consequently it is not at present possible to form an opinion of its rarity or otherwise. I should say that melanism is at the present day rather pronounced amongst the Lepidoptera to be found at Dorking.

My specimens, only eight in number, consist of—*cristana*, type, 2; abs. *nigrana*, 3; *semiustana*, 2; *ulotana*, 1; and *nigroapunctana*, 1. The ab. *nigrana* are of the true form, and have no relation to the melanic Epping Forest ab. *subnigrana*. 

12 THE ENTOMOLOGIST.
I have already called attention to the fact that certain forms, which were apparently not uncommon a generation or two ago, are not now known to occur, so far as my information goes. Amongst these perhaps the most noticeable truant is ab. alboflammana. Judging from the fact that specimens are pretty plentiful in old collections, it seems to have been not uncommon in the past. The last record I have been able to trace is one by Mr. Webb, who states in 'Ent.,' xxiv, p. 271, that he took this aberration in the New Forest in 1891. Other missing forms are abs. subalboflammana, transversana, capucina, curtisana, and combustana; probably most, if not all, of these were always rare.

If any one can throw light on the recent occurrences of any of these forms, it is to be hoped he will publish his knowledge.

It is very noticeable that the variation of P. cristana runs on certain well-marked lines, that is to say, there are exceedingly few specimens that will not fit some one of the named forms. I suppose during the last three years I must have examined approximately 1000 examples: yet out of this large number there are only about half a dozen that I cannot fit into one or other of the named forms.

There is some confusion as to the identity of forms that bear certain names, and in consequence of this it is incumbent upon me to deal with this question, so far as it affects those forms that appear in this paper, in order it may be quite clear what are the forms referred to.

The first instance I will mention refers to abs. nigrocostana and alboniarana. These forms were described by Clark in 'Ent. Record,' xiii. p. 327, and figured on plate 8 of the same volume. Mr. Webb, in his paper, 'Notes on the Varieties of Peronea cristana lately in the Collection of the late J. A. Clark,' 'Ent.,' xliii, p. 268, writes: "By some extraordinary blunder, Clark's plate showing these aberrations has the names and figures reversed."

I have examined a number of copies of the volume which contains the plate and description, but have been unable to find one in which the mistake occurs, and can therefore only come to the conclusion that either Mr. Webb's copy is an incorrect one, or that he is mistaken. It will be interesting to know if any of my readers has a copy of the volume in question in which the figures are transposed.

The other instance which I must call attention to represents ab. gumpinana. Mr. Webb, with respect to this form, writes in 'Ent.,' xliii, p. 199:

"Gumpinana, Clark.—Specimens have hitherto been incorporated with our series of subcapucina, more uniformly sprinkled with grey and white, of a smoother aspect, and wanting the two white square blotches towards the hind margin, whilst the central tuft was either very small or wanting. These were pointed out
to friends years ago as deserving a varietal name, but it was a great surprise, I suspect, to others as well as to myself, when Mr. Clark gave it this one. Of course he was in error when he said this plain-coloured moth had been known many years in our sale-rooms under this name, and Clark afterwards ('Record,' vol. xvi, p. 145) corrects the impression his article may have made upon his readers by giving Mr. Johnson's definition of *gumpinana* as originally described; but unfortunately he does not withdraw his own erroneous name, so that this well-marked and distinctive variety still awaits a befitting title, and I would propose that it be known as *ab. clarkiana*.

Unfortunately for Mr. Webb's name of this form, it does not matter in the least what Clark did or did not do, because, as Mr. Webb says, the form Clark named *gumpiana* had the name *gumpinana* given to it by Johnson very many years previously, and this being so, in accordance with the law of priority, the latter's name stands and all others fall. The synonymy of this form therefore is *ab. gumpinana*, Johnson, 1842 = *ab. gumpiana*, Clark, 1901 = *ab. clarkiana*, Webb, 1910.

Mr. Webb follows the above note by a very interesting observation in which he says: "The *gumpinana*, not *gumpiana*, of our older collectors has the central tuft, vitta and smaller five tufts white, the < angle enclosed between the apex and anal angle, narrowing to the tuft, of the palest violet slate colour, with a narrow red line from the central tuft to near the apex, and an interrupted white dash dividing into two lines below it. The basal part of the wing tinged with reddish brown, and the first two-thirds of the upper part of the wing towards the costa a dirty yellow; this is divided from the central tuft by an extremely pale inconspicuous yellow fascia which seldom crosses the wing. All the colours are very subdued, and the moths thin-scaled generally. Head and thorax white."

This form is at present without a name, and I propose to transfer to it the name *ab. clarkiania*, for most unquestionably the name of the late J. A. Clark, who did so much to make the variation of *P. cristana* interesting, should be permanently associated with it. I have recently received a specimen of this form from the New Forest, and Mr. South has another one from the same locality which was captured in 1905.

In looking through Mr. South's fine and extensive series of *P. cristana* the other day, I found that he had a considerable number of *ab. lichenana*, Curtis, and also a few of *profanana*, Fab., all from the New Forest. These three forms are additions to my list of aberrations found there, and will increase the total number to fifty-seven.

Youlgreave, South Croydon, December, 1917.

ERRATUM.—On page 271, line 18, for "mixed," read "raised."
NOTES AND OBSERVATIONS.

AGLAIS URTICÆ, ab.—I have just seen a new aberration of a British butterfly. At first it looked like a worn and shabby Pyrameis cardui. But when it settled on a solitary dandelion, and I got close to it, almost within a yard, it was quite clearly a Small Tortoiseshell in its markings, but the wings, instead of being red, were cream-coloured, not so green as a pale primrose, not so rosy as a Gloire de Dijon. I can hardly have been colour blind to red, because I had gone to look for loganberries among the rasps. And yet you may hardly believe me unless I can produce the specimen. It seemed in freshest plumage on Sunday morning, August 26th. I find no account of this variety in any book which I have consulted. I am reminded of the pale variety of the small copper (C. phileas) which I once saw clearly in the island of Teneriffe, but missed with my net. If anyone thinks cream-colour impossible in genus Vanessa, let him consider the border of E. antiopa, both English and foreign. Small Tortoiseshells have been unusually abundant during this last fine mid-summer. I attribute this, not so much to the weather as to the war. The neglect of agriculture and scarcity of labour has meant uncut nettle-patches. The hard winter would seem to account for the scarcity of blackbirds and other birds. We have not had any special caterpillar plagues, but I notice a few slugs.—Hugh Richardson; Wheel Birk, Stocksfield-on-Tyne.

Vanessids, etc.—With reference to the notes on pp. 186 and 191 of the 'Entomologist' for August, 1917, I have to state that Pyrameis atalanta and Aglais urticae have been on the wing throughout this summer here, the former certainly since June 9th, and in good condition, and the latter more plentifully than in the two preceding seasons. V. io has been particularly plentiful, and its larvae, which I had not seen during the three preceding years, were noticed in large colonies on nettles in several places. Of Pyrameis cardui I have seen only two battered specimens (July 28th and August 7th). Melanargia galatea was more than usually plentiful. Celastrina argiolus, both broods, which were abundant last year, have been very scarce here this year, contrary to the observations of entomologists elsewhere.—H. M. Parish; Mount Vernon, Totnes, South Devon.

Pararge egeria, var. egerides.—As corroborating Mr. Gillett’s remark on the exceptional movement of butterflies this season, I may mention that my little girl netted a good specimen of P. egeria egerides on a dandelion, in our garden, on September 11th. During twenty years here I have taken only a single specimen in this part of Dorset, and this was seven miles to the west. Winfrith itself is quite bare and open, so the capture in such an unsuitable locality altogether astonished me. The butterfly appears very local in the county, although I have, of course, seen it common in Devon and the New Forest. As a boy-collector, for years in West Kent I never saw it, and its curious distribution has always interested me.—F. H. Haines; Brookside, Winfrith, Dorset, November 5th, 1917.

* = var. pallida, Mosley, "Varieties, etc.," ser. 2, Vanessa, pl. 4, fig. 1.—H. R. B.
Papilio machaon larva at Eastbourne.—Last October I had a larva of *P. machaon* brought to me. It was found in a garden in this town, feeding on carrot.—J. T. Dewey; 79, Hurst Road, Eastbourne.

Papilio maackii at Eastbourne.—A strange *Papilio*, which, I think, is *maackii*, flew into a house in this town. This was in October last, and possibly the specimen may have escaped from someone who had reared the species.—J. T. Dewey; Eastbourne.

Larvae of Papilio bianor in East Hants.—In the early part of July last the head gardener at "Easton," Liss, informed me that he had seen "a large, blackish butterfly with red spots on it" ovipositing on a bush of *Choisia ternata* on or about June 23rd. He added that it was much larger than any butterfly he had seen before, and that he was sure it was not an English species. It oviposited several times, flew away, and a few minutes later returned and again visited the same bush, each time making its way well into the lower part of the bush near the ground. I visited the spot on July 13th, and after much searching found one larva rather less than half an inch in length. It was resting on the upper side of a leaf, and very closely resembled bird's excrement. I had a further search on July 17th, and succeeded in finding one more larva of about the same size. I found them quite easy to rear on sprays of *Choisia* taken from the bush upon which they were found and placed in water. When they reached their last instar I was easily able to identify them from Mr. Cecil Flöersheim's excellent description of the larva of *P. bianor* ('*Entomologist,' vol. xlviii, p. 255). The period of pupation lasted about three weeks, the first, a♂, emerging on August 28th, and the second, a♀, on September 9th. The former measures 4½ in. and the latter rather more than 5 in. across the wings, both specimens being quite perfect. I am informed that imagines of *P. bianor* were liberated last spring in considerable numbers, both from Bagshot (about twenty miles from here) and from Witley (fourteen miles); it is therefore most probable that the parent of my larve found her way over here from one or other of these places. I might add that the larvae, throughout their entire growth, were remarkably well protected on *C. ternata*.—Sydney Whicher; Sheen Cottage, Liss, Hants.

Euvanessa antiopa in Hants.—On September 29th, in a wood near Winchfield, Hants, I saw a large number of *Pyrameis atalanta* feeding on the sap of an oak tree that had been felled a week before. On examining them closely for varieties I detected a fine specimen of *Euvanessa antiopa* with them. I had no net, and as it was late in the evening I did not disturb it. I returned the next day with a net, saw the *antiopa* again, and caught it. It proved to be a fine large female, and only slightly rubbed, edges of wings well marked yellow, with some dark speckles. It is a fine cabinet specimen. My brother-in-law, General Kempster, was with me at the time of capture. I think this is the largest specimen I have seen, so is of interest in that way.—R. W. Rattray (Colonel); 68, Dry Hill Park Road, Tonbridge, Kent.

Sphinx convolvuli in Sussex.—Concerning the appearance of *Sphinx convolvuli* in England during last September, an officer in the camp on Ashdown Forest, Sussex, showed me a specimen
brought to him by one of the men in perfect condition. He also procured another a few days after the same way, both having been caught in the huts about September 6th.—C. B. Lowe; “F” House, Marlborough College, Wilts.

**Sphinx convolvuli in Norfolk.**—During the first few evenings of September I observed several of these insects hovering over a bed of tobacco-plants in a garden at Burnham Market, Norfolk. The first night I secured one specimen, and later in the evening quite a number were observed at one time. On two subsequent evenings I secured two and three respectively, all of them being good specimens, there being several of each sex.—A. Disney; “B” House, The College, Marlborough.

**Sphinx convolvuli and Acherontia atropos in Norfolk.**—During September my little son Eric brought a *S. convolvuli* in which he had just taken off a wall in my garden. During October I had six pupae of *atropos* brought in by potato pickers.—Robt. S. Smith, Jun.; The Laurels, Downham Market, Norfolk.

**Catocala fraxini in Durham.**—The capture of a specimen of *Catocala fraxini* at Sunderland during September last is recorded by Mr. H. Hedley in ‘The Field’ for October 29th.—F. W. F.

**Colias hyale at Eastbourne.**—During the first week of September last I captured a specimen of *C. hyale*, the only one seen by me last year.—J. T. Dewey; 79, Hurst Road, Eastbourne.

**Emmelesia unifasciata.**—During the present autumn I was very pleased to find the larvæ of this insect feeding on *Bartsia odonites* quite near to my own house here, and seeing that we have had no record for the county for over fifty years, the occurrence is very interesting. I cannot, however, but think that it has been much overlooked, owing to its manner of feeding, and has always been in the district since first recorded.—J. Gardner; Laurel Lodge, Hart, West Hartlepool.

**Bryophila perla in November.**—Perhaps it is worth noting that on November 19th I saw on the side of a wooden shed a good specimen of *Bryophila perla*. It changed its position several times, but remained practically in the same place until November 25th, when the cold wind, from which it was not sheltered, came, and I found it dead on the ground. Surely this is rather unusual. I cannot find another record of this moth having been found so late in the year before; at first I thought it was hyberating, but, if so, I should have thought it would have chosen a more sheltered spot. I should also like to add that my friend Mr. H. Allport found large numbers of *S. ligustri* larvæ feeding on ash last summer.—A. O. Beadle; Donnington Dene, Newbury, Berks.

**Asilus crabroniformis, etc., in Kent.**—On August 4th Master John Nowell, of Kingsdown, Deal, captured in Wye a specimen of *Asilus crabroniformis*, which had not previously been recorded in the locality. Mr. Theobald tells me that, so far as he knows, the species has only previously been recorded in the county from Maidstone Entom.—January, 1918.
(Elgar). At the same time another specimen was secured; both were males. Two days later I captured a female in the same neighbourhood.

*Cicendela campestris*, which is recorded in 'History of Kent, Insects,' as "abundant in sandy places," occurred in great profusion on the chalky paths near Crundale, quite as abundantly as in sandy localities.—H. C. Efflatoun; Wye, Kent.

Notes from North Wales.—In Porthtre Castell Bay, about two miles from Rhos Neigr (Anglesey), *Sericoris littoralis* was fairly common from September 10th to 17th. It is very well protected by its coloration when at rest on the rocks. Between this Bay and Rhos Neigr were a good many plants of *Sesile maritima*, some of them covered with larve of *Pieris brassica* (I do not think I have seen the plant previously mentioned as one of its food-plants); and all of them swarming with the rather local little beetle *Psylliodes marcida*. But insects of every kind were extremely scarce. I saw one male *Colias edusa* at Rhos Neigr; but the only common butterflies were *Pararge megoara* and *Chrysophanus phlaes*. Later in the month, in a swamp (about 1000 ft. above sea level) between Capel Curig and Llyn Crafnant, *Amblyptilia acanthodactyla* was swarming; every step put up half a dozen of them, and I had as many as twenty in my net at once. I had never seen it so before. This abundance, however, was confined to one small bog; in the neighbouring bogs there were only scattered specimens.—A. W. Pickard-Cambridge; Balliol College, Oxford.

*Gelechia obsoletella.*—In the November 'Entomologist' Mr. J. W. Heslop-Harrison at the end of his notes upon Cecidomyiidae, pp. 244–5, states: "It is well to note here that *Gelechia obsoletella*, an insect not on record for Durham, occurs in practically the same patch of plants." This statement, "an insect not on record for Durham," is incorrect, as a reference to the Lepidoptera of Northumberland and Durham, vol. ii, p. 160, will satisfy Mr. Harrison. Under *obsoletella*, after Robson's remarks upon the species he concludes: "Mr. Gardner has met with the true *obsoletella* at Grantham his specimens having been verified by Mr. Bankes." I may state that my friend Mr. J. W. Corder, of Sunderland, has quite recently bred *obsoletella* from larve feeding in the stems of *Chenopodium* collected on the sea banks near Sunderland—J. Gardner; Laurel Lodge, Hart, West Hartlepool.

*Libellula depressa*, L.—There were several specimens of this species, in both sex, hovering over small ponds near Yate, West Gloster, on June 15th, 1917.—Ida M. Roper; 4, Woodfield Road, Redland, Bristol.

Apples attacked by larve of *Porthesia similis.*—Like Mr. Adkin, I noticed larve of *Porthesia similis* attacking apples this year in the garden of a friend at Bockhampton as early as June 13th. Although I looked carefully I could not see that any fruit was attacked in my garden, where the larve were also plentiful on the trees. The larve, of course, at that season were almost full-fed and single, and had each bored a small rounded cavity in the fruit. I
have never noted such a habit before.—F. H. Haines; Brookside, Winfrith, Dorset, December 6th, 1917.

Notes from Essex.—Colias edusa visited south-east Essex last September. I saw one at Thorpe Bay on the 27th and two at North Shoebury on the 29th. Gelechia costella, judging by the condition of the food-plant, must have been rather common here. Within a few yards of this house, on the railway fence, freshly emerged moths were found on November 3rd. In the middle of October larvae had been observed crawling up the same fence, at the base of which there is a straggling growth of bittersweet. Hedya aceriana was, November 2nd, found in fairly good condition on a fence close to some poplars at Thorpe Bay. Surely this is a very late date. In the same neighbourhood with the last, but a month earlier, Coleophora artemisicoletta occurred in moderate numbers on mugwort. The best way to secure these larvae is to transfer the beaten seeds and rubbish from the umbrella to a bag, having previously removed all spiders, snails, and earwigs. The moving seeds will then, given time, creep up the sides of the bag. Larvae of Argyrolepia ceneana seemed to be commoner than usual in the Laindon district this season. They were, however, very local. Early in May I was searching Thorndon Park fences for Solenobia inconspicuella when I found under some beeches an Ornix, which I thought might prove to be fagivora. Whatever doubt I had about it is removed, Mr. Pearce having identified it as that species. Phigalia pedaria: I found a ♂ of this usually common species on an elm trunk on the Vange Marshes on March 10th. Although I have lived in this district nearly thirty years I had not previously met with this insect. The above bits of scrappy entomological news may interest some of your readers.—F. G. Whittle; Southend-on-Sea.

Lepidoptera at Marlborough.—My observations of the moths of Marlborough last year were chiefly confined to the Geometridae and day-fliers. Food control and light control discouraged sugaring, and lamps there were none. Above all, “summer time” is not helpful to the entomologist who has to be at work at 7 a.m. It would be interesting to know how the early moths adapted themselves to the bitter spring, which lasted well into April. I observed one Phigalia pedaria on February 26th and one Hybernia marginaria on March 13th. The first and only Anisopteryx escularia was seen on palings on April 27th, but there was no rush of insects of this family apparent when the weather changed in April. Apocheima hispidaria I found dead on a trunk on April 22nd in quite good condition, but cannot say how long it had been dead. But the insects proper to May and June were certainly unusually abundant in several cases. The most striking were the following: Parasemia plantaginis (May 29th) swarmed throughout June in open woods, downs, and all suitable places; Charocampa porcellus, throughout June at pinks and rhododendrons; Plusia moneta, P. iota, P. pulchrina, at pinks; Eulype hastata was unusually common in three different woods; Mesotype virgata, both broods on high downs; Boarmia abietaria abounded in one small fir-wood. The following
commoner insects appeared unusually abundant: Lobophora carpinata, Lampropteryx suffumata, Coremia designata, Xanthorhoe unangulata, Anticlea nigrofasciaria, Metrocampa mazaritaria, Selenia bilunaria, Triphosa dubitata. On the other hand, some things were strangely scarce; Ephyrae were wholly absent from our records, except E. linearis, nor was one Tephrosia punctularia seen. The following Geometridae seem worth noting: Geometra papilionaria, G. vernaria (but Clematis is very local in these parts), Acidalia subsericeata, A. inornata, Minon murrinata (common), Lobophora virescata (4 on open palings), Scotostia rhumnata, Eustroma silacea, Xanthorhoe rivata, Euphyia picata, Mesoleuca albicillata, M. procellata (scarce), Anticlea rubidata (1), Asthena luteata, A. testacea (1, lost in boxing off trunk), Chloroclystis coronata, Bapta binaculata (1), B. temperata (common), Numeria pulveraria, Ellophilia prosapia, Selenia tetralunaria, Pachys strataria, Boarmia robertaria, Cleora ticheneria, C. jubata (3 or 4, probably commoner than is usual here), Tephrosia luridata. The only variable insect was Strenia clathrata, of which one or two fine examples were taken (not, unfortunately, by myself!), entirely brown but for two or three white spots near the hind margin. Of other groups attention may be called to Lithosia sororcula (1), Atobnis rubricollis, Nola confusalis, Callimorpha dominula, Dianthusa conspersa (1) (only once before recorded from the district), Neura reticulata, Acronycta alni (1 larva), Toxocampa pastinum, Demas coryli, Lymantria monachata, Hemaris fuciformis, H. tityus, all the commoner Sphingidae, including Sphinx ligustri, Pheosia didicoides (not uncommon), and larvae of Notodontia trepida and the commoner Prominents, also one either Drymonia chaoenia or D. trimaculata. Procris geryon was locally abundant, and so was Zygaena lonicerae. Much less attention was paid, I fear, to the "micros.," and though a fair number were recorded there was nothing very striking. I should add that I am much indebted to the kind assistance of Mr. E. Meyrick, who is the great authority on the Lepidoptera of the district, though he no longer actively pursues them. It may also interest those who think of visiting the district to know that nowhere have I encountered so many venomous flies nor so virulent!—E. A. C. Stowell; Fowey Grammar School, Cornwall.

Bupalus piniarius.—While "digging" for pupae of this moth last month I came across several instances in which pupation was only commencing, one so late as November 23rd. Is not this unusually late for pupation to take place in this species?—H. D. Ford; Thursley Vicarage, Carlisle.

Pieris rapae var. immaculata.—Prof. Lister's experience as to this variety occurring chiefly in early May is borne out by the following dates of emergence of the seven bred specimens contained in my series—viz. one on 19/5/01, one on 27/4/01, one on 10/5/07, two on 13/5/07, one on 14/5/07, and one on 19/5/07.—(Rev.) Gilbert H. Raynor; Hazeleigh Rectory, Maldon, Essex.

Green Pupa of Euchloe cardamines.—The pupa of E. cardamines is generally of a greyish ochreous tint, but is occasionally grass-green. Out of fifty pupae lately received from County Tyrone
in Ireland one only is of this colour, but there are three among about a hundred pupæ I have resulting from larvæ taken wild in this part of Essex.—(Rev.) Gilbert H. Raynor: Hazeleigh Rectory, Maldon, Essex.

SOCIETIES.

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 was announced.—Mr. Donisthorpe exhibited the following Coleoptera: (1) Miarius campanulae, L., taken on the Downs at Findon, Sussex, June 14th, 1917. It occurred in some numbers, but only in a small species of buttercup, of which a specimen was exhibited. (2) Lycopeperdina succina, L., taken at Barton Mills, Suffolk, September 9th, 1917, in fungus. (3) Cassida fastuosa, Schal., taken at Goring Woods, Sussex, July 28th, 1917, on Inula dysenterica. This is 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 epidiasecope a set of photographs (mostly taken from living specimens feeding or resting on their usual food-plants) of several sawfly larvæ.—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 Jermy, Highcliffe, Westonsuper-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 September 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 original parasite.—Mr. Dicksee exhibited a probable new sub-species of Morpho rhetenor, now received for the first time from Colombia.—Dr. Chapman exhibited an aberrant specimen of a wasp (Vespa germanica), and made observations upon it.—Mr. O. E. Janson exhibited 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 showed some other Coleoptera of interest taken in the same locality. He also exhibited on behalf of Mr. L. H. Bonaparte-Wyse, who was present as a visitor, a fine male specimen of Notodonta bicoloria, Shiff., taken by him near Killarney on June 7th last.—Mr. Green exhibited living larvæ of a Dermestid beetle, Tiresias serra, found under dead bark of an oak tree in the neighbourhood of Shrewsbury. He also read an interesting note on the oviposition of the sawfly Pieronus sertifer.
The South London Entomological and Natural History Society.—September 13th, 1917.—The President in the chair.—
Mr. Hugh Main exhibited an observation cage with the burrow of Cicindela campestris containing the already perfected imago, which would, however, not emerge from the "dug-out" till the spring. He also showed a Mantid from Sicily which readily took larvae and flies when offered to it, and he reported the large green grasshopper Locusta viridissima as feeding readily on larvae of Pieris brassica when offered to it.—Mr. Leeds, a number of aberrations of Cono- nympha pampphilus from Herts, including underside specimens with absence and variations in size of the apical spot fore wing, variations in amount and depth of marginal shading of all the wings with ab. lyllus, several with straw-coloured areas with ab. pallida, an additional spot on fore wings, apical spots having small white centre, two spots on the hind wings, straw-coloured striations between nervures, and underside specimens showing small ocelli, v. dark ground, ocelli with emphasised straw circles, the ocelli doubled, small additional black spots attached to the ocelli, with extra ocelli, and asymmetrically marked examples.—Mr. Turner reported that Dr. Chapman had carefully examined the trio of Hyponomota euonymella previously exhibited, and found that the second male was firmly attached to one of the abdominal segments of the first male by the claspers.—Mr. Ashdown, the Coleopteron Geotrupes pyrenaicus from Oxshott, with other species of the genus.—Mr. Pearson, a battered specimen of Papilio machaon recently captured at Dover.—Mr. Sperring, long varied series of Polyommatus icarus from Portsmouth, dark Spilosoma lubricipeda with hind wings as dark as the fore wings, a rich yellow Pieris napi from Donegal (second brood), and a plum-coloured Aglais urticae.—Reports were made as to Colias edusa, Agrias convolvuli, Plusia gamma, parasites and Pieris brassicae larvae, and ants occurring with Agriades coridon.

September 27th.—Mr. W. West (Greenwich) in the chair.—
Mr. Moore exhibited Papilio machaon from Bayenghem, Pas de Calais.—Mr. Barnett, bred series of Ochryia ferrugata and Venilia maculata and aberrations of Polyommatus icarus.—Mr. West (Greenwich), specimens of the cocoons with pupae of Cydia pomenella formed in a rug of varied colours placed near stored apples.—Mr. Blair, living Adimonia tanaceti from the Isle of Man.

October 11th.—Mr. Hy. J. Turner, F.E.S., President, in the chair. —
Mr. Dennis exhibited lantern slides of British grasses.—Mr. Turner, on behalf of Dr. R. C. L. Perkins, a large number of Pararge aegeria, bred and captured this year in continuation of his investigations of 1916, and summarised the conclusions so far arrived at by the late Mr. A. E. Gibbs and Dr. Perkins.—Mr. A. A. W. Buckstone, series of Agriades coridon from Shere, including (1) somewhat small specimens for the Surrey Hills; (2) dwarf specimens; (3) normal sized specimens from other Surrey localities and Royston for comparison; and read notes on the dwarf race. He also contributed short notes—
(1) The abundance of Blatta germanica at the Admiralty restaurant. (2) The abundance of Vanessa io near Dorking. (3) The occurrence of Hesperia malvae at Byfleet, July 7th: Guildford, July 12th. (4) Pupae
of *Lyca hirtaria* passing three winters in that stage. (5) The perfection of the imagines of *Lydia adustata* in autumn in the pupa for emergence in the spring. (6) The large percentage of autumn larvae which have been parasitised. (7) Reported the occurrence of both *Colias hyale* and *C. edusa* in Surrey on October 1st.—Mr. Brook, the gall of the Cecidomyid, *Urophora cardui*, on thistle.—Mr. West (Greenwich) the beetle, *Necrobia rufipes*, which had stores of cobra and spread in numbers to neighbouring dwelling-houses; and *Rhizophagus parallellocollis*, which had attacked seed potatoes at Brockenhurst.—Mr. Leeds, many aberrations of *Agriades coridon* and *Polyommatus icarus* from the Chilterns, Herts and Hunts.—The Rev. F. M. B. Carr reported *V. io* and *Pyrameis alantata* as very common in Cheshire this season.

**October 25th, 1917.—** Mr. Hy. J. Turner, F.E.S., President, in the chair.—The decease of a member, Mr. Archer (1914), was announced. —The President read a paper on “The Pieridae,” dealing chiefly with the “lines of variation” in each of the species which breed in Britain usually, and illustrated his remarks with diagrams and the specimens contained in the Society’s various collections.—Mr. Leeds, aberrations of *Pieris rapae*: ♀ without spots, ♀ large, ♀’s (third brood) small, ♀ deep yellow below; *P. brassicae*, ♀ blotched with bright green, ♀ pale blue below, ♀ very large; *P. napi*, ♀ (third brood) small.—Mr. Moore, exotic Pierids to show that many species were not white: *Tachyris nero*, red: *Archonias critias*, nearly all black; *Appias celestina*, blue; *Nephelethia thalassina*, pale green: *Teracolus* sp., iridescent at apex; and *Leptophoba* sp., silver lustre below. He also showed *Leucidia brephos*, the smallest Pierid known, and the much debated *Pseudopontia paradoxa*.—Mr. West (Greenwich), the local Coleopteron *Cionus longicollis*, a series.—Mr. Bunnett, the Coleopteron *Ptinus tectus*, which had attacked some cayenne pepper, and also the curious concentrically formed fungus *Daldinia concentrica*.—Hy. J. Turner (Hon. Editor of Proceed.).

**November 8th.—** The President in the chair.—The decease of a life-member, Mr. R. Standen (1873) was announced.—Mr. Leeds exhibited forms and aberrations of various British *Leucanididae*, including *Leucania impura*, with ab. *punctina*, etc.; *L. pallens*, with ab. *celypa*, ab. *arcuata*, etc.; *L. phragmitidis*, with ab. *rufescens*, etc.; *Ctenobia rufa*; *Tapinostola fulva*; *Nonagria gemenipuncta*, with ab. *unipuncta*, ab. *obsoleta*, etc.; *N. dissoluta*; *N. brevilinea*, with ab. *sinelinea*, etc.—Mr. A. W. Buckstone, a series of a small race of *Aricia medon* (astraché) from Wendover, May, 1912, with Surrey series for comparison.—Mr. Edwards, a number of species of *Pieridae* and referred to the different odours which were emitted by the specialised scales in many species.—Mr. Turner, examples of the Pierid *Anthocharis cameri* (*belia*) from some twenty localities, and referred to the local and seasonal forms.—Hy. J. Turner (Hon. Editor of Proceed.).

**LANCASTRIAN AND CHESHIRE ENTOMOLOGICAL SOCIETY.**—Meeting held at the Royal Institution, Colquitt Street, Liverpool, Monday, October 15th, 1917.—According to custom, the first meeting of the session is devoted to exhibits of the last season’s work. This year, as all our younger members are away on military service, there was
not such an extensive display as usual; still some interesting insects were brought forward.—Mr. F. N. Pierce exhibited specimens of the true *Euplocemia luridana*, Gregson, captured this year by the Rev. John W. Metcalfe in Gloucestershire, which recent investigation had proved to be a good species and entirely distinct from the *manniana* of Fischer von Kesselstamm. Mr. Pierce also exhibited a long series of *Epiblemma solandriana* from the collections of W. Mansbridge, H. C. Hayward, of Derby, and John Gardner, along with the wing-parts of a number of test specimens sent to him for the purpose of proving by the genitalia that the form *sinuana*, Hub., was a distinct species. A discussion ensued regarding the latter part of the exhibit, in the course of which Mr. W. Mansbridge stated as his opinion that much further evidence was needed before it could be conclusively proved that *sinuana*, Hub., was not a variation of *solandriana*.

Mr. Brown showed preparations of the fly, *Cynips kollari*, bred from the oak marble gall, and contributed notes.—Mr. S. P. Doudney, a nice collection of Lepidoptera from various localities, including, from Aberdovey, two xanthic aberrations of *Epinephele jurtina*, series of *Argynnis aglais*, *A. adippe*, *Thecla quercus*, a specimen of *Melanippe unangulata*, etc., from Witherslack and Grange; *B. euphrosyne*, *Celastrina argiolus*, *Nisoneades tages*, *Nemeobius lucina*, a specimen of *Bapta taminata*, taken in Eggerslack Wood, Grange, being the first Lancashire record for many years.—Mr. J. W. Griffin brought the results of his work from the Wallasey district during the summer. The exhibit comprised some seventy species, many of them in bred series, the most interesting being as follows: a specimen of *Sphinx convolutuli*, *Cerura furcula*, *Notodonta dictea*, *Dasychira fascinula*, *Bombyx rubi* (a fine bred series), *Acronycta leporina*, and a series of *A. megacephala* containing some fine dark examples (he reported that the larva of this moth has been very common in some of the Lancashire towns this summer); *Agrolisripae*, three specimens (this has never before been reported from Wallasey); a single specimen of *Cloeocoris viminalis*, also a new record for Wallasey; *Plusia festucae*, *Mesotype virgata*, and *Nyssia zonaria* (both the last had been commoner on the Cheshire sand-hills than for many years past).—

Mr. W. A. Tyerman also had a nice series of *M. virgata* and *N. zonaria*; also a very pretty variety of *Chrysophanus phileas* from Woolton, near Liverpool, which had the red marginal band of the hind wings broken up into narrow red streaks; a male *Bryophila perla* with strong rosy ground colour from Crouton, and a fine banded form of *Carsia paludata* from Simonswood.—Mr. W. Mansbridge exhibited bred series of *Larentia salicata*, *Coremia unidentaria*, both red and black-banded forms, and *Numeria pulceraria*, second brood, from Witherslack; a varied series of *Thera obeliscata* from Silverdale; also a number of species of Lepidoptera from Delamere Forest which included a nice intermediate variety of *Amphidasys betularia* and a fine lot of *Retinia buoliana* from the young pine plantations in the forest, where they appeared to be doing a great amount of damage to the young trees.—Wm. Mansbridge, Hon. Sec.

**Obituary.**—We regret to hear that Mr. W. H. Harwood, of Sudbury, died on December 24th last.
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NOTES ON NEW AND LITTLE KNOWN BRITISH APHIDES.

IV.

By Fred. V. Theobald, M.A., F.E.S., etc.

Genus *Truncaphis*, nov. gen. (Fig. 1).

Body globular to oval. Segments marked. Cornicles absent. Head more or less flattened in front. Antennæ very short and thick, of four marked segments; the first three nearly equal in length, the third may be very slightly the longest; fourth the longest of all, with a very small blunt nail or flagellum. Legs very stumpy and thick; the tarsi of only one segment as in *Tetraneura*, unges bifid. Proboscis short. Cauda very small and rounded. Numerous glands on the body dorsally.

Found on mosses. It cannot be placed in any described genus, and its four segmented antennæ and single tarsi, its short, thick, stumpy legs and antennæ should easily separate it. So far, a single species only occurs.

29. *Truncaphis newsteadi*, nov. sp. (Fig. 1).

*Apterus viviparous female.*—Pallid; the legs and antennæ brown; in some mealy matter exudes from the glandulae on the dorsum, especially apically. Globular to oval, the segments well marked. Antennæ very short, scarcely longer than the femora; basal segment about as long and thick as the second, each with a marked lateral short hair near the apex; third about the same length, narrowed basally, with a large apical sensorium; fourth the longest, about as long as 2 and 3, with a very small blunt “nail” or flagellum, with three short, spinose, apical hairs and a large, round sensorium at its base. Head more or less flattened, with a single short hair on each side in front and showing a median sulcus. Eyes minute. Proboscis brown, thick, reaching to the third coxæ; the apical segment acuminate, narrower and slightly longer than the penultimate. Legs thick and stumpy, slightly hirsute and projecting from the body to a various extent; tibiae nearly as long but slightly narrower than femora; tarsus composed of one thick, blunt segment; unges double. Cauda small, rounded, with two small, marked hairs; scarcely projecting. Dorsal apical segments of body with round glandulae in groups (*vide* Fig. 1 c).

Length, 0.9 to 1.2 mm.

ENTOM.—FEBRUARY, 1918.
Food Plants.—Mosses (*Hypnum* spp.).

Localities.—Great Witcombe, Gloucestershire (viii, 1902), and Way’s End, Camberley, Surrey (6, vi, 17). R. Newstead.

This is a very marked aphid, twice found by Prof. Newstead. The earlier specimens have not been taken as the type owing to their being in poor preservation, but the markedly stumpy legs and antennae and the single large, blunt, tarsal segment place them undoubtedly with the last insects found on “Moss” at Camberley.

So far, this is the only species recorded as feeding on *Musci*. The very peculiar tarsal structure might place it in the genus *Tetraneura*, but the short, stumpy, four segmented antennae at once exclude it; hence I have placed it in a new genus, near

![Fig. 1.—*Truncaphis newsteadii*, nov. sp.](image)

Apterous viviparous female. A. head and antenna; B. and b. cauda; C. anal segments showing glands; D. apex of proboscis; D. i. fore leg.

*Truncaphis*, for which I propose the name *Truncaphis*. All the ground forms of *Tetraneura ulmi*, so common in ants’ nests, show a marked 5-segmented, antennal structure, and the antennae and legs are not nearly as short and stumpy as in this moss-feeding species.

30. *Sipha paradoxa*, nov. sp. (Fig. 2).

Apterous viviparous female.—Elongate and narrow; yellow, paler beneath; dorsal scuta much overlapping the ventral ones. Tip of proboscis brown. Eyes dark brown. Antennae yellow, the last two segments somewhat darker. Legs yellow, except apex of tarsi and the rather long ungues which are darker. Antennae very short, longer than head, but never reaching past the pronotum; composed of five segments, the first larger than second; the third much longer than the fourth and slightly shorter than fifth to nearly the same length; base of fifth slightly shorter to about the same length as the
NOTES ON NEW AND LITTLE KNOWN BRITISH APHIDES. 27

blunt flagellum; basal segment bears three spines; the second one near apex; third two, one near apex; fourth one near apex; fifth two or three short, blunt ones on the apex; last two segments markedly imbricated. The proboscis appears to arise from a pit, between the anterior coxae, short and blunt, reaching to about the second coxae, somewhat curved; the last two segments nearly equal, the apical if anything slightly the longer. Thoracic segments very marked; the prothorax wider than the meso- or meta-thorax; the mesothorax may be slightly wider than the metathorax. First abdominal segment well

defined, the others less so or absent, except the last two. Skin rugose, but not spiny as in S. schoutedeni. Long hairs on the head, arising from well defined tubercles. On the apical segment 11–12 long, thick, spine-like hairs, arising from very prominent tubercles, some longer than the segment; on the next segment or two the spines are shorter but still very marked; on the rest of the body they are scanty and short and rather thick. Cornicles as simple round pores. The tibiae, especially hind pair, long, with numerous fine, longish hairs; tarsi rather long, of two segments and slightly curved, with a few hairs. The apical segment is rounded to semi-circular.

Length, $2 \times 0.525$ mm.

Fig. 2.—Sipha paradoxa, nov. sp.
Apterous viviparous female. A. antenna; B. adult, a. proboscis; b. cornicles; c. lateral hairs; d. anal hairs; C. proboscis (further enlarged).
Food-Plant.—*Poa trivialis*.

Locality.— Rothamsted (11, ix, 17). A. W. Rymer Roberts.

A very marked species, which is very active when alive. It differs from any of the described *Sipha* in its much narrower body. The antennæ are very short, and approach those of *S. schoutedeni*. In all the mounted specimens I have, the cornicles show as two simple circular pores. The colour notes were sent me by Mr. Rymer Roberts.

The young forms seem to have the body constricted between the thorax and abdomen, and the abdominal segments much more defined. Its extremely narrow body gives it an almost Thrip-like appearance.

The other European members of this genus and their food-plants are as follows:

1. *Sipha maydis*. Passerini, on *Holcus* sp.; *Hordeum murinum*, *Lolium perenne* and *L. multiflorum*, *Zea mays*, *Avena* sp. and *Cynodon dactylon*.

2. *Sipha glyceriae*. Kaltenbach, on *Glyceria fluitans* and *G. aquatica*, *Poa annua*, *Phalaris arundinacea*, *Juncus lampocarpus*, *Leersia oryzoides*, and *Triticum spreta*.

3. *Sipha schoutedeni*. Del Guercio, on *Holcus*, *Poa*, and *Glyceria*.

4. *Sipha berlesi*. Del Guercio, on *Aira caryophyllea*, *Deschampsia flexuosa*.

5. *Sipha elegans*. Del Guercio, on *Hordeum murinum*.

6. *Sipha graminis*. Kaltenbach, on *Authoxanthum odoratum* and *Avena* sp.

7. *Sipha bignonieae*. Macchiata, on *Bignonia catalpa* and *radicans*.

8. *Sipha paradoxa*. Nov. sp. on *Poa trivialis*.


This Aphid, which I redescribed in all stages in the ‘Bulletin of Entomological Research,’ vol. ii, pt. 11, pp. 134–138, figs. 25, 26, September, 1915, has been found in North America, India, Egypt, and Europe. It is the *Callipterus trifolii*, Monell, of America, the *Chaitophorus maculatus*, Buckton, of India, in which genus Koch placed *ononidis*, whilst Passerini placed it in the genus *Myzocallis*. It has been found for the first time in Britain this year. I took a few on red clover at Wye in June, all apterse, and Mr. Rymer Roberts has sent me an apterous oviparous female from clover taken at Rothamsted in October, all of which closely agree with my American, Indian, and African specimens.


This species was recorded by Buckton (‘Mono. Brit. Aphid,‘ ii, p. 145) from Brandon, in Norfolk, where in August alate and apterous females were fairly plentiful on *Artemisia vulgaris*. This
insect was sent me by Mr. Fryer from Lymm, Cheshire, this year in September, all being apteræ. By its punctures the leaves of the "mugwort" become blistered and distorted, usually rich in hue or a fine golden red to yellow. Kaltenbach's *Aphis gallarum* is undoubtedly the same species.


This interesting subterranean Aphid appears to have been quite abundant in the South of England this year, and in some cases on food-plants which have not been previously recorded. The first specimens I received were from Dr. Chapman in August; he found them feeding on his potatoes at Reigate. Others were sent me from several places in Kent, not only from the usual food-plants, French and scarlet runner beans, but also from brassica roots. In my own garden I found it quite abundant in September on potatoes, and it also swarmed on turnips, and I also found numbers on the roots of old broad beans which were being pulled up as late as October 10th. It has also been taken on the roots of *Euphorbia* and *Amaranthca*. It has been recorded from Italy and France as well as Britain, and I redescribed it recently from specimens attacking beans at Ghezireh, Egypt ('Bull. Ent. Res.', vi, pt. ii, pp. 149–151, 1915). It is also found in North America on bean roots.

The attack on potatoes seems to be new. Dr. Chapman wrote me on July 31st, with specimens, saying, "The aphides seem to live comfortably in the old seed potatoes, but not so abundantly as on the stems of the tubers and their rootlets. A plant seriously attacked, somewhat suddenly, from an appearance of health, droops its leaves as if suffering from drought, or as if the branch had been cut off." Those found in my own garden were all on stunted hills, in some cases the bine being thin and wilted, the aphides occurring just as Dr. Chapman described. *Alatae* appeared at Reigate about July 4th, and I bred a few more from material sent by Dr. Chapman. This aphid is usually attended by ants, and Dr. Chapman writes me that on three occasions he saw an ant pick up an aphid and carry it off. The ants I found associated with them were *Myrmica ruginodis*. Exactly how much damage is directly done by this species is difficult to say. Those I found were only on small and stunted plants with very few tubers, of small size, but Dr. Chapman found some on a wilted plant (an "Up to date") which had a very fair show of potatoes. Presumably if attack comes after the tubers are well formed it does not cause much harm, but when it attacks the plants soon after the seed has sprouted out it seems to quite stunt the growth.
ON A CURE FOR ENTOMOLOGICAL SPECIMENS AFFECTED BY VERDIGRIS.

BY W. G. SHELDON, F.E.S.

In the eighties and early nineties of last century I devoted a certain amount of time to the smaller British moths, including the Pyrales, Pterophori, Crambites, Phycides, and Tortrices.

Towards the end of that period verdigris began to show very pronouncedly in the specimens belonging to these groups, and chiefly for this reason I ceased to collect them, and beyond removing at long intervals specimens that had become hopelessly affected they were scarcely looked at.

In those days no cure was known, at least to me, and I take it one of the principal reasons why the micro-lepidoptera are now so little studied is this verdigris trouble.

During the last few years I have devoted some time and thought to the problem and a possible remedy, and have eventually evolved a method which has proved successful, and which I am induced to make public in the hope that it may prove useful to my brethren of the net.

It is, of course, known to every lepidopterist that the pins made of an alloy into which silver largely enters, and which are sold by Messrs. Watkins and Doncaster, are said to be proof against verdigris, and there is every reason to believe this is so, for my friend, Mr. J. Hartley Durrant, informs me that they have been used at the Natural History Museum for many years, and that he is not aware of a single specimen for which these pins have been used that has developed verdigris sufficiently to affect its value as a specimen. I should say that there is something in the alloy which sometimes permits a slight coating of verdigris to form on the pin, but this is never sufficient in quantity to cause any damage to the specimen.

Of course it is a very simple matter to prevent verdigris from developing on a newly-killed specimen by using a silver pin, but the difficulty has been to cure old specimens which have developed verdigris around the pin that was used for them years ago. Macros can usually be relaxed and successfully reset on a new pin, but it has not been so easy to satisfactorily relax and reset the smaller fry.

The difficulty I have found, and no doubt others also, is the liability these moths have to spring after having been relaxed; so much has this been the case that it has been usual to dispense with the damping box altogether, and to set the specimens immediately they were killed.

This difficulty no longer exists.

My old specimens were set on black pins, which at that date were advertised as proof against verdigris. We now know that of all pins that were ever made they are the most prone to it.
Unquestionably the best method of treating an insect affected by verdigris, and which is of sufficient size, is to immerse it in some grease solvent, the best of which known to me is toluol. The method of using this is described in the 'Entomologist's Record,' vol. xxiv, p. 123, by Mr. P. H. Muschamp, to whose credit the discovery is due. To those to whom this volume is not available I will give Mr. Muschamp's method, which is as follows: "Take three vessels, size according to your needs, pour a certain quantity of toluol into the first, and put one or two butterflies or moths into the same, leave them there for twenty-four hours, and then pass them on to a second bath in the second vessel for another twenty-four hours, and place new subjects into the first bath. On the third day remove insects from the second into the third bath, and from the first to the second. Thus each has three full days of the cleaning process, and comes out of its bath spick and span and wonderfully rejuvenated. I need hardly add that no resetting is required, as the bath does not in the least relax the patient. The first bath takes out the worst of the fat, the second removes what is left, and the third puts on the final touch of grace." I always adopt this method for species of the size of, say, Peronea cristana, and those over that size, but moths which are smaller do not seem so suitable for treatment by it; at any rate with them I have not been successful, for the wings are so delicate they get torn, and the cilie especially are liable to be clogged and broken by the weight of the toluol upon them when they are taken out of the bath; these, therefore, I invariably relax by the following method and reset on silver pins: During the winter I look carefully at the specimens in the cabinet, pick out those which are showing signs of being affected by verdigris, and set them aside. I then get an ordinary zinc, cork-lined, relaxing box, well saturate the cork, pour out the surplus water, and put in the moths I want to operate upon. I usually treat from one to five dozen at a time, the quantity depending upon the time I have to spare.

When the specimens have been in the relaxing box twelve hours I examine them, and those that are so far relaxed that by blowing gently on the wings these move freely I know are ready for the next process, which consists of removing the old pin. To do this I take up one with a pair of forceps, and stick the pin firmly in a sheet of cork, next I take a very fine pair of forceps with narrow, sharp points, carefully place the points one on each side of the pin immediately over the thorax, press them gently together so that they touch the pin on each side, and then press lightly downwards on the thorax itself. If the specimen is sufficiently relaxed a very slight pressure will loosen it on the pin, and one can then, by taking hold of the upper part of the pin with the right hand, with the left thumb and index finger grasp the moth gently and deftly underneath the wings and
withdraw the pin. This being effected, and whilst it is held by
the finger and thumb, I select a silver pin, if possible of the
same thickness as the old pin which has been removed, but if
I have not one handy then I use one which is thinner than the
old pin, and repin the specimen, inserting the new pin in the hole
that the old one was taken out of. It is important that the new
pin should not be thicker than the old pin, or forcing it in the
specimen will almost certainly result in breaking up the thorax.
If the new pin is of the same thickness as the old one it will
adhere firmly to the thorax, but, of course, if it is thinner a little
cement will be required upon the pin to make it fast. Any
strong gum or cement will do for this; I use fish-glue, applied
warm.

The specimen being repinned, it can very easily be reset,
which, of course, must be done at once. I usually leave it on
the setting-board for one week, by which time it is quite hard
and dry.

Those specimens which are not sufficiently relaxed at the
end of twelve hours I leave in the zinc box until they are,
examining them every twelve hours. It will be found, however,
that very few examples are not ready to repin after being in
the relaxing box for twenty-four hours.

It is most important that the specimens should not be too
much relaxed, or the result will be clogged fringes and other
kindred troubles. On the other hand, if the operator tries
pressure on the thorax before it is sufficiently soft, the result
will be that it will be fractured, and the specimen spoilt. It
takes a little experience to detect the right moment, but the
knowledge is soon acquired. Of the two errors, it is better to
try too soon than to wait too long; all, or nearly all, my failures
have been with specimens too much relaxed.

Having got our specimens repinned and reset, the next
process is to avoid the springing or moving of the wings, which
will almost invariably take place unless something is done
to stop it. My method is to subject them to the vapours of
formaldehyde. It has been known for some considerable period
that this substance has a remarkably hardening and fixing effect
on entomological specimens. So far as I know, however, it has
not yet been recommended for fixing those which have been
relaxed. My method is to take off the setting-boards a large
number of specimens; pin them in a tightly fitting store-box,
putting in a small saucer containing about a teaspoonful of
formaldehyde; and then close the box and stand it aside for a
fortnight or three weeks; the formaldehyde will require renew-
ing as it evaporates.

After going through this process, the moths operated upon
can be replaced in the collection as cured.

During the last few years I have repinned many hundreds,
probably some thousands of specimens, in almost all cases with success. I have not experimented with the Tineina, for my eyesight is no longer equal to pinning a Nepticula, for instance; but I have successfully operated on such species as Grapholitha compositella, Steganoptycha nanana, and others equally small.

In addition to repinned specimens, I now submit all others to the vapour of formaldehyde immediately they are off the setting boards, in order to obtain the fixity of the wings which it gives. This is more especially advantageous in cases in which, for want of space or otherwise, it is not convenient to leave them on the boards for the full time of, say, one month. I find I can with perfect safety take small specimens off the boards in a week, and larger ones in a fortnight, by giving them the formaldehyde bath afterwards. Of course, the necessary time will be governed by the weather.

I do not find it has any ill effects upon the specimens, though I have not experimented with some of the very delicate greens of, say, the emeralds; but it does not seem to harm Leptogramma literana. It is, however, advisable to be careful with green insects, and in cases of doubt to experiment with an old specimen or two before risking a valued series.

The only criticism I have seen or heard against the use of formaldehyde is one from the pen of the late Colonel Manders, who had found that specimens which came under its influence would never relax again, and therefore could not be reset. I think, however, this is a question of the amount of the substance used. I have often reset specimens so treated with perfect ease.

Youlgreave, South Croydon,
January 5th, 1918.

FACTS ABOUT EUSTROMA RETICULATA.

BY THE REV. EUSTON NURSE.

The story of how Mr. Hodgkinson discovered Eustroma reticulata on the hill behind the Ferry Hotel, Windermere, is well known, and how an entomologist followed the discoverer and was led astray by driving to a distant scar where the food-plant did not exist, and how, on another attempt, the same entomologist followed him unobserved to the right locality, and how they both kept the secret till the food-plant and the insect ceased to exist in that, the only known locality in the British Isles, is only one among the many stirring stories in connection with this rare moth.

After an interval of some years, and about ten years ago, a clerical friend of mine and I, having searched all the places where the wild balsam grows in the Lake District—from Keswick
to Windermere and from Coniston to Kendal—at last re-discovered the larva and found a new locality, which, I believe, was then the only locality for reticulata.

It was within a few yards of two public roads, where the wild balsam, Noli me tangere, actually grows on both sides of the roads. It was necessary to keep this locality a profound secret in order to prevent the extermination of this rare moth, and therefore we were never to be seen with a net catching moths at such a public place, and consequently we only visited the locality at the beginning of October when the larvae were full-fed.

The striking looking plant, with its peculiar smell and its bright yellow flowers, makes a special mark for botanists and entomologists.

Having been warned that I was being watched by other collectors, I took special precautions; sometimes riding a bicycle and sometimes going part of the distance in a rowing boat on the lake, I successfully evaded all pursuers, and became a difficult man to follow.

The first year I found the larvae—and the spot was not so large as a tennis court—I only found a dozen or two, and for some reason many of the moths came out cripples, deformed in their hind wings, possibly the result of interbreeding on such a small locality. I was tempted to find out their commercial value by sending half a dozen to be sold at Stevens's auction rooms in London, and they realised 30s. a pair.

The next year, notwithstanding the few dozen larvae taken and the limited number of balsam plants—and I was compelled to take the tops of the plants to feed my larvae on—the food-plant increased in numbers, as did also the larvae. But I met with a series of misfortunes, for I placed nearly all my larvae in large zinc cylinders, such as are used for dustbin rubbish, and put in sifted fine ashes for them to pupate in, fed the larvae, kept them out in the open; but the larvae refused to go with the ashes, and most of them died rather than do so.

The following year I still found larva and food-plant increasing in numbers in the one limited locality, and I placed sifted earth in the zinc cylinders; but unfortunately I omitted to make holes in the bottom of the cylinders for drainage, kept them in the open, and with a very rainy autumn nearly all the larvae and pupae were drowned in 3 in. of water after two days' rainfall. In that year (1909) I was again tempted to send six specimens to be sold at Stevens's, but, being in London at the time, I met an entomologist who told me, on the day before the sale, that a "ring" had been formed by would-be purchasers to limit their bids to half a crown for each specimen. I therefore proceeded to the auction rooms, withdrew them from the sale, and took them, together with six preserved larvae, to the South Kensington Museum, and had great pleasure in presenting them to the...
museum, as they had only two poor specimens. The printed letter of thanks, which I value, is now framed in my study.

Finding these were much appreciated by the authorities, I sent six specimens to the Keswick Museum and some to other museums.

In 1910 the larvae were still to be found in good numbers, but I only took the full-fed larvae, leaving the rest for breeding purposes. In that year the locality bid fair to be found out, for the balsam patch was considerably reduced on account of the widening of the road, and, when I went larvae hunting, I found men blasting rocks and cutting down shrubs and trees, all of which were either thrown or fell amongst the balsam, killing the food-plant and larvae at the same time. When asked what I was doing, and replied, "Looking for grubs," they appeared to think I was slightly demented. However, I saved a good number of larvae from destruction, and obtained a good row of perfect moths in my cabinet, which included a variety figured in the 'Entomologist' in February, 1911, and described by Mr. L. B. Prout, F.E.S. This attracted considerable attention, and brought Mr. Prout some astonishing information from Mr. Littlewood, of Kendal, who was one of the favoured few who were in the secret of the locality, so that in a full-page plate fourteen varieties were figured in the 'Entomologist' of January, 1912.

In consequence of the destruction of the food-plant in 1910, I endeavoured to grow the wild balsam in my own garden in 1911, putting down thirty full-fed larvae on it, but they produced nothing next year. The trees in the original locality had considerably overgrown the balsam patch, and had the effect of stunting its growth; added to this, the nettles and briers below had outgrown the balsam, so I had the nettles and briers all rooted up and burnt. Meantime, I was growing balsam in a specially prepared place in my garden; for the purpose of obtaining the seeds I took up a cartload of soil and seed mixed, and sowed it where the briers and nettles came from, but it did not succeed as I had anticipated. In 1911 I sent most of my pupae to my brother—Col. C. G. Nurse—to breed and set for me, as I was obliged to be away from home during their emergence; but difficulties beset reticulata once more, for when they were on his setting-boards, the door of the setting and drying case was left open by mistake on one night only, when a mouse got in and devoured them all.

In 1912 I erected a huge cage with stone walls, wired it in at the top, and covered it with muslin. I deposited balsam seeds, which grew well at first, but afterwards became straggly. I put in twenty reticulata, half of them males and half of them females. They bred, and I left them for my month's holiday. On my return I found that continual windy weather, culminating in a severe thunderstorm, had beaten down all the balsam
plants and killed them, and the larvae were starved to death. For some years the balsam and the larvae had become less and less, and in 1913, to add to their discomfort, hens were kept in the locality which scraped the balsam up by the roots, and ate all the larvae that came in their way, so that in 1914 I only obtained three larvae, and since then they have ceased to exist.

Such is the story of the difficulties and disappointments of a collector when finding a rare moth in good numbers.

Let me add a few facts in connection with the moths and the larvae.

The moths could be caught at rest on tree trunks, or beaten out of large, leaved bushes during the day in the immediate vicinity of the food-plant; they deposit their ova, singly, on the under side of the balsam leaves, and when the ova hatch the young larvae eat round holes in the leaves; before they are half grown they may be found eating the yellow flowers, and when more than half grown they eat round holes in the green seed-pods, which resemble the larvae in colour and in shape; before the larvae are half grown they rest by day on the under side of the leaves in a straight position, imitating the young seed-pods, and when they are nearly full-fed they rest on the topmost spray of the plant, resting in a straight position from the stem of the leaf to the main stem of the plant, which makes them easy to find.

The most astonishing thing in all the past ten years of its history is, that the locality which must have been passed within a few yards by numerous entomologists, hundreds of botanists, and thousands of tourists, has not become known.

THE ABUNDANCE OF WHITE BUTTERFLIES IN 1917.

By Robert Adkin, F.E.S.

Just thirty years ago—in the summer of 1887—"white butterflies" were so much more common than usual as to cause general comment. Both Pieris brassicae and P. rapae appear to have been affected, and the abundance was said to have extended over the greater part of England and Scotland; unfortunately records for Wales and Ireland are, so far as I am aware, wanting. It was then stated that the preceding cold and comparatively dry winter and hot summer had no doubt had some influence, but extensive and continued immigration was also suggested as a contributory cause, the heat and absence of high winds being considered favourable, and this suggestion is supported by a note by C. G. Barrett recording what appeared to be the arrival of an immigrating swarm at Hunstanton (see 'Entom.,' 1887, pp. 227, 264, 265; 'E. M. M.,' 1887, pp. 84-5, 112, 130, 158).
This year a similar phenomenon has occurred, and apparently under very similar meteorological conditions, for, although we had a good deal of rain in the late autumn of last year, the winter was fairly dry, certainly colder than usual, and unduly prolonged, and the weather of the latter part of July, when the great abundance occurred, was the warmest of the year, the winds generally light in force and often from an easterly or southerly quarter. It is not, however, my present intention to enter into a detailed comparison of the two phenomena; far more exact information than is so far available would be necessary for any satisfactory result in that direction; but rather to put on record sundry, possibly more or less disjointed, observations, chiefly in regard to what has come under my notice in this district (Eastbourne, Sussex).

"Whites" were somewhat later than usual in putting in an appearance in spring, the first *P. rapae* being seen on April 29th, and *P. brassicae* was not noted until May 20th, but from that time they continued throughout the summer, there apparently being no distinct break between the spring and summer broods. In point of numbers the spring emergence of all three species of our "whites" was well up to the average, but it was not until the middle of July that they were noticed to be in excessive numbers. No doubt the summer broods were then just emerging, and it was evident that they had fared well.

On July 14th, on a journey by rail to London and back, I could not help noticing the numbers of "whites" along the railway banks, more particularly towards the Eastbourne end of the journey. On the following day I had an opportunity of observing them more closely as they flitted about the parades and gardens, and, so far as I could see, they were all *P. rapae* and *P. napi*. A week later the total numbers had increased considerably, and included a good many *P. brassicae*. At this time one would have said that "whites" were more abundant than usual, but it was nothing compared to what followed.

On July 22nd, an almost windless day—what little movement in the air there may have been was from but little west of south—we sat in the garden for some hours during the afternoon, and during the whole time white butterflies in large numbers were continually passing over in one direction, viz. from the coast, which is some 300 yards to the south-east of us, to inland, but as houses are almost continuous from the coast, no doubt the air currents over the garden would be exactly in the direction in which the butterflies were flying. Some were flying high in the air over the house tops and the tallest trees, while others barely cleared the garden walls and even loitered in the garden. Of these latter the majority were *P. rapae*, but both *P. napi* and *P. brassicae* were present. Later in the afternoon I went out into the road at the other side of the house; here they were equally
common, but their direction of flight not so marked; and then on to the sea front, where they were also in great abundance, but they appeared to be more inclined there to flit about among the blo-soms on the flowery banks, and I was unable to detect any actually coming in from the direction of the sea.

On the 28th, another very fine day, with a light south-westerly breeze, I had another opportunity of closely watching the butterflies. Along the parade banks, the sea front of the Downs, in the gardens and even the streets in the town they were swarming. Along the edge of the cliffs and the upper walk of the parades, where the breeze caught them as they flew up the banks, they looked just like a thick snow flurry driven by the wind. I spent some time on the more sheltered banks endeavouring to estimate the proportions of the three species, and arrived at the conclusion that *P. brassicea* and *P. rapae* were at this time in about equal numbers, with a sprinkling of perhaps 1 to 2 per cent. of *P. napi*; but by August 5th *P. brassicea* had become distinctly the commoner species. This was another very fine day, and so dense a crowd were the "whites" on the coast that as one walked along the parade paths the butterflies looked almost like a shimmering white cloud as they rose and fell in their flitting over the flowers growing on the banks.

The morning of August 6th was hazy, but the sky free from cloud; this gave enough sunshine to bring the butterflies out, but they were somewhat sluggish, and more inclined to sit about on the flowers than to take extended flights. I was thus able to examine their condition carefully, and found that the great majority of both *P. brassicea* and *P. rapae*, although seldom chipped, were largely more or less worn and dull looking as compared with what few really fresh individuals there were among them, the latter species being the more worn of the two.

From this time the aggregate numbers decreased, somewhat rapidly at first, and then gradually diminished, *P. rapae* at first showing the more marked decrease, but by the middle of September fresh specimens of both species were appearing suggesting a third emergence, and for a time *P. rapae* appeared to be again the commoner, but there was no repetition of the great abundance noted at the end of July and early August, and *P. rapae* dropped out altogether early in October, but *P. brassicea* was met with frequently for a couple of weeks later, the last being seen on the 21st of that month.

At the time when the abundance was at its height—the latter part of July—quite a number of dead *P. brassicea* were picked up in the garden. Many of them that were examined showed no signs of injury, the wings were seldom chipped, and the bodies did not appear to have been crushed, but the general worn and faded condition of the wings suggested that these individuals had been long on flight and had come to the natural
end of their existence. It is true that the species was attacked
by birds also; as an example, it was no uncommon occurrence
to see a blackbird (*Turdus merula*) seize a butterfly and strut about
on the grass with it in its mouth, but in such cases the wings
only were to be found afterwards.

On July 29th a thunderstorm broke up the weather, and
for some few days it became very unsettled, with frequent periods
of heavy rain, but even this did not keep the butterflies quiet.
On several occasions quite a number of them were seen on the
wing in the garden while rain was falling, and had been falling
for some time. So restless were they that if there had been
even a gleam of sunshine in the morning to rouse them from
their night's rest, they seemed incapable of again settling down,
at any rate, for a long time after the sky had clouded over and
rain was falling.

I have already referred to *P. rapae* resting on a Weigela shrub,
the leaves of which had turned a sickly yellow colour, with which
the under sides of the butterflies matched so well that it was
with some difficulty that they could be detected ("Entom.," 1917,
p. 191). This I found to be quite a habit with the species; on
practically any evening that I looked at the shrub during the
period when the butterflies were so very abundant, I found from
three to half a dozen so resting, and on one occasion, when
during the day the sky had become densely overcast, I counted
nine individuals so settled down, and it is quite possible that
even then I had not detected all that were there, so difficult were
they to see; yet during all the time I found only one *P. rapae*
settled on the adjoining shrubs, which included a couple of other
Weigelas, but which still had green leaves.

Along the road, which borders the garden on the north-west,
grows a long row of densely-foliaged elm trees, the side of
which next the garden therefore faces south-east and catches the
full force of the early morning sunshine. One morning, towards
the end of July, at about 6.15 (g.m.t.), my attention was attracted
by large numbers of white butterflies sitting on the side of these
trees nearest to the garden. It was evident that they had roosted
for the night in the trees, and had crawled out on feeling the
first warmth of the early morning sunshine, and were sunning
themselves preparatory to taking flight, which did not appear to
take place until an hour or more after the butterflies first showed
themselves on the trees. The species appeared to be chiefly, if
not entirely, *P. brassicae*, and the performance was repeated on
several mornings.

(To be continued.)
NOTES AND OBSERVATIONS.

A Working List of British Butterflies.—In the list presented in last month’s ‘Entomologist’ it is difficult to distinguish the diphthongs in some of the names. A correspondent draws my attention to this fact. Of course, acteon, palæmon, phlaes, ægon, megera, and Lyceana should all read ae, not oe, diphthong. With regard to the spelling of Epinephile, I confess I wavered. Epinephile is obviously the right spelling, but I found that Mr. Wheeler had accepted Epinephile, and followed his lead accordingly.—H. R.-B.

Genera of Butterflies.—Some considerations have been suggested to me by reading the List of British Butterflies and instructive remarks thereon presented by Mr. Rowland-Brown on p. 1 of the January number. When I collected butterflies as a boy some forty-five years ago, the 15 British species of that time were classified in 27 genera; the same species now constitute 49 genera, an increase of 22. This is attributed to the progress of research work. Is everything now known about these insects? Assuredly not; whole branches of the subject are hardly touched yet. Then further progress may be expected to involve more new genera; a few more years, and the 16 deficient genera will be supplied, providing a genus for every species. What, then, will be the use of genera? I am therefore led to inquire what is the logical connection between progress of research work and multiplication of genera; and since Mr. Rowland-Brown, as a butterfly expert, warmly approves these results, and characterises previous arrangements as indefensible and absurd, I invite him to state by what principles he is guided in deciding that the differences between two species are sufficiently important to warrant generic separation or not, as the case may be. He seems to assume that the differences between himself and Staudinger, for example, are differences of knowledge, but possibly they may be differences of principle; and there are such things as mistaken principles. Of course, genera not based on principles are merely matters of individual opinion, and have no scientific value.—Edward Meyrick; Thornhanger, Marlborough.

[I regret that I cannot accept Mr. Meyrick’s invitation to the agreeable field of controversy to which he invites me. I consider that the knowledge acquired before and since Staudinger’s Catalogue may as well be applied to generic as to specific nomenclature. My object, however, in publishing the List of Butterflies is solely to secure some sort of uniformity of nomenclature for the pages of the ‘Entomologist.’ Mr. Meyrick is at liberty to accept my suggestions, or not, for that purpose.—H. R.-B.]

Agriades thersites in Normandy.—In the 'Entomologist,'
August, 1917 (vol. 1, p. 186), I announced that M. L. Dupont had
captured A. thersites, Cantener, near Evreux, Eure, in June last. I
then expressed the hope that he would report a second emergence of
this interesting Blue; but he now writes to inform me that the
weather was bad, as here, in August, and he then met with no
elements of a gen. est. M. Dupont, however, publishes in the
'Scot. ent. France' (1917, no. 16, p. 275) a note embodying the
communication made me; and adds that in August, 1916, he
captured seven or eight examples near Pont-de-l'Arche in the same
Department, thus establishing the double-breodedness of the species
in its, at present, farthest reported north-western area of distribution.
—H. Rowland-Brown; Harrow-Weald, January 5th, 1918.

A Russian Melitea: a correction.—In the account of an
entomological expedition I made to South-East Russia in the year
1914, I recorded in the 'Entomologist,' xlvi, p. 294, that I had met
with a Melitea at Sarepta which agreed with M. aurelia var. semi-
trag, Seitz. This determination was based upon an examination of
the male armature, which was made by Mr. A. L. Rayward. I
have since then had Mr. Rayward's preparation in my possession,
and find it is not the armature of M. aurelia, but that of M. athalia,
or of a species closely allied to it, as it possesses the bifurcated unci
of that species, which M. aurelia does not. The armature does not
quite agree with that of M. athalia in all respects, and as the wings
are superficially very distinct, it is quite possible that the Sarepta
Melitea may be a new species: but as the combined captures of my
companion, A. H. Jones, and myself only consist of three examples,
one male and two females, I cannot in this genus very well found
a species on this small amount of material. It is, of course, possible
that it may be the form or species which Seitz has figured and
described as semi-nigra, but in this puzzling group it is impossible to
diagnose a specimen with certainty by an examination of the
superficial characters of the imago. So the puzzle must remain
unsolved for the present.—W. G. Sheldon; January 16th, 1918.

Green Pupa of Euchloe cardamines.—Respecting the Rev.
Raynor's note in the 'Entomologist,' p. 20, I may add that, as far as
my experience goes, it is impossible to say in what percentage the
green form of the pupae of E. cardamines occur in a state of nature,
owing to the fact that the pupae are hardly ever found wild. The
only authentic instance I know of is one found by Mr. A. B. Farn in
Kent during December, 1900, and curiously enough this happened to
be of the green form; it was attached to a brown withered stem
of garlic mustard. I have a coloured drawing of this specimen. On
different occasions I have had several green-coloured pupae of this
butterfly which pupated in captivity; at the present time I have
eleven pupae of cardamines, and two of these are green examples.
The remarkable resemblance of the pupae, both in form and colouring,
to the seed-pods of the usual food-plant, garlic mustard (Alliaria
officinalis), suggests that the larva selects this plant for the purpose
of pupation, but such is apparently not the case, as I have frequently
searched plants which had contained numerous larvae and never

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succeeded in finding one. There is little doubt but that the larvae pupate in hedgerows, maybe on the stems and branches of the hedges, and very probably low down amongst the entangled undergrowth, which would render the pupæ the greatest protection and extremely difficult, if not practically impossible, to find.—F. W. Frohawk; January, 1918.

Aglais urticae, Ab.—The pale variety of A. urticae which Mr. Richardson records in the 'Entomologist,' p. 15, as a new aberration is a well-known form of occasional occurrence; the ground colour may be described as pale straw-yellow. A similar type of colour variation is also occasionally found in Polygonia c-album and other species.—F. W. Frohawk.

Notes on Emmelesia unifasciata.—I think one reason why this species has been overlooked in many localities where it probably occurs is on account of its very retiring habits in its perfect state. I was several years at Dovercourt before I thought of looking for its larvae, and then one day in the early autumn, while I was out collecting, I noticed some patches of Bartsia growing by the road side, and picked a good handful of the ripening seed-heads, and when I got home placed them in a large biscuit tin with a couple of inches of silver sand on the bottom, and covered the top with muslin instead of its own lid. A few days after I noticed several larvae crawling on the muslin, and at the end of November I examined the sand and found three or four dozen cocoons composed of the grains of sand neatly and compactly spun together just below the surface; and the following summer a number of the moths were bred. Since then I have found these larvae in many places in the Harwich district—in fact, wherever Bartsia was growing—but I never once met with the perfect insect, although I was often "nothing" at dusk in the localities where the larvae were taken, and at the time of year when they should have been on the wing.—Gervase F. Mathew; Instow, N. Devon, January 8th, 1918.

Notes from North Wales: a correction.—In my note in the last number of the 'Entomologist,' p. 18, the plant on which the Pieris brassicae larvae and Psylliodes marcida were feeding was misprinted Sesile maritima. It was, of course, Cakile maritima, and this is what I wrote. Seseli (not Sesile) maritima is a quite different plant. In the same note Llyn Crafnant is a misprint for Llyn Crafnant.—A. W. Pickard-Cambridge; Balliol College, Oxford.

Peronea cristana in Hainault Forest.—In my recent paper on this species I say (antea, p. 10) that I have been unable to find any record of the forms that were formerly found in Hainault Forest. I have now, however, succeeded in tracing what I suppose must be a fairly complete list of them. It is to be found in the 'Zoologist' for 1846, pp. 1228 and 1516, and is contained in articles by two well-known micro-lepidopterists of that day, H. J. Harding and William Hindley. The list is cristana, type; also profana, seministana, striana, substriana, brunnea, spadiceana, vittana, consimiliana, desfontainiana, fulvecristana, albovittana, fulvovittana, bentleyana, fulcostriana, cristalana, subcristalana, subvittana, insu-
lana, chantana, alboflammana, and unicolorana, twenty-two forms in all. In his communication on p. 1228 Harding says: "It has long been the practice of entomologists at the close of the season to take a journey of nearly a hundred miles to the New Forest in Hampshire, that being the most celebrated locality for the capture of this most interesting genus of insects. It now appears that nearly all the species may be taken within twelve miles of London." And again, on p. 1576: "This pleasing and interesting genus has occurred rather plentifully this season in Hainault Forest. Every known species has been taken, together with numerous varieties, which some few years back would have been made into new species. From the numerous varieties I have seen this season, connecting, as they certainly do, one species with another, I am certain that there are but three, or at most four, species amongst the Button tribe." Hindley makes the interesting observation that he obtained his specimens by beating the hawthorn and hornbeam in shady places. In the following volume of the 'Zoologist,' p. 1789, the late S. Stevens says, referring to these captures: "Last season the Peronee were very abundant; some thousands were taken at Hainault and Whittlebury Forests."—W. G. Sheldon; January 5th, 1918.

Peronea cristana, ab. clarkiana, Sheldon: a correction.—With reference to the form of P. cristana which (antea p. 14) I have named ab. clarkiana—by a printer's error rendered clarkiuma—I find that, as this name has been already given to another form by Mr. Webb, it is, in accordance with the laws governing nomenclature, invalid, being homonymous, and therefore a new name is necessary, which may be ab. ochreana.—W. G. Sheldon; January 21st, 1918.

Tortrix piceana, etc., in West Surrey.—Whilst staying at Hindhead last June I found that Tortrix piceana was to be obtained, apparently not infrequently, judging from the fact that in about an hour I knocked out five examples. Unfortunately, the discovery was only made on the day previous to my departure. Amongst other species observed, T. cinnamomeana and Tmetocera lariciana were common amongst larch, Oieothreutes capreana amongst sallow, and Perinephila lancealis amongst hemp agrimony. The larvae of Polyplaca rinsus and Acerobasis tumidella swarmed in the oak trees.—W. G. Sheldon; January 2nd, 1918.

Is Gypsonoma aceriana ever double-brooded?—I am induced to ask this question upon reading Mr. Whittle's record in this month's issue (p. 19) of the capture of this species on so late a date as November 2nd last. Some years ago I found it in perfect condition on October 9th at Forest Hill, Surrey ('Entom.', xxxviii, p. 281), and on October 4th last I took two here in equally good condition. Assuming that it really is double-brooded at times, under favourable conditions, it would be interesting to learn how the larva feeds. It must, of course, feed in a different manner from the larva that produces the normal brood; I should imagine it would feed between two spun-together leaves. Aceriana, dealbana, and neglectana are all common in this district, the last being more local; but I have never seen any sign of double-broodedness in the two last named. If any other reader of the 'Entomologist' has at any time met with
specimens of this supposed second brood, it would be interesting if he would send a note. I have marked the tree, and will have a good hunt for the larva in August.—A. THURNALL; Wanstead, January 5th, 1918.

EUPHETHECIA PIMPINELLATA IN GLOUCESTERSHIRE AND DERBYSHIRE. —The past season, which has been so generally favourable to the development of lepidopterous larvae, has produced a large crop, amongst others of *E. pimpinellata*. During the last few days of September I found the larva of this species by the roadside close to Northleach, in the Cotswolds, on the flowers and seeds of *Pimpinella saxifraga*: and about a week afterwards the same larva was in even greater abundance on the same plant in one of the lovely dales which form so prominent a feature in the scenery of North Derbyshire. The larva is by no means difficult to find, but is exceedingly variable, its leading varieties being well figured in Buckler's 'Larvae of British Butterflies and Moths,' Plate cxxxii, fig. 6: and there is a full description in the same volume, pp. 33, 34. One variety, however, of which I found several specimens in Gloucestershire, but which was altogether absent from my "bag" in North Derbyshire, is quite different in appearance, and must, I think, be referred to another species—possibly *E. contauereata*—as it bears a decided resemblance to the figure of this last in Plate cxxx, labelled 1a, though my specimens were decidedly brighter in colour. This larva is usually described as "particularly subject to the attacks of ichneumons," but not many of mine were thus attacked. And, by taking away with me a good supply of the food-plant, I managed to rear as far as the pupa stage upwards of forty larvae, from which I hope to rear at least a good series during the coming season.—(Rev.) C. E. THORNEWILL; 2, Tackley Place, Oxford.

POLYGONIA C-ALBUM IN CHESHIRE.—During a visit to Droitwich in July I found *Polygonia c-album* very abundant.—H. O. WELLS; Inchiquin, Lynwood Avenue, Epsom.

COLIUS EDMUSA IN SURREY.—In September I saw *Colius edmus* on Epsom Downs and at Dorking, and a friend of mine (Mr. H. W. Yardley, of West Norwood) caught two at Broadstairs.—H. O. WELLS; Inchiquin, Lynwood Avenue, Epsom.

LATE WASPS.—Our common species of *Vespa* have been abroad remarkably late here. I have records of ♀'s and ♂'s, at our sunny south windows, for December 11th, 15th, and 24th. On Christmas Day itself individuals were still to be seen, but none since. A ♀ was taken, as it entered the house, on the 25th! Although the days quoted were warm in the sun, it is strange that the sharp spells of frost endured had not sent the ♀'s to permanent winter quarters and killed the ♂'s, even if food were, somehow, still obtainable.—F. H. HAINES; Brookside, Winfrith, Dorset, January 5th, 1918.

NOTE ON THE CYANIDE BOTTLE.—It is interesting to observe how differently susceptible different species are to the action of the cyanide bottle. I have frequently noticed that some insects take much longer to succumb to its action than others, but my attention was particularly drawn to this fact one day last July, when taking
a few specimens of *Venusia cambrica* on tree trunks. The first individual that I captured was apparently unaffected after some minutes, and as my bottle was freshly charged, thinking that something might be wrong with the charge, I captured a fine lively specimen of *Argynnis aglaia*, and bottled him. He dropped unconscious in about ten or twelve seconds, yet *cambrica* was still walking about after some twelve or fifteen minutes. It seems strange that a small and somewhat delicate Geometer should resist for so long the fumes of a charge which quickly affected so large and powerful an insect as *aglaia*. Mentioning this fact to an old entomological friend, he said that he had often noticed that some of the smaller Geometers stood the fumes of cyanide for a long time.—(Rev.) H. D. Ford: Thursby Vicarage, Carlisle.

**Pieris rapae in January.**—Just as I entered the town of Faversham this morning I noticed a freshly emerged specimen of *P. rapae* sitting on the wall of a house. The weather was bitterly cold at the time, if not actually freezing.—R. B. Robertson (Major); Oare Camp, Faversham, January 4th, 1918.

**Papilio machaon.**—Is not Mr. Jones (vol. 1, p. 382) rather sanguine as to the possibility of the various female specimens of *machaon* recently recorded being likely to perpetuate their species, if they had not been caught? The condition of the specimens mentioned strongly suggests that they were escapes from confinement (and recent emergences at that), and, consequently, extremely unlikely to have been impregnated; hence the improbability of their even ovipositing, supposing any acceptable food-plant to have been within their reach. It is not particularly remarkable, therefore, that their respective captors did not think it worth while to say anything about presence of food-plant. So far as the specimen referred to by myself is concerned—I was not the actual captor, be it noted—no doubt the butterfly could have found carrots and fennel in the gardens adjoining the Forest and also angelica and pimpinella in the neighbouring meadows and on the banks of the Lea and Roding, had it strayed so far; but there is little suitable pabulum for its larvae within the Forest boundary, and if there were, the larvae would soon be seen and secured by some collector in such a frequented spot as the Forest.—C. Nicholson; Hale End, Chingford, E. 4.

**Papilio bianor at Swanage.**—Amongst some butterflies sent to me by a young friend to name for him, and which he caught at Swanage and neighbourhood, is a specimen which Mr. G. C. Griffiths of Clifton tells me is *Papilio bianor*. He also tells me that it is not the only one taken this season. Can anyone give any explanation of its appearance in this country?—H. J. Gibbons; 8, Nugent Hill, Cotham, Bristol.

**Societies.**

The South London Entomological and Natural History Society.—November 22nd, 1917.—Mr. Hy. J. Turner, F.E.S., President, in the chair.—Mr. Bowman exhibited several series of *Hemeropilus abruptaria* bred in 1916 and 1917, spring and summer emergences,
and gave details of the results, a wild typical male having been paired up each time with a melanic bred female.—Mr. Brooks, a fine aberration of Lomaspilis marginala, the dark markings confined to the costal area, almost ab. pollataria, from Wicken in 1910.—Mr. Bunnett, a Myxomyeetes of the genus Leocarpus, probably L. vernicosus.—Mr. Edwards, a series of Papilio nireus, and pointed out variation in the under side marking.—Mr. B. Adkin, three aberrations of Agriades coridon: (1) ab. suavis, with red scales in margin of hind wing above; (2) ab. semi-syngrapha, both from Sussex; and (3) ab. syngrapha from Surrey.—Mr. Hy. J. Turner, a series of the Satyrid Satyrus statilinus, with its S. European larger form var. allionia, and the very large race from Sicily, var. mariani; they were from various localities from Spain to Asia Minor.—Mr. Ashdown, a dark form of Lophoteryx camelina and a dwarf pale form from Oxshott, with Pheosta dicticeoides and Himera pennaria from Wimbledon.—Mr. Newman, a living Amorpha populi bred November 21st in a cold greenhouse.

December 13th.—Mr. Hy. J. Turner, F.E.S., President, in the chair.—Annual Exhibition.—Mr. R. Adkin exhibited a Pieris brassicae with apical blotches of the fore wings crossed by distinct yellow streaks on the veins.—Mr. W. G. Sheldon, about 600 Peronea cristana and its various forms, and his long series of Leptogramma literana in great variety.—Mr. B. Adkin, a cabinet drawer of Noctua primulæ (festival), and one of Dianthecia carphophaga.—The Rev. J. E. Tarbat, a Pieris napi having two small white patches centred with black on the under side of the right hind wing, and a Minas tiliae without the central band on the right fore wing.—Mr. W. J. Ashdown, a varied series of Ematurga atomaria, including a very dark, almost uniform male, and a very white ground female deficient in two inner transverse lines on the hind wings.—Mr. Prideaux, living larvae of Pararge megera, and read notes on the oviposition habits of the species.—Mr. West, on behalf of the Society, several drawers of the “Freeman” collection of European butterflies.—Mr. Bowman, specimens of Cosymbria pendularia, including various forms of the ab. nigra-subroseata, dark marginal bands narrow, white transverse lines extra well defined, all four wings purple, white lines wholly missing, and striated. Also Tiliaea (Xanthia) aurago with reddish forms from Horley.—Mr. Brooks, series of T. (X.) aurago from Horley and representatives of various local races of Ematurga atomaria.—Mr. Hammond, a perfectly symmetrical gynandromorph of Polyomnatus icarus from Boseastle.—Mr. Newman, for Mr. G. B. Oliver, a very long series of picked aberrations of Agriades coridon taken in 1917, including many aberrations of var. syngrapha, forms of ab. semi-syngrapha, a gynandrous specimen, various colour aberrations, a series showing variation to var. fowleri, under side aberrations, etc.—Mr. Tonge, a bred series of Ennomos quercinaria (angularia), half being dark banded, and males of A. coridon showing red scales on the margin of the hind wings, and an example of ab. fowleri from Surrey, and the Dipteron Echinomyia grossa bred from a larva of Lasioampa quercus, var. eulitaea, from near Preston.—Mr. A. J. Lawrence, a rare aberration of the female of the Australian race of Hypolimnus bolina from Rockhampton, an almost uniformly black specimen.—Mr. L. W.
Newman, long series of aberrations of Abraxas grossulariata, including forms of ab. varleyata, of ab. lacticolor, and ab. nigrosparsata, etc.: long series of Cosmopterix potatoria from W. Sussex, many females approaching the rich dark males in coloration; a long series of hybrid ocellatus × populi bred 1917, very uniform in marking, most were gynandromorphs; a number of brick-red Minas tiles; bred series of Boarmia roboraria, extremely small although well fed; an extreme melanic Boarmia consortaria from Sutton Coldfield; large female Ceraura bicuspis bred from Tilgate Forest; and black-banded Agriopis aprilina bred from pupae dug in Delamere Forest.—Mr. W. J. Kaye, Morphi persens from French Guiana, a polymorphic species spread over a considerable area of S. America; and a painting of the Byfleet Canal.—Mr. H. J. Turner, butterflies recently received from Sicily, including Charaxes jasius, Gonepteryx cleopatra, Polygonia egea, Papilio podalirius, Itamia phleas var. eleus, Pieris marni (?), a very dwarf Aricia medon, etc., and read notes on the exhibit.—Mr. E. M. Gibb, salmon colour examples of Zygaena filipendulae from East Sussex.—Mr. H. A. Leeds, a large number of aberrations of British butterflies taken in 1917, including Agriades coridon, pale ʒ, ab. semi-syngrapha, varied ground in ʔ s, ab. syngrapha (Chiltern Hills), dwarf ʔ: Polyommatus icarus ab. icarinius, under side aberrations: Euchloe cardamines; Pieris napi, large black markings on fore wings; Melanargia galathea, much yellow developed; Coenonympha pamphilus, varied ground, ab. lyllus, etc.—Mr. H. Moore, Euوانessa antiopa and Pyrameis cardui examples from numerous localities over the whole of their areas of distribution.—Mr. A. W. Buckstone, a series of Spilosoma lubricipeda var. fasciata the result of inbreed, a cross between type and zatina; and bleached forms of Epinephela jurtina.—Mr. Edwards, Burmese moths and species of various Papilionine genera.—Hy. J. Turner (Hon. Ed. of Proceed.).

Lancashire and Cheshire Entomological Society.—Meeting held at the Royal Institution, Colquitt Street, Liverpool, November 19th, 1917, Mr. Leonard West, President, in the chair.—Mr. H. M. Hallett, F.E.S., read a paper entitled “Wallasey and Porthawal Sandhills: A Comparison.” The paper dealt chiefly with the Hymenoptera and the flora of the two localities, and it appeared from the author’s observations that Porthawal was, in point of numbers, a richer locality than Wallasey; this probably being accounted for by its more southerly situation. A discussion ensued, in which Mr. Pierce and Mr. Wilding took part. A vote of thanks, proposed by Mr. West and seconded by Dr. Cotton, was carried by acclamation.—Mr. F. N. Pierce contributed a paper on “The Lepidoptera of an Essex Garden,” in which, after describing the garden and trees, etc., he enumerated some 70 Tortrices, 100 species of Tineidae, besides Pyrales, Plumes, and Knothorns, all having been captured by the Rev. C. R. N. Burrows and sent to Mr. Pierce for setting. The paper was illustrated by some 2000 specimens, among them being a single example of Cnephasia gentitalana, a series of both broods of Parornix (Ornix) anglicella, P. torquilella, and P. fuitimella, Diplodoma herminata, and D. melanella. The exhibit was greatly admired and an animated discussion followed the paper.—Mr. H. B. Prince exhibited exotic Lepidoptera received from the
Rev. A. Miles Moss, also an album of watercolour drawings of larvae of exotic Sphingidae executed by the Rev. A. M. Moss from living specimens.—Mr. W. A. Tyerman showed a collection of moths which were taken in the neighbourhood of warehouses in Liverpool. Four species of the genus Ephesia were represented, viz. *E. elutella*, *E. passullea*, *E. ficella*, and *E. kuehniella*, also *Plodia interpunctella*, *Melissolapes cephalonica*, and *Sitotroga cerealella*, all having been more abundant than usual this year.—The Rev. F. M. B. Carr had the results of his collecting in Delamere Forest and district during the past summer. Besides the usual species found in the district, the exhibit included a specimen of *Plusia moneta* bred from a larva found at Tarporley, this being the second record for Cheshire; the other, by Mr. R. Tait, being from Ashton-on-Mersey.—Mr. Carr also showed *Plusia iota*, *P. palchrina*, and *P. festuca*, a nice series of each from his garden at Alvanley.—Dr. John Cotton exhibited a specimen of *Sphinx convolvuli*, taken in a back yard at St. Helens in September.—Wm. Mansbridge, Hon. Sec.

**OBITUARY.**

William Henry Harwood was born at Colchester on February 25th, 1840, and from a very early age developed a taste for entomology. He was educated at the Colchester Royal Grammar School, and afterwards apprenticed to Messrs. Smith and Shenstone, chemists, of Colchester. Some time after the expiry of his indentures he was medically advised to take up an outdoor occupation, and this resulted in his devoting all his time to entomology. He was the originator of the system of breeding Lepidoptera by sleeving on growing food-plants, and was successful in discovering the larvae of many species that were previously unknown in that stage in Britain, and was in constant communication with Messrs. Buckler, Hellins, and Harper Crewe, his name, in this connection, occurring frequently throughout ‘Buckler’s Larvae’ and in the entomological magazines. He contributed occasional notes to the ‘Entomologist.’

In the early eighties he took up the study of Coleoptera and Hymenoptera Aculeata and later that of other Orders of British Insects, devoting much attention to those of economic interest; but the Aculeata were always his favourite group, and he soon became as well known among students of the ‘Neglected Orders’ as he already was among lepidopterists.

He married in 1875 Elizabeth, younger daughter of James Netherwood Dixon, who predeceased him in 1914 and had four children, of whom three survive him. He was responsible for the Insect Section of the Victoria ‘History of Essex,’ the bulk of the records, apart from Lepidoptera, being of species taken in the Colchester district.

His main recreation was literature, and in 1913 he published a volume of verses—‘The Modern Poet’—which was favourably reviewed, and from time to time he contributed articles and verses to various magazines and periodicals.

He was taken ill in the spring of 1914, and about a year later removed to Sudbury, where he passed away on December 24th, 1917.
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On view day prior and morning of sale. Catalogues on application.
A NEW SPECIES OF *MYZUS* FROM THE THISTLE.

By Maud D. Haviland.

In the autumn of 1916, Mr. Oswald Latter, of Charterhouse, sent me a number of *Pemphigus lactucarius*, taken from the thistle at Godalming. Among them was a single example of another aphid, which is regarded by Mr. Theobald, who has kindly examined it, as a new species of *Myzus*.

As the specimen had been in spirit for some time before it was discovered, the normal body colour is uncertain, though probably it is pale green or yellow.

The chief characters are as follow:

- Apterous. Oval. Length = 1.10 mm. Breadth of abdomen = 0.60 mm. Whole body studded dorsally with clavate hairs, which are also scattered, though more sparsely, over the legs and two proximal joints of the antennae. Two tubercles on the frontal
margin, each bearing a similar, but rather longer and stouter hair. Eyes, bright red.

Total length of antennæ, 1·20 mm.; that of sixth joint alone 0·50 mm. Third, fourth, and fifth joints slightly imbricated; sixth joint ringed, very long and slender. All these joints blackish.

Rostrum black, extending just beyond the second coxae.

Cornicles, cylindrical, curved, and somewhat expanded at the orifices. Distal third blackish. Length, 0·40 mm.

Cauda, obtuse, bearing two pairs of long clavate hairs. Legs, medium, fairly stout, furnished with a few long stiff hairs. Femoral and tibial joints black.

This Myzus seems to resemble somewhat Myzus ribis, particularly in the oval body form, obtuse cauda, colour of eyes, and in the distinctive, club-shaped hairs; but it differs from that species in its much smaller size and longer cornicles. I suggest that the specific name of earthusianus be given to this aphis, from the place of its discovery.

**DESCRIPTION OF A NEW SPECIES OF HETEROPTERA FROM SOUTH AFRICA.**

**By W. L. Distant.**

**Fam. Coreidæ.**

The genus Agraphopus has hitherto been generally considered as a Palaearctic one, though found throughout the confines of that region. I have recently traced one species, *A. lethierryi*, Stål, to Southern India, described a new species from Northern India, and now add another from South Africa. A species has also been described from Central Africa and two from Madagascar.

*Agraphopus antennatus*, sp. n.

Head, pronotum, and scutellum dull flavescent, thickly, obscurely, finely punctate; lateral margins of head in front of the antenniferous tubercles and at inner margins of eyes, lateral margins of pronotum, and a central impunctate, longitudinal narrow fascia to pronotum and scutellum dull stramineous, apex of scutellum albescent; the disc of head, anterior area of pronotum, and the lateral margins of the scutellum are also more darkly punctate; corium pellucid, the lateral margins and veins ochraceous; membrane pale hyaline; body beneath and legs ochraceous; antennæ very distinctly pilose, first, second, and third joints ochraceous, fourth joint, excluding extreme base, piceous, second and third joints subequal in length, fourth moderately incrassated; lateral marginal areas of sternum thickly and more darkly punctate; abdomen beneath with a dark, central, longitudinal line.

Length, 6 millim.
BUTTERFLY HUNTING IN THE NEW FOREST AND ELSEWHERE IN 1917.

By J. J. Lister, F.R.S., F.E.S.

But there remains a peace of thine
Man did not make and cannot mar.
—M. Arnold.

On Tuesday, July 3rd, I went with Dr. and Mrs. Keynes to the New Forest for a week's butterfly hunting. It was a resplendent evening as we passed through London, and even the dismal stations between the Lea Valley and Liverpool Street were transformed and glorified in the rays of the setting sun. It was, indeed, too bright, for clouds had gathered as we ran down the slope of the chalk past Winchester, and a south-east wind portended rain. It fell in the night and next morning, the wind shifting round to the north. On Thursday afternoon (5th) the wind changed to the west, and we had bright sunny days till the end of the week. Mr. Rowland-Brown joined us for two days' hunting on Friday night, but unfortunately Sunday and Monday were again wet. From Tuesday onward, however, we had fine weather.

Brockenhurst was our headquarters, but most of our hunting was near Denny Lodge, within easy reach of Beaulieu Road Station. About this keeper's house is a noble group of trees, over a mile wide from north to south, mainly beeches and oaks, standing on higher ground, which forms a fine feature as seen across the open undulating plain which lies to the east. This is covered with heather, heath, and low furze (browsed down, I suppose, by the Forest ponies), with sweet-gale and cotton-grass in the swampy hollows, and straggling clumps of small pine trees scattered here and there. A carpet of green bracken spread out over the plain far beyond the high trees. The water drains south-eastward into the Beaulieu River and southward to the Lymington Water. We also found good hunting to the west of Brockenhurst about the Ober Water and in the plantations to the north of it, and paid two visits to the beautiful region known as Queen's Bower.

The following are the more interesting features of our spoils. Chrysophanus phlaeus. I met my first specimen of the year, a representative doubtless of the second brood, near Denny Lodge, but we saw no others. Plebeius agon swarmed on the heathery plain between Beaulieu Road Station and Denny Lodge; males and females in perfect condition. They rose about us in scores as we walked, and many
sat paired on the herbage. On a showery day they hung, like little flags at half-mast, on the bents and heather with wings closed and the fore covered by the hind wing. We hunted carefully for females with blue on the upper sides, but among many scores examined not more than four presented this feature. Dr. Keynes took two with blue on fore and hind wings, and he and I both have one with blue at the base of the hind wings only. We met the species elsewhere in the Forest, but not in such numbers as here. This was the only "blue" we met with there.

_Callophtrys rubi._ A single, much-worn specimen taken July 5th.

_Zephyrus quercus._ We took a number, both males and females, in beautiful order, from bracken fronds, under or near oak trees, where they sat with closed wings, perhaps recently emerged.

_Pieris napi._ This was the only "white" which we saw in any numbers in the Forest. I saw one or two _P. brassiceae_ in Brockenhurst, but, I think, not a single example of _P. rapae_, though the species was so abundant elsewhere this summer.

_Gonepteryx rhamni_ was not abundant. I took a battered specimen, probably of last year's brood, on July 5th, and a beautifully fresh one, recently emerged, on July 11th.

_Dryas paphia._ It was largely the hope of obtaining the variety _valesina_ of the female of this species which had determined our choice of the Forest for our hunting. The normal form was in great abundance, many were widely dispersed, but in certain sunny, sheltered places they had gathered in large numbers to feed at the bramble flowers. The largest assemblage that we saw was in a plantation where a ride, fringed by thickets of brambles, crossed a small gully which runs northward. The wind being easterly this was completely sheltered. At a rough estimate I suppose there were about 300 examples of _paphia_ crowded on the sunny side of the ride, and all intent on feeding. From them I took three fine specimens of the ♀ var. _valesina_. Of the 300 perhaps 100 were females, which gives a proportion of _valesina_ to the fulvous form of 1 in about 30.* From a smaller assemblage, in a deep brambly ditch cut by the fence of a plantation, Dr. and Mrs. Keynes took five _valesina_, so they were there in larger proportion. On my last ramble in the Forest I had captured so many examples (sixteen) of _valesina_ that I was glad to refrain from taking any more. They were nearly all in exquisite condition, showing the iridescent gloss on the wings to perfection.

I am not sure that the features differentiating _valesina_ from the fulvous form of ♀ _paphia_ are generally recognised. Lang†

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* A party of marsh-tits, busy in the trees above, were apparently quite unconcerned with the insects below them.
† 'Butterflies of Europe,' p. 211.
describes the form *pelopia*, Brkh., of *Argynnis niobe* as an aberration in which "the wings are more or less suffused with black by the extension of the black markings," and adds: "All the larger species of *Argynnis* (including *paphia*) are subject occasionally to this melanic variation, as well as the smaller ones, such as *euphrosyne* and *selene*." The difference in the case of *valesina* appears to consist not only in the greater suffusion of the upper surface, especially the hind wing, with dark pigment, but also in the ground colour, which is not the rich fulvous tint of the usual form of female, but a pale pinkish drab closely approaching the colour of the "white pine" of which store-boxes and setting-boards are made.

A similar contrast is presented by the common Swiss Fritillary *Brenthis pales* and its ♀ var. *napaea*. In the usual form of *pales* the ground colour is, in both sexes, a fine fulvous tint, very like that of ♀ *paphia*. In var. *napaea* it is nearly the white pine colour of *valesina*, though somewhat pinker. In *napaea* also the upper surface of the wings is more suffused with dark pigment than in the usual form, though there is a wide area along the outer border of both wings which is free from the dark suffused pigment, and here the paler tint is clearly seen which I believe to be characteristic alike of *napaea* and *valesina*.

*Argynnis adippe* was moderately common in open parts of the Forest about Denny Lodge, and more so in the plantations north of the Ober Water. It was in perfect order.

*Brenthis selene* was also fairly abundant in the moister heathery tracts, though going over. Dr. Keynes, however, secured some good specimens.

*Limenitis sibylla*, was one of the commonest butterflies. Many males were in rather worn condition when we got to the Forest, but we took good sets both of males and females in perfect order. It was a beautiful sight to see the heads of bramble blossoms crowded with this species and *paphia*, pushing one another aside in their eagerness to get at the nectar; and its exquisitely graceful and powerful flight, and bold yet restrained colouring, make it one of the most attractive of insects.

*Pararge egeria*, var. *egerides*, in perhaps its second brood, was getting worn and shabby, and was not very abundant.

*Hipparchia semele* occurred in a gravel pit on the plain, by the road between Beaulieu Road Station and Lyndhurst. We took several males, but only one female, at this early date. One male measured only 38 mm. across the wings, 8 or 9 mm. less than the usual size.

* We may note in passing that Tutt ("British Butterflies," p. 276) is too sweeping in saying that in Britain *valesina* "is only found in the New Forest, although a few individuals have been recorded from Devon, Dorset, Kent and Sussex"—witness Mr. Stowell's note ("Entomologist," 1917, p. 254) of its occurrence last summer in Savernake Forest (Wilts).
Aphantopus hyperantbus was out in abundance in many places and in beautiful condition.

One specimen only represented Epinephile tithonus so early in the season. E. jurtina and Coenonympha pamphilus were, of course, plentiful.

We saw no sign of A. iris nor of E. polychloros, though we kept a good look-out for them.

When our party broke up I went on to Corfe, hoping to obtain T. actaeon, which I had not hitherto met with. It was a bow drawn rather at a venture, as I did not know that it was found so far from the coast, but the venture was successful, as I came on the species in numbers close to Corfe, on the south side of the range of chalk hills stretching from there to Ballard Point. They especially frequent the tracts of tall yellowish-green grass (Brachypodium pinnatum) which form an attractive feature on chalk downs. Males were much more abundant than females, but I took quite a good series of both. The only flower at which I saw them feeding was Lotus corniculatus. This species is here infested with a small scarlet mite, two or three of which are frequently attached between the head and thorax. A. flava, and P. sylvarum were also common. Hipparchia semele was in fine order here, and I took a good series of both sexes. Melanargia galatea was also abundant. I saw no trace of P. bellargus which is said to occur on these Downs. I suppose I was between the two broods.

Possibly some notes on my summer's collecting elsewhere may be acceptable. It was done in day's excursions in the neighbourhood of Cambridge, and in a three weeks' holiday in Dorset, which my wife and I took in the latter half of August and the beginning of September.

On June 24th I visited Monk's Wood in company with Capt. R. N. S. Tebb, No. 2 O.C.B. It was a cloudy day which settled in to steady rain about 5 in the afternoon, but no weather could have suited our purpose better—that of taking Thecla pruni. It grew rather "muggy" in the wood as the rain was approaching, and the insects were out in abundance, often half a dozen together, feeding on the flowering sprays of privet, and, though less frequently, on the flowers of the dogwood (Cornus). The hot, fine weather of May and June had brought them on rather earlier than usual, and they were not in quite perfect condition. A week later, however, we took some very fair specimens.

On July 29th and on August 5th we again visited the wood, and I had the satisfaction of taking my first specimens of Z. betulae there, a male and female, both in fine order.

July 22nd saw us down at Burwell Fen, adjoining Wicken, where in the late afternoon I took my first British specimens of A. lineola. They were sitting poised on the arching stems of grasses and
carices, or flying slowly when disturbed. The uniform, or nearly uniform, colour of the under side of the hind wing (noted by Tutt) is perhaps the most obvious character distinguishing this species from *flava*, in which the posterior one-third of the wing is of a much brighter yellow than the rest. We saw two or three early examples of the second emergence of *P. machaon*.

I made several visits to Royston in August, where, in company with Dr. Keynes, I was chiefly concerned with the *semisyngrapha* form of *? corydon*, of which we took many fine specimens, though all fell far short of the full *syngrapha* form found in the Chilterns by Mr. Bowland-Brown. Two visits to the Devil’s Ditch, near Burwell, confirmed, so far as they went, the result of Mr. Geoffrey Keynes,* that the *semisyngrapha* form is not developed there to nearly the same degree as at Royston.

I took a beautiful “striated” example of *Aricia medon* on the Devil’s Ditch, near Burwell, in which all the spots internal to the rows of orange lunules on the under sides of both fore and hind wings are elongated towards the bases of the wings, and the spots external to the orange lunules are absent. It does not appear to correspond with any variety described by Tutt.†

I captured a minute example of *P. icarus* on Teversham Fen, a male measuring only 19 mm. across the wings—less than my smallest example of *minimus*.

My visits to Royston added *Augiades comma*, the Silver-spotted Skipper (another new species for me in England), which was rather abundant on the further part of the Heath, about low-growing thistles (*Carrina acaulis*) and *Campanula glomerata*. Males were out on July 27th; by August 6th the females had become frequent.

Our visit to Dorset was a good deal impaired by wet and windy weather, but butterflies were about in abundance when the sun came out. We spent the first fortnight at Beaminster and moved on to Dorchester for the first week of September. The Vanessaids were perhaps the most striking feature. *Cardui* was very scarce. *Io* and *atalanta* were in great abundance on brambles in sheltered places on the higher ground and *urticea* was common. We took a very finely marked aberration of the latter which appears to be near the form *atrebatensis* of Boisduval,‡ as accepted by Raynor.§ The specimen is almost intermediate between those figured by South.|| The fore wing resembles that shown in Fig. 22, and the hind wing and under side are as in Fig. 23, except that the row of blue lunules in mine appears to be better marked. It is almost exactly like that

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* Entomologist’s Record* (1909), xxi, p. 262.
† Natural History of British Butterflies,* vol. iv, p. 257.
‡ Rev. ex Mag. de Zoologie,* 1873, p. 409. *Atrebatae* is the medieval Latin name of Arras, near which the specimen was obtained.
§ Entomologist’s Record,* 1909, p. 4.
|| Butterflies of the British Isles,* pp. 68, 69, figs. 22, 23.
figured by Cholodkovsky,* and reared by him through larval and pupal stages behind yellow glass. *Atrabatensis* is one of the eight varieties of *urticæ* distinguished by Raynor as "both rare and beautiful."

*C. phleas*, I suppose in its third brood, was abundant in rough meadows near Beaminster.

On the turf-covered earthworks of the fine old British camp, Maiden (Mai-dun) Castle, we came on the second brood of *A. bel-largus*, just out (September 3rd and 6th). Among the females I took one finely suffused with blue and another of the aberration *striata*, in which nearly all the spots on the under side are extended into linear streaks except those external to the orange lunules, which are absent altogether. The variation is thus closely parallel with that of the specimen of *medon* noted above. We met with this species again on the hill above Cerne Abbas.

At Maiden Castle I took a belated pair of *A. corydon* in fair order on September 3rd. They appear identical with some of my Royston specimens.

The more prevalent blue colour of the females of *P. icarus* in this more westerly part of England was very noticeable, as compared with the sober brown forms which are more usual about Cambridge.

*G. rhanni* was not very common in Dorset. On one occasion, however (Sept. 9), we came on a number of them together, about some comfrey plants by the roadside. From these I took six males and three females, as they were in perfect condition, and there were others not taken. I suppose they were members of a brood which had kept together.†

I only took two specimens of *C. edusa* in Dorset, and saw one, possibly two, others. I met with an example of this species so late as November 22nd on the golf links at Lyme Regis.

The third brood of *P. egeria var. egerides* was out in all its glory along the sides of the deep Dorset lanes, and *P. megara* and *E. tihonus* were here abundant, as they had been near Cambridge.

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**THE ABUNDANCE OF WHITE BUTTERFLIES IN 1917.**

By Robert Adkin, F.E.S.

(Concluded from p. 39.)

Although from time to time I examined many hundreds, possibly thousands, of individuals as they sat on the flowers feeding, I failed to detect any marked variation in any of them.

* * * Ann. Soc. Entom. de France,* lxx, 1901, p. 174.
† On February 9, while I corrected the proof of this paper, a specimen of *rhanni* was flying in front of the house, at Grantchester.
But on August 5th a somewhat remarkable specimen of *P. brassicae* settled at my feet as I sat in the garden. Its peculiarity is that the wing rays, which are traceable as pale yellow lines on parts of the white portions of the wings, are carried through the black tips. I at first thought that the appearance might have been caused by the specimen, which is not a very fresh one, having been rubbed in some way, but various experiments that I have tried on others to obtain a similar appearance have utterly failed to do so. The peculiarity appears to be quite natural to the specimen and much on a par with similar markings so frequent in the black borders of the wings of male *Colias edusa* (see figure).

On July 29th I examined some cabbages that were growing in an adjacent garden, and found that the backs of the leaves were smothered with the eggs of *P. brassicae* as thickly as though they had been sprinkled on with a pepper pot. These particular cabbages did not, however, suffer from the resultant larvæ, spraying and other preventive measures taken at the right time having saved them; but other patches in the neighbourhood that were not so treated were soon reduced to a state of skeleton. In some cases that came under my notice nothing was left but bare stalks and leaf ribs, not one bit of the leaf cuticle remaining throughout whole patches. Tropæolums in the garden were absolutely consumed by the larvæ, the culprit in this being *P. rape*.

No less remarkable than the abundance of the Lepidopteron was the attack upon it by its parasites. Mr. Harwood, of Sudbury, Suffolk, informs me that from large numbers of larvæ of *P. brassicae* collected in his neighbourhood up to the third week in September not one produced a pupa, all being killed by
the parasite *Apanteles glomeratus*; also that in the autumn of 1916 only some 10 per cent. of the larvae were attacked; and that, in his experience over a number of years, the proportion so destroyed varied from 25 to 50 per cent. From Mr. Newman, of Bexley, Kent, I learn that of 4000 larvae collected only 52 produced pupae = 1·3 per cent., and that some of these were attacked after pupation by another parasite, which Mr. Claude Morley very kindly suggests would most probably be the Chalcid *Pteromalus puparum*. In the autumn of 1916 from some 3000 larvae he obtained 1700 pupae = 57 per cent.; and Mr. C. W. Sperring from 150 larvae collected this autumn near Portsmouth obtained only 3 pupae = 2 per cent., all the others being killed by the parasites.

As to the area affected by the great abundance of the butterflies, there appears to be no doubt that during the latter half of July, or later, it extended all along the south and east coasts of England, also to Yorkshire and the Wye Valley. So noticeable was it in this last-named district that a non-entomological friend, who had been spending a holiday there in August, mentioned to me on his return that he had never in his life seen so many white butterflies before. The Rev. J. E. Tarbat tells me that in his garden at Fareham, Hants, in the latter part of July they were more abundant than he had ever previously seen them; and that later at Budleigh-Salterton, Devon, a similar state of affairs existed, and that he had there counted as many as thirty-six butterflies on one *Buddleia* shrub at one time. From Mr. G. T. Porritt I learn that the first emergences of both *P. rapae* and *P. napi* were unusually large in his immediate neighbourhood (Huddersfield), but that *P. brassicae* appeared in normal numbers; in the second emergence, however, the last-named species was far more numerous than usual, while the two smaller species did not appear to be so; and that in other parts of Yorkshire the abundance had been even greater than in his district. This is borne out by a letter to the editor of the 'Yorkshire Post' from the gardening instructor to the Dunkeld allotments asking for the collection of the larvae by school children, a reward being offered for the largest number collected; and from the 'Times' of September 12th one learns that within a fortnight the boys and girls attending the elementary school at Hythe, Kent, collected no less than 16,000 larvae from the allotments and gardens in the neighbourhood.

To the Rev. J. E. Tarbat I am also indebted for the following interesting piece of information. He writes me: "A relation of some people here (Fareham), Brigadier-General Farmer, C.M.G., of the Canadian Division, was crossing the Channel from Folkestone to Boulogne on July 21st when the steamer encountered a great swarm of white butterflies, many of which were seen to fall into the sea." And from the 'Westminster Gazette' of August 16th
we learn that: "The ‘Neues Wiener Journal’ states that the district of Glatz (Silesia) is being plagued by clouds of white cabbage butterflies. Millions of the injurious insects have been seen passing over the fields, their flight lasting an hour, and giving the appearance of a violent snowstorm."

In the foregoing I have endeavoured to put on record simple facts that have come under my own observation, or that have been communicated to me by other observers. And, after all, one feels that the information we have is slender and often indefinite, but from it certain facts appear to stand out clearly. In the autumn of 1916 the larvæ, of P. brassicae at any rate, were less prone to the attacks of parasites than usual, and that therefore a full average emergence of imagines in spring was to be expected and, as a matter of fact, was experienced. That migration was observed to take place, and that on the day following that on which the butterflies were observed in the Channel they were seen passing over the garden near the coast in great numbers; and that during the time of their greatest abundance they appeared to be in an unusually restless condition.

The seasons of 1887 and 1917 also appear to have had much in common besides weather and the phenomenon of the white butterflies. In both, Herse (Sphinx) convolvuli was unusually frequent, being even more commonly met with in the north than in the south on both occasions. Several unusual species were recorded in each year as having been met with, and others found in places where they might least have been expected. It would thus appear that at certain, possibly irregular, periods some impelling force unsettles portions of the insect fauna and leads to phenomena such as we have witnessed in these years. We may account for the abundance of the white butterflies by local conditions unusually favourable to the species backed up by extensive and possibly continued immigration, but we are still very much in the dark as to the causes that unsettle the species and probably set their migratory instincts in motion. We have learned much in the last thirty years, but we have here a problem still waiting solution.

Eastbourne,
November, 1917.

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NOTES ON LEPIDOPTERA OBSERVED IN MACEDONIA, 1916, 1917.

By Philip J. Barraud, R.A.M.C., F.E.S.

The butterfly season in Macedonia usually lasts from April to the beginning of July. The mean maximum shade temperature for April, 1917 (taken by myself with a Hicks maximum
and minimum thermometer) was 67·9°; for May, 74·3°; for June, 83·8°; for July, 89·8°. The highest shade temperature registered this year was 101°, on August 16th. From July onwards the weather is usually hot and dry, with a very occasional violent storm. As much as 1 inch of rain has been registered in an hour; for example, on June 15th, 1917. Vegetation becomes dried up, and very few butterflies are seen.

The Salonica hills run to about 1500 ft., and form a good collecting ground in the spring. The Krusha Balkans rise to nearly 4000 ft. at one or two points, and in many places are well wooded, and there is a good water-supply.

Saracli, which is frequently mentioned in the subjoined catalogue, is about 2000 ft., and forms an ideal locality for the entomologist. I was stationed there in the early summer of 1917, and was able to do a fair amount of collecting in deserted gardens and fields run wild. These covered the mountain sides facing south-west.

Doubtless some interesting species occur in the Struma valley in early summer; but, under active service conditions, it is impossible to live in the plains, owing to the enormous numbers of mosquitoes, chiefly Anopheles maculipennis.

The following observations illustrate the variations of temperature from March to October:

<table>
<thead>
<tr>
<th>Daily Shade Temperature (F.) 1917,</th>
<th>Mean maximum</th>
<th>Mean minimum</th>
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<tbody>
<tr>
<td>March</td>
<td>60·6°</td>
<td>41·2°</td>
</tr>
<tr>
<td>April</td>
<td>67·9°</td>
<td>46·8°</td>
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<tr>
<td>May</td>
<td>74·3°</td>
<td>54·0°</td>
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<tr>
<td>June</td>
<td>83·8°</td>
<td>63·4°</td>
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<tr>
<td>July</td>
<td>89·8°</td>
<td>66·9°</td>
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<td>August</td>
<td>94·3°</td>
<td>70·6°</td>
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<tr>
<td>September</td>
<td>86·8°</td>
<td>63·8°</td>
</tr>
<tr>
<td>October</td>
<td>75·0°</td>
<td>52·3°</td>
</tr>
</tbody>
</table>

Mean difference between highest in day and lowest at night: March, 19·4°; April, 21·1°; May, 20·3°; June, 20·4°; July, 22·9°; August, 23·6°; September, 23·0°; October, 22·7°. Greatest difference, 32°, end November, 1917.

Highest shade temperatures: 100°, July 18th; 101°, August 16th. The records from March to mid-August were taken in the hills. Doubtless much higher temperatures prevailed in the plains.


Rainfall: May, 1·66 inches; June, 2·65 inches; July, 0·82 inches. Conditions did not allow exact records being taken in other months.

The comparative seasonal abundance of species may be
gathered from two extracts from my diary. "June 6th, 1917, a comparative abundance of certain species for past week, the commonest being placed first: P. cardui, E. xanthomelas, P. atalanta; V io; A. urticae; the last named rare. M. trivialis more plentiful than M. didyma." Whereas, on July 17th, 1917, I wrote: "Butterflies are now scarce. Vegetation dried up. Yesterday, on a long walk across country from Ereselli to Baisili, and then to Saraci, I noticed little, although there are still a fair number of flowers. P. cardui common and fresh. S. actaea and S. circe still common round larger trees. D. pandora still about. Weather the hottest we have had."

**Hesperiidae.**

The species of this family are of course very difficult to identify without descriptions or specimens for comparison.

*Carcharodus lavatera.* 1917, 9 : v, Saraci; rather scarce.

*C. althaeae.* 1916, Lahana, vi; 1917, Saraci, 9 : v; not common.

*C. alcceae.* 1916, near Balje Pass, 5 : iv; 1917, 14 : iv, Mahmudli; fairly common.

I think I have also taken another species of this genus, as large, or larger than *lavaterae.* [Probably *C. orientalis*, Reverdin.—H. R.-B.]

*Hesperia sideae.* 1916, mountains east of Lembet; 6 : v; 1917, Saraci, vi; fairly common.

*H. carthami.* 1916, 1 , Lahana, vi; 1917, Saraci; fairly common; first seen, 9 : v.


*[H. malvice. This species seems to be absent; but may be amongst those I have sent home.]*

*Pyrgus orbifer.* 1917, Saraci, 25 : iv; fairly common.


*Nisoniades tages.* 1916, Mirova, vii, common; 1917 (Saraci. 8 : v, common); first seen, Scan, 8 : iv, Mahmudli; gen. cest, in July.

*N. marloyi.* A very dark species, with ground colour deeper than *tages* and lighter markings near the tips of fore wings. 1917, first seen, 14 : iv, Mahmudli; fairly common.

*Augiades sylvanus.* 1917, Saraci, vi; first seen, 21 : v; fairly common.

*Adopeoa lineola.* 1917, Saraci, vi; not uncommon.


**Papilionides.**

*Chrysophanus hippothoe.* Saraci, 3 : v : 17: subsequently fairly common. ♀ ♀ of this and allied species I am not at all sure of without specimens to compare.
C. aleiphron. 1916, Lahana, vi; 1917, Saracli; first seen, 1: vi; not uncommon.

C. dorilis. 1916, Lahana, vi; 1917, first seen at Saracli, 1: iv; subsequently common, the small summer form appearing in June.


[Lycena arion. One specimen, I think, of this species was shown me by an officer, who caught it near Baisili, vi: 1917.]

Nomiaes cyllarus. Locally not uncommon. 1916, first seen near Lembet, 23: iv; 1917, first seen, 10: v, Saracli.


Scolitantides baton. 1916, first seen, 5: iv, Balje Pass; 1917, 14: iv, Saracli; not at all common, and local.

Plebeius argus. L. 1916; Lahana; Hadji Bahramli; Mirova, vi and vii; 1917, Saracli, mid vi; common.

Celastrina argiolus. 1917, ♀ 15: vi; scarce.

Callophrys rubi. 1916, local from 21: iv, in one locality on banks of stream near Lembet, including, I think, ab. immaculata; 1917, Saracli, first seen, 14: iv.

Zephyrus quercus. 1916, Lahana and Mirova, vi and vii; 1917, Saracli, 21: vi; common round large trees. Many seemed to me to be possibly of another species.

Thecla ilicis. 1916, common on mountains east of Lembet; first seen, 11: v; 1917, Mahmudli; first seen, 30: v; fairly common.

T. aesculi. In same localities.

T. spinii. 1916, Lahana, vi; probably this species.

T. acaciae. 1916, Lahana, vi; 1917, Saracli, 23: vi; fairly common.

Nemeobius lucina. 1917, Saracli, 23: iv; and, later, near Araci; local.


P. machaon. 1916, one taken, Lahana, 16: vi; near Lembet, 4: iv (M. Burr); far less common than podalirius, but fairly plentiful locally; 1917, Mahmudli, 8: iv, a fresh specimen taken same place, 30: v; Kilindir, common on rocky hill-top, 23: vii.

Thaiss polyxena. 1916, Berovo, 7: v, Langaza Lake district;
1917, first seen, Mahmudli, 8 : iv; Saracli, 6 : v, to 12 : v. Not very common.

_Aporia crataegi._ Common throughout; first seen, 1916, 30 : iv; 1917, 3 : v.

_Pieris brassice._ Common; 1916, first seen near Lembet Camp, 18 : iii; 1917, 4 : iv, Mahmudli.

_P. rapae_ Common; first seen, 1916, 7 : iv; 1917, 5 : iv. (Probably _P. manni_ included.)

_P. manni._ 1917, ♀ taken, Saracli, 8 : v. I have again noticed the difference in flight between this species and _rapae._ The flight of _manni_ is much more like that of _sinapis._


_Pontia daplidice._ Abundant, 1916; 1917, first seen, Baisili, 24 : iii.

_Euchloe ausonia._* Common locally, and including some fine forms. 1916, first seen, 7 : iv, _gen. vern. triangula,_ Verity, Akbunar; 1917, early in April; _gen. est. melisanda,_ Fruhst., began to emerge, 20 : v, at Saracli.

_E. cardamines._ Very local and not common; first seen, 1916, 5 : iv, Akbunar; 1917, first seen, 14 : iv, Saracli. I have an idea that a specimen of _E. euphenoides_ possibly was included in 1916 captures, but am not at all sure.

(To be continued.)

NOTES AND OBSERVATIONS.

Collecting in the Highlands.—I was able last year to gratify a wish I had long entertained, and pass the whole of the collecting season within sight of Schiehallion—often on it. The severe winter had left its mark, and vegetation was very backward; snow still on the mountains, and conditions generally unfavourable for such species as one hopes to get in the month of May. The wind seemed to blow continually from the north-east, and beyond prospecting, which is a very important preliminary to active collecting in a new district, I did little until things took a bound forward in the month of June. But the interval was not entirely a blank. The following is an abstract from my diary, commencing May 16th:

"The first insect to occur in large numbers in the birch wood at Annet was _Peronea ferrugana,_ hibernated, of course, but in very fair condition, showing a considerable amount of variation. Then _Endromis versicolor_ put in an appearance, but was too quick for me. May 16th: _Solenobia?_ species occurred freely on stones, ♀ ♀ only bred. These appeared to me to have a shorter ovipositor than the species I know as _inconspicuella._ These have been handed over to Mr. Burrows, who has since informed me that as regards tarsal

* I have adopted Lord Rothschild's nomenclature for the Macedonian forms.—H. R.-B.
joints and antennal pectinations they have been found to be identical with a specimen of *inconspicuella* formerly in the Barrett Collection. The *♀* of the Kinloch-Rannoch insect has, however, yet to be found. May 17th: *Amphysa prodromana*, a little worn, occurred at elevation of about 1000 ft. May 18th: Larvae of *Scoparia murana* were found under moss on a wall at Kinloch-Rannoch. May 19th: Pupa of *Arcta juliginosa* among ling. May 21st: Larvae of *Lasiocampa quercus*, var. *callince*, not uncommon. May 22nd: *Peronea mixtana*, still in good condition, occurred on ling. May 23rd: *Lampropetryx suillama*, ab. *piceata*. May 24th: *Lophoderus politana* very plentiful; a long series obtained. May 28th: *Odetosia carmeltita* in the fine birch wood at Annet, and two pupae of *Dasychira fascelina* on ling. May 31st: *Amblyptilia cosmodactyla*; a few hibernated examples; obtained much more freely later (September 6th), flying over heath in the shelter of a pine plantation. June 1st: *Ematurga atomaria*: a few nice ♀♂, but the series obtained does not show a great amount of variation. June 5th: *Fidonia carbonaria* and *Anarta melanopa* at an altitude of over 2000 ft. *Anarta cordigera* seen, dashing along at a considerably lower elevation. *Clepsis rusticana* not common. *Eupithecia satyrata* common on Schiehallion at an altitude of between 2000 and 3000 ft. June 6th: *Lophotes munstrana* abundant in the birch wood at Annet. A long series of the fine dark form, var. *ferruginea*. June 8th: *Gelechia longicornis* rather common; a few paired moths found on rocks: also *Acronycta menyanthis*. June 9th: *Eupseudia ciliella*: a small series obtained on or near the track to the left of the burn (Alt Mor) at Kinloch-Rannoch. There is a good growth of *Drosera*, *Pinguicula*, *Alchemilla*, and *Pedicularis* in the wet portion of this track favoured by *ciliella*, but I did not see any moth engaged in ovipositing; nor did I find in the few seed vessels of *Pedicularis* and *Pinguicula* that I examined any evidence of the presence of lepidopterous larvae. *Polia glanca* occurred on stones. June 10th: *Mixodia schizanoida*: I obtained a fine, variable series of this handsome Tortrix. June 12th: There is, four miles out of Kinloch-Rannoch, on the Struan road, a locality with a reputation for good things. Here, among *Arctostaphylos uva-ursi*, I found *Coccyx menonivega* in plenty, and *Orthotania myggindana* almost as plentiful; also *Orthotenia arbutella*. *Monina gracilis* in fair condition at this late date. June 13th: *Scoparia ambigualis* (alomalis, Ddld.) common, and *Malenydris salicata* not uncommon. June 14th: *Acronycta leporina* among the birches at Annet. June 15th: *Crambus pratellus*, somewhat smaller and darker than the southern type. *Hyppa rectilinea* on stones. I sugared for this species, but the sugar failed to attract this, or anything else. Larvae of *Agrotis castanea* on ling. June 16th: *Penthina dimidiana* not common. Later on I found the balloon-shaped tents of the larva commonly on *Myrica gale*. *Gelechia tripurella*, var. *myricea*, occurred: also *Acronycta euphorbia*, var. *myricea*. June 19th: *Cordulegaster annulatus* seen near the big burn. June 20th: *Eriocephala aureatella*: this insect occurred in the Black Wood of Rannoch, but was scarce; also, the interesting pale form of *Drepana falcataria*, and a few *Xanthorhoe trisilia*. June 22nd: *Coccyx distinctana* in the Drumchastle Wood. *A number of American lumber-
men were busy felling conifers in this fine wood. *Pyrausta decrepitalis* occurred on the south side of the Loch. June 23rd: Schieballion. *Aconypsyche similis* at rest on a stone, and *Penthina staintoniana* flying at an elevation of over 3000 ft. June 26th: *Hadena adusta* found, and a long-winged pug (*fraxinata*) on an ash trunk; lost in an attempt to box it. June 27th: *Scoparia alpina* scarce, south side of Loch. June 29th: On mountain top, about 2250 ft. Weather dull, but with short, sunny intervals; wind easterly. *Psodos coracinia* in great force and in lovely condition. They appeared to have a great liking for shallow, stony depressions on the summit, and were seen to creep under stones when the weather dulled. Not a single example was observed on the slopes. *Mixodia schulziana* was common at the same place and at the same time. *Elachista kilmauella* was boxed on *Rubus chamaemorus*. July 2nd: *Pyrausta alpinalis*, a few, south side of the Loch. *Erioccephala seppella* common at Annet. July 4th: At a considerable elevation, flying over ling, *Amphysa germingana*; also *Caenonympha tiphon*, the latter in boggy places. *Perizoma blandiata* also occurred. July 6th: *Erebia epiphron* (*cassiope*) in the well-known locality on the Kinloch-Rannoch side of the Alt Druidhe, at about 1100 ft. Exceedingly local, I did see one wanderer on the opposite side of the Loch. July 8th: In the Annet birch wood *Polia tincta* at rest on a boulder. *Acadalia fumata* common. July 9th: *Perizoma minorata*; this neat little insect not uncommon. Occasionally found paired on the stone boundaries of deer forests and other stone-heaps at a considerable elevation. July 10th: At an altitude of about 2000 ft. *Sericoris irriguana*. July 13th: When picking some seeds of *Pedicularis* at a spot where I had netted a few *Eupreecilia citella*, I found an apparently adult larva of *Acanthopsyche atra* (*opacella*). This larva is now hibernating, probably for the second time, and is in the care of the Rev. C. R. N. Burrows. Of course I had a good look round for more, but failed to get another larva. I found two cases, unfortunately both empty, attached to stones. The moth had quitted one, and an enemy, possibly a bird, had made a long rent in the other. July 14th: *Aricia medon*, var. *artaxerxes*, scarce. *Hepialus velleta* not common. July 15th: *Entephrus cesiata* found, from this date onward, in astonishing numbers. July 16th: *Venusia cambirica*. Some interesting forms of *Boarmia repandata*, of a soft grey colour, far more delicate in tone than any examples I have seen in the south. *Plusia interrogationis* in excellent condition by searching boulders in the late afternoon. July 17th: Near Carie, south side of the Loch, *Gelechia galbanella, Sericoris metallicana*, and *Asthemia ustomaculata*. *Stigionota coniferana* and *congnatana* flying about the pines. *Dicroryncha herbosana* freely among yarrow. July 20th: *Coremia munitata*, fond of sheltering in the recesses of walls. July 23rd: *Crambus dunetellus* near the bridge across the Tummel at Dunblastaig. July 24th: Black Wood of Rannoch. *Mixidia palustrana* rather scarce; *Thaumonoma brunnnea* abundant; *Lygris populara* common. July 28th: *Gnophos myrtillata*, not, as one would expect, tucked away in rock crannies, but fully exposed to the mid-day sun. July 30th: Near the Lochan on the road to Aberfeldy, *Crambus ericellus*. August 3rd: On the road near
the Tummel Falls Alnus olivata, common, Crambus margaritellus, and Erebia ethiops. There was a succession of sunless days when this last species commenced to emerge, with much rain, and the same unsettled conditions extended right through the month. August 7th: Steganoptyca geminana very plentiful among Vaccinium. August 9th: Gelechia acuminatella near Annet. August 12th: Ablabia ossea fairly common at the foot of Schiehallion. August 16th: Mesoleuca bicolorata, ab. funmosa, a few. August 17th: Phleodes crenana; has much the same habit, so marked in Pedisca solandriana (which occurs here in thousands), of dropping or diving to the ground when disturbed. Argynnis aglaia ♂ ♀ plentiful in the deer forest beyond the Allt Druidhe. August 18th: Polia chi in plenty on walls. August 21st: Peronea caledoniana plentiful south side of Loch, at a considerable elevation. August 23rd: Agrotis dauli and Agrotis depuncta, both at ragwort. August 25th: On a fence enclosing a small plantation of larch and pine, Lithoemia solidagnis, not uncommon. August 27th: Sphinx convolvuli ♀, in excellent condition, on a small batten near the Manse at Kinloch-Rannoch. August 29th: Plusia pulchrina found dead in a puddle; near it a larva of Acronycta menyanthidis. September 3rd: On the fence of a small enclosure a few Oporabia autumnata. Pecilochroma occultana netted. September 4th: A worn Stilbia anomala on a pine trunk, and Entepheira flavicinctata, the worse for wear. Apopophyla nigra at sugar. September 12th: Peronea maccana, scarce, flying in the Black Wood of Rannoch. September 26th: Peronea lipsiana bred from Myrrica gale.”

To the Englishman whose collecting has been largely in the Home Counties a trip to the Highlands is a splendid tonic. I found that, though a sexagenarian, I was, without fatigue, able to do my twenty measured miles in a day, and make (not on the same day) the ascent of Schiehallion (3547 ft.)—not a small matter, as those who have tackled the last stage, that chaos of boulders at the top, will admit. It often happened that when I had stooped to pick up a few twisted leaves of Myrrica, or anything else, I had an unsuspected audience of twenty or more head of deer taking stock of me from a distant ridge, and perhaps one or two mountain hares sitting bolt upright but watchful, while the grouse were always with me. Then, as to creature comforts, there was, if wanted, in addition to the ordinary good wholesome Scotch fare, trout and salmon from the loch and river, and occasionally home-grown venison, all of which contributed to make life away from south-east Essex supportable. No raids!—E. G. Whittle, 7, Marine Avenue, Southend-on-Sea, November 17th, 1917.

Some Notes from West Wickham.—Some notes respecting the dates at which certain insects were noted or taken in the above locality may be of interest, having regard to the severity of the earlier part of the year 1917. A. ascularia was noted on a fence on March 2nd, the insect apparently remaining in the same position for three days. On the 22nd of the same month a ↓ H. leucophaearia was seen drying its wings on the Eden Park fence, a further freshly emerged example being seen on April 7th. On March 22nd a very
bitter north-east wind was blowing, and light powdery snow was falling at the time. April 12th, some ova of _P. cassiaea_ began to hatch, and on the 19th hive bees were noticed for the first time amongst the flowers. _T. instabilis_ emerged the same day from pupa kept exposed to the weather. On April 22nd a swallow was seen and the cuckoo heard for the first time; _E. versicolor_ ova commenced to hatch. Either _P. rapae_ or _P. napi_ was seen for the first time on April 29th, together with _A. artice_; many hats were seen in the evening, a pair of _Noctules_ hawking high up being especially noticeable. The first _C. argiolus_ seen was on May 1st, the humble bees being very busy amongst the gooseberry bloom on this day; _P. terrealis_ larve had commenced to pupate, and ova of _Z. quercus_ to hatch, together with _Z. betulae, B. hispida_, and _P. nubeculos_, all these being kept out of doors. Examples of _G. rhannu_ and _E. cardamines_ were first seen on May 13th, the night-jar being heard the same evening. Larvae of _A. grossulariata_ were rather abundant on the gooseberry bushes about this time; many of them, however, proved to be ichneumoned. _G. syringella_ was out on the fences on May 18th, and cases of _C. lineolella_ were noted on _Ballota nigra_. A fresh specimen of _H. abruptaria_ was observed indoors on May 19th, ova of _E. erosaria_ and _H. croceago_ commencing to hatch on the same date. _H. arbuti_, a single example, appeared on the 22nd, _D. tiliae_ emerging from a pupa on the same date, followed by _P. brassicae_ on the 26th. On the 30th _E. centaureata, P. bucephala_, and _B. terrealis_ began to emerge. June 6th found _C. bifida_ emerging, and a visit to the wood with beating tray resulted in a few full-fed larvae of _B. parthenias_. On the 11th _C. phloxas_ (two specimens) appeared in the garden, and _R. tenebrosa, M. furuncula, D. pinastri_, and _A. nebuloasa_ put in an appearance at sugar the same evening. From this date onwards to mid-July the _Plusias_ were very abundant at the flowers of red valerian. _P. moneta, P. chrysis_, _P. iota_, and _P. pulchrina_ were common, _P. chrysis_ being the most frequent visitor. Seven examples of _T. porcellus_ were also seen. _P. gamma_, curiously enough, was unusually scarce. _E. coronata_ was noted at rest on June 14th and 23rd, July 15th, and August 2nd. The evening of June 18th was a notable one for insects, _Plusias_ simply swarming at flowers, five species being netted. _S. myopaformis_ began to emerge, June 15th, and _E. rectangulata_ with its many varieties put in an appearance about the 23rd. A single example of _P. cardui_ was seen on July 2nd, and _M. maura_ appeared at sugar the same evening. A _C. fluctuosa_ was taken on the garden fence on July 15th, whilst on the 17th _E. expallidata_ began to emerge from Darenth pupa. In the evening of the 17th _T. derasa, M. maura, A. pyramide_ came to sugar. July 21st, _C. ambigua_, a single specimen, was taken at sugar, and ova of _M. athalia_ commenced to hatch. _C. argiolus_ was again noted near ivy on July 24th. On July 25th a full-fed larva of _C. bifida_ was taken crawling down a poplar stem about 11 p.m. August 2nd, several _O. antiqua_ were seen dashing about. (Many of this species were noted about this date in Victoria Street, Westminster, and Pierids seemed unusually numerous in London. A _Lycaenid_ butterfly was noted in Trafalgar Square on July 24th.) August 3rd, _H. nictitans_ began to appear at sugar, and was very
plentiful for some weeks, together with *N. rubi*. *T. subtusa*, one example at rest on a fence on August 7th, about which date *C. affinis* and, more rarely, *C. diffinis* began to show themselves at sugar. *C. nypta* came to sugar for the first time on August 17th, a pair being seen at Hatfield, Herts, on the previous day. *P. atalanta* was first seen on September 2nd, and occasional specimens were seen up to October 30th. *A. pistacia* and *A. litura* came to sugar on September 26th, together with *H. rostralis* and one specimen of *X. gitlago*. *X. citrugo* did not appear this year. One example of *C. edusa* was noted by my brother, Mr. J. C. Kershaw, at Fawkham on September 27th. *A. lunosa* and *C. vaccinii* came to sugar, October 1st: apparently cannonading does not inconvenience insects at sugar. *S. satellitia* and *M. oxyacantha* were taken at sugar on October 31st, but the variety *capucina*, which is usually more plentiful than the type, was not seen. On November 14th a three-year-old pupa of *H. defoliaria* disclosed a finely coloured insect. Curiously enough, the winter heliotrope *P. fragrans* was in full flower on November 30th. The trees in the West Wickham Wood appeared little the worse for their recent visitation of *T. viridana*, and the examples seen of this insect were about normal as regards numbers. Very large numbers of larvae of *C. trapezina*, however, were noted, sometimes as many as ten or twelve larvae falling to one blow of the beating stick. May I take this opportunity of saying that I have a small larva of *L. arion*, about \( \frac{3}{10} \) in. long, in spirits, if any one requires one for figuring or dissection?—G. Bertram Kershaw; "Ingleside," West Wickham, Kent.

**Pins and Verdigris.**—Mr. Sheldon's observations on verdigris (*antea* pp. 30–33) are extremely interesting. I have often wondered whether the use of forceps with black and other pins has been the cause of verdigris, by causing the layer of enamel or tin to shelf off and expose a particle of copper. I find, however, that if black pins are closely examined almost every other pin (apart from the wasters and stuck-together pins) has one or more minute "bubble" holes on it, exposing the bare metal. I have often intended to try whether a lacquer of platinic chloride on the old tinned pin would prevent verdigris. If Mr. Sheldon would care to make the experiment I should be happy to send him a minute phial of chloride, such as is used by opticians for bronzing scientific instruments. The pins would need to be absolutely freed from grease by an alkali, cleaned off, warmed, and dipped in the solution when hot. Probably two dippings would be required. Has Mr. Sheldon tried ether as well as toluol?—G. Bertram Kershaw; 9, Victoria Street, Westminster, S.W. 1.

**Formaldehyde for Fixing the Wings of Entomological Specimens.**—In my paper on "The Treatment of Entomological Specimens Affected by Verdigris," in which I recommend the use of the vapour of formaldehyde for fixing the wings of relaxed micro lepidoptera (*antea* pp. 30–33), I state that the use of this vapour, "so far as I know, has not been recommended for fixing those which have been relaxed." This was strictly accurate, so far as my knowledge went at the time the statement was made, but my attention since its publication has been called to an article by Dr. St. John in the
Entomologist,' xlix, p. 112, in which he states that by the injection of a 5 per cent. ethereal solution of formaldehyde he successfully made rigid the wings of about three dozen large butterflies after they had been relaxed and set. I am afraid this process would be too drastic for micro lepidoptera, but it should be very useful to those who have to manipulate large macros, and in any case it is an important discovery which promises to repay further experiment and investigation.—W. G. Sheldon; February 16th, 1918.

Abundance of White Butterflies in 1917.—The abundance of Pieris brassicae and P. rapae in 1917, noted by Mr. Adkin in the 'Entomologist,' seems to have been pretty general. P. rapae was especially common on the Gog-Magog Hills, near Cambridge, last autumn, and a Cingalese friend of mine, cycling there at the time, ran into an immense flock of these insects, being forced to dismount after a few yards owing to their numbers. They must have been very thick as his coat was covered with white scales from their wings, a fact which so impressed him that he wrote home to Ceylon about it! A farmer standing by expressed fears for his crops, but remarkably little damage appears to have been done in the fields, although gardens suffered tremendously. It would have been interesting to know whether the butterflies were all of one sex or not.—Hugh P. Jones; "Lynfield," 19, Tenison Avenue, Cambridge.

Papilio machaon.—Mr. Nicholson (antea p. 45) is no doubt right when he thinks there is small chance of liberated P. machaon ♀♂ being impregnated. Still, there is also a chance that it may have happened, as probably other specimens of both sexes were about at the same time, and an undoubtedly liberated ♀ of P. bianor was actually seen ovipositing and larvae secured later on. The only way of ensuring a successful colony of such conspicuous butterflies as above seems to be to choose a more secluded locality, and there should be plenty of such places about. I have in mind the many acres of rather damp meadow lands (i.e. those following the course of rivers) to the south of Cambridge, which are, in parts, covered with wild carrot, fennel, etc., and possess, at Durnford Fen, still further out, a fauna and flora almost equal to Wicken. I am always surprised at not finding machaon here in some of the bogs, as most of the purely fen insects occur. All this is rather a digression. I only mention it on the chance that a collector overburdened with hale and hearty "swallowtails" might turn out a few pairs in similar country, I am hoping to do something of the sort myself this season. Hitherto the few specimens that have fallen to my lot have passed to "happy hunting grounds" far, far away!—Hugh P. Jones; "Lynfield," 19, Tenison Avenue, Cambridge.

Hydriocia crinanensis at Burnley.—During last winter the Rev. C. R. N. Burrows wrote me that he had found a specimen of H. crinanensis among some Hydricias I had sent him. Upon receipt of his note, I sent him all the other Burnley specimens I had left (three), and he pronounced them to be all H. crinanensis. This last summer I took a number of similar specimens on flowers in the Burnley district, a hilly pasture on the slopes of Rendle, and
of these I submitted five to Mr. F. N. Pierce for examination, and he considered them all crinamensis. I think, therefore, we may consider this species is well established here, at least in this particular district. Only one, from Bolton, has been previously reported from Lancashire.—W. G. Clutton; 132, Coalclough Lane, Burnley.

Pyrameis atalanta in January.—Yesterday (January 25th) the weather being warm and sunny, I saw a specimen of P. atalanta flying about the ivied side of a house having a southern aspect. The insect, which appeared to be in good case and strong on the wing, came down and settled within 6 ft. of me, a fairly good specimen. I am wondering whether this appearance at such a date will help in any way to determine the much-discussed question as to whether it does or does not hibernate in this country. Very few weeks out of the fifty-two can have failed to show an odd specimen of Io, Uricea, or Polychloros in this mild climate, but Atalanta in mid-winter is at least new to me.—R. H. Fox; Nuthatch, Shanklin, Isle of Wight.

Colias edusa in Essex.—On September 8th I went with my friend, the Rev. G. H. Raynor, to Purley, in Essex, to hunt for Colias edusa, and found the species in some numbers. Mr. Raynor succeeded in inducing one of them to lay a batch of ova and sent them to me to rear. Having on a previous occasion had a partial failure when attempting to rear some late in the year in a vinery where the temperature was comparatively low, I determined to use more heat after the outside temperature became cold. The ova were placed on potted clover in outside temperature and hatched on September 18th. Shortly afterwards the larvae were transferred to a hothouse having a temperature of 80° Fahr. October 13th pupating commenced. The first larvae had fed up in twenty-five days. October 25th first butterfly emerged. Time in pupa stage twelve days. November 8th last butterfly emerged. Total, 9 ♂, 12 ♀. I only lost three and these by accident.—E. E. Bentall, The Towers, Heybridge, Essex.

Is Gypsonoma aceriana Double-brooded?—If Gypsonoma aceriana has a partial second brood the larva may feed in the way suggested by Mr. A. Thurnall (antea p. 43). What follows supplies my reason for so thinking. In the early summer of 1915 I found a larva of this species in a shoot of Lombardy poplar. As the shoot was partly destroyed in getting a view of the larva, another shoot bearing two young leaves was placed in the box. On opening this the next morning, I was surprised to find the larva feeding on the leaves, and on leaves it was ultimately reared.—Alfred Sich; February 5th, 1918.

Increase of the Black Form of Hibernia defoliaria in Epping Forest.—In the May, 1917, number of this Journal (No. 648), I gave a few notes regarding the occurrence in Epping Forest of a black aberration of ♀ H. defoliaria, the percentage of which, as compared with the typical mottled form, I found to be about 1 per cent. In order further to investigate the distribution of the black ♀ examples in the Forest I searched for about four hours on two successive day, viz. December 25th and 26th last, these being favourable days, as they were comparatively mild, following a spell of cold
weather. The female examples were plentiful, and I systematically noted the number seen, and when the number of typical female examples reached 100 I had boxed two black examples. When the total touched 200 I had four black ones, and had by then searched over a considerable area. I was then approaching the more restricted area, covering about a quarter of a mile square, where last year the black variety appeared to be more plentiful, and I quickly added to the number of black examples, for by the time the total of typical ones seen had reached 240 I was in possession of ten black ones. On the following day I worked over practically the same area, and again the number of black ones averaged about 4 per cent. of the total seen, the total being considerably in excess of the previous day's total. If I had confined myself to the restricted area only, the average would have been considerably higher than four, but in order to arrive at a more accurate result I considered it necessary for my operations to cover a fairly extensive area. The dark melanic variety of _H. defoliaria_ is undoubtedly on the increase in Epping Forest, and after the termination of the war, when it again becomes possible to use a lantern, I shall endeavour to investigate the distribution of the melanic male examples. In December, 1914, I captured a dozen fine smoked male examples, which appeared to be a large number, for my total during the previous twelve years had only been three. It is possible that the melanic male examples have increased considerably since 1914. The above statistics may be of interest as a record of the distinct increase during one season of the black form of female _H. defoliaria._—R. T. BOWMAN; 108, Station Road, Chingford, E. 4.

**Butterflies Collected in the Alpes-Maritimes, near Menton.**—During the months of September and October, 1916, and March, April, and May, 1917, I collected in the neighbourhood of Menton forty-eight species and varieties of diurnal Lepidoptera. Those which I had already collected at Vernet-les-Bains are not enumerated again. After my return from Vernet-les-Bains to Menton on September 11th, 1916, I procured an insect net with a 12-in. opening and began to collect at sea-level, ascending subsequently to about 300 ft. I selected first a spot off the sunny and sheltered Boulevarde de Garavan where a clump of brambles was frequented by numerous insects and worked thence up both sides of a steep ravine, first the east then the west side as far as a path leading in the direction of Castellar by way of the Côte de Colla. It was in these localities that I caught most of my autumn specimens. I also collected a few on the old Sospel road about half-way to Monti and yet others close to the sea in the East Bay. The species and varieties hitherto uncollected by me, which I captured in September, were _Colias hyale_ ♂, _C. edusa_, ab. _pallida_, _Pontia daplidice_ ♀, _Pyrameis cardui_, _Pararge egeria_ var. _intermedia_ ♂, and _Epinephile jurtina_ var. _hispilla_ ♀. In October I caught _Satyrus amalthea_, Friv., _Pararge egeria_ var. _intermedia_ ♂, _Chrysophanus phileas_ var. _eleus_ ♂, _Lampides boticus_ ♂, _Tarmecus telicann_ ♂ and ♀, and _Agrionodes hylas_. The country behind Menton consists of cols or ridges with intervening valleys extending towards a bare rocky

*Printed as pronounced.*
mountain barrier about 2500 ft. in height. The cols attain a mean height of about 600 ft. and are cultivated in part, and produce vines and olives. To the partly cultivated an almost wholly uncultivated area succeeds densely covered with low flowering shrubs, chiefly papilionaceous shrubs and cistus, and it is necessary for collecting purposes to reach it. I soon found that the cols most frequented by butterflies were the Col de l’Annonciade and the Col de la Madone, especially the latter. I collected chiefly on these cols in March, April, and May. I also collected a little in May, near Sainte Agnès. The only butterfly which I caught in March was *Pontia daplidice* var. *bellidice*. In April I secured *Papilio podalirius* ♀, *P. machaon* (pale form), *Euchloe ansonia* ♀ and ♀, *E. tagis* var. *bellezina* ♀, *Gonepteryx cleopatra* ♀, *Pararge mera* ♀, *P. egeria* var. *egerides*, *Callophrys rubi* ♀ and ♀, and *Nomiades melanops*. In May we caught *Papilio machaon* (dark form), *Leptidia sinapis* var. *lathyri*, *Pararge mera* ♀, *Scolitantides orion* ♀ and ♀, *S. baton* and *N. cyllarus* ♀ and ♀. *Leptidia sinapis*, was caught again and *L. duponcheli*. *Papilio machaon*: Pale form, April 10th, 1917; dark form, May 11th, 1917; Col de l’Annonciade. There are certainly in the neighbourhood of Menton pale and dark forms of *machaon*. The dark examples are smaller than the pale ones and have the ground colour markedly ochreous, and on these the sub-marginal lunulate markings on the hind wings are larger than on the pale examples which is the contrary of what one would expect. When on the wing *machaon* looks darker than when in the hand. There appears to be a fusion of yellow and black or of ochreous and black during rapid motion. *Tarucus telicanus*: Apparently a very variable species. A butterfly which I saw near Granada last October resembled the *telicanus* caught near Menton but was much darker; some of the markings were almost black. *Satyrus almatheia*, Friv., October 11th, 1916: This species has apparently not been recorded from the Riviera.* Lycæa orion*, May 5th, 1917: Examples were thickly powdered with purple scales. I also caught (October 3rd, 1916), a *P. icarus* ♀, the orange band on the under surface of the fore wing of which is obsolete. Several *Hesperidae* have not as yet been determined.—JAMES R. MCCLYMONT; Seville, Spain, January 16th, 1918.

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**OBITUARY.**

We regret to announce the death of the Rev. F. E. Lowe, of St. Stephen’s Vicarage, Guernsey, which occurred on February 21st. An obituary notice will appear in our April number.

* [As this species has never been recorded by M. Oberthür. Mr. Powell, and others who know every inch of the ground, I think there must be a mistake in identification.—H. R.-B.]*
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SOME NOTES ON *PLEBEIUS ARGUS* (*ARGYROGNOMON, AUCT.): ITS SCANDINAVIAN FORMS AND DISTRIBUTION.

By H. Rowland-Brown, M.A., F.E.S.

In my obituary notice of the late Mr. R. S. Standen ("Entomologist," vol. 1, p. 264) I mentioned his claim to have captured *Plebeius aegon* var. *corsica*, Bellier, in Southern Norway. I also suggested that the purchaser of the Plebeiids from Mr. Standen's collection might be able to throw some light upon the subject. A few weeks after the notice appeared I was able, through the good offices of Mr. J. C. Stevens, to get in touch with Mr. Pether, the possessor of the lots in question. This gentleman most kindly sent for my inspection the Plebeiids taken by Mr. Standen in Norway, and permitted me to retain a male and female of the "*corsica*" taken at Soon, about twelve miles south of Christiania on the fjord of that name, and recorded in the pages of this magazine.

At first sight of the upper side they appeared to be the form of *P. aegon* named by Tutt var. *masseyi*; and when it is remembered that Tutt himself originally announced the occurrence in Westmoreland of var. *corsica* on the strength of Mr. Massey's Witherslack specimens, it is not unreasonable to suppose that Mr. Standen identified his Norwegian "*corsica*" from Mr. Massey's description,* which was admittedly suggested by Tutt.

Otherwise, how Mr. Standen came to identify this bog form of *aegon* with var. *corsica* is incomprehensible. He had personal knowledge of the Corsican form with the typical and, I believe, invariable "blue" female, when he wrote his note ("Entomologist," vol. xxxvii, p. 263, 1904), having collected in the island, and reported his captures in 1898 (op. cit., vol. xxvi). Tutt's identification is even more remarkable, in view of his habit of careful and meticulous investigation, and the considerable number of examples of the true var. *corsica* in British collections at his disposal even thus early. The under side of the wings of the ♀ *masseyi* displays the exact antithesis of the blurred pale marked ♀ *corsica*. But the error, already adjusted in 1909, was

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finally put right when the third volume of 'British Butterflies' appeared, and though I am not aware that he had inspected Mr. Standen's Scandinavian Blues, no Norwegian habitat for var. corsica is mentioned; nor do we find a Scandinavian locality cited for var. masseyi. Whether, indeed, masseyi does or does not occur in Scandinavia, where all conditions are locally in its favour, remains to be seen. The Soon and Sæter-støen Piebelds taken by Mr. Standen, and now in Mr. Pether's and my own collections, are certainly P. argus (= argyrognomon, Auct.), and not a form of P. aegon, Schiff.

The male argus from Soon, subjected to a moderate-power lens, discloses no spine upon the tibia of the fore legs—a character, by the way, acknowledged as long ago as Herrich-Schäfer (1843), and more thoroughly determined as distinguishing argus from aegon by Aurivillius, Schøyen, * and De Vos † whose drawings from the microscope are admirably reproduced to illustrate his remarks on the subject. The fringes, though white in degree, lack the snowy whiteness of aegon, though here again Schøyen states that the fringes of the northern argus tend to become whiter; the marginal black borders are all narrow, and the blue is still the blue of typical argus, though somewhat brighter than normally. In both sexes the arrangement of the black spots is as in typical argus, though they closely resemble those of aegon in shape.

To confirm my necessarily superficial diagnosis I submitted the specimens to Dr. T. A. Chapman, who, with his usual kindness, at once undertook to examine the male appendages. As I myself at first sight, he observed the strong resemblance to aegon, and acknowledged the safe reception of my "aegon-like" examples. But I am glad to say that there is no doubt whatever as to the specific identity of the Soon argus. Dr. Chapman pronounces the structure of the male appendages as that of typical argus (argyrognomon), and has presented me with the microscope mount.

With regard to the female, the bright blue invasion of the wings on the upper side, extremely rare in N. Europe outside Scandinavia (and probably Russian Lapland)—familiar to us as an occasional aberration of aegon, and as constant in var. masseyi—is by no means unusual in the Scandinavian forms of the ♀ argus; and the further north we go, in my experience, the tendency to blueness increases, culminating in lapponica cerulea, Strand.

I have in my collection series taken by me in July, 1906, at Abisko, Swedish Lapland, Alten or Bossekop, ‡ lat. 70° 17' N., two males from Östersund, in Jemtland, mid-Sweden; and five beauti-

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* Bemærkninger over Lyçæna argus-aegon-Gruppen Ent. Tidskrift,’ 1882, p. 33 et seq.; résumé in French, p. 100.
ful examples taken at Bodø, in Norwegian Finmark, by Mr. W. E. Nicholson on July 31st, 1896. Of my own captures, twelve are females, and, with the exception of two from Alten,* all show traces of blue on the four wings, and in most of them the blue extends from the base to the discoidal cell, and in some to the ante-marginal black band; in no single instance, male or female, would it be possible for anyone who has observed egon and argus in the field to confuse these examples of the arctic variety with any known form of egon. Mr. Nicholson’s Bodø examples are even more unmistakably a form of argus, though the two females are rich brown without the blue wash on the upper side. One male is sky blue; the other purplish blue (the characteristic blue of the species); the under side ante-marginal orange border is continued through from the apex of the fore wings to the inner margin; both on the hind wings and the fore wings it is of a far deeper orange-red (rådgnul) than in the smaller examples from South Lapland and Alten. The females are equally brilliant on the upper and under sides, the metallic spots in both sexes large and bright, as in the case of Mr. Standen’s female example from Soon.

These latter I have also compared with the various forms of argus from the North of Europe in the Natural History Museum Collection, and I can come to no other conclusion than that the Plebeius “argon var. corsica” of Mr. Standen is actually a local form of P. argus transitional from lapponica, but so close to it as hardly to require the conventional “transitus ad.”; the female is therefore var. cerulea, Strand; the male in size and shape is not unlike Gerhard’s figure of var. agiades, to which I shall refer later.

As there still appears to be a doubt regarding the nomenclature of the Scandinavian forms of argus, I venture to offer a few remarks on the subject.

I gather from the bibliography preceding Tutt’s comprehensive study (‘British Butterflies,’ vol. iii, p. 165) of Plebeius argon (which he calls argus, L.) that he identifies the idas of Zetterstedt (‘Insecta Lapponica,’ p. 19. 1839) with a form of argon. This view, in my opinion, is untenable, for argon, as I shall presently show, nowhere penetrates the Arctic Circle; and Zetterstedt’s description, “ceruleo-argentis pupillatis,” disposes of the identification with Meissner’s eqidion, which Tutt, no doubt rightly, identifies with Bergstrasser’s philonomus, a central alpine form of argon in which the metallic spots are wanting. Scandinavian lepidopterists of the present day have accepted this conclusion. For example, Wahlgren (‘Ent. Tids.,’ 1912, p. 83) discussing the butterflies of Angermanland, though he sticks to argyrognomon as the type-form name, cites

* A similar range of variation is observable in the P. icarus taken at the same time in this locality.
"lapponica, Gerh. (L. a. aegidion, Auct.)." "Since," he writes, "it seems that aegidion, Meissner, is an alpine form of Lyceena argus, L., our northern race of L. argyrognomon, Bergst., must bear the name stated above."

The question then arises how far we are justified in restoring Gerhard's varietal name lapponica for the northern argus (aegidion, Auct.)* figured plate 34, 3 a, b, c. M. Oberthür ('Lépid. Comparée,' fasc. iv., p. 184), discussing this plate and the other forms of argus and aegon represented by Gerhard, says that, without being absolutely bad, the coloration of the figures lacks refinement, and for this, and for want of precise indications of locality, he considers them valueless for accurate identification. But the text supplies one deficiency at all events, in so far that Gerhard states (p. 19) that the figured examples of his lapponica, which he describes as a form of aegon, came from Lapland; and though the female shows no trace of blue on the upper side, the male is an unmistakable arctic argus.

On the other hand, the butterfly figured on plate 23 as aegidion, Meissner, is certainly not argus lapponica; the text again compels (p. 13) this conclusion, the figures 4 a, b, c being drawn and coloured from South European models. As idas was first given by Linneus to the female argus, L. (= aegon, Schiff. ?), it was none the less a nomin precocentatum when Zetterstedt tacked it on to the arctic argus for both sexes, evidently not meaning to indicate any particular form of argus or aegon, but adopting a name which in the tenth edition of the 'Systema Naturae' (1758) had already been transposed to "P. B. idas . . . habitat in Indiis." Intermediate authors have perpetuated the name aegidion, Meissner, in error; but, by the laws of priority, Gerhard's name lapponica prevails. Now I see Dr. Courvoisier, of Bale, applies idas to argus as the specific name, which seems again contrary to the law of priority, irrespective of Rambur having given the name in 1838-39 to an entirely different species, and confusion is worse confounded.

The typical lapponica is shortly described by Aurivillius (Nordens Fjärilar, pp. 12-13) as distinguished from the type by the smaller size; the male, upper side, light blue; under side lighter with smaller eye-spots. Approaches argus (= aegon) in appearance but the ♂ may be immediately distinguished by the male scales (androconia); and the ♀ by the feeble white markings on the under side.

* 'Versuch einer Monographie der eur. Schmett. arten Thecla, Polyommatus, etc.,' 1853, where it is curious to observe that while lapponica is spelt thus in the text, in the legend to the plate it is laponica.
† E.g. 'Lépid. Comparée,' xiv, p. 33, etc., 1917.
‡ The distinction of the androconia is evident from the many excellent figures published by various authors; and is clearly demonstrated by Dr. Courvoisier ('Lépid. Comparée,' fasc. xiv, p. 39) who publishes in the same work comparative drawings of the scales in aegon and idas (= argus), and armoricana, bellieri, aegus (= liguica, Couv.), Chpmn., and nirea, Couv., all of which four last mentioned have been separated from argus in the last few years.
Lampa's (‘Skand. och Finland's Macrolepidoptera,' p. 13) description is as follows: "Somewhat smaller, upper side violet-blue, under side lighter than type; eye-spots on wings smaller, the red-gold marginal band paler." He does not indicate sexual distinctions. Unfortunately, neither he nor Aurivillus has figured the northern race; and Gerhard's plate apparently is the only illustration down to the present time.

As far, therefore, as I am able to determine in the south of the great peninsula there occurs a form of argus similar to that which inhabits the rest of the continent, only differing by its size, as might be expected. This small type form gradually merges through intermediate stages with lapponica; and even lapponica type appears to come to the south if only as an aberration.

The several forms of argus lapponica from specimens captured in the Tystfjord, lat. 65° N., and north of Bodo, are described and discussed by Strand in the paper to which I have made allusion (‘Nyt. Mag.’, vol. xxxix, Kristiania), as follows:

(a) ab. cærulea, ♀, invariably with pure white fringes, and basal blue of the upper side extending not uncommonly over the whole wing area.

(b) ab. extincta, ♂, in which the orange ante-marginal row of spots on the upper side of fore and hind wings is wholly and entirely wanting.

(c) ab. extenta, ♂ and ♀, in which the black spots of the under side median series, and sometimes of the basal series, are elongated or drawn out.

(d) ab. demaculata, in which the red-gold spots on the under side of both wings have completely disappeared.

With regard to the all-blue form of the typical argus, it may be said at once that this is extremely rare; and as such is probably represented by calliopis, Bsdv., which is beautifully figured ♂ and ♀ by M. Oberthür (‘Lépid. Comparée,’ fasc. iv, pl. xlii, figs. 312–320) from Boisduval's types now in his collection. In this ♀ form the whole of the upper side of all the wings to the black marginal borders is clear lilac-blue. Examples in my collection of the type from Digne are suffused with brilliant purplish-blue, much darker than the blue of calliopis, from the basal to the median area of all the wings; an example from Zinal, Val d'Anniviers is suffused over the entire area. But generally speaking the higher alpine ♀ argus (= argalus, Frey), e.g. from Allos, La Grave, etc., Arolla, and the Saas Thal, is wholly without blue; or it is but faintly indicated at the bases, culminating in ab. unicolor, Favre, of uniform brown without orange markings (taken by me at Saas). I suggest the name cæruleoscens, for the first mentioned half-suffused form of the ♀; cærulea for the all-blue ♀ other than of the form (? species) calliopis, Bsdv., and the same
nomenclature may be applied to the blue forms of _lapponica_; _coeruleus_ for those in which the blue pervades no more than the basal to median area; reserving Strand's _coerulea_ for the form in which the whole area of all the wings is submerged to the borders.

There are, of course, intermediates in the several forms of the ♀ type and ♀ _lapponica_; as I have noted my Scandinavian series runs through the whole gamut from the all-brown ♀ from Alten to the all-blue form also from Alten, and taken on the same ground. The Soon ♀ is actually an intermediate between _coerulea_, Strand, and _coeruleus_, mihi, in which the blue extends over the area usual in _eugon_ var. _corsica_, of which species I have never seen or heard of an all-brown example. One blue ♀ from Alten on the upper side exactly reproduces the colour and size of my most brilliant _masseyi_ from Witherslack.

Comparing the under side of ♂ ♂ from the higher Alps with the Scandinavian _lapponica_, the ground colour of the latter is almost invariably darker and more ashen, while the _café au lait_ brown of the ♀ exhibits a similar tendency.

I am aware that Mr. Wheeler ('Butterflies of Switzerland,' etc., p. 43) has announced the blue-suffused ♀ as the type form. But he did this when he accepted Staudinger's wholly indefensible application of Bergstrasser's _argyrogonomon_ to the species in place of _argus_, L., the type ♀ of which (assuming Linneus to have described his _argus_ from _argus_, Auct., and not from _eugon_, Schiffermüller) is certainly brown; just as the type ♀ of Gerhard's _lapponica_ is also brown without trace of blue on the upper side. By retaining _argus_, the name invented for the all-brown ♀, ab. _et var. brunnea_, Spuler, falls. That Mr. Wheeler followed Staudinger with extreme reluctance is explained in his footnote (p. 43); he did so to avoid re-naming the species altogether. For a decision to settle the vexed question of the model of Linneus' _argus_ we must wait the judgment of the International Committee of Nomenclature. Meanwhile, until the oracle has spoken, I prefer to range myself as one more _Auctorum_ who is not satisfied that the case for changing the name of _eugon_ Schiff., to _argus_, L., is proven. But whatever that pronouncement may be, it is clear that if _argus_ is referred to _eugon_ a new name will have to be discovered for the species under review.

It may be interesting to observe here, also, that the two most interesting male under side aberrations in my collection are both from high mountain localities. The mountain ♂ form of the Central Pyrenees is of a less lilac-blue—a deep ultramarine—than the lowland type form; the black borders are (in this case) wider and broader—more like the mountain form of _eugon_, in fact. The under side is remarkable; the specimen
is perfectly fresh and was taken at Gavarnie, Hautes-Pyrénées, at an elevation of not less than 5000 ft., in July, 1905. On both fore wings the marginal spots are extended into the fringe giving it a chequered appearance; the ante-marginal ochreous band has disappeared, and the black spots are accentuated—the median row on the other hand are small, but decided. On the hind wings, the basal spots are obsolete; the median reduced to tiny points; while the ochreous band is dark, and the metallic kernels of extreme brilliancy. In the other ß ab., on the under side the fore wings are unspotted with the exception of the discoidal, and faintly marked obsolescent median spots; the whole wing area is dun-coloured, the reduction of spots not quite so pronounced on the hind wings, and the whitish band has disappeared. This specimen was captured by the late Dr. H. C. Lang, at Campolungo, on July 14th, 1905, at about 7500 ft.

We may now proceed to examine Gerhard's description and figures in detail. He writes (loc. cit., p. 19): "Var. Lapponica, mihi, Lappland. A variety of egon brought from Lapland by Herr. J. Keitel, which is separated essentially from the same (i. e. egon) by the more pointed shape of the wings as well as by the spots of the under side."

This does not help us very much except that it fixes the locality. We must look, therefore, to the figures (pl. 34, fig. 3, a, ß, b, c, ?) : a, if it does not fulfil M. Oberthür's requirements "pas de bon figure," at all events is a quite recognisable ß Lapponica; b represents a ? (it is decidedly more suggestive of a ß) under side in profile, the ante-marginal band is pale yellow, quite a common form; the ground colour ashen-grey; c is an all-brown ? upper side which might pass for any small form of egon or argus irrespective of locality, the brownish-yellow-orange ante-marginal spots are continuous on both wings. It fixes the brown form as the type.

Immediately beneath is figured: "'Var. aegiades, mihi, nörd Deutschland' (sic). This variety . . . is distinguished from egon by its size, the defective marginal band on the upper side of the fore wings and by the arrangement of the spots on the under side”—not a very illuminating description, and it is scarcely surprising that var. aegiades has fallen into oblivion. The figure 1. a of the male however, rather suggests in size and colour the Soon ß argus, as does 1. b, the ? with the more egon-like arrangement and size of the spots on the under side, the Soon ? argus.

Gerhard's lapponica is, however, sufficiently well figured to leave little doubt of its affinity with argus whatever may have been the relationship of his aegiades.

Other points of interest suggested by these Scandinavian forms of P. argus are the failure to produce a second emergence,
and the comparative northerly distribution with that of *P. aegon*. Both occur in southern and middle Scandinavia, but as far as I can gather from the numerous lists and catalogues of Norwegian and Swedish lepidoptera consulted, *argus*, unlike the *argus* of middle Europe, is single-brooded as well as *aegon*. This, of course, is but natural in view of the fact that double-brooded species in the warmer south tend invariably to single-broodedness in a more rigorous climate, and often when normally warm summers are abnormally cold.

*Aegon* in Britain, in the greater part of France, and I think, in all mountain regions above 3000 ft., has but one emergence. I have taken examples of a second emergence in August on the sunburnt lavender-haunted hills of Lozère. In the lower Pyrenees (following Rondou) there is but one; even apparently in the warm valley of Le Vernet, which enjoys a Mediterranean climate. In the Basses-Alpes, on the contrary, there appears to be a partial second brood, while in the valley of the Saône as far north as Mâcon there are clearly two (fide E. André, *Lépids. de Saône-et-Loire*) as the butterfly is recorded at Mâcon from May to September. And though in Brittany M. Oberthür has observed but one, Guénéé (*Lépids. Eure-et-Loir*) records an August emergence in his department. In the lower regions of Switzerland, *e.g.* the neighbourhood of Geneva, a second emergence takes place from the first week of July to the first week of September.*

Pending further accurate information, I am inclined to place the Loire valley in western Europe as the extreme northern limit of the second emergence of *aegon*, as with many other lepidoptera of this habit; and probably lat. 47° N. may be taken as a more or less likely geographic of the second brood west of the Ural, with the vertical exceptions to which I have alluded.†

The case of *argus* (almost invariably cited as *argyrognomon* by recent authors) is quite otherwise. A second emergence occurs in Brittany, but the species appears to be wanting altogether in the north-eastern departments west of the Seine and north of Rheims (Marne), as, I think, the several notices collated in my MS. catalogue are extremely doubtful, and require modern confirmation. In North Germany one emergence only is recorded in Schwerin and Pomerania, in July and August, and at Bremen (Rühl, *Pal. Gross-Schmetterlinge*, band i, 233, 752). In Denmark Klöcker's record (*Sommerfugle*, i, p. 86, 1908) rather suggests a double brood—"Larva, May—July; imago, June—August"—but he may only indicate a some-

† There is a strange error of transcription on p. 163, vol. iii *British Butterflies.* Tutt is quoting a passage from Rühl's description of a *aegon*. We read: "Taken at Amboise, at an elevation of 6000 ft." Rühl records Leilièvre's capture of the gynandromorph in question. "At an elevation of 6000 ft." begins a new sentence, and refers to the vertical distribution of the species as a whole!
what prolonged season of emergence. In Teich's list of Lepidoptera of the Baltic Provinces argus appears without comment of any kind. It seems reasonable to regard a second brood as abnormal north of lat. 54° N.

In Scandinavia I can find no record of a second seasonal emergence. In Russia the type does not appear to occur north of lat. 54° N., but I have no precise information on the subject, or even whether the authors distinguish eegon or argus at all. Neither appear in Blocker's list for the Olonetz Government (‘Rev. Russ. Ent.,’ 1909), but argus is recorded in Vologda, a vast department of the old Russian Empire stretching half across the country from Novgorod in the west to the Urals of the northeast up to lat. 64° N. Lampa records egidion, Meissn., in Finland, but unfortunately in this, as in all other cases cited by him, there is no indication of the time when the imagines occur.

Lastly, assuming that it is quite impossible to draw a hard-and-fast line between argus and its var. lapponica in Scandinavia, and with the knowledge that there are obvious areas of inter-mixture and of transition forms, we find the comparative distribution of the two species in one form or another fairly well ascertained. Admitted that Linneus' argus is argus, and not eegon, then it follows that Siebke's* view of the distribution of eegon in Norway—"as far north as Bossekop"—is at fault. Plebeius eegon in Norway finds its northern limit in Romsdal at 62° 20' N. (Schøyen); in Sweden at about the same latitude in Helsingland (Lampa). Plebeius argus or its var. lapponica, on the other hand, occurs through every Norwegian province to 70° 18' except S. Bergenhus, and finds its ultima Thule in the middle region of the Porsanger Fjord (Sparre Schneider). In the Sydvaranger, lat. 69°-70° N., it was found by Sandberg in 1883 flying from Praestegjael to Bøgfjord and Kirknes (‘Ent. Tid.,’ 1885, p. 192). Sparre Schneider† says that, although he had not seen Sandberg's examples taken from the Sydvaranger to Muotkavara, on the borders of Finland, Sandberg had stated that those from the interior seemed nearest to the type, while those from Kirknes were more like egidion, Meissner. Schilde took two females at Kuasamo, lat. 66° N., in N. Finland, early in the "seventies." Mr. Sheldon‡ does not appear to have found it on the Porsanger when he was there in 1912.

In Sweden var. lapponica reaches up to the highest north entomologically explored, and appears to be universally distributed. Where the type form occurs with eegon it attains considerably greater altitudes than its congener, and no doubt.

† 'Trondheim Museums Aarshefter,' xviii, 1895, p. 8.
‡ 'Lepidoptera of Odalen and Finmark,' 'Entomologist,' vol. xlv, p. 309, etc., 1912.
the same is true of the transition forms overlapping the restricted \textit{aegon} areas.

Should this paper meet the eye of any Norwegian or Swedish lepidopterist, I hope that he will be good enough to inform us more definitely, if possible, the dividing lines of \textit{argus} and its var. \textit{lapponica}, and also the precise northerly limit of \textit{aegon}. It would also be interesting to know whether \textit{aegon} var. \textit{masseyi} has been detected in Scandinavia.

Harrow Weald,
January 20th, 1918.

\section*{TWO NEW SPECIES OF SATYRIDÆ FROM SOUTH AMERICA.}

\textbf{By Percy T. Lathy.}

\textit{Tisipiane distincta}, sp. nov.

Allied to \textit{Tisipiane maculata}, Hopff., but fore wing above with wide, unbroken, discal, creamy-white band extending from costa to submedian nervure; this band fills outer fourth of cell, where it encloses a dark brown spot; basal area darker than in \textit{T. hercyna}, and therefore not in such contrast with apical area. Hind wings darker than in \textit{T. hercyna}, and marginal whitish lunules at apex larger than in that species. Under side of fore wing differs from upper side in having discal white band narrower and divided at lower median nervure; white area in cell much less extended, and a blackish-brown spot at end of cell; subapical ocellus larger than in \textit{T. hercyna}, and apical markings more distinct. Hind wings similar in pattern to \textit{T. hercyna}, but markings more distinct, and an additional oval ocellus at anal angle.

Exp., 80 mm. Hab., French Guiana.

A single male of this striking new species was received from St. Jean de Marani, French Guiana.

\textit{Caeois rufomarginata}, sp. nov.

Allied to \textit{C. chorinaeus}, Cram., but fore wing above with fulvous band much wider and differently situated, it being almost a discal band, while in \textit{C. chorinaeus} it is more of a subapical one; this band is nearly as wide at anal angle as at costa, while in \textit{C. chorinaeus} it terminates in a point at anal angle; patch of androconia shining black-brown, and in striking contrast to ground colour. Hind wing with wide marginal rufous band patch of androconia in abdominal area is black, and contrasts strongly with ground colours. Under side of both wings as in \textit{C. chorinaeus}, but with the striation less strongly developed. The female is similar to the male, but has the fulvous bands slightly darker, and, of course, wants the androconial patches. This is a much larger species than \textit{C. chorinaeus}.

Exp., ♂ 114 mm.; ♀ 120 mm. Hab., Central Peru.
One male and one female of this species received from Chanchamayo, Peru. The types of both species described here are in the collection of Madame de Horrack-Fournier, of Paris. As some time ago I described in this journal a new Papilio in the collection of Mademoiselle de Horrack, in order to avoid confusion I wish to state that as the names of ladies are not subject to the same strict law of priority as those of butterflies, that the collections of Mademoiselle de Horrack and Madame de Horrack-Fournier are one and the same.

OBSERVATIONS ON THE HABITS OF THE TURNIP FLEA-BEETLE.

By T. H. Taylor, M.A. F.E.S.

The following notes are the outcome of observations made at Garforth and Leeds during the last few years. Flea-beetles are very sensitive to climatic conditions, and if the statements given here differ from Le Keux's description, it is perhaps because the work was done in a more northerly part of the country. The numerous accounts of these insects which have been published refer chiefly to Phyllostreta nemorum, but, in the Leeds area at least, of the two species usually classed together as the Turnip Flea-beetle, P. undulata is always more abundant than P. nemorum and does far more damage.

The adult beetles of both species appear to resemble each other very closely in their habits. Having passed through the winter in the dormant condition, they begin to feed again in May and June, favourite plants at this season being horse-radish and, among wild hosts, charlock, but not, so far as noticed, either shepherd's purse or jack-by-the-hedge. After mating, they lay their eggs during June, July, and the first part of August, and, having accomplished this duty, begin to die off, none apparently surviving the autumn. In captivity, it is true, specimens have lived through a second winter, but under natural conditions it is very doubtful whether this ever happens.

The new brood of beetles appears in July, August, and September, and, feeding chiefly on the turnip, is in evidence until the weather turns cold. Although nothing approaching a migratory swarm has been witnessed, the beetles when passing to winter quarters in September and October may often be seen alighting en route upon palings, grass-stems, etc. A favourite wintering-place as is well-known is the bark of trees, in the crevices of which they may be found from November to April. In this connection, it may be added, that on one occasion the obvious experiment was tried of exposing pieces of bark in an
infected field during the migration period. The bark was placed around a tree which stood in the field, and although measuring only 4½ sq. ft. in area, yielded when brought indoors over 2500 specimens.

When the season is drawing to a close, flea-beetles before dispersing to cover manifest a habit of foregathering with one another, and congregate often in considerable numbers upon one or more of the plants where they have been feeding. In turnip fields, for example, certain of the plants, generally isolated ones in the headlands, are chosen by the beetles for their rendezvous and, as the riddled condition of the foliage shows, become infested to an unusual degree. When walking beside a kale crop, one sometimes notices amongst the sound uninjured leaves a leaf here and there eaten in one part only, generally at the tip or along the margin, and, on turning it over, finds that, in agreement with the limited area eaten, the beetles are not scattered over the surface but are crowded together in a group. In the laboratory, also, specimens have been noticed at this time of year assembling at some point in the cage and "putting their heads together" as though in obedience to the same habit.

On first emerging from the pupal condition, flea-beetles present a very immature and helpless appearance. The body is still soft and the legs, although completely formed and dark in colour, are too feeble to be used even for walking. In the course of a day or two these defects disappear, and the beetles then make their way to the surface of the ground. During drought, when the soil becomes firmly caked together, it seems probable that fresh-emerged beetles are unable to break through their earthen surroundings; and under these conditions, when rain comes, numbers of young beetles may arrive above ground at one and the same time, and give rise to the impression that an entirely new generation has appeared, whereas they are merely members of the first daughter generation that have been delayed in their passage to the surface.

Beetles that have recently emerged can be readily recognised by the white colour of the stripes upon their back. As time passes the colour changes to a pale straw tint, then to a brighter yellow, and finally, in old age to a dull orange or even brown. By examining the stripes, therefore, one can estimate to some extent a flea-beetle's age, and can distinguish young beetles from year-old beetles produced the previous summer. Since individuals of the year-old or parent generation are about all the summer, the production of the young or daughter generation is not confined to one restricted period but is continued throughout the season. It is not possible, unfortunately, from mere inspection to say whether all young white-striped beetles obtained towards the end of the season are the offspring of year-old beetles or whether some of them at least may not be the offspring
of the daughter generation itself. It is believed, however, that
the beetles which emerge each season are produced by the year-
old generation, and that they on their part do not reproduce
themselves until the following year. This view, it may be added,
is supported by an examination of the soft parts which shows
that even in beetles several months old the ovaries are still
immature.

The figures given below tend to show how variable these
insects are in their life-history when they are bred in the
laboratory. At present it is not possible to say what are the
precise causes of this variation, nor what in each species is
the normal duration of the early stages. It seems pretty certain,
however, when development is unduly prolonged, the reason
should be assigned to something unfavourable in the conditions
of the experiment.

Life-history of Phyllostreta nemorum, L.

The eggs have hitherto been sought in vain on leaves of the
turnip and allied plants. On the other hand, a cluster of four
or five nemorum eggs was obtained from the soil in which a row
of turnips was growing. It has been noticed, also, that when
the beetles are imprisoned in a cage they deposit their eggs
preferably in moist places. For instance, when cotton-wool is
used for the purpose of holding the food-plant in position, eggs
are laid freely amongst the fibres, provided the fibres are wet.
The egg-stage appears to last about nine days, but the evidence
on this point is at present very meagre. The larvae, on hatching,
quit the soil and establish themselves in the leaves of turnip,
garden radish, charlock, sometimes of swede and wild radish.
Their having to crawl up the stalks for this purpose perhaps
explains why nemorum larvae are often found in the basal
segments of affected leaves, and they would no doubt be found
there more often were it not that they can pass directly from the
soil to the blade itself when they meet one touching the ground.
When burrowing into a leaf a nemorum larva doubles under itself
in such a way that the body, when half-in, instead of being
stretched out straight is bent like a horse-shoe, the effect being
that when the larva enters it keeps the ventral surface turned to
the cuticle as before but travels in the opposite direction. From
the few records at present available, the larval period appears
to last twenty-five to thirty days. In one instance, indeed,
three-nine days passed after hatching before pupation took
place, but a period of this length is probably very unusual.
The last six to ten days are spent by the larva in burrying itself
in the soil and preparing to pupate. During this non-feeding
transitional stage the body, becoming shorter and broader, bends
at the same time into the shape of the letter C—a shape which
the larva perhaps finds useful in preparing the pupal cell. When
the cell has been completed the larva becomes inert, and after a few days' rest changes into a pupa to the tail-end of which the larval skin, split open and freed from the body, remains loosely attached. The pupa, yellow in colour like the larva, turns into a beetle at the end of seven to seventeen days.

*Life-history of Phyllotreta undulata*, Kuts.

In the laboratory the eggs of these beetles soon perish if they become dry, but when kept moist or even when submerged in water they develop and produce living larvæ. Under experimental conditions when soil is absent, eggs are sometimes laid upon the young central leaves of the plant provided, and it is possible that out of doors the eggs may occasionally be deposited amongst the leaf-bases of a bulb when it happens to be deeply sunk in the ground. Although it is not possible at present to speak definitely on the subject, there seems good reason to believe that the eggs of *undulata* as well as those of *nemorum* are generally laid in the ground near turnips and allied plants.

The larvæ, which are white in colour, hatch in six to eleven days, and begin feeding upon the roots of various crucifers. Larvæ of all ages have been found amongst the roots of these plants, and there is little doubt that the whole larval life is passed underground. The larval period lasts eighteen to thirty days, being divided into three stages, each of which is terminated by a moulting of the skin. The pupa, snow-white in colour and lying in the earthen cell formed by the larva, changes into a beetle at the end of from eight to seventeen days.

These two closely-related species, then, although of similar habits in the adult stage, as larvæ feed one on the leaves and the other on the roots of their common host-plants; and it is interesting to speculate whether the numerical preponderance of the root-feeding form may not be owing to the larva's being sheltered from ichneumons and similar parasitic flies, whereas the other when in its leaf-mining stage is exposed to and, as laboratory observations have shown, suffers severely from their attacks.

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**NOTES ON LEPIDOPTERA OBSERVED IN MACEDONIA, 1916, 1917.**

By Philip J. Barraud, R.A.M.C., F.E.S.

(Concluded from p. 63.)

*Leptosia sinapis*. Generally distributed and fairly common, including several well-known forms. 1916, first seen, 28 : iii, Balje; 1917, early April onwards.
Colias edusa. Abundant, and seen all the year round, even in December; ab. pallida, Tutt (= helix), occasionally in summer.

Gonepteryx rhamni. 1917, fairly common early April and onwards; Saracli, etc.

Dryas pandora. Locally common. 1916, first seen, 11 : v, near Lembet; 1917, 20 : v, Saracli. Common by 1 : vi; at Saracli, one specimen approaching ab. paupercula.

Argynnis and Brethis. It is remarkable that no single species of either genus was observed.

Issoria lathonia. Very common everywhere, and nearly all the year round. 1917, seen near Baisili, 24 : iii; a fresh brood began to emerge about 10 : v.

Melitea phebe. 1916, mountains north of Salonica, 7 : v; Lahana, 16 : vi, a 9 taken measuring 49 mm.; 1917, first seen, 18 : v, Saracli; not very common.


There may be other species of Melitea sent home which I have missed.

Pyrameis cardui. Abundant. 1917, Mahmudli, first seen, 8 : iv; by 12 : v, only worn specimens. Second emergence, 21 : v.

P. atalanta. Fairly common. 1917, Mahmudli, 8 : iv.

Vanessa io. 1917, few seen; mid iv, Saracli. Fresh specimens after 4 : vi.

Aglais urtice. 1916, not seen. 1917, very scarce, Mahmudli, 11 : iv; a few taken in May, Ereselli.

Enogonia polychloros. Not common; Saracli, 6 : vi, 17.

E. xanthomelas. Fairly common locally. 1917, beginning 17 : iv, Saracli. Common, and fine early in June. On July 17th, 1917, two examples which were first noticed testivating in a dug-out on June 29th were still in the same position. Weather the hottest experienced during the campaign.

Polygonia c-album. 1916, Lahana, vi; 1917, first seen, Saracli, 10 : vi ; 17; fairly common.


Charaxes jasius. 1917, a few seen, Orljak, 27 : ix.

Libythea celtis. 1917, first seen, Saracli, 12 : vi; very scarce.

Pararge megæra. Abundant in rocky localities up to highest points visited (3500 ft.). On 20 : v : 17 I took (? var.) an example with fulvous patches on either side of the central grey band of the hind wings.

P. egeria. Fairly common in gullies and woods. 1916, first seen, 28 : iii, Balje; 1917, 8 : iv, Mahmudli.

P. roxelana. 1916, not seen; 1917, Saracli. The first specimen caused some excitement, as I could not remember
having seen one before. It was taken on June 5th, and although we kept a look-out every day, no more were observed until the 10th, when we took five. From the 13th to the 25th it was fairly common, but only in the one locality.

Satyrnus circe. Abundant locally in wooded districts. 1916, Paprat, 10: vii; 1917, Saraeli, 10: vi.

S. statilinus. Abundant in wooded and rocky localities. 1916, Mirova, viii; 1917, Baisili, etc., vii, end.

S. actae. 1916, not met with; 1917, common in wooded localities; first seen, 11: vi, Saraeli.

Hipparchia semle. Not very common. 1917, first seen, 4: vi, Saraeli; a ♀ only 32 mm. wing expanse taken 7: vi.


E. lycan. Rather scarce, and confined to wooded gullies. 1917, first seen, Saraeli, 11: vi. As in most specimens the apical eye-spot is pupilled, I thought this might be a special form or another species.


Erebia, sps. None noted.

Melanargia galatea. 1916, Lahana, 24–30: vi; var. procida, fairly common; 1917, vi, Saraeli.

M. larissa (var. salonice? Gibbs), 1916, first seen, 11: v, and subsequently common on mountains east of Lembet; 1917, first seen, 9: vi, Baisili. The form is fairly common on the Salonica hills and in the Krusha Balkan range; also seen on hills to west of Lake Doiran. In July, 1916, the late Mr. A. E. Gibbs suggested the varietal name for this characteristic form, but I do not know if he left a description of it.

Salonica, December 1st, 1917.

ON AGATHOMYIA COLLINI, VERR., AND OTHER PLATYPEZID DIPTERA.

By Claude Morley, F.Z.S., Etc.

The occurrence of A. collini in abundance should, I think, not go unrecorded, since it appears to have been hitherto found in no more than two localities in the world, both of which are in Cambridgeshire. At the time of its description in 1901, Verrall tells us that Mr. J. E. Collin had caught eleven specimens during May, June, and September, 1896-7, all at Kirtling, but in what kind of situation is not mentioned ('Brit. Flies,' viii, p. 34). The only other reference to the species with which I am
acquainted is Dr. Jenkinson's, from one or two gardens in the
town of Cambridge; here seven more specimens occurred
between July 20th and October 17th ('Ento. Mo. Mag.,' 1903,
p. 178). Both collections comprised the sexes in consort; and
we find that the Pipunculid Dipterone, Chalarus spurius, Fall.,
occurs commonly in the same Cambridge garden (lib. cit., p. 223).

On August 22nd, 1915, I was much elated to take a male of
this beautiful velvety fly on a dining-room window in this house;
but since the economy of the genus is, or was, fifteen years ago,
quite unknown, I regarded it as a migrant visitor, and knew not
where to look for more of the kind. Nor were any seen the
following year. But on June 13th, 1917, another male was
boxed in the orchard, some hundred and fifty yards away, while
sitting on a leaf after hovering in the sunshine. Four days later
a dozen were hovering, exactly as does Chlorops teniopus, Mg.,
at about two feet from the rank grass at the same spot in the
orchard, and settling for a brief time upon the surrounding
leaves of elm and sloe, between three and six feet from the
ground; some of these went to Prof. J. W. Carr at Nottingham,
and I have a few more to give away. Thenceforth the species
occurred very freely for some ten yards square at this particular
spot through July up to August 18th, after which I saw no more,
which is strange in face of the above Cambridge dates; and with
them I took—without noticing any distinction, so very similar
are their facies—the common Chalarus spurius in July. Excluding
the original silent record, there appears to be some connection
between A. collini and gardens; in the present instance, I
suspect that the flies came, as is the usual custom of their
family, from fungi; the only fungi near their rendezvous were
on the trunks of ancient and moribund apple trees, near none
of which they were seen. Their preference for the elm and
sloe leaves may easily be accounted to the fact that the edges of
my orchard have been allowed, pro bino entomologico, to grow
into jungle, while the middle is simply grass and apple-trunks.
The Dipterone is a small and fragile insect, with scintillating
(in female, white) pubescence, which two facts may be supposed
to render as much shelter from wind as possible, a desirable
adjunct to their enjoyment; on one occasion only, a male was
found sitting on whitethorn in a shrubbery a hundred yards
away. In the early spring I hope to collect fungi from the
apples; may it not prove Dead Sea fruit!

Our only other species of the genus, A. antennata, Zett., has
been found in a few British localities, among them is Cambs.;
I swept a single male from tangled vegetation in the grounds of
Muckross Abbey, near Killarney, on June 7th, 1913, and have
heard of no other Irish records. Doubtless this has been a
garden from mediæval times, like my own and those of Cambridge,
which suggests further attachment of the genus to really ancient

ENTOM.—APRIL, 1918.
apple trees, for, be it noted, no garden was ever better worked for Diptera than Verrall's in Newmarket, and he was unable to record thence ('Brit. Flies,' p. 666) a single Platypezid, I believe simply because it had been but recently converted from meadowland with, consequently, no ligneous fungi. And it is remarkable how closely associated this family appears to be with old gardens, as my notes thereon ('Ent. Mo. Mag.,' 1901, p. 281) at Felden in Hertfordshire fully attest; though my capture of a couple of the lovely males of Callimyia amöna, Mg., at West Leake, near Nottingham, on August 8th, 1914, in woods far from any habitation show they are not confined thereto, no less than that effected by Dr. Vinter and myself of Platypeza consobrina, Zett., and P. picta, Mg., on October 5th, 1916, in Parham Wood, near Framlingham. Both these latter flies were beaten from horn-beam bushes, and both were additions to my list of "The Diptera of Suffolk" ('Trans. Norf. Nat. Soc.,' 1915, Suppl., pp. 1-180), which now reaches the total of 1633 different kinds.

Monks Soham House, near Framlingham, Suffolk,
January 10th, 1918.

NOTES ON THE BUTTERFLIES OF THE ANCRE DISTRICT.

By Capt. G. L. Keynes, R.A.M.C.

The following notes will serve to supplement Capt. H. D. Smart's "Notes on the Lepidoptera of the British Line in France," though my observations must not be taken as exhaustive, even for the limited district to which they refer. My duties have kept me for the greater part of this year in the Ancre district, but during the earlier months I was too busy to be able to take much notice of the butterflies in the neighbourhood. It was not until August that I sent for collecting apparatus, and I did so then because I hoped I should meet with Agriades corydon on the chalk hills which rise on either side of the River Ancre. But in this I was disappointed, for neither this species nor A. bellargus were to be found; this can be accounted for by the complete manner in which the land has been cultivated. Some other species were, however, very plentiful.

Of the Hesperiidae I found in August only two species, Adopea lineola and Thymelicus acteon. The latter was difficult to get, and by the end of August had disappeared completely. On the other hand, the females of A. lineola were fresh and plentiful until well on into September, though the males had disappeared by that time.

Papilio machaon was very plentiful from July onwards, and was still to be seen at the end of September.
Colias hyale began to appear in great numbers at the end of July, and was still to be met with during the first week in October. The males varied only in size, but the colour of the females ranged from almost pure white to a yellow very similar to that of the males.

C. edusa was very scarce, and I only saw a single specimen at the beginning of October.

Aglais urticae was flying in enormous numbers all the summer, and Pyrameis cardui was very plentiful during August and September. V. ió and P. atalanta were also common.

Of the Satyrineae certainly Pararge megæra was the most conspicuous, the females being very fresh and fine in August. Melanargia galatea was common in the summer, but in August Coenonympha pamphilus was the only representative of this genus that was at all plentiful. Epinephile jurtina and Aphantopus hyperanthus also occurred, but were very wasted.

The “blues” were represented only by Polyommatus icarus and A. medon. P. icarus was very plentiful; the females were for the most part of the ordinary brown form, but I saw one or two with a very conspicuous dusting of blue scales. Chrysophanus phileas was not uncommon, but I did not meet with any unusual forms.

I need make no special reference to the Pierideæ, as I have no records of their first appearances. The usual species were plentiful in August.

To these observations I have only to add one other, which is of enemy origin, namely, Arachnia levana, var. prorsa. I saw this species in a box of specimens which had been collected by a German prisoner inside his compound and while out at work on the roads. He stated that he caught this specimen in June.

NOTES AND OBSERVATIONS.

Formaldehyde in the Setting of Insects and in the Prevention of “Verdigris.”—I am grateful to Mr. Sheldon for acknowledging, in the March number of ‘The Entomologist,’ my priority in publishing the use of formaldehyde for fixing the wings of relaxed insects. He does not, however, quite clear the matter up in his note on p. 68. The facts are as follows: On pp. 325 and 326, vol. xlvii, ‘Ent.,’ I described my method of hardening specimens by exposing lepidoptera in general to the vapour of formaldehyde while they were still on the setting boards. At the same time I expressed the hope that it would check the formation of “grease” by preventing decomposition. The method which Mr. Sheldon now describes as his (p. 32, February, 1918) is for all practical purposes exactly the
same as that method which I originally described. On pp. 19 and 20, vol. xlviii, 'Ent.,' Mr. Bertram Kershaw stated that he had already forestalled me in the use of formaldehyde for fixing insects, but he had tried a different method and apparently had not published his idea. At the same time he suggested hypodermic injections of formaldehyde in ether. As a medical man, I am constantly giving hypodermic injections, and the impossibility of giving them to "micros" was obvious, so I experimented on "macros" which I had previously relaxed (p. 112, vol. xlix, 'Ent.'). This apparently is the article to which Mr. Sheldon now refers. As regards Mr. Kershaw's remarks in last month's 'Entomologist,' where he suggests that flaws in the enamel coating of black pins are responsible for the formation of "verdigris," there can be no doubt that he is perfectly correct; but, even so, I venture to suggest that formaldehyde will help to combat this evil, because "verdigris" after all is only an oleate of copper, formed by the combination of the fatty acids of the decomposing insect and the copper in the pin. (True verdigris is acetate of copper, quite a different thing to that which is known as "verdigris" to entomologists.) Mr. Kershaw points out on p. 20, vol. xlviii, 'Ent.,' that in testing "butter is hardened by formalin vapour." Therefore, if all the olein that is in an insect is fixed by the use of formaldehyde, that process of decomposition which we know as "grease" will be prevented, and the subsequent formation of "verdigris" should be eliminated. As a matter of fact, I have used formaldehyde vapour for the past five years for all my insects, and so far (absit omen) I have no "verdigris," "grease," or mites in my cabinets.—Winstan St. A. St. John; Dervent House, Derby.

LEPIDOPTERA OF THE EGYPTIAN FRONTIERS.—I noted some interesting lepidoptera on the Egyptian borders in 1917. On the Sinai-Palestine border Tarucus balcanicus and T. theophrastus flew together at Rafa. Chondrostega pastrana, var. palestrana, Stgr., and Euproctis judaica were common in November. P. icarus and C. phileas occurred very sparingly north of Rafa, but apparently not on the Egyptian side of the frontier. On the Cyrenaican border a curious, small, dark form of P. machaon has turned up at Sollum; also Erynnis (Carcharodus) rhameses, Rev., and M. deserticola. In the spring B. mesentina, T. fausta, and C. florella were all to be seen in the desert near Cairo, and a Melitaea, almost identical with the south European form of M. didyma, clearly an ab. of the normal M. deserticola, caused by the abundant rains of the last two or three winters.—P. P. Graves; Capt., Cairo, January, 1918.

ARICIA MEDON, AB. ARTAXERXES, IN SUFFOLK.—I have in my collection three specimens of Aricia medon, ab. artaxerxes, that were taken by the late Dr. David Smart on Lakenheath Warren, Suffolk, some time in the sixties. He told me that this form, which I believe was then considered specifically distinct, was during one season not uncommon in a very limited locality on the Warren. This record is belated, but may be of interest as I have met with no other record of var. artaxerxes from southern Britain.—H. Douglas Smart; Capt., R.A.M.C., Rugeley Camp, Staffs.
Sphinx pinastri in Cornwall.—Mr. Geoffrey Harrison, who travelled home from South Africa at his own expense to join the Flying Corps, and was rejected owing to colour-blindness and is about to return, has been kind enough to give me some of his specimens, and amongst them is a specimen of the above. It was taken in Cornwall in 1908 by a schoolboy named Trebath and given by him to Mr. Harrison, then a boy at Dunheved College, Launceston. It was on a white pin unset, and was set by Mr. Harrison on an ordinary No. 5 enameled black. The specimen has unfortunately lost an antenna and the tip of the left fore wing, but is otherwise in fair condition.—C. Granville Clutterbuck, F.E.S.; 23, Heathville Road, Gloucester, February 24th, 1918.

Pyrameis atalanta, etc., in March.—On March 10th I caught a very good specimen of P. atalanta. I also saw two V. io, two G. rhamni, and several A. urticae; of the latter there were quite a dozen settled on some rock flowers. It is an exceptionally mild season and everything is very early in consequence. I have recently taken a few moths quite a month earlier than is usual.—Reginald J. Ford; The Manor House, Stoke Canon, Exeter.

Limenitis sibylla, Linn., at Burnham Beeches.—As Buckinghamshire records of the White Admiral Butterfly do not appear to have been any too plentiful of recent years, it may be of interest to mention that a solitary specimen of that species was met with at Burnham Beeches, while my brother and I were staying in the district in the summer of 1917. The capture was made on July 27th, and proved to be a very much worn individual of the male sex.—Herbert Campion; 58, Ranelagh Road, Ealing, W. 5.

[This is an observation of great interest. Limenitis sibylla was common at Black Park, Stoke Poges, which is not far from Burnham Beeches, in the early part of the nineteenth century (cp. my note, 'Entomologist,' vol. xlviii, p. 143). I have always expected that it would be discovered in the Bucks woods, especially in the south of the county, where there is often plenty of honeysuckle.—H. R.-B.]

Early Appearance of Gonepteryx rhamni in 1918 and Abundance of Autumn Butterflies in 1917 in South Gloucestershire.—On January 21st I saw here a G. rhamni on the wing, which seems a very early date. The last fortnight of October, 1917, when I was home on leave from hospital, the number of butterflies here was astonishing, P. c-album v. Aglais urticae in particular crowding on the flowers of herbaceous asters. V. io was also very abundant, but I saw no P. cardui. Earlier in the month the numbers were far greater, so my mother told me, the immense number of P. c-album particularly noticeable, a few usually occur here every autumn, but very sparingly.—Blanche A. Conyé; Pucklechurch, Gloucestershire.

Abundance of Black Phigalia pilosaria at Burnley.—The very mild weather recently induced me to go into the woods in search of P. pilosaria, and, as expected, it proved very abundant, over eighty
THE ENTOMOLOGIST.

specimens being observed. It is some years since it was last observed in numbers, so careful note was made of all the black males seen; they amounted to fifteen, so it seems that the proportion of melanic examples has now increased to about 20 per cent. They were mostly in fine condition, but very little variation was noted in any other direction. A *Panolis piniperda* ♀ seemed very early, while *Hyberenia leucophaaria* ♂ was the only other insect seen.—W. G. Clutton; 132, Coal Clough Lane, Burnley.

*Drepanopteryx phalenoides*, Linn. (Neuroptera).—As records of the capture of this very interesting "Lace-wing" are very infrequent, it may be well to note that Mr. E. B. Nevinson gave me on November 18th last a nice example, taken by Mr. Conrad Reuss in Switzerland about seven years previously. This neuropteron bears a remarkably close resemblance to a "hook-tip" moth, whence its scientific name.—W. J. Lucas; Kingston-on-Thames.

**Wicken Fen Trust.**—Owing to pressure of work, I am unable to continue the Hon. Treasurership of this Trust. Mr. W. G. Sheldon, Youlgreave, South Croydon, having kindly consented to act as Hon. Treasurer for the present, all subscriptions and communications should be addressed to him.—H. Rowland-Brown.

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**REVIEW.**


This last volume of M. Oberthür's classic work bears date September, 1917. The copy under review reached me early in the present year. It is a wonderful publication, not merely for the magnificence of the plates and the scientific value of the contents, but because in this fourth year of the war such an addition to our libraries is possible at all. M. Oberthür evidently realises this. He puts forward, therefore, an apology for continuing his labours while the world is upside down and at war. And his apology is one which, I think, the scientific world will accept readily. He pleads that his time is short—we trust that he may be long spared to us. He pleads that science and art are above and apart from the present turmoil. Happy the man who can turn his thoughts even for a brief moment from the noisy arena into the quiet by-ways of Nature. May we not as naturalists agree not only that these occasional diversions are legitimate, but that they are necessary if we are to keep ourselves sane in mind as well as in body. For students of the Lyconids there is much of special interest; in fact, the greater part of the volume, apart from monographs of the genus *Actinote* and lepidoptera from Indo-China, is devoted to summing up the results.
of observations made in connection with the difficult Plebeids hitherto included under the Oberthürian classification P. ægon, Schiff. (P. argus, L.? and P. argus, L.? (argyrognomon, Auct. recent.). As we are well aware, to confusion of species has been added confusion of tongues in the case of P. argus. At present the type appears to be known as argus, L., argyrognomon, Bergst., or idas, Courvoisier, according to opinion. Let us for the present stick to our ægon, and follow M. Oberthür’s argus. A detailed examination of the argus group appendages (which, from the point of view of nomenclature only, I think, happily does not inhabit our islands) leads Dr. Chapman to separate therefrom a new and distinct species, which he names P. ægus. It is common apparently in the Geneva district, and has been taken at Budapest. The enlarged photographs reveal on the wing under sides a considerable difference of markings, and these differences are constant. I think ægus, indeed, much easier to divide than thersites and icarus icarus. Dr. Reverdin (“Note sur l’armure génitale mâle chez L. argus, L., et ses variétés”) comes to the conclusion that probably, but not certainly, liguria, Obthr. (= ægus, Chpmn.), and armoricana, Obthr., are specifically distinct from argus. If, therefore, ægus and liguria are one and the same, then the range of ægus may be found to extend over the greater part of southern central Europe. Dr. Courvoisier, of Bâle, contributes his views on the androconia of these and others of the argus group with drawings from the microscope, and the symposium concludes with “Observations biologiques concernant le Lyceena aleton,” by Mr. Harold Powell, which deals minutely with the myrmecophilous habits of the species, and the ants of the localities where it occurs in Brittany identified by Mr. Donisthorpe. The whole thus forms a notable addition to our knowledge of the Lycaenids, and under M. Oberthür’s inspiring leadership will doubtless stimulate further research to resolve the Plebeids into their final specific units.

H. R.-B.

OBITUARY.

FRANK EDWARD LOWE, M.A., F.E.S.
Born, November 27th, 1853. Died, February 21st, 1918.

ENTOMOLOGY is the poorer of one of her most devoted sons by the death of the Rev. F. E. Lowe which occurred on February 21st, at St. Stephen’s Vicarage, Guernsey, after a short illness. Educated at Durham School, he graduated at Durham University Theological Prizeman and Licentiate in Theology in 1875, and distinguished himself as an oarsman. In 1880 he left his first curacy at Burtonon-Trent, and went to the Channel Islands, and to that happy circumstance and still more so, perhaps, to the interest shared with Mrs. Lowe in the lepidoptera of the islands, we owe a large contribution to our knowledge of the insular fauna, and latterly of
continental butterflies as a whole. His own interest was inherited partly from his uncle, the Rev. George Ayliffe Poole, whose collections were bequeathed by his son to Charterhouse School, and partly no doubt from his father, the Rev. Julius Conran Lowe, of Whaploade, St. John's, near Croyland, who had himself hunted the Large Copper in the neighbouring fen lands of Cambridgeshire. He collected, as most boys do, but not systematically before 1880. "One day," writes Mrs. Lowe, "I returned from walking on the cliff. I described to him a brown butterfly I had noticed different from anything I had seen before. The next day we went to identify it, and it was cinxia." This refired his enthusiasm, and from that time he became an ardent collector, and a close observer. He first went to Switzerland in 1897, and until the outbreak of the war continued to take his annual holiday in some or other butterfly-haunted region. He was elected a Fellow of the Entomological Society in 1894, and, it was at a meeting in 1906, after several years' correspondence that I first met him and began a friendship which lasted to the end of his life. A deeply religious nature, endowed with a full measure of appreciation for the beautiful things of life, he combined with his many lovable qualities, a keen and delicate sense of humour. A delightful travelling companion, and a charming host, I look back with gratitude to the days—alas! too few—that I was privileged to be with him, whether in the Apatura glorified woodlands of Switzerland, or in his own sunny rectory where Lampides baticus* so often made a natural home. Mr. Lowe married in 1877 the only daughter of Mr. George Alexander Stewart, of Inverleithing, N.B. Mrs. Lowe, and his only daughter Mrs. Lucas, the wife of the vicar of Kettering, survive him. His first contribution to the 'Entomologist,' a note on Callophrys rubi in Guernsey appeared in 1883; his last, Colias edusa in Guernsey, in 1917. The majority of his notes and papers† in our magazine are included between these dates. He was also a contributor for many years to the 'Entomologist's Record,' with important papers on the lepidoptera of Piedmont, South Tyrol, Switzerland, Spain, and Southern France. In his home, in his parish, among the brotherhood of entomologists he leaves a host of friends who will cherish his memory. Benignus, amabilis, flebiis. H. R.-B.

With much regret we have to announce that Mr. Charles Levett, of Putney, died on March 17th last, aged 72 years.


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SOME NEW FORMS OF LYCÆNIDÆ FROM EGYPT.

By Capt. P. P. Graves, F.E.S.

(Plate I.)

1. *Virachola livia*, ab. *pallida*. Ground colour of male upper side a pale brassy orange tint instead of a rich fiery orange. Dark apical, marginal, and basal marking more pronounced than in type. (Figs. 5 and 6.)

2. *V. livia*, ab. *fumata*. Ground colour of male upper side darker than in type, and suffused, especially near the costa of the hind wings, with dark scales, giving it a smoky appearance. Dark costal, apical, and basal marking of fore wings and basal and anal marginal marking of hind wings much more pronounced than in type.

3. *V. livia*, ab. *clara*. Dark marginal marking on upper side fore wings of male restricted to a very small area at apex.

4. *Chilades trochilus*, ab. *mandersi*. A faint but distinguishable reddish-orange submarginal spot suggesting the remnant of a submarginal band, such as is seen in the females of many Plebeiid species between IV. I and a. Maadi, ix, 16; Gezira, vi, 17.

5. *C. trochilus*, ab. *subtus-obsoleta*. With the majority of the dark spots and markings of the under side of both wings absent or obsolescent. Gezira, vi, 17. (Fig. 3.)

6. *Tomares* (*Thestor*) *ballus*, sub-sp. *mareoticus*. I have taken about a dozen specimens, nearly all male, of *T. ballus* in Egypt. No males have been normal, all showing a greater or less amount of reddish-orange marking on the upper side of the fore wings. I have seen similar specimens in the collections of Mr. T. H. Marsden, of Alexandria, and of the late Mr. J. W. Tutt. The latter remarked to me that had he had more material he would have described this form, and commented on the similarity of the upper side to that of *T. mauritianus*. In 1914 Mr. Andrés, of Cairo, obtained four specimens of this form at Dekehla, near Mex, Alexandria. On February 4th and 6th, 1917, I took six specimens of this form at Dekehla, and one much more nearly approaching the type at Amria, on the Maryut Railway in the Steppe, some ten miles south-west of Alexandria.
More specimens were obtained at Dekhela by Mr. Storey, of Cairo, on February 18th this year, and by Mr. Marshall. All these differed more or less from type in the direction above indicated.

It would, therefore, seem that in the eastern extremity of its habitat *T. ballus* is represented by a sub-species or local race, variable, but differing from type in approximating in the coloration of the male upper side to *T. mauritaniens* and certain Asiatic forms of *Tomares* (*Thestor*). While such female specimens of *T. ballus* from Egypt as I have examined appear to have more extensive reddish-orange markings on the upper side of the fore wings than the type, I have not seen or taken a sufficient number of specimens to be able to say that this extension is general or even very frequent among Egyptian specimens. I will, therefore, confine myself to the description of the male.

If *T. ballus* (type) occurs in the Maryut Steppe near Alexandria, it occurs only as an occasional aberration; of this I am quite convinced.

Description.—Male: Upper side anterior wings. A reddish-orange spot fills the exterior half of the discoidal cell; exterior to this and separated therefrom by a patch of ground colour of varying dimensions is a band of longitudinal reddish spots, their marginal extremities rounded, separated by dark scaling following the venation from one another. A proportion of specimens occurs in which this band of reddish-orange longitudinal spots is faint and much broken by the dark brown ground colour giving it a smoky appearance. The smallest of these spots is that nearest the costal margin between II, 5, and III, 1. The spots usually increase considerably in length towards the anal margin of the anteriors, those between veins IV, 1 and α being most developed, and terminating internally parallelly with the spot in the discoidal cell. Under side as in type. (See Figs. 1 and 2.)

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*LAMPIDES ETHODA*, WLK., AND *LYCÆNA ITEA*, WLK. = *LAMPIDES THEBANA*, STDGR., AND *AZANUS UBALDUS*, CR.

By Capt. P. P. Graves, F.E.S.

(Plate I, Figs. 7, 9 ♂, 8, 10 ♀.)

In vol. v of the 'Entomologist,' pp. 53–55, Walker described two Egyptian Lycaenids as follows:

47. *Lampides ethoda*, n.

Expands 1 in. 3 lines; cinereous; a blue tinge at the base of the wings; body dark blue; wings rather short and broad; fringes white. Hind wing: a deep black spot near the tail, which is rather long. Under side brownish cinereous; a transverse streak in the disk and some exterior transverse lines brown, white-bordered. Fore wing;
exterior lines three, nearly straight, the third nearly obsolete towards the costa. Hind wing: exterior lines four, slightly zigzag; a black-bordered dot on the disk near the base; spot near the tail like that on the upper side. Cairo.

56. Lycëna itea, n.

Expands 11 lines: purplish; wings toward the base and body dark blue. Wings with a narrow aeneous band along the hind margin; fringe white. Under side cinereous: a black, subcostal, postmedial dot; a transverse, pale-brown, white-bordered streak in the disk; some exterior, interrupted, incomplete, transverse, pale-brown, white-bordered lines; marginal line black. Fore wing: four exterior lines, the second much shorter than the others. Hind wing: a black basal streak; an antemedial transverse line composed of three black white-bordered dots; subcostal dot much larger than that of fore wing. Five exterior lines, the fifth with two black dots on the posterior angle. Cairo. Francis Walker.

Until the autumn of 1916 I had only taken one specimen, and that a very bad one, of Azanus ubaldus, Cr.,* in Egypt. In early October, 1916, I took a battered female in the desert near Kassassin, doubtless blown by the wind from the adjacent cultivation in the Wadi Tumilat. This put me on the qui vive, and on October 18th I found A. ubaldus common on Gezira Island, Cairo, flying round the flowers of a lofty specimen of Acacia seyyal. From this date to December 9th it occurred in the neighbourhood of a number of “fitna” trees (Acacia farnesiana) at Gezira and in the Kasr-el-Dubara quarter of Cairo. It might easily be mistaken for small Syntarucus telicanus, var. egyptiaca, Bethune Baker, and has doubtless passed unnoticed by many collectors owing to this resemblance. It spends most of its time flying about the flowers and branches of the acacia. The male is a combative little creature, attacking the other great frequenter of “fitna,” Virachola (Hypolycaena) livia, and other insects which may approach it. Males sometimes fight for the perch at the end of a long acacia branch, and tower while fighting to a considerable height in the air. The females are less active. They oviposit on the yellow acacia flowers. Both sexes appear very intolerant of cold or cloudy weather, disappearing as soon as the sky is overcast.

Dr. Debski, of Heluan, has bred the imago from larvae taken on the flowers of A. farnesiana.

So far, there is no evidence that the larvae in Egypt are myrmecophilous.

After examining my series (19 males and 11 females) of this species, I came to the conclusion that Lampides ethoda was the female and Lycëna itea the male of this species. Mr. H. Rowland-Brown, by kindly communicating Walker's original description,

* P. 209, pl. 590, figs. l, m.
confirmed my belief. The only difficulty in accepting Walker's *L. ethoda* as the female of *A. ubaldus* lay in his mention of a "tail" on the hind wings of *L. ethoda*. *A. ubaldus* has no "tail," in the sense of a filamentous projection, from near the anal angle of the hind wing, such as occurs in so many Rualids; but if Walker merely gave a loose description of the very sharp anal angle of the hind wing (see Pl. I, figs. 7-10), his description may be accepted as accurate enough. Walker's *L. itea* appears to be most certainly the male of *A. ubaldus*.

Staudinger's description of *L. thebana* ('Iris,' 1894, p. 244, pl. ix, fig. 3) agrees very fairly well both with my specimens and the descriptions by Moore and De Nicéville of Indian *A. ubaldus* (zena, Moore), but, should an examination of the male genitalia prove that the Indian and Egyptian insects are really distinct, Staudinger's *thebana* ('Iris,' 1894, p. 244) fails before *ethoda*. It is true that Lederer's collection contained a Cairene male *thebana* labelled *Lyc. thebana*, B. (Boisduval), but we have no other proof that Boisduval knew anything of this insect, and Staudinger (loc. cit.) states that Boisduval does not seem to have described it. But if Walker, Moore, De Nicéville, and Staudinger all seem to have described the same insect, I do not myself feel absolutely convinced that this insect is certainly figured by Cramer, Pl. 590, figs. l, m. The upper side of his *ubaldus* appears to me to be simply a conventional blue *Lycænid*. The under side may be *A. ubaldus* as known to later entomologists. One hopes it is.

The following are the records of the habitats and times of appearance of *A. ubaldus* in Egypt as known to me:

**Lower Egypt:** Cairo (Ezbekia Gardens), early November, 1907. Kasr-el-Dubara and Gezira, October 18th to December 9th, 1916. Kassassin, October 9th, 1916 (Graves). Heluan, October to November (Debski).

**Upper Egypt:** Near Kom Ombo, Assuan Province, February, 1917 (Adair).

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**SOME NOTES ON CUPIDO MINIMUS, AND OTHER "BLUES" OCCURRING IN THE NEIGHBOURHOOD OF CAMBRIDGE.**

By Hugh P. Jones.

*Cupido minimus* has always been a favourite of mine, and, as it is locally common on several of the chalk downs near Cambridge, I have devoted a good deal of attention to it.

Perhaps the most striking fact in connection with this little butterfly in England is its extreme localness, and this is probably caused by its food-plant, *Anthyllis vulneraria*, which seems unable to flourish under the ordinary conditions prevailing on a hill-side, requiring, seemingly, a greater amount of heat.
and protection from cold winds. At any rate, the plants’ favourite resort in this neighbourhood is at the bottom of old chalk-pits, and when a patch is found growing in such situations, *minimus* is pretty sure to be close at hand.

Unfortunately, this retiring habit of the food-plant renders the butterfly very liable to extermination, and in one well-known pit near Shelford, where the spring brood was formerly very common, it is now difficult to get a series, owing to the kidney vetch having, during the past few years, been cut for hay.

I suppose—in these days, at least—this is necessary, but, as the patch of ground on which the insect occurs is barely half an acre in extent and produces very little grass, the amount of hay obtainable must be out of all proportion to the labour expended; the bumpy condition of the ground making scything alone, one would think, a very difficult operation.

However, there are still one or two places where the scythe has not reached, and, on one steep bank at the side of the pit, one may still collect a series of the unusually large form of the butterfly that appears here, or search for ova deposited on the flower-heads.

The egg is not small, when compared with the size of the owner; it is easy to find on the calyces, and can be bred in much the same manner as that of an Eupithecia, but without the same chance of success!

In the above-named locality, the summer (or second) brood never occurs; but on the old Roman “road,”* further out, it is frequently taken, sometimes as commonly as the spring form, which is not surprising, as the latter ground has been described as the driest and sunniest in England, being on the chalk, and within an area having the lowest recorded rainfall.

This, of course, has a corresponding effect upon the insects taken, which, in the case of the “blues,” are small in size, and without the brightly tinted females prevalent in other districts possessing a more humid, or colder, climate.

Variation, therefore, is more the exception than the rule, and many entomologists collecting here have professed themselves disgusted with the sober brown hues of the ♀ *P. icarus* and *Agricades corydon* they come across; these often being without a trace of blue on both wings, and it is sometimes a difficult matter to distinguish the former from *Aricia medon*, although the orange marginal lunules of this species are usually more pronounced.

In my opinion, however, these all-brown forms of *icarus* are quite as handsome and interesting as the blue females of other districts in which I have collected; although a magnificent example of the latter from Shelford (well off the chalk) might

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* Now thought by many to be a defensive work, and given the title of Worsted Street.
well prove an exception. Both wings of this specimen are suffused with the beautifully shining purple that is seen to such advantage on the fore wings of the female Zephyrus querquis.

But to return to C. minimus. Variation in this species—excepting in regard to size; a dwarf race* existing in places where the food-plant is stunted by drought—is also not extensive, and I have never seen anything worth recording.

The spring brood is well distributed around Cambridge, but often confined to an absurdly small patch of ground, and, but for the partiality of the insect for chalk-pits, one might easily spend a whole day searching without success.

The second brood, as stated above, seems to be confined to the Roman road and immediate neighbourhood, first appearing about the end of July—normal emergence.

In whilom days, Nomiades semiargis could be “taken commonly” in the localities mentioned, and even now I always keep a sharp look out for it, as it is a species that could be easily overlooked by anyone not making an especial search amongst a crowd of P. icaerus, C. minimus, and the like.

At least, this is what I often tell myself.

It may not be very convincing, but, like the ladies so touchingly eulogised by Mr. Verdant Green, it adds a “larm to chife.”

19, Tenison Avenue, Cambridge.

INSECTS IN BURMESE AMBER.

By F. N. Burn.

Prof. Cockerell, of the University of Colorado, U.S.A., who had already been investigating and describing insects from the Miocene shales of Florissant, Colorado, and elsewhere, has been studying and working on a collection of insects in Burmese amber sent to him by Mr. R. Swinhoe, of Mandalay. He has come across and described many genera and species, which appear to show that, although the amber found in Burma is in Miocene strata, it is derived from much older beds, and is possibly Cretaceous. If this is the case, it will be of much greater geological age than the amber from the Oligocene of the Baltic and Northern Europe, and might enable a good idea to be formed of a pre-tertiary insect fauna in tropical Asia.

The entry of America into the war will, of course, delay the work, and also the sending of further specimens from Burma to America whilst there is a chance of their being submarined.

* Invariably double-brooded.
The following is a list of new insects that have so far been figured and described by Prof. Cockerell in various papers:

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All the above are either new species or new genus. There are many others awaiting description, all belonging apparently to primitive groups.

42, Pyinnagon,
Dallah P.O.,
Lower Burma,
India.

BEES FROM THE MALAY PENINSULA.

By T. D. A. Cockerell.

The Assistant-Director of the Botanical Gardens at Singapore having been called away by military duties, Prof. C. F. Baker, of the College of Agriculture of the Philippine Islands, temporarily took his place. While there he collected bees at Singapore and on the Island of Penang, adding to our scanty knowledge of the bee fauna of the region.

Nomia anthracoptera, n. sp.

♀. Length about 10 mm.; robust, black, with rather large apricot-coloured tegulae; hair of head and thorax rather scanty, white, with some dark hairs on scutellum and post-scuteellum; sides of metathorax with dense shining hair; clypeus obtusely bigibbose, flattened in middle, with a slight median carina, surface roughish and irregularly coarsely punctate; flagellum obscure reddish beneath toward apex; mesopleura very coarsely punctured, but shining posteriorly; mesothorax dull, coarsely punctured; base of metathorax with a shining transverse sulcus, crossed by little ridges; posterior face of metathorax dull, with large punctures; wings brownish, with the costal region broadly and a large apical cloud dark fuliginous, shining purple; legs black, with pale hair; hind basitarsi greatly broadened and flattened, produced at apex; hair on inner side of tarsi fuscos, with a silvery sheen in certain lights; abdomen shining, with thin white hair at sides, and some fuscos hair apically, but no bands; first segment distinctly but sparsely punctured; punctures on the other segments principally developed laterally.

Singapore (C. F. Baker 9082). Closely related to N. fuscipennis, Smith, from Sumatra, but the hair on the tarsi differently coloured,
and the first abdominal segment very distinctly punctured. Bingham states that the first segment of *fuscipennis* is wholly impunctate, but Smith describes a few distant fine punctures. In our species they are very distinct, and quite large at the sides.

*Xylocopa grandiceps*, Cameron.

Singapore (Baker). I examined Cameron's type in the British Museum, and noted: Large, with much red hair on thorax and tarsi. The size given by Cameron is 20 mm., evidently an error for 30 mm.

*Mesotrichia flavonigrescens*, Smith.

A female from the Island of Penang (Baker) is Cameron's *Xylocopa malayana*, which Meade-Waldo determined to be identical with Smith's *flavonigrescens*, based on the male.

*Mesotrichia confusa*, Pérez.

Male. Island of Penang (Baker 9079).

*Mesotrichia caeruleiformis*, Meade-Waldo.

Male. Singapore (Baker 9081). This very distinct species was described from Borneo in 1914.

CONTRIBUTIONS TO OUR KNOWLEDGE OF THE BRITISH BRACONIDÆ.

No. 3.—*Microgasteridae*.

By G. T. Lyle, F.E.S.

(Continued from vol. 1, p. 201.)

Genus 4.—*Diolcogaster*, Ashmead.*

Ashmead erected this genus to receive those species of *Microgaster* having the second abdominal segment impressed with two parallel longitudinal lines. The appearance of this segment renders it easy to distinguish the few British representatives from those of other very closely related genera, though the prominent longitudinal medial carina on the metathorax, mentioned by the author, is not developed in two of our three species.

*Marginatus*, Nees.†

As described by Marshall‡ and Ruthe.§ this insect has a strongly carinated metathorax, though Nees, in his original description, does not mention the character. The first abdominal segment in the male is three times as long as its medial breadth and attenuated from base to apex; in the female it is said to be much broader. I have seen only a single specimen, taken by

† 'Mon.,' i, p. 169.
‡ 'Trans. Entom. Soc.,' 1885, p. 244.
Dr. D. Sharp at Dartford many years ago and now in the Cambridge University Museum. The only specimen known to have been bred was obtained by Bignell from a larva of *Larentia viridaria*.

Marshall, who first described the male, afterwards expressed doubt as to the correctness of his association of the sexes, and certainly the wide difference in the shape of the first abdominal segment seems to point to distinction.

*Calceatus*, Hal.*

Is easily distinguished from the last by the absence of a longitudinal carina on the metathorax—indeed, in this species, in place of a carina, there is usually a depression. The areolet is open outwardly, though a magnification of two or three diameters will often show a distinct trace of the second transverse cubitus.

A common insect in the New Forest, where I have very frequently bred it, as a solitary parasite, from larvæ of *Thera varia*ta and *T. obliscata*, in May and October, in company with *Apanteles pinitcola*. Major Robertson has also obtained it commonly from the same hosts at Chundlers Ford.

Cocoon bright straw colour, usually placed at the extreme tip of a pine needle. This position is determined by the host which, before the parasite larva emerges from near the anal extremity, takes up a position, facing inwards, along a pine needle. My experience in breeding this species seems to show that in numbers the males considerably exceed the females.

*Circumnvectus*, sp. nov.

Black, palpi flavescent, lateral margins of first, and sometimes second abdominal segment and legs, with exception of hind coxae, hind tarsi and tips of fore and middle tarsi, testaceous (occasionally the hind tibiae are dark at apex). Wings hyaline, slightly clouded at tips; stigma dark fuscous, nervures fuscous or testaceous; antennæ black, longer than body. Mesothorax finely punctulate, scutellum more sparsely so; metathorax punctulate, centrally irregularly striolate, in some specimens showing signs of a longitudinal medial carina. Abdomen shining, segment one longer than broad, sides almost parallel, rounded behind, almost smooth; two as long as three with two shallow, parallel, longitudinal depressions, between which is an obtuse central ridge, suturiform articulation concave posteriorly; three smooth, often centrally slightly striolate and showing a trace of a longitudinal medial channel. Hind coxae large punctulate. Terebra short, scarcely reaching apex of abdomen. Spurs of hind tibiae pale, slightly longer than half the metatarsus. Length, 3–3½ mm., expands 7–7½ mm.

Described from six males and two females. Very similar in appearance to *D. calceatus*, but easily distinguished therefrom by the absence of a longitudinal depression on the metathorax

and the colour of the legs, etc.; also the cocoons are particularly dissimilar. From D. marginatus it differs in having the metathorax and first abdominal segment much smoother, etc.

Cocoon smooth, thick, dark chocolate brown in colour, pointed and wrinkled from end to end, though occasionally this last character is scarcely noticeable.

The larva is dirty yellowish white, with the divisions between the segments appearing darker, minutely punctate, parts of the mouth outlined in brown; length, 4½ mm. It emerges from the centre of the dorsal surface of the host where the cocoon is constructed in an upright position and firmly fixed to the body of the caterpillar (Fig. 1). The unfortunate host lives for several days after the emergence of the parasite larva, and carries its strange howdah about so long as power of motion is retained, and even death does not sever the connection. I have obtained, perhaps, twenty of these cocoons at various times, but have never known the imagines to emerge naturally therefrom. When I have cut open the cocoons, some twelve months after their construction, I have invariably found the imagines to be perfectly developed but quite dried up, having evidently been dead some time. It can scarcely be through lack of moisture that the insects have failed to emerge, as I have tried keeping the cocoons on damp sand during the winter. A suggestion has been made to me that a different result might have been obtained had I allowed the cocoons to remain attached to the dead bodies of the hosts. Up to the present, however, no opportunity of testing this has occurred. Always a solitary parasite, I have once obtained it, somewhat doubtfully, from a larva of Brephos parthenias, and many times from larva of Lobophora carminata. Twice I have bred the hyperparasite Astiphrommus plagiatus, and once (July, 1910) Mesocorus confusus, these insects apparently having had no difficulty in gnawing their way through the hard cocoons.

Genus 5.—Microgaster, Latreille.

This genus was formerly co-extensive with the family, but has been at various times denuded and will bear still further dismemberment, for, as Marshall very correctly observes (‘Trans. Entom. Soc.,’ 1885, p. 298), it contains some of “the largest and most typical forms (Marshall’s, Section 1) artificially associated, in consequence of the completeness of the second cubital areole, with an inferior group (Section 2) which might even be made a separate genus with as much propriety as Apanteles.” Marshall’s two groups are very distinct, and it is to be regretted that Thomson did not extend his genus Hygroplitis to cover all the species in Section 1, for it seems an anomaly that such a species, for instance, as M. tibialis, though placed in a different genus to the nearly related Hygroplitis rugulosus, should be associated
with such dissimilar insects as *M. minutus* and *M. alvearius*; apparently Thomson did not know *tibialis, globatus, subcompletus*, etc. There can be little doubt that all the species are parasites of *lepidoptera*, the records of Reinhard and Ratzeburg of *Bombus terestris* and *Nematus septemtreonalis* as hosts never having been confirmed.

I have been very fortunate in that Mr. B. S. Harwood has sent me for examination many specimens now in his possession which formerly belonged to E. A. Fitch; among these I have been much interested to find several of Marshall’s types, bearing labels in his writing, together with many other specimens from Peter Cameron’s collection with similar labels. Mr. Claude Morley has very kindly compared one of these labels with others in his own collection, and tells me there can be no doubt as to the handwriting being that of Marshall. How Cameron’s insects came to be in Fitch’s store-boxes I do not know, though, of course, it is possible that the latter purchased them; however, they were never embodied in the Fitch collection which is now in the Essex Museum at Stratford.

*Alvearius*, Fab.*

A small species, bright testaceous in colour, preying gregariously on larvæ of *geometra*. The cocoons are constructed in a similar manner to those of *Apanteles fraternus*—namely, in a regular, honeycomb-like mass attached to a twig (Fig. 7). Bignell reared a brood of seventy, and I have in my collection one of seventy-nine, the latter obtained from a larva of *Hemerophila abruptaria* at Canonbury, London, N., by W. G. Pether. When the size of the host is considered, it seems marvellous how so many parasite larvæ can accommodate themselves within its body. I have seen a brood obtained from a larva of *Boarmia gemmaria*, taken at Ravenscourt Park, W., and Colthurp has found the cocoons on ivy at East Dulwich. Marshall records it from *B. gemmaria* and *Rumia luteolata*, Bignell from *B. repandata*. I may mention that I have reared very considerable numbers of the larve of these lepidoptera in the New Forest without meeting with the parasite.

*Minutus*, Rein.†

The smallest species in the genus, expanding 5 mm. at the most. In many specimens the second cubital cell is quite open outwardly as in *Apanteles*, but in others a distinct trace of the closing nervure is visible.

Described by Reinhard from two specimens, and first bred by Bignell who raised a brood of thirty from a larva of *Cleora glabraria*. It has since been proved to be a common parasite of

* † Fab. E.S. Suppl.; 232.
† † Berl. ent. Zeit., 1890, p. 357.
this Lepidopteron, and probably its range is co-extensive with that of its host.

We have here another instance where the gregarious cocoons take a honeycomb formation, and Marshall tells us that the "comb" is similar in shape to that of M. alvearius, but to me this seems scarcely correct, for in all the cases I have noticed the cake of cocoons has been almost circular in shape, and, instead of being firmly fastened to a twig, very loosely attached to the strands of the hosts' food plant Usnea barbuta (Fig. 4). I have reared many broods in the New Forest, varying from nine to twenty-two individuals, all from larvae of C. glabraria, and have a brood from North Somerset obtained from the same host. The transformation from full-fed larva to imago usually occupies fourteen days or so, the insects emerging from their cocoons in May or early June.

Connexus, Nees.*

By far the commonest species in the genus, large broods being constantly obtained from larvae of Porthesia similis, whose urticating hairs are certainly no protection against attack by Brachyde; also recorded by Morley from Bombyx neustria. Cocoons white with a satiny sheen, constructed within the cocoon of the host; the parasite larvae do not evacuate the host until the latter is apparently on the point of pupating. Care must be taken in handling these cocoons, for the brittle hairs of the host which adhere to them are liable to be transferred to the fingers, and so accidentally to the eyes or lips, causing considerable irritation if not actual pain. Colthrup has sent me numerous broods from Eastbourne and Abbots Wood, and I have found the species particularly plentiful on the Gog Magog Hills near Cambridge, quite half the larvae of P. similis taken by me in that locality having produced the parasite; the species has never occurred to me in the New Forest. Usually the broods consist of some twenty individuals; the largest I have numbers twenty-five, the smallest sixteen. From thirty to thirty-seven days is the period passed within the cocoon. All the insects in a brood do not emerge at the same time; indeed, I have known more than a week to elapse between the emergence of the first and the last. Hyperparasites are frequently obtained from the cocoons; this I have frequently noticed in the Abbots Wood examples; one large batch of cocoons from that neighbourhood, given to me by Colthrup, produced only a single M. connexus, the places of the others having been taken by hyperparasites; while quite half the cocoons of another brood yielded, in the following May, almost eleven months after the construction of

* 'Mon.,' i, p. 174.
the cocoons, a small black *Pteromalus*. Another common hyper-parasite, also from Abbots Wood, is *Pezomachus agilis*.

**Dorsalis**, Nees.*

Not hitherto noticed as British, and I am slightly doubtful in referring to the species, a single female taken at angelica blossom in the New Forest in late August, 1914. This insect agrees well with Marshall's description,† and also with that of Wesmael,‡ excepting that the abdomen is not quite so noticeably testaceous as mentioned by them, and there is not a distinct longitudinal carina on the metathorax; there is, however, very pronounced striolation which might easily take the form of a carina in a well-marked specimen. The sides of the second cubital areolet are not thickened, and the cell is open outwardly, there being only a faint indication of the closing nervure.

This is not the *M. dorsalis* of Spinola,§ which is a synonym of *Microplitis ocellata*, Bouche.

**Tiro**, Rein.||

A small compact species, at first sight greatly resembling an *Apanteles*. The inner angle of the stigma is yellowish, the areolet practically complete, and the first abdominal segment broader than in any of the preceding species. It is, perhaps, nearest to *M. suffoliciensis*, Morley.

I captured a male on the Gog Magog Hills, Cambridge, on August 8th, 1917.

**Suffoliciensis**, Marl.¶

Very distinct and easily recognised from Morley's description. It shows no very close relationship to any other *Microgaster* known to me; in the female the first abdominal segment is broad, and narrowed from the middle to the truncate apex, while the second segment is scarcely more than one-fourth the length of the third. Morley described the species from a specimen bred from a larva of *Nothris verbascella* taken in Suffolk, and he has very kindly sent me for examination three females and one male bred from continental *N. verbascella* and *Hastula hyerana*. The cocoons accompanying these insects are somewhat similar to that of *M. crassicornis*.

**Subcompletus**, Nees.**

Considerable confusion exists regarding this species. Nees, in the original description, tells us the terebra is two-thirds the

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* *Mon. Af.,' i, p. 170.
† *Brac. Europe,' etc., iv, p. 526.
§ *Ins. Lig.,' iii, p. 151.
|| *Berl. ent. Zeit.,' 1880, p. 357.
¶ *E. M. M.,' 1902, p. 4.
** *Mon.,' i, p. 165.
length of the abdomen, in which he is followed by Wesmael and Ruthe, but Marshall says it may be either one-third or three-quarters the length of the abdomen. Such a wide variation can scarcely be possible in a single species, and for a time I imagined a printer's error might be responsible for the difference, and that "one-third" should be "two-thirds"; lately, however, I have seen a number of specimens, probably from Cameron's collection, all labelled "M. subcomplectus" in Marshall's writing, and in these the terebra is scarcely one-third the length of the abdomen. It is difficult to believe that they can be the true subcomplectus of Nees, and, were it not that they have the stigma concolorous and not pale at the base, they might easily be taken for steticus, Ruthe.

Of this form with a short terebra I took a pair in the New Forest at angelica bloom in early August, 1916, and swept several from low herbage on chalk hills near Cambridge in July and August, 1917.

**Globatus.**

A common species with the wings varying from dusky to almost pure hyaline. In all the female specimens I have seen the terebra has been rather less than half as long as the abdomen. Marshall considered it to be always a solitary parasite but Ruthe speaks of it as gregarious. I have obtained a brood of fourteen from a New Forest larva of Vanessa atalanta, and have also a brood from the same host, taken at Farnham by Colthup. Harwood has frequently bred it as a solitary parasite from young larvae of V. atalanta at Colchester, and has also reared broods from the full-fed caterpillar of that butterfly. Morley also records it from the same host. I have carefully compared the solitary parasites with others from broods and can detect no difference excepting that the former are rather larger. Cocoons white and somewhat woolly; the loose outer cover is easily removed which leaves a thin, smooth, and slightly glossy inner cocoon, this may account for the discrepancies between the descriptions of various authors.

**Tibialis, Nees.†**

Very variable, both in size and coloration. Marshall doubted if it could be distinct from globatus, and certainly the principal difference appears to be merely in the colour of the legs; I must admit that I have never met with any of the intermediate forms he mentions, though, at first sight, M. crassicornis might be taken for a light tibialis or dark globatus, it is, however, easily distinguished by the antennae. Haliday treated some of the varieties as separate species, viz. messorius, meridianus, and luctuosus, and it seems to me still open to question that he

* 'Mon.,' i, p. 163.
† 'Mon.,' i, p. 168.
was not correct in so doing; a study of the genitalia is badly needed here.

Fairly common though rarely bred, Morley tells us it is "very common" with him. Harwood has taken several at Colchester and I have found it near Cambridge, though never in the New Forest. The only cocoon I have seen accompanies a continental specimen in Morley's collection, it is white, rather woolly and similar to that of *M. globatus*. Bignell gives the cocoon as "white, papyraceous," which agrees better with that of the next species.

*Crassicornis*, Ruthe.*

This is the *M. spmoe* of Haliday but not of Nees and Wesmael. There is no doubt it has frequently been confused with *tibialis* to which it bears a great resemblance, though a glance at the antennae will at once determine its distinction, the three penultimate joints being quite as broad as long, which is not so in *tibialis* and *globatus*.

A common solitary parasite of larvae of *Eupethecia denotata* (campanulata). In September, 1912, Major Robertson gave me several "stung" larvae of this lepidopteran, taken by himself at Limpley Stoke, Bath; from these emerged microgaster larvae which remained within their cocoons during the winter, the imagines emerging the following May (5th to 11th). Harwood has eight females bred from the same host taken at Newbury, and also possesses two females and one male obtained many years ago at Glenlyon by Cameron; these three insects are no doubt some of the specimens mentioned by Marshall ('Trans. Entom. Soc.,' 1885, p. 259), unfortunately, they have suffered greatly from the attacks of mites.

Cocoon white, thin, smooth, transparent, with a medial band of a denser texture.

(To be continued.)

**NOTES AND OBSERVATIONS.**

**FOOD-PLANT OF THE LARVA OF HYRIA MURICATA.**—In a previous number of the 'Entomologist' (vol. xlviii, p. 197) I recorded the fact that the food-plant of the larva of *Hyria auroraria* in Great Britain was probably the Marsh Cinquefoil (*Comarum palustre*). Mr. W. Holland has since confirmed this supposition by finding larvae of this moth in Suffolk in May, 1917, feeding on *Comarum palustre*, which he reared to maturity. As Mr. Holland points out, *H. auroraria* is very local on the bogs where it is found, a fact explained by the sparse distribution of the food-plant in the areas where it grows.—N. Charles Rothschild; Arundel House, Kensington Palace Gardens West, London, March 9th, 1918.

THE ENTOMOLOGIST.

LEPIDOPTERA OBSERVED IN MACEDONIA.—Mr. P. J. Barraud has been home on short leave. I have had the pleasure of inspecting his 1917 collections, and am able therefrom to add the following species not included in his notes (antea, pp. 61–63, 86–88):

_Hesperia armoricanaus_, Ostbr.—Saracli, 30: vi: 1917; worn. The form is identical with that of examples in my collection sent me by Capt. P. P. Graves, taken in May and September near Constantinople in 1911 and 1912.

_Chrysophanus thersamon._—Saracli, 26: vi: 1917. Appears to be distributed generally throughout the region.

_Agriades thersites._—Saracli, 30: vi: 1917. A specially fine form of the female, with brilliant under side, deep ground colour, and large bright orange spots.


The _Melitaeas_ include, I think, _Melitaea phoebe_, ab. _etheria_, Eversmann, but the specimens have suffered in the process of relaxing, and were worn when taken.—H. ROWLAND-BROWN.

ARICA MEDON, AB. ARTAXERXES, IN SUFFOLK.—With reference to Capt. Douglas Smart’s note (antea, p. 92) on the occurrence of this form in Suffolk, _artaxerxes_ is occasionally reported from other than its northern localities, e.g. quite recently in the forest of Fontainebleau, Seine-et-Marne, by MM. Guiry and Guignan (‘_l’enfille des Jeunes Naturalistes,’ an. 39, sér. iv, p. 24); but, I think, M. Oberthür once told me that the identification may be incorrect.—H. ROWLAND-BROWN.

THE BEE NOMIA INCERTA.—In ‘Entomologist,’ August, 1915, p. 178, I reported _Nomia incerta_, Gribodo, from the Philippine Islands, having identified it from Gribodo’s account of his insect from Java. I now have before me a female of the true _N. incerta_, from Mt. Salak, Java, 2500 ft., July 7th, 1909 (Bryant and Palmer), and find that the Philippine species is quite distinct. In _N. incerta_ the mesothorax has punctures of two sizes, and the terminal divisions of the postscutellar prominence are obtuse. In the Philippine bee, which I will call _N. notha_, n. sp., the mesothorax is strongly punctured, the punctures not of two sizes, and the ends of the postscutellar process are very acute. Thus _N. notha_ is nearer to _N. elliotti_, Sm., than is _N. incerta_. The type of _N. notha_ was obtained by Baker at Los Banos, Luzon. In addition to the localities mentioned in the place cited, Baker sent _N. notha_ from Mt. Banahao and Mt. Maquiling, Luzon, and Dapitan, Mindanao.—T. D. A. COCKERELL.

HIBERNATION OF PYRAMEIS ATALANTA.—I am much interested in Mr. Rowland-Brown’s note on the survival of this species through the winter in this country. I think certain numbers do undoubtedly. At Sidmouth, during December, January, and February last, _P. atalanta_ put in an appearance on various fine days. The winter here has been quite Riviera-like. I am sorry I have no temperature records of the cold spell in December and January, which, however, was of short duration. Peak Hill, leading to Muttersmoor, is the locality, and in a sunny, sheltered nook near a thatched cottage the
butterfly was flying and settling. I remarked the tawny red colouring as in the winter emergence at Cannes (i.e. in comparison with the summer brood). This, of course, was due to the age of the insect, though it was not worn, only faded. I remember many years ago a number were found in Crowborough woods, Sussex, hibernating among faggots with Eugenia polychloros. This information was conveyed to me by Dr. Gerald Hodgson, of Brighton, and, to the best of my belief, he was present at the time when the faggots were being removed. He told me he was quite sure that atalanta hibernated in England. I have met with many examples of Vanessa io here from February onwards, both on the moorland and in sheltered lanes.—C. E. Morris; Beach House, Sidmouth, South Devon, April 2nd, 1918.

Pyrameis atalanta, etc., in March.—An example of P. atalanta was observed here on March 23rd, fluttering in one of the bedrooms facing to the west. It had evidently passed the winter there, and made its exit through the window into the garden. This, and Mr. Ford's note (antea, p. 93), seem further evidence that atalanta can, and does, hibernate successfully in Britain when conditions are favourable. On the same day, the temperature at noon being over 65° in the shade, Vanessa io was feeding on the blossom of a very early flowering plum, and laurustinus. I also saw the first Pieris rapae on the wing, a single individual, near Pinner.—H. Rowland-Brown; Harrow Weald, March 24th, 1918.

Celastrina argiolus and Brephos parthenias in Middlesex.—A freshly emerged male C. argiolus appeared in the garden here on March 31st after a few cool and stormy days, following the abnormal warmth of March 23rd and 24th. This is the earliest date in five and twenty years' observations here. On March 24th, on one of the smaller commons, "Pinner Beds," B. parthenias was quite abundant. I have no record of the species in Middlesex since 1892, and have never before seen it in this locality myself. During the past quarter of a century, however, the character of our commons has completely changed. The open furze-grown gravel beds have become afforested with dense thickets of birch, which in their turn are being thinned out. On Harrow-Weald Common a fair proportion of sallows survive, and here, too, B. parthenias occurred, though more sparingly.—H. Rowland-Brown; Harrow-Weald, April 2nd, 1918.

Brephos parthenias: A Contrast in Seasons.—It may interest readers to hear that last year Brephos parthenias was not on the wing in this district until April 24th; we had frost and snow until April 16th. This year the moth was in full flight on March 22nd, more than a month earlier, and may have been flying a day or two previously.—H. D. Ford; Thursby Vicarage, Carlisle.

Brephos parthenias in Gloucestershire.—On March 21st I was out in the birch woods here and noticed Brephos parthenias flying in dozens in the afternoon sunshine, nearly a month earlier than last year. This species remained on the wing as late as 5.30 p.m. So far I have failed to locate B. notha here, although the
species is included in the county list.—C. GRANVILLE CLUTTERBUCK: 16, Clarence Street, Gloucester.

BREPHOS PARTHENIAS IN SURREY.—This moth was very common indeed—I have never before seen such numbers—in Princess’ Coverts, near Oxshott, on February 23rd. Many were flying low, and often settling on the ground, usually in damp spots; they were also noticed on sallow blossoms.—W. J. LUCAS; Kingston-on-Thames.

G. rhamni was also extremely common, but most were males; probably not more than 5 per cent. of those seen were females.—W. J. L.

EARLY BUTTERFLIES.—On March 22nd specimens of Celastrina argiolus and Pieris brassicae were seen on the wing in this town, about a month earlier than is usual. On March 23rd, in a twenty-mile drive north of Bedford, I counted thirty-six Gonepteryx rhamni, thirty-five being males. In summer this insect is rarely seen in this neighbourhood.—W. GIFFORD NASH; Clavering House, De Parys Avenue, Bedford.

Pieris brassicae was noted on March 23rd last.—F. M. A. MACKIRKNOE; Collyweston Manor, Stamford.

Pieris rapae was on the wing at Clissold Park, Stoke Newington, on March 21st.—B. W. NEAVE; 95, Queen’s Road, Brownswood Park, N. 4.

[P. rapae was seen flying in Cricklewood on March 21st.—Ed.]

EARLY LEPIDOPTERA.—I saw the first specimen of Tephrosia biundularia on a tree trunk here on February 27th or 28th last, and several others during the first week of March. The first Biston hirtaria was seen on an elm-trunk on March 13th. Two years ago I saw a male Notodonta dictea on a poplar-trunk here on April 18th, which, I think, is an early date.—F. H. LYON, F.E.S.; Intelligence, G.H.Q., B.E.F.

DASYPHORA PUDIBUNDA IN FEBRUARY.—A schoolboy brought me a female of D. pudibunda on February 21st, 1918. It was found, freshly emerged, on an elm tree-trunk near its cocoon. This specimen, which is deformed, has laid about ten dozen ova. The weather previous to February 21st was exceptionally cold.—GEORGE H. HENSHALL, jun.; 19, Greenvale Road, Eltham, Kent.

A FEW RECORDS OF BRITISH ORTHOPTERA.—It may be useful, for reasons of locality, to give a list of such Orthoptera as have come under my notice from time to time, notwithstanding the fact that the species are very few, and are for the most part of the commonest. Notices of the more interesting occurrences have appeared already, and references are given in such cases. Unless otherwise stated, the captures were made by my brother or myself. I have not included in the list any of the rarer species which Mr. W. J. Lucas has been kind enough to add to my collection, as it is understood that he will publish all his own observations himself. It has not been deemed necessary, either, to include the two common pests, Forficula auricularia, Linn., and Blatta orientalis, Linn. Gryllus domesticus, Linn., is also omitted, as no data concerning it have been

**Æschna mixta.**—I note that in W. J. Lucas' book on ‘British Dragonflies’ the above-named insect is described as restricted to the South-East of England. It may be of interest to your readers to know that I caught a pair, male and female, at Totnes in South Devon during the last week of September, 1917. They were flying alongside a large pool close to the Dart. They were difficult to capture, occasionally taking high flights on to some neighbouring trees and resting there for some time. Although I saw at least another pair in the same locality, and a male at a similar pool two miles away, I was unable to capture another specimen.—A. H. Newton; 81, Craven Street, Coventry.

**Taniopteryx nebulosa**, Linn. (Plecoptera).—As I was walking, on February 3rd, along the bank of the Thames opposite Kingston,
on the Middlesex side, an insect was noticed moving along the surface of the water by the use of its wings. When first sighted it was some six or eight yards from the bank, which it seemed to recognise, for it made towards it, though by a diagonal course, no doubt owing to the current in the water. Nearer the bank it moved more directly, the current probably impeding it less. When it arrived I secured it in a glass-bottomed box. The insect turned out to be Tanyopteryx nebulosa, one of the earliest Stoneflies to appear, and this date, February 3rd, is, for the British Isles, a very early one indeed.—L. C. E. BALCOMB; Kingston-on-Thames.

SUGARING.—In view of the present scarcity of "sugar," the question of substitutes for entomological purposes might be of interest, if correspondents would be kind enough to give their experiences. My own experience has shown me that the old-fashioned "brewing sugar," or "foots" as it is sometimes called, or its equivalent the old-fashioned "black treacle," give the best results. Beetroot sugar, about the only kind now obtainable, is comparatively inefficacious. Is there any other liquid substitute that has been used with success? Split apples or other ripe fruit are said to be good, but they are not always obtainable nor easily manipulated. What is used on the Continent? Re the use of "foots" or "treacle," my own observation has lead me to believe that most people use it too lavishly. Last summer I visited almost nightly for four weeks a round of some one hundred trees, with very satisfactory results so far as attracting numbers was concerned. I lightly brushed over the patches with a 50 per cent. mixture of water, every other night, using in all not more than 4 lb. of treacle. I don't maintain, of course, that this is an improved mixture, but it is efficacious and more in conformity with the requirements of what has been called the "poor man's hobby." I have also used the method of "treacled rags," but never so successfully as when the mixture was painted on trees, etc. In sugaring for Agrotis cinerea by both methods simultaneously, I found that my "rags" were practically useless. What is the experience of other entomologists?—A. E. BURRAS; 3, Connaught Road, North End, Portsmouth.

SOCIETIES.

The South London Entomological and Natural History Society.—January 10th, 1918.—Mr. HY. J. TURNER, F.E.S., President, in the chair.—The decease of two members was announced—Mr. W. WEST (Sutton), a member of the Council, aged 71, and Mr. W. MANGER (New Cross), aged 75.—Mr. Edwards exhibited three species of the North Indian genus Dodona, viz. D. adoniia, D. durga and D. ouida of the Nemeobunae. He also showed Riodina lysippus, Mesone phareus, Apodemia glapyra, and Echenais pentheia, belonging to the Lemoniinae from South America.—Mr. B. ADKIN, series of Agriades corydon ab. semi-syngrapha and ab. syngrapha, with a graduated series of intermediates, and read notes on the exhibit. A short dis-
cessation took place on the naming of aberrations.—Mr. Turner, series of three species of the genus *Thaïs, T. rumina*, *T. polyxena*, and *T. cerisyi*, and read notes on their variation and distribution.—Mr. Bowman, a bred example of *Aglaïs urticae* with curious leaden patches.

—The reports of the field meetings and visits were communicated to the Society by Messrs. Bowman and Turner.

**January 24th.**—The President in the chair.—Annual Meeting.—
The balance sheet and report of the Council were received and adopted. The following members were elected as officers and Council for 1918-19: President, S. Edwards, F.L.S.; Vice-Presidents, R. Adkin, F.E.S., and H. J. Turner, F.E.S.; Treasurer, T. W. Hall, F.E.S.; Librarian, A. W. Dods; Curator, W. West; Editor of *Proceedings*, H. J. Turner, F.E.S.; Secretaries, S. E. Edwards, F.L.S., and Hy. J. Turner, F.E.S.; Council, W. J. Ashdown, K. G. Blair, B.Sc., G. Brooks, A. W. Dennis, F. W. Frohawk, F.E.S., M.B.O.U., Lachlan Gibb, F.E.S., C. W. Sperring, A. E. Tonge, F.E.S., and W. West, L.D.S.—The President read the annual address.—Mr. Edwards took the chair.—Votes of thanks were passed to the President, Officers, and Council.—Ordinary Meeting.—
Mr. Dennis exhibited enlarged photographs of Mr. Adkin’s *P. brassicae* with white bars on the apical black patch, to show there was no absence of scaling.—Mr. Turner, series of the beautiful *Catogramma sorona* from Paraguay.—Mr. Edwards, species of the genus *Aenea* from South America, and spoke of their affinities and neuration.—Hy. J. Turner (Hon. Sec.).

**February 14th, 1918.**—Mr. Stanley Edwards, F.L.S., President, in the chair.—The death of Mr. G. Brooks, a member of the Council, was announced.—Mr. Bowman exhibited a series of female *Hibernia defoliaria* from Epping Forest in which the abdomen was jet black.—Mr. Main, an observation cage, with the burrow of the beetle *Nebria brevicollis*, and remarked on the abundance of the small mounds of débris from such excavations after the last frost.—Mr. Ashdown, a long series of aberrations of *Coccinella hieroglyphica* taken in Surrey in 1917, and a curious old book with coloured plates, entitled ‘*Dialogues on Entomology*,’ 1819.—Mr. R. Adkin, a copy of Merrit’s ‘*Pinax*,’ 1667, one of the first books on the whole of the British fauna.—Mr. West, the locust *Schistocera peregrina*, found on a ship from West Africa.—Mr. Hy. J. Turner, specimens of *Epinephele lycaon* form *lupinus* from Cyprus with typical specimens from the French Alps for comparison.—Mr. B. Adkin, a series of the males of *Agriades thetis* (*bellargus*), showing gradation in colour development, including a clouded example on which the patches seemed to be formed of scales curled up when it was looked at obliquely.—The President, various species and forms of the *helenus* group of the genus *Papilio* which Moore has called the sub-genus *Charus*, including *P. chaon, P. helenus, P. fuscus* (*severus*), *P. iswara*, etc.—A short discussion took place on the “Introduction of non-indigenous species into the country.”—Hy. J. Turner (Hon. Editor of Proceed.).

**February 28th, 1918.**—Mr. S. Edwards, F.L.S., F.E.S., President, in the chair.—Exhibition of lantern slides—The President exhibited slides showing the varied forms of antennae, wing venation, andro-
conial scales, and other anatomical details of insect structure, and a slide illustrative of "Paedogenesis" in Miastor, a Cecidomyiid (Dip.).—Mr. H. J. Turner, a copy of Capt. Browne's 'Butterflies, Sphinges, and Moths,' 1832, and called attention to the crude shape and colour of the figures.—Hy. J. Turner (Hon. Editor of Proceed.).

March 14th.—Mr. S. Edwards, F.L.S., F.E.S., President, in the chair.—Mr. Turner, Colias edusa v. helice from Cyprus and Spain, including an intermediate form.—Mr. Edwards, a long varied series of Gnophos glaucinaria from Macugnaga and several species of Setina (Endrosa), S. irrorella, S. aurita, and S. kuhlweini, some having confluent markings.—Mr. Barnett, a short series of Hyria muricata from near Guildford, much lighter than the northern form.—Mr. K. G. Blair, the larva of the Coleopteron Nebria brevicollis parasitised by a Proctotrupid. The larvae of the parasite were attached full fed for pupation along the back of the host by their tails.—Hy. J. Turner (Hon. Rep. Editor).

Lancashire and Cheshire Entomological Society.—Annual Meeting held at the Royal Institution, Colquitt Street, Liverpool, December 17th, 1917.—The President, Mr. Leonard West, in the chair.—The following were elected officers and Council of the Society for the ensuing year, viz.: President, Wm. Webster, F.R.S.A.; Vice-Presidents, L. West, R. Wilding, and R. S. Bagnall, F.L.S., F.E.S.; Hon. Treasurer, Dr. John Cotton; Hon. Librarian, F. N. Pierce, F.E.S.; Hon. Secretary, Wm. Mansbridge, F.E.S.; Council, Messrs. C. F. Burne, A. W. Hughes, H. F. Carter, F.E.S., Wm. Buckley, J. W. Griffin, J. Collins, Dr. P. F. Tinne, Prof. R. Newstead, M.Sc., F.R.S., and S. P. Doudney.—The President delivered an address entitled "Some Aquatic Insects," which was illustrated by a collection of 150 lantern slides representing the life-histories of many species of insects that live in or about the water. In his introduction Mr. West touched upon the general conditions of an aquatic environment, such as the effect of the geological formation upon the character of the water and the flora maintained by it, and consequently the species of insects found in a particular district. The saline and acid or alkaline quality of water was discussed, and the reaction upon insect and vegetable life resulting from a particular condition was illustrated by various examples. The photographs, nearly all taken by the President himself, were very fine examples of such work done under circumstances of exceptional difficulty. The series included life-histories of the following species, viz.: Chironomus, Culex, various Ephemerida, Trichoptera, and Perlidae, aquatic Coleoptera, as Dytiscus and the "Whirligig" beetles, the whole presenting a very clear and connected idea of the lives of these interesting creatures in their natural element.

January 21st, 1918.—The new President, Mr. Wm. Webster, took the chair.—Mr. Albert E. Wright, 41, Brookland Road, Burnley, was elected a member of the Society.—Mr. W. Mansbridge communicated a paper entitled "Notes on Breeding Boarmia repandata." The paper dealt with his experimental breeding of B. repandata and gave the results up to date: so far, although the present set of trials dealt with the var. nigra up to the fourth filial generation, the form had not yet
bred true. The proportion of the local form of the type varied from 16 to 33 per cent. in the different generations, so the experiment is being continued, and when complete, or ending owing to failure from inbreeding, the results will be published.—Mr. W. Mansbridge also contributed a note on the insects taken on the occasion of the summer field meeting at Eccleston Mere in June, 1917. The most interesting captures were Choreutes myllerana (scintilluliana), Adela degeerella, and Argynresthia curvella, these being first records for South Lancashire. Another interesting record was the melanistic variation of Eupithecia castigata, which, although not uncommon in South Lancashire, gives a new locality for its occurrence.—Mr. W. J. Lucas sent for exhibition the interesting earwigs, Prolabia arachidis, from the bone works at Acton Bridge, Cheshire, a naturalised alien, and Apteryxida albipennis from Sudbury, and generously presented the specimens to the Society's collection.—Mr. Rigby, who was present as a visitor, showed a beautiful collection of exotic Hemiptera, several of which seemed to be "mimics" of Lepidoptera.—Wm. Mansbridge (Hon. Sec.).

Meeting held at the Royal Institution, Colquitt Street, Liverpool, February 18th, 1918, Mr. Wm. Webster, President, in the chair.—Mr. F. N. Pierce exhibited Cidaria minna from Formosa and Assam, also, for comparison, C. otregiata, C. suffumata, and C. silaceula. Mr. Pierce stated that he had examined the genitalia of these closely allied insects and had found them to be different from each other; it had been suggested that otregiata was identical with minna but this was not so, besides the differences in the genitalia the wing-markings were distinctly different. Mr. Pierce further exhibited a specimen of Oinophila v-flavum captured in the heart of Liverpool, Cedestis farinatella and Epiblema solandriana var. sinuana from Delamere; Depressaria nervosa from Sales Wood; Eupocilia alismana (udana) and Schœnobius forficellus from Tansor, Northants.—Mr. R. Wilding exhibited and contributed notes upon the following species of Coleoptera all taken in his garden at Walton on the outskirts of Liverpool, viz.: Notiophillus biguttatus, Harpalus aeneus, Pristonychus terricola, Creophilus maxillosus, Philonthus laminatus, P. varians, Telephorus rustica, Agriotes sputator, and Coccinella bipunctata; he further showed specimens of Ptinus tectus from the neighbourhood of Liverpool Docks.—Wm. Mansbridge, Hon. Sec.

Carlisle Natural History Society.—November 23rd, 1917.—After a period of inactivity this Society decided to hold a short series of winter meetings for the exhibition of specimens and recording of matters of local interest in general natural history.—Mr. Geo. B. Routledge, F.E.S., was elected President, Mr. L. E. Hope, F.I.S., Curator of Carlisle Museum, Hon. Treasurer and Librarian, and Mr. F. H. Day, F.E.S., Hon. Secretary.

December 13th, 1917.—Mr. Routledge exhibited Vespa crabro from Colchester, and for comparison various common wasps, and stated that, although he had had the local occurrence of V. crabro frequently reported to him, he had always found on inquiry that the reports referred to queen wasps. He believed that the hornet had not been found so far north as Cumberland.—Mr. Hope exhibited several
Sphinx convoluti taken recently in Carlisle and Silloth; specimens of the beetle Bruchus pisi and peas infested by it, bought in a Carlisle shop; a large Tick from the camel taken in desert of Sinai; male and female Dynastes hercules from Dominica; and various exotic butterflies, including Morpho cypris from Bogota, Ornithoptera paradisea from South America, and Callimia inachis from India.—Mr. Day exhibited a new Cumberland dragonfly, Leucorrhinia dubia, from Cumwhitton Moss, two Carlisle specimens of the sawfly, Sirex noctilio, and numerous Coleoptera, including several new to the county list—Anisotoma curta from Durdar and Liodes orbicularis from Orton.

January 10th, 1918.—Mr. Routledge exhibited Trichoptera new to Cumberland, viz. Linnophillus elegans, Micropterna sequax, Mystacides longicornis, and Ecetis ochracea.—Mr. Hope exhibited various Bombycidae from Canada and fine specimens of Danaida plexippus.—Mr. Marriner exhibited a small collection of butterflies taken in and near Carlisle, including Pyrameis atalanta, P. cardui, Euchloe cardamines, very small, Augiades sylvanus, Zephyrus quercus, and Callophrys rubi, the last-named taken in the middle of the city.—Mr. Murray showed a long series of North American Coleoptera, all of species common to Europe, such as Elaphrus riparius, Nacerdes melanura, Callidium variabile, Cytilus varius, Clerus fornicarius, and many more.—Mr. Day exhibited Hemiptera, viz. Asopus punctatus and Zicrona caerulea, which had been reared on Halticus beetles; Orthotylus virens from Cumwhitton Moss, new to the British fauna; Lygus cervinus, L. rubricatus, Onychmenus decorus, Microdema micropteron, Monanthia humuli, and Orthotylus tenellus, all locally captured, the last three species being new to the Cumberland list; also the Trichoptera Chaeopteryx villosa and Halesus guttatipennis from the R. Eden; and the Neuropteron Sialis fuliginosa from the R. Caldew.—F. H. Day (Hon. Sec.).

February 7th, 1918.—The President, Mr. G. B. Routledge, exhibited part of his collection of Aculeata, including the following, all taken near his house, Tarn Lodge, on the eastern borders of Cumberland: Bombus agrorum, hortorum, pratorum (and its associate Psithyrus quadricolor), derhamellus, sorovensis, lapidarius, terrestris var. lucorum (and its associate P. distinctus), also P. campestris which associates with B. muscorum.—Mr. Marriner exhibited Coleoptera including Carabus nitens from Warnell Fell, and Blethisa multipunctata from Cummersdale; also the Brazilian owl butterfly Caligo teucer.—Mr. Day showed Bombus terrestris taken locally, apparently scarce in Cumberland in its typical form; and the following Hemiptera all captured in Cumberland: Calocoris alpestris, Phytoporis populi, tiliae, longipennis, pinii, and ulmi, Aphrophora salicis, and Centrotus cornutus.

March 7th, 1918.—The only entomological exhibit at this meeting was by Mr. Day of the following Aculeata: Andrena fuscipes from Wan Fell, new to Cumberland, Halictus freygresneri from Orton, Colletes succineta from Great Salkeld and Port Carlisle, C. fodiens and daviesana from Silloth, and Sphecodes subquadratus from Upperby.—F. H. Day, Hon. Sec.
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THE DEATH-WATCH: NOTES AND OBSERVATIONS.

By C. J. Gahan, M.A., D.Sc.

There are two kinds of "death-watch," and more than two centuries have passed since that fact was well established and first made known. But for some reason, not easy to explain, Derham's interesting observations on the "death-watch" had been strangely neglected by entomological writers until Dr. Sharp called attention to them in the Cambridge Natural History. Like many other entomologists at the time, I was myself altogether unacquainted with them, when about sixteen or seventeen years ago I first heard the ticking of the book-louse, and it was not until I had traced the ticking to its source that I came to know that the little insect known under that name was able to make a noise of the kind.

There is now little excuse for entomologists in this country to remain either ignorant or incredulous of the fact that the book-louse is a genuine death-watch, and beats at a slower rate and for a much longer time in succession than does the other death-watch, which "beateth only about seven or eight strokes at a time, and quicker." The fact, however, appears to be little known yet amongst continental writers.

In a valuable and very interesting paper on the Anobiid beetles which appeared less than three years ago, the Swedish author, Mr. N. A. Kemner, who was treating of them chiefly from the economic point of view, had occasion to refer to the ticking noise they make, and he referred also to the book-louse in that connection.

Mr. Kemner tells us that Linné, who had heard the ticking noise, mistook its origin and attributed it to the little insect called the book-louse, which, for that reason, he named *Termes pulsatorium*; but the mistake was soon afterwards corrected by C. A. Schmid, who observed *Anobium pertinax* in the very act of ticking.

I have not yet seen what Schmid had to say on the subject, but in reference to Mr. Kemner's statement it is well to point out that Linné made no mistake whatever in the matter, for, so far as I know, he never said that he had heard the ticking either of...
the book-louse or of the beetle. All that he did was, when describing *T. pulsatorium*, to mention the fact of its ticking, although he may possibly have heard it himself; and since he gave a reference to Derham, he doubtless considered his own species to be the same as Derham's *Pediculus pulsatorius*, with regard to whose ticking there could be no manner of doubt. Mr. Kemner himself it is who has made the mistake, and I fancy it is not his only mistake on the subject. For he states also that *A. striatum*, when ticking, gives fifty to sixty beats in succession before it stops to make a pause of a second or more.

It is, to say the least, very doubtful whether *A. striatum*, Oliv., ticks at all. And I doubt even whether *A. pertinax*, Linn., is a ticking beetle, notwithstanding the observations of Herr Schmid, and the statement made by Mr. Kemner, on what authority he does not say, that this species gives seven or eight taps in succession, just as does the well-known "death-watch" *Xestobium ruforillosum*, De Geer (= *tessellatum*, Oliv.).

*A. pertinax*, Linn., is a species that does not occur in this country, and few British entomologists are familiar with it in its living state. With the exception of Schmid, I do not know of any writer who has spoken about its ticking from direct observations made by himself, although many continental writers have referred to the species as one of the death-watches. Until there is better evidence of it, I shall continue to doubt its ticking.

In reference to the ticking of *A. striatum*, Oliv., we are better qualified to form an opinion. This species is very common here, and there is scarcely a house in which it is not present in some old piece of furniture or, if the house be old, in the woodwork.

How many British entomologists have ever seen it tapping? I don't know of one. Many have said that it taps, and have ranked it amongst the death-watches. Kirby and Spence have said so, Westwood has said so, a dozen or more have said so, and I may even have said so myself, but then I should only have been repeating what had been said so often before without questioning the authority for it. Continental entomologists have been almost as unanimous in their statement about the ticking of that species, and Reitter even refers to it as "the death-watch beetle."

I have tried to find some account of the tapping of *A. striatum* that was based upon actual observation of it, but I have succeeded so far in finding only one, which is said to be based upon observations made by Latreille, the great French entomologist.

In 'Rapports generaux des Travaux Soc. Philom. Paris,' tome iv, p. 67 (1800) it is stated that "He [Latreille] also read a memoir upon *la vrillette striée* and on the manner in which it produces the sound it makes heard; it is not the larva which causes this noise, but the perfect insect, which citizen Latreille has seen to strike upon the dry wood with its mandibles, and the
next moment he heard in the interior of the wood a similar noise made in reply."

There can be no doubt that Latreille did see an Anobiid beetle tapping and making a noise. But was that "vrillette striée" the true A. striatum of Olivier? I have more than one reason to doubt it. The nomenclature in those days was in a very confused state, and names of species got mixed up in hopeless fashion.

My chief reason, however, for doubting it is that, although I have kept near me, both day and night, pieces of wood containing beetles of that species, and for over a month in their pairing season, I have never heard any noise made by them, nor have I ever seen the least attempt at tapping on their part, "le prélude des amours de ces petits animaux," as Latreille said, when I have been watching them for some time before the act of pairing. The beetles, in fact, made no noise whatever about it, but as soon as they met proceeded to get on with their business.

If I am right in my belief that Derham was referring to A. striatum where he speaks of Scarabeus lignicorus, the following passage from one of his papers has an important bearing on this question, and is another reason for my doubt: "I have in hunting the noise sometimes discovered a spider near sometimes the small S. lignicorus which eateth the little holes in the wood, which hath been commonly taken for the death-watch. These, I gues't might make the clicking noise, and, therefore, with all nicety watch'd them. But found that altho' the beating continued, the insects did not stir in the least nor were in any way affected. So with all diligence I still pursued my inquiry, which was the cause of my discovery of the real thing. And I have so many years acquainted myself with all the noises of the death-watch kind that (altho' I seldom love to speak confidently, yet) I can assure everyone that there are but two sorts of them in those parts of England where I have been, viz. the few quick beats of the S. sonicephalus (as Swammerdam hath nam'd it) described by Mr. Allen, and the longer and more leisurely beats of that insect I have now been speaking of." The insect he was speaking of was his P. pulsatorius, and the Scarabeus described by Allen, who gave it the name pulsator, was undoubtedly the species known as A. tessellatum. Allen (1698) was, in fact, the first writer to give a rather full description of the "death-watch" beetle and an enlarged figure of it, and so has enabled us to identify with certainty the species he was writing about; but he was by no means the first to recognise that the beetle was a death-watch.

The name "death-watch" was, no doubt, originally applied to the noise only, or to the something unknown at the time and left to the imagination to suggest which was the source of that mysterious noise. Whether it be true or not, as some
are inclined to believe, that the death-watch beetles which have proved so destructive to the roof of Westminster Hall, were at work there more than four hundred years ago, it is at least safe to say that death-watches of one kind or the other have been with us since long before the days of Chaucer; and it would be of interest to know where and when the name first occurs in English literature. The earliest reference to it that I have come across is one (for which I am indebted to the 'New English Dictionary') in a work dated 1668. 'An Essay towards a Real Character and a Philosophical Language,' by John Wilkins, D.D., Dean of Ripon, and a Fellow of the Royal Society, is, in spite of its unattractive title, a book of considerable historical interest to entomologists and other students of Natural History; although I have nowhere seen it even mentioned in connection with the history of entomology in this country. It is probably the first book in the English language in which an attempt has been made to arrange the insects and other animals in some sort of systematic order; but for whatever merit the arrangement may possess, the credit is doubtless due to Francis Willughby, whose assistance in drawing up the tables is freely acknowledged by the author.

In one of those tables, where the "sheathed-winged insects, commonly called beetles or scarabs" are divided up into sections according as their coverings are "thick, strong, and horny," or "thin, weak, and flexile," and so on into minor groups, we find the name of the "Death-watch" appearing; and this beetle, to which also the name "S. domestica" is given, distinguished as "that of a long, slender body," frequent about houses, making a noise like the minute of a watch, by striking the bottom of his breast against his belly."

A very similar explanation of the manner in which the noise is produced is given in Ray's posthumous 'Historia Insectorum,' p. 92 (1710), but the author there goes on to say that he did not quite understand how it could be produced in that way, and expresses his belief that the beetle makes the noise by knocking its head against the body on which it rests. The breast-structure described by him as that of the death-watch beetle was, in fact, that of a click-beetle or Elaterid, and hence the mistaken idea about how the sound was produced.

It was in 1669, a year after Wilkins's book was published, that Swammerdam ('Hist. Ins.,' p. 127), gave an account of the noise made by the little Scarabaeus, which he named "Hooft Klopperken," and sonicephalus.

Three years later, in a paragraph, added for the first time in the sixth edition (1672) of his 'Vulgar Errors,' Sir Thomas Browne gave a fuller and more interesting account of the death-watch, from which the following extract is taken:

"As compared with the Lady-Cow, which is "of a more short, round figure.""
"Few ears have escaped the noise of the death-watch, that is, the little clicking sound heard often in many rooms, something resembling that of a watch; and this is conceived to be of an evil omen or prediction of some person’s death; wherein notwithstanding there is nothing of rational presage or just cause of terror unto melancholy and meticulous heads. For this noise is made by a little sheath-winged grey insect, found often in wainscot, benches, and woodwork in the summer. We have taken many thereof, and kept them in thin boxes wherein I have heard and seen them work and knock with a little proboscis against the side of the box, like a *Picus martius*, or woodpecker against a tree. It worketh best in warm weather, and for the most part giveth not over under nine or eleven strokes at a time.” (Bohn’s Edition of Browne’s Works, i, p. 210.)

(To be continued.)

**THE LIFE HISTORY OF ANCYLIS UNCANA.**

**By W. G. Sheldon, F.E.S.**

I have long been puzzled with the earlier stages of this not particularly rare Tortrix. Barrett says: "Larva apparently undescribed. It is said to feed in April on heather (Calluna vulgaris)."

This seemed so improbable a habit for a species of this genus, the early spring larva I mean, coupled with the fact that I have found the imagines abundantly miles away from any heather, that I felt sure there was some mistake, and I have devoted some time for several years to try and work out its life history.

The imago flies abundantly in May in a portion of Limpsfield Chart, where the only growth consists of bilberry, oak, and birch, but a careful examination of these during July and August, for several years, resulted in my being unable to find traces of a larva which I could consider likely to prove to be that of this species.

In May last, however, I captured a number of females, which I confined over the three above-mentioned possible food-plants and *C. vulgaris*. On the 20th of that month, the imagines being all dead, I examined the plants carefully with a lense, and found on the birch leaves, and on the leaves only, a number of ova, of which I made, on May 23rd, the following description:

Length, 0·75 mm.; breadth, 0·72 mm.; height, 0·28 mm.; shape oval, surface granular, divided into a number of irregularly-shaped cells by very fine raised lines, highly glabrous and opalescent, micropylar area not visible; the ova has as is usual amongst the Tortricidae, the polar axis horizontal.
On May 25th the centre area of ova had changed to a light coral-red leaving the envelope the same tint as before. Some three dozen ova were deposited, all but four on leaves of birch, in all cases but two these were on the upper side. The four ova that were not deposited on birch were on the stems of *C. vulgaris*.

On May 30th the central area of the ova was light coral, with colourless transparent envelope.

On June 1st they had changed to lead colour throughout, and on the following day the larva commenced to emerge. They were then about 1 mm. long, head black and glabrous, thoracic plate dark brownish-green, remainder of segments brownish-green. When exposed to light the larva crawls with intense activity, and makes for concealment. When placed in a small box with two birch leaves, one laid over the other, it spun them together, and fed between, upon the lower cuticle of the upper leaf.

On June 8th, a larva, kept separate for observation, had reached the second instar; it was then 3 mm. long; the head was glabrous, light brown, with darker markings round the mouth, thoracic plate glabrous, putty coloured, with two dark lobes behind, one on each side; the remainder of the segments were greyish-green, darker along the dorsal area; the tubercles were prominent and black, the larva was transparent, alimentary canal showing plainly, especially on the segments towards the anus; anal plate was darker than the remainder of the adjoining segments.

On June 16th the larva entered into its third instar. It had hitherto fed upon two birch leaves placed one upon the other. It now discarded this method, and formed the usual pocket which many species at least of this genus adopt, by spinning a portion of the edge of a leaf and folding it over, turning the under side of the leaf up, and feeding upon the upper cuticle. It was now 6·5 mm. long, head very light amber-coloured tinged with green, there was a jet-black spot on each side of the mouth, on the front of the jaws there was a brown patch, and behind this were two brown dots; the head was highly glabrous.

The thoracic plate was equally glabrous with the head, and of the same tinge of colour, but lighter; on each side at the rear was a large and prominent black blotch. The colour of the remainder of the segments was the same as in the previous instar; the tubercles were black and prominent, the alimentary canal showed plainly, the anal plate was brown and glabrous, the spiracles were black and prominent. The prolegs and claspers were the same light green as the segments.

On July 1st the larva was full grown, as far as I could ascertain it was still in the third instar; and I am pretty certain
of this, because I had two larvae under observation, and in neither of them could I detect a change into a fourth instar; still I cannot be quite certain on the point, because it is always very difficult to keep a concealed larva so completely under observation as to ensure detecting all its changes.

The full-grown larva is 11 mm. long, the greatest breadth is 1\texttimes{}6 mm.; the head is polished, amber-coloured, with black markings round the month, it is distinctly narrower than the prothorax; the prothoracic plate is polished light greyish-green, the rear portion has on each side of the medio-dorsal line a black blotch, the broadest end of which is towards the dorsal line, and it tapers to a point laterally. Below these blotches on each side of the prothorax are two elongated dark blotches, one above the other; the prothoracic spiracles, which are black, are much larger than the other spiracles, and immediately behind the upper of these blotches, and on the rear of the prothorax. The prothorax itself is distinctly narrower than the mesothorax.

The remainder of the segments are light greyish-green and transparent, the dorsal canal showing plainly; the tubercles are very prominent, dark grey, with a jet-black centre, which emits the usual spine; the prolegs are greyish-green with minute dark spots and markings; the anal plate is hardly visible. The spiracles are minute and jet-black. When the larva is full fed it wanders about until it has found a dead leaf, with which it forms a pocket to hibernate in, similar to the one in which it has fed.

On July 27th the majority of the larvae were evidently hibernating in pockets in dead leaves, but one had pupated in a pocket in a green birch leaf, and on August 18th the imago emerged.

This pupa was 7 mm. long, with a greatest breadth of 1\texttimes{}5 mm., and of average stoutness; the segmental divisions were clearly defined, the surface was smooth without noticeable hairs, the head and thoracic segments were smooth and highly polished, and dark brownish-green in colour; the antennae and leg cases were highly polished and concolorous with the thoracic segments; the abdominal segments were slightly polished brownish-green. These segments have dorsally a row of blackish raised spikelets, projecting backwards; the anal extremity was blunt and armed with several hooks.

On January 24th last, two of the larvae were examined and found to be unchanged. On March 21st they were again examined, when unfortunately they were discovered to have been devoured by some predacious creatures, probably woodlice. There does not seem to be any doubt however but that they hibernate as larvae, and pupate in the spring.

There can be no question but that the larva feeds only upon birch; I tried them upon the other two plants growing when
the imagos flew, and also upon *C. vulgaris*, but they would not touch them; the imagos were most abundant amongst young seedling birches, about 12 in. high.

Youlgreave, South Croydon, April 20th, 1918.

**ON A SMALL COLLECTION OF DRAGONFLIES FROM MACEDONIA.**

By Herbert Campion.

While engaged in the study of the mosquito-fauna of Macedonia during the second half of 1917, Lieut. Jas. Waterston, R.A.M.C., found opportunities for collecting a few Dragonflies for transmission to the Imperial Bureau of Entomology. Of these a list is now given, and mention may be made of an additional species received from Private W. K. Amyot, viz., *Anax parthenope*, Selys, \( \delta \), from Mikra. It may be of interest to record, also, a \( \varphi \) of *Eschna mixta*, Latr., taken by Mr. Waterston at Marseilles on July 6th. All the Macedonian localities referred to in the list are within a radius of fifty miles from Salonica.

**LESTIDÆ.**

*Lestes barbarus*, Fabr.—1 \( \delta \), Mikra, 15–22, vii; 4 \( \delta \), 5 \( \varphi \), Kalamaria, 17–23, vii; 2 \( \delta \), Paprat district, ix.

*Sympycna fusca*, Lind.—1 \( \delta \), Paprat district, ix.

**AGRIONIDÆ.**

*Ischnura elegans*, Lind.—3 \( \delta \), 2 \( \varphi \), Kalamaria, 17–23, vii.

*Enallagma cyathigerum*, Charp.—1 \( \delta \), Mikra, 15–22, vii.

*Agrion puella*, Linn.—1 \( \delta \), Mikra, 15–22, vii.

**ÆSCHNIDÆ.**

*Anax imperator*, Leach.—1 \( \delta \), Mikra, 15–22, vii; 1 \( \delta \), Giol Ajak, near Miloveci, vii–viii.

*Æschna mixta*, Latr.—1 \( \delta \), 1 \( \varphi \), Vardino, x. A nymph-skin, apparently belonging to this species, was obtained at Kalamaria, 17–23, vii.

**LIBELLULIDÆ.**

*Orthetrum aniceps*, Schneid.—3 \( \delta \), 2 \( \varphi \), Mikra, 15–22, vii. This species is subject to considerable variation, even in its most important characters, and sometimes resembles *O. caerulescens*, Fabr., so closely as to make discrimination from that species a matter of much difficulty. While the genitalia of the second segment may still be taken as the best guide to identification, the extent to which those appendages are found to vary may be gathered from the paper by M. Barteneff on the Odonata of Montenegro, in
which the genitalia of five different males are figured in illustration of that point (‘Revue Russe d'Entom.,’ xii, p. 77; 1912). The fore wings of one of the females from Mikra show that, in addition to such a comparatively minor matter as the more or less open condition of the triangles, the cells in the discoidal area may be reduced from three rows to two rows. Mr. K. Morton has kindly given me the benefit of his ripe knowledge of Palaearctic Dragonflies, and has confirmed my reference of this critical material to Schneider's species.


Orthetrum cancellatum, Linn.—1 ♂, 1 ♀, near Salonica, 15–22, vii; 1 ♂, Kalamaria, 17, vii; 1 ♂, 2 ♀, Giol Ajak, vii–viii.

Crocothemis erythraea, Brulle.—1 ♂, Mikra, 15–22, vii: 3 ♂, 1 ♀, Giol Ajak, vii–viii.

Sympetrum fonscolombei, Selys.—1 ♂, Kalamaria, 17, vii.

Sympetrum sanguineum, Müll.—2 ♀, Giol Ajak, vii–viii.

Selysiothemis nigra, Lind.—3 ♂, 2 ♀, Giol Ajak, vii–viii.

This remarkable-looking Dragonfly, with its white and sparse venation, is by far the most interesting species in the collection. Although it was first described as long ago as 1825, and has since been recorded, on rare occasions, from localities as far apart as Catalonia on the west, Kashgar on the east, and Algeria on the south, seemingly it still remains quite an uncommon insect in collections.

CONTRIBUTIONS TO OUR KNOWLEDGE OF THE BRITISH BRACONIDÆ.

No. 3.—Microgasteridae.

By G. T. Lyle, F.E.S.

(Concluded from p. 111.)

Hospes, Marsh.*

In Harwood's collection are two females and a male, labelled "Microgaster hospes, N. sp.,” in Marshall's writing; these I believe to be the three specimens formerly in Cameron's collection from which Marshall compiled his description (on the back of the card on which they are mounted, is written "G.B.C., 31/8"). Marshall tells us they differ from tibialis in having almost hyaline wings and no carina on the metathorax, also that the terebra is more clavate. I have examined the

three insects carefully and find distinct traces of a medial metathoracic carina in the male. Unfortunately, the insects are not in very good preservation and are carelessly mounted as all Cameron's insects appear to be. Harwood has also another male, labelled "M. tibialis," by Marshall, which is certainly the same.

*Scoticus*, Marsh.*

This species is distinguished by its unusually long antennæ and short abdomen, the third segment being sub-rugulose. I have seen the type, also in Harwood's collection, which is still in good preservation (the antennæ were broken at the time it was described by Marshall) and bears the original label. No other example has yet been recorded.

Genus 6.—*Hygroplitis*, Thoms.

Founded for the reception of two species, *Microgaster russatus*, Hal., and *M. rugulosus*, Nees, to which we must now add *M. abdominalis*, Nees, a species with which Thomson was not acquainted. The original description (opus xlvii, p. 2238) is as follows:


*Abdominalis*, Nees.†

After *russatus*, the finest species of the family; is easily recognised by the bright orange colour of the inner half of the stigma. This is, no doubt, the insect described by Wesmael as *M. deprimator*, Panz.‡ Hitherto it has been noticed on the Continent only, but I am adding it to the British list on the strength of a fine male capture by Harwood in High Woods, Colchester, in 1906. A scarce insect, very few captures having been recorded; the female is mentioned by Reinhard only who says it resembles the male and has a very short terebra.

*Russatus*, Hal.§

This large and striking species has the first three abdominal segments entirely rufous and the stigma bicolorus. A scarce insect which has not yet been bred in this country; on the Continent Brischke records it from *Orthotelia sparganella*. The only specimen I have seen, with the exception of those in the National Collection mentioned by Marshall, is a fine male taken by Harwood, near Colchester, on August 2nd, 1914.

† 'Mon.,' i, p. 163.
A large stout species having the first three abdominal segments noticeably rugulose. In the female the abdomen is apically dusky rufous, while in the male it is entirely black. Also rare; Marshall knew but two or three from the collections of Fitch and Desvignes, Morley records one only, and Bignell makes no mention of the species. I have seen four males and three females taken by Dr. D. Sharp in the New Forest, in June, 1902, and now in the Cambridge University Museum.

Genus 7.—*Microplitis*, Forst.t

Distinguished by the very short hind tibial spurs, which are scarcely one-third as long as the metatarsus. Solitary or gregarious parasites of the larvae of *Lepidoptera*. Mostly robust, black insects, with more or less infumated wings and a noticeable, smooth, and shining tubercle at the apex of the first abdominal segment. I have examined the larvae of several species and find them to differ in appearance from those of *Apanteles* and *Microgaster*, being covered with purple blotches, while the intestinal canal shows as a dark purple line; the lateral protuberances on segments 4-10 are very pronounced. Cocoons stout, smooth, often tan-coloured or greenish, and in one or two cases deeply fluted and much resembling caraway seeds.

*Xanthopus*, Ruthe.‡

Only one British specimen appears to be known—namely, that mentioned by Marshall (‘Trans. Entom. Soc.’, 1885, p. 231) as being in Bridgman’s collection. This insect is now in the possession of Mr. B. S. Harwood, and bears a label “*Microplitis xanthopus*, Ruthe” in Marshall’s handwriting. Unfortunately, the specimen is much dilapidated, having lost all the abdomen with the exception of the first two segments, portions of both antennae, and the greater part of four legs; it is, however, still quite recognisable. The card bears the number 189 on the back.

Distinguished by the testaceous hind tarsi and broad, truncate first abdominal segment which is much narrowed towards the base.

*Ocellatæ*, Bouche.§

A robust, shining, black species, well known as a common, gregarious parasite of the hawk-moths, *Smerinthus ocellatus* and *S. populi*. It is, perhaps, strange that I have never reared or captured this insect in the New Forest, where the hosts are plentiful.

*Mon.,’ 1, p. 163.
† ‘Verb. pr. Rheinl.,’ 1862, p. 245.
‡ ‘Berl. ent. Zeit.,’ 1860, p. 147.
§ ‘Naturg.,’ 1834, p. 161.
Somewhat similar to *ocellatae* and very near *tuberculifera*. From the latter it is easily separated, having the first abdominal segment shorter and broader and not gradually narrowed towards the apex. Marshall says the cocoon most resembles that of *tuberculifera*, but is larger and more irregularly wrinkled. In many cases this is so, but the extent and depth of the fluting varies even more than in *tuberculifera* (Fig. 6). I have cocoons of *vidua* obtained from *Euclidia mi*, in which the fluting is more regular and pronounced than in any cocoon of *tuberculifera* I have ever seen, while in others from the same host the wrinkling is scarcely noticeable. The similarity between the cocoons of the two species has led to some confusion, and I fear that collectors, on obtaining the deeply fluted examples, have referred them to Wesmæl’s species without examining the insects themselves.

This is the parasite of *Euclidia mi*, from which host I have often bred it in late April and May, the insects having passed the winter in the larva state within their cocoons. Some of these I have obtained from New Forest larvæ of the host, and others have been sent to me from Limber, N. Lincs (Cockayne), Eastbourne and Kent (Colthrup), and S. Coast and Colchester (Harwood). Always a solitary parasite.

Usually the hind femora are wholly or partially black, but in Harwood’s collection are three, bred from larvæ of *Apamea basilina* taken at Newbury, having the hind femora entirely rufō-testaceous and, in two cases, the stigma bicolorous. I cannot think these are more than a variety which is very near, if not identical with, *srenna*, Rein.

The parasite larva emerges from the dorsal surface of the host and attaches its cocoon to the caterpillar. I have recorded a similar habit of the larva of *Diolcogaster circumvectus*, though in that case the cocoon of the parasite is carried erect on the back of the host, while in *M. vidua* it is always in a horizontal position.

From a number of cocoons of this species sent to me by Dr. E. A. Cockayne from Limber, Lincs, I reared several specimens of the hyperparasite *Mesochorus pectoralis*.

*Buricola*, sp. nov.

Black, palpi pale testaceous, mandibles dark claret colour, sides of first abdominal segment sometimes testaceous. Legs rufō-testaceous, all the coxae, base of trochanters, hind femora narrowly at base (sometimes at apex also) and all the tarsi, except basally, nigracent. Wings infumated with a darker stain under the stigma and also in the first discoidal cell; stigma and nervures dark fusceous, the latter testaceous near base of wing. Antennæ of male as long as body, of female barely reaching the apex of first abdominal segment. Mesothorax coarsely punctate, sutures scarcely indicated; scutellum

rugulose; metathorax coarsely rugulose. Abdomen shining; first segment rugulose, twice as long as its greatest breadth, slightly narrowed towards base, rounded and somewhat pointed at apex with a smooth and shining apical tubercle; second smooth, shorter than third, centrally longitudinally raised; other segments smooth. Terebra not surpassing anus; spurs of hind tibiae barely one-third as long as metatarsus. Length, 3½–4 mm.; expands 8–9 mm.

2. Cocoon of Microplitis sordipes. × 3.
3. Cocoon of Microplitis viridula. × 2½.
4. Cocoons of Microgaster minutus. × 2.
6. Cocoons of Microplitis vidua. × 2½.
7. Cocoons of Microgaster alecarius. × 2.
8. Cocoons of Microplitis tuberculifera. × 2½.

Described from three males and one female.
Cocoon dull greenish grey with a few irregular, longitudinal wrinkles, not noticeably pointed at either extremity (Fig. 3).
A somewhat squat species with stout legs which are liable to vary in colour. The first abdominal segment is not subquadrate as in ocellata; from vidua it differs in having the metathorax more coarsely rugulose and the female antennæ shorter; from spinula in the unicolorous stigma, colour of cocoons, etc.; from xanthopus in the shape of the first abdominal segment; and from
*junipennis*, Rotz, in the smooth, second abdominal segment. It is near *variepes*, Ruthe, which has the first segment smooth, and is very like, but not, *cremata*, Ruthe, that being a gregarious parasite and constructing totally different cocoons; differs widely from *adunca* in the colour of the legs and in having the second cubital areolet not particularly small.

I have several times swept this insect from heather in the New Forest in July (21st to 31st), also one specimen on May 10th, 1911, and have bred it, as a solitary parasite, from half-grown larvæ of *Anarta myrtilli*, August 5th and 8th, 1911.

*Tristes*, Nees. *

A shining black species with dark wings. Very near *dolens*, and I am almost inclined to doubt if it is really distinct from that species.

Marshall gives the scutellum as smooth, with the fore femora at apex and all the tibæ obscurely rufous, which does not agree with my specimens, for in them the scutellum shows distinct punctuation, and the fore femora, with the exception of the extreme base, the middle femora at apex, and all the tibæ are clear rufo-testaceous. Cocoons gregarious, pale-reddish, rather more woolly, and somewhat lighter in colour than those of *mediator*; constructed beneath the surface of the ground. A very common parasite of larvæ of the genus *Dianthocia* appearing in broods of from twelve to twenty. I have reared broods from larvæ of *D. capsincola* taken at Deal and Paignton, and from *D. cuenbali* taken at the latter place by Colthurp, and have found it preying commonly on larvæ of *D. capsincola* near Cambridge. Shortly after sunset on the evening of September 1st, 1911, I noticed, in a wind-swept field, a female of this species slowly crawling on a campion head which evidently contained a caterpillar. Boxing both seed-head and insect, I carried them in my pocket for some five miles, and on reaching home was surprised to find that the jolting received had apparently not greatly disturbed the Braconid, as it was still leisurely examining the seed-head with its antennæ, and even on the following morning I found it similarly engaged. In spite of such perseverance, however, it did not succeed in reaching the concealed larva, which duly pupated a week or ten days later.

*Sordipes*, Nees. †

First recorded as British by Morley (*Entom.*, xxxix, p. 103), who mentions a specimen reared at Ely from *Acronycta psi* and another from the New Forest. A shining black species with the legs testaceous, only coxae and hind tarsi fuscous; first abdominal segment slightly rugulose, second quite smooth. Very similar to

* Mon.,* i, p. 168.
† Mon.,* i, p. 167.
ocellatae, though the suturiform articulation is more pronounced than in that species. Cocoons dark brown with an irregular, lighter, median band; firmly attached, crosswise, to a twig (Fig. 2).

In the New Forest I have reared it from a half-grown larva of *A. alni* (September 16th, 1916), and have also from *A. psi*. A solitary parasite.

*Spectabilis*, Hal.*

The smallest species; wings not so dark as in *tristis*, and usually with a yellow spot at the inner angle of the stigma. The hind femora are generally more or less infuscate, though I have specimens in which they are pure rufo-testaceous. Cocoons similar to those of *M. tristis*.

From a larva of *Dyschorista fissipuncta* sent me by Mr. T. Grosvenor from Redhill I obtained a brood of twenty-two, and I captured two specimens in May, 1917, near Cambridge. Harwood has a female taken by Cameron at Cadder which bears Marshall’s label.

*Mediator*, Hal.†

A small species, distinguished by its pale antennæ (the first seven or more joints of the flagellum are flavo-testaceous), and commonly reared from larvæ of *noctua*. Gregarious, in broods of from ten to twenty-two. The larvæ emerge in almost equal numbers from either side of their host, and construct their smooth tan-coloured cocoons in two compact masses which are not attached to the caterpillar (Fig. 5). The host always remains, as if brooding over the cocoons, until its death: as a rule, this does not take place until a fortnight or so after the parasite larvæ have emerged. I have numerous broods obtained from larvæ of *Triphena jimbria* and *T. janthina* in April and early May, all from the New Forest. The hosts perished when about half-grown, and I think it probable that they were “stung” before hybernation.

*Mediana*, Ruthe.‡

Very similar to mediator, but differing therefrom in having the antennæ dark and the second and third segments of the abdomen almost entirely testaceous. It might very easily be taken for a pale form of *tuberculifera*, though Marshall tells us the cocoon is greenish-white.

In Harwood’s collection are two specimens labelled “mediana, Ruthe” in Marshall’s writing; on the back of one card is written “Brundall, 28/7/81”; probably they were at one time in Bridgman’s collection.

*Tuberculifera*, Wesm.§

One of the commonest species we have; has been reared many times, as a solitary parasite, from young larvæ of *noctua*.

Bignell tells us that Parfitt obtained four from a larva of *Eupithecia succenturiata*, but this record of gregarious parasitism appears to be quite isolated. Differs from *mediana* in having the second, excepting at the base, and third abdominal segments black; from *vidua* in the shape of the first segment, which is rather more than twice as long as broad and attenuated towards the apex. The legs are reddish, and the stigma is generally bicolorous, though often the "petite tache blanchatre à la base" mentioned by Wesmael is scarcely noticeable. Cocoons grey with irregular longitudinal dark fluting; this ribbing is much more pronounced in some than in others (Fig. 8).

Harwood has two specimens from Cameron's collection named by Marshall, one labelled "Kenmuir, 7/72," the other "Clober." In the New Forest I have obtained it from a larva of *Stilbia anomala*, April 28th, 1908, from *Taeiocampa miniosa* several times in June (15th to 28th), and taken it on the wing September 3rd, 1916. Bred from *Noctua xanthographa* at Burgess Hill, Sussex, June 28th, 1908, and four times from larvae of *Mania typica* taken at Dulwich by Colthrup.

**Borealis**, Marsh.*

Described from a single specimen taken by Cameron at Glenelg, N.B. The type, which I have seen, is now in Harwood's possession, and bears Marshall's label. As mentioned in the original description it is very near *lugubris*, Ruthe; the first segment is narrow, smooth, shining, more than twice as long as broad, and attenuated from base to apex; segments one and two laterally testaceous.

**Moesta**, Ratz.†

Among the insects obtained by Harwood from Fitch's store-boxes is one labelled by Marshall "*Microplistis moesta*, n. sp." On the back of the card is the number 252, but no data. Judging from the setting, this is not one of Cameron's insects, and came, more probably, from Bridgman's collection. The specimen may be continental, though I do not think this likely. It agrees with the description of Ratzeburg, excepting that the first abdominal segment is not rugose; to me it appears very like a pale *tristis*.

In 'Brac. d'Europe,' etc., this species is included by Marshall in his list of doubtful or imperfectly described species, and noted as bred from a *Psyche* in Germany.

*Note.*—Near the commencement of my notes on the *Microgasteridae* (vol. xlv, p. 123), I mentioned that only one species of the genus *Acelius*, Hal., had been found in Britain, namely, *A. sub-fasciatus*, Hal. When making this statement I had, unfortunately, overlooked Mr. Donisthorpe's most interesting note in 'Ent. Record,'


† ‘Die Ich der For.’
1908, p. 284, where is recorded the capture of *A. viator*, Forst., in Scotland. A single specimen only was taken, and Mr. Donisthorpe informs me that no other has since occurred to him. I am indebted to Mr. Claude Morley, who named the insect, for drawing my attention to this record.

**NOTES AND OBSERVATIONS.**

**Arctic Lepidoptera.**—My paper on the distribution of *Plebeius argus* in Scandinavia has brought me several very interesting communications. Among them a letter from Mr. Henry Baker, of Cannington, Bridgewater, who visited the Murman coast of Russian Lapland in June, 1895. He was encamped with the Russian Lapps at Lutni, at the mouth of the river which falls into Sviatanoskaia Bay on the Arctic Ocean, west of the White Sea. He has kindly added to my collection a female example of *Erebia biega* (? *euryale*) var. *adyte*, "the only lepidopteron observed there," captured on June 26th.

—H. Rowland-Brown.

**Green Pupa of Euchloë Cardamines.**—With reference to Mr. Frohawk's note (*antea*, p. 41) as to the colour of pupae of *E. cardamines* in state of nature: as the pupa seems to be so seldom found wild, it may be of interest to know that I found a pupa in surroundings which I remember well, during the winter either at the beginning or the end of 1901. It was on a twig in an old hawthorn hedge, on the roadside at Grange. The pupa was a very conspicuous green object, and looked like a solitary green leaf, folded along its midrib, in an otherwise brown and leafless hedge. It was at least 2 ft. 6 in. above the hedge bottom and about a foot "inside" the hedge. The heading being on a low bank, the pupa was almost at eye-level. I had taken no interest in natural history for a year or two, and observing or collecting would be far from my mind when the pupa forced itself on my attention. Unfortunately, I made no written record. I remember my surprise that the pupa had escaped capture, or destruction, so long. A few days later I found it easily, at night, by the light of a match. Some few days later still it had gone. Garlic mustard, or one of its relations, grows abundantly in a similar hedge close by, and probably had grown where I found the pupa. It seems to confirm Mr. Frohawk's surmise, that pupation usually takes place in hedgerows, low down amongst the undergrowth. In this case, by accident of position, a protective colour became as conspicuous as a warning colour.—J. D. Ward; Limehurst, Grange-over-Sands, Lancs.

**The Blue-haired Carpenter-Bees.**—I have just received from Prof. C. F. Baker two females of the blue-haired species of *Meso-trichia* (sub-genus *Cyaneoderes*, Ashmead). The larger one, from the Island of Penang, is *M. caerulea* (Fabr.). The smaller, from Singapore, is *M. dormeyeri* (*Cyaneoderes dormeyeri*, Enderlein, 1909), which was described from Singapore and the Island of Nias. The male from Singapore, which I reported as *M. caeruleiformis* (Meade-Waldo), is *dormeyeri*. Meade-Waldo's species appears to be no
more than a race of *dormeyeri*. It agrees in structure and almost entirely in colour, but *dormeyeri* has the blue hair at sides of female abdomen hardly going beyond the second segment, as in *cerulea*, whereas in Meade-Waldo’s insect from Borneo it extends to the fourth segment. Meade-Waldo overlooked the description of *dormeyeri*, or he would probably not have separated his species.—T. D. A. Cockerell.

**EuVanessa antiopa at Rannoch.**—I saw a white-banded specimen of *E. antiopa* in Carrie Wood on April 17th, but failed to capture it. Later on, when walking along the north side of Loch Rannoch, I met one of the workers in the wood, who gave me a fairly good female example of this butterfly. Whilst beating the birches on the north side of the loch on April 22nd a specimen of *E. antiopa* flew out, but quite out of reach of the net. On April 27th I captured a specimen that was feeding on the sap of a birch-tree, but a specimen on the next tree managed to escape. Returning to these birch-trees on May 5th, I secured another specimen of the butterfly.—L. G. Esson: Kinloch, Rannoch.

**Eugonia polychloros at Brighton.**—On April 12th, an exceptionally fine and warm day, a large, although somewhat faded, specimen of this butterfly settled in front of me on the grass as I was walking up a wooded road at Withdeane, a village just north of Brighton, at 9 a.m. (summer-time). During the last thirty years as an entomological observer I have never met this species in this neighbourhood before.—F. G. S. Bramwell; 1, Wyke Road Drive, Brighton.

**Pyrameis atalanta in March.**—Mrs. S. Lamb tells me that she saw two Red Admirals in her garden at Brockenhurst, Hants, on March 21st last.—W. J. Lucas.

**Polygonia c-album at Oswestry in March.**—I saw a specimen of the Comma butterfly at Oswestry on March 25th last. I was without a net and so unable to capture it, but it appeared to be a female in good condition.—(Lt.-Col.) W. Godfrey; Bryn y Coed, Llanfair Road, Abergele.

**Aricia medon ab. artaxerxes in Suffolk.**—With reference to notes on this subject (*antea*, pp. 92 and 112), I may mention that a form of *medon* sometimes occurs in this neighbourhood (Cambridge) with a distinct white discoidal spot, but otherwise typical. Is it not possible that examples of this form have been mistaken for the true *artaxerxes* of the north, particularly as the variation seems only to have been noticed one season? A too sudden reversion to type, one would think, for the true variety.—Hugh Percy Jones; 19, Tenison Avenue, Cambridge.

**Butterflies at Emsworth.**—*Limenitis sibylla* was more plentiful here last year than I have ever known it, but *Pieris brassicae* and *P. rapae*, more especially the latter, were in swarms during July and August. *P. rapae* was seen, not only in gardens where cabbages grow, but in every field or waste place where there were wild flowers this species was fluttering about in great numbers. I saw one specimen flying in my garden on March 24th this year. *Vanessa io* was
very common, and was to be seen in every flowery field or wood. A
great many seem to have survived the winter, and have been seen in
the garden all the spring. I saw only one example of *Colias edusa*.
—W. M. Christy; Watergate, Emsworth, Hants.

**Early Lepidoptera in Cornwall.**—The following notes of some
Cornish first appearances may be of interest: Vanessa io, February
10th, one; very abundant along coast on March 23rd and since.
Aglaia urticae, common on March 23rd, but not nearly so abundant
as the preceding during April. *Pararge egeria* var. egerides well out
on March 23rd. Celastrina argiolus, April 8th; common since.
*Pieris rapae*, April 9th. *Pararge megaea*, April 21st, males only; I
also took Larentia multistrigaria. On February 17th, *Thera variata
(obeliscata)*. April 23rd and 25th, Phragmatobia fuliginosa. *Chryso-
and A. urticae* are fond of the hot southward cliffs. *Gonepteryx
rhamni* is common inland; never on the cliffs. *C. argiolus* and
*P. egerides* are common in all lanes, hedgerows, etc.—E. A. C.
Stowell; The Grammar School, Fowey, May 7th, 1918.

**Sphinx convolvuli at Brighton.**—I know of over fifty specimens
of this moth that were taken here between August 9th and October 6th
last year. With a friend I captured over thirty, all being attracted by
flowers of the tobacco (*Nicotiana*) plant. I firmly believe that the
larvae bred here during the summer, probably from ova laid by a
moth from France. Most of the moths were quite fresh, and appeared
to have recently emerged from pupae.—F. G. S. Bramwell; 1, Dyke
Road Drive, Brighton.

**Manduca (Acherontia) atropos and Sphinx convolvuli in
Ireland.**—A Death’s-head moth was captured about a quarter of a
mile from here a few weeks ago (three miles from city); also I
captured a fine *S. convolvuli* last September sitting on the shore of
Strangford Lough, co. Down.—Walter Malcomson; Cran-y-gael,
32, Osborne Gardens, Belfast, April 15th, 1918.

**Note on Saturnia carpini.**—In the fall of 1917 (late October) I
received a few cocoons from my brother in Salonika. On April 25th,
1918, two fine female *S. carpini* (*pavonia*) emerged. These were
taken to Oxshott on April 27th. The day was cold, but a male
“assembled,” and one of the Salonika females has deposited a fine
batch of ova. Will it be strictly correct to label the anticipated
progeny British?—A. K. Inc; 57, Durlston Road, Kingston-on-
Thames.

**Yellow Variety of Phragmatobia fuliginosa.**—On May 2nd I
picked up on the road a specimen of *P. fuliginosa*, which turned out
to be the rare yellow form of this species. The date is unusually
early especially after the cold April we have experienced this year.—
(Rev.) J. E. Turrat, Fareham, Hants.

**Plusia moneta Larvæ—Early Appearance.**—On March 17th I
found larvae of *P. moneta* already feeding in their “shelters.” This
is more than a month earlier than I have previously observed them
in this district, the dates in 1916 and 1917 being respectively,
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April 23rd and April 28th. I should be greatly obliged for references to life-histories of this interesting species.—JAMES DOUGLAS; Thorn-cote, Chellaston, nr. Derby.

(I have found this species very easy to rear. I pick off the infected monkshood stems with the leaf and flower buds in which the young larvae are cradled, and place in water in the breeding cage. I cannot recall ever having a failure, as the species appears at present to be singularly immune from ichneumon attack. The following references to breeding may be found useful: 'Entomologist,' vol. xxxvi, p. 132; 'Entomologists' Record,' vol. xvi, p. 132; Tutt's 'Practical Hints,' vol. ii, p. 34. There is a very interesting account of the cocoon colour in Mrs. Onera A. Merritt Hawkes' paper 'On the Factors which Determine the Cocoon Colour of Plusta moneta, and other Lepidoptera,' in the 'Transactions of the Entomological Society of London, 1916,' pp. 404–406.—H. R.-B.)

Hibernation of Peronera hastiana.—Some time ago the late Prof. R. Meldola drew attention to the circumstance that evidence regarding the hibernation of P. hastiana was still wanting. I should, therefore, like to record that on April 9th, 1907, I found a pair of this species in copula on a plant of dwarf willows at Formby, Lancashire, about an hour after dark. The female was var. mayrana, the male being the unicolorous dark form, of which some 50 per cent. of our sand-hill specimens are composed. As I had no facilities at that time to breed the insect, the female was not kept for ova. While referring to this species, it may be worth mentioning that in this district the first brood is not often met with; I have only bred three examples altogether from sallow tips gathered at the beginning of May; these were smaller than the main brood in the autumn, and were of the usual dark form before alluded to; they emerged at the end of May. I have several times endeavoured to keep hastiana alive through the winter, but always failed with them indoors. Last October (1917) I put twenty-four outdoors in a glass cylinder breeding-cage, furnished with sallow twigs in water and with a liberal supply of dead sallow leaves in the bottom; the cage was sheltered from rain but otherwise unprotected; by Christmas all the moths were dead. I carefully searched the twigs for ova but could find none, neither did I see any of the moths paired when I took a look at them. The insects were usually resting on the twigs with wings closely pressed to the bark; on mild nights they moved about, without flying, when brought to a light for examination. Some years ago I used to search the sand-hills frequently for hibernated larvae, and it is strange that, considering the abundance of the larvae of hastiana, in some seasons, the imago is so seldom seen in the spring.—W. MANSBIDGE; 4, Norwich Road, Liverpool.

Notes on the Spring Appearance of Some Insects in Yorkshire.—I saw the first specimen of Pieris napi on March 21st, and the first of P. rapae on March 24th, and after March 22nd both P. atalanta and A. urticae were common, particularly the latter. Humble bees appeared early too. The first ♀ of Bombus pratorum was seen on March 17th, and a ♀ of B. terrestris was seen as early as March 22nd. Last year I did not see any humble bees active
until April 23rd, and as I found a specimen of *terrestris* still hibernating behind the bark of a fallen tree on April 16th, 1917, I know that they were not out before this last date at any rate. Queen wasps have also been very abundant since March 21st, but *vespa vulgaris* has been seen far more commonly than *V. germanica*. The exceptionally fine weather during March undoubtedly favoured the appearance of both wasps and bees, but the wet weather lately may have seriously affected them, although I have once or twice lately observed *Bombus terrestris* carrying out searching operations in the most unfavourable circumstances.—H. G. O. Wales; 56, Trinity Road, Bridlington, Yorks.

*Aeschna mixta, Latr., in South Devon.*—It will interest your correspondent, Mr. A. H. Newton (*antea*, p. 115), to know that *Aeschna mixta* is probably as plentiful in South Devon as in any part of Britain. As I recorded (E. M. M., November, 1902, p. 265), it occurred abundantly year after year on the marshy ground at the Broad Sands, Churston, and seemed to be equally so in all localities having suitable aquatic conditions for many miles from there to Torcross, where it was equally abundant. That was the furthest point I worked during the several successive seasons I was in the county in September.—Geo. T. Porritt; Elm Lea, Dalton, Huddersfield, May 10th, 1918.

**Turnip-Flea Beetles.**—*Apropos of Mr. Taylor’s very interesting and useful article on the turnip-flea beetles (*antea*, p. 83), it may be worth recording that larvae of *Phyllotreta undulata* occurred last summer in my garden here in the leaf-stalks of turnips, and that the roots were untouched. The thicker lower portions of the stalks were hollowed in a fair number of cases for about half an inch. As regards distribution, *P. nemorum, L.*, seems to have a more restricted southern range than *P. undulata*, Kuts. Bold (‘Natural History Transactions of Northumberland and Durham,’ iv, 104), quoted by Canon Fowler (‘Coleoptera of the British Islands,’ iv, 366), says that the latter is “very common in fields and gardens; this species and not *P. nemorum* is the ‘turnip fly’ of our district”; and that the former is “rarer, at least so far as my own experience goes.” Canon Fowler seems a little inclined to doubt this, but Mr. Gardner records *P. nemorum* as rare in the Hartlepool district (‘Victoria County History of Durham,’ 110); there are no local specimens in Mr. Bagnall’s collection, now in the Hancock Museum, Newcastle, and in my own experience of six years in county Durham I have never met with it once, although I have kept special watch for it to fill the gap in my collection; in North Yorkshire, too, I have come across the species only once in six years, in the Swale Valley, near Richmond. *P. undulata*, however, we have all found exceedingly common. Mr. Fergusson, too, in his local list of Coleoptera for “The Fauna, Flora, and Geology of the Clyde Area,” quotes *undulata* as “frequent,” and gives ten localities for it, but only two for *nemorum*. Canon Fowler (loc. cit.) quotes Dr. Sharp as recording the former as rare in Scotland and the latter as very common in the south of the country. Under the circumstances, it would be of value to have notes of the occurrence of the two species in other parts of
SUGAR SUBSTITUTES.—Mr. Burnas asks the question (antea, p. 116) what form of "sugar" is employed by collectors on the Continent. The compound is a mixture of honey, fermented beer, and pure or mixed fruit "sirops." A much recommended liquor is apple syrup prepared by the following recipe: "Take some scented apples, cut them into slices from 5 to 10 mm. thick, place them in a glass jar, and powder with sugar. After a few hours all the sugar is melted and absorbed into the juice of the apples, forming a syrup which remains at the bottom of the vessel. 'Sugar should be added several times if necessary until the requisite consistency is obtained.'—(B. André, 'Lépidoptères de Saône-et-Loire,' p. 8.) The usual "sugar," however, appears to consist of honey alone flavoured or not with some essence or fruit syrup. I do not think rum is much used.—H. R.—B.

ERRATUM.—Page 44, for "Polygonia c-album in Cheshire," read "Polygonia c-album in Worcestershire."

SOCIETIES.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY.—March 28th, 1918.—Mr. S. Edwards, F.L.S., President, in the chair.—Mr. Ashdown exhibited Lister's edition of Goedartius 'De Insectis,' 1685.—Mr. Newman, a very long fine series of Cosymbia pendularia var. decoraria (subrosaetata), bred from ova in January and February, including almost all combinations and permutations of the dark grey and rosy areas.—Mr. Hy. J. Turner, a series of Phigalia pedaria (pilosaria) from Sherwood Forest, with a series from other localities for comparison. He pointed out seven phases of variation in the specimens exhibited.—Mr. S. Edwards, Papilio nox, with its forms noctis and noetula; P. paradoxa v. caumus, a mimic of a Euploea sp., P. illicieus v. amy nthor, and P. encelades, all from the Malayan region.—Reports were made as to the numbers of Gonepteryx rhamni, Vanessa io, Aglais urticae, Pieris rapae, and Diurnea fagella seen during the fine and warm weather of the past week. Larvae of Arctia caja were reported as abnormally abundant; those of A. villica very scarce. Brep hos parthenias was in profusion.—Hy. J. Turner (Hon. Editor of Proceed.).

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—Meeting held at the Royal Institution, Colquitt Street, Liverpool, March 18th, 1918, Mr. Wm. Webster, President, in the chair.—Mr. F. N. Pierce exhibited, by means of the micro-lantern, slides of the genitalia of the whole of the British Rhopaloeera, and showed how, in most cases, modern classification of the butterflies was confirmed by a study of the genital armature. Mr. Pierce's remarks were followed by an animated discussion, and a hearty vote of thanks was accorded.—Mr. W. A. Tyerman exhibited a long series of Hybernia leuco phearia from Eastham, including var. marmorinaria and the black form. It was considered that the melanic variety was more frequent than formerly in this locality.—WM. MANSBRIDGE, Hon. Sec.
RECENT LITERATURE.


This is one of the Wiley Technical Series, for the use of what, in the United States, are called vocational and industrial schools. In America the secondary schools are well supplied with text-books on agricultural subjects, and the teaching is sound and thorough. Entomology—wth us the Cinderella of agricultural science—takes a foremost place in the educational curriculum, and in the rural districts the new generation goes into the field of competition on the land well equipped for the contest. We wish we could say the same for the boys and girls leaving school in this country. Until quite recently no general scheme of scientific training has been adopted in the United Kingdom with this object. It is still inadequate and incomplete. This text-book, though primarily designed for the United States, should be in the hands of all our teachers and scholars. It is sufficient, practical, and concise. The first chapters deal with the rudiments of entomology; the descriptions are illustrated with admirable woodcuts explaining the characters of the several orders. The rest of the volume is devoted to detailed accounts of insects injurious to crops, and the means to meet and destroy them. An English handbook on the same lines dealing with British insectology and preventives is a desideratum.

H. R.-B.


Three supreme qualities are required of those who translate Fabre—a delicate sense of the French idiom; a poetic imagination; a first-hand knowledge of entomology. Fabre wrote exquisite French. He was a poet of no mean order; though he selected prose for his medium. He was among the greatest field naturalists of the nineteenth century. Mr. Teixeira de Mattos and Mr. Bernard Miall are conscientious translators enough. Their version is smooth and usually correct, but it has caught little of the warmth and sunshine which irradiate every page of the original. Fabre detested the systematist as much as he despised the merely acquisitive collector. The jargon of the text-books repelled him; yet he mastered entomological phraseology and used it without pedantry. Passages in the translation suggest a moderate acquaintance with the entomological lexicon. Probably the translators' classics are none the worse for it. Most entomologists read Fabre in the original, but there are many besides who will welcome this fresh instalment in English with enthusiasm. To those who like to think that the joys and sorrows of these tiny creatures are akin in some sense to their own the revelation of the truth may be disagreeable. But, if Fabre dispels the pleasant illusion, he does it so gently and skilfully that the shock is almost pleasant when the line between instinct and reason is exposed. Fabre must have been immensely happy in his experiments. He
proceeded in no haphazard fashion to rush results, but step by step deliberately arrived at the logical conclusion. Once on the trail he followed it to the end. If genius is eternal patience, then his was genius indeed. Some of the species dealt with in this volume are "common objects" of our northern islands as well as of the Midi; others have relations with habits familiar to our field naturalists. Fabre had something new to tell us about them all. He details the discovery of the microgaster parasite on the ova of the Cabbage White. He describes the blind infatuation of the Processionary Moth larva when it takes its walks abroad, doomed to move in an eternal circle, if the haphazard leader demands, until it drops dead from sheer exhaustion. The methods of Nature's undertakers, the necrophorus beetles, have a peculiar fascination of their own. Such "fairy tales of Science" will always delight old and young, scientific and un-scientific, by the magic of their appeal. Fabre went to Nature for facts. He found them, and gave them to the world, clothed with the immortal beauty of leaves plucked from the Tree of Knowledge.

H. R.-B.

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OBITUARY.

Gaston Allard.

Gaston Allard, one of the doyens of the Entomological Society of France (he was elected in 1863), died at the ripe age of eighty-one at La Maulevrie, near Angers, in January last. His name is chiefly famous as a dendrologist and as founder of the great arboretum. He made a speciality of Coleoptera and Orthoptera. His uncle was a General and President of a section of the State Council in Algeria. "It is, perhaps, due to this circumstance," writes M. Oberthiir, "that he decided to devote his attention to the lepidoptera and coleoptera of Algeria at a time when hardly anyone in France, or anywhere else, had done so." In 1864, 1868, 1870, and 1875 he was engaged in the study of the Algerian fauna, on the last occasion with M. René Oberthiir. The results of this latter expedition are described in the first parts of the "Études d'Entomologie" (Rennes, 1876). Other journeys were made with M. C. Oberthiir to Zermatt, then a remote locality (1864), Dalmatia, and Andalusia. His collections, which include mammals and reptiles, are in the private museum, and this, with the arboretum, he has bequeathed to the Pasteur Institute of Paris. Prof. Balfour, who paid him a visit last year, describes in the Kew Bulletin (Nos. 2, 3, 1918) how he found the veteran naturalist in feeble health, but delighted to show his visitor round the arboretum, where he saw Populus euphratica, one of the few in cultivation, a new red-flowered jasmine, and Idesia polycarpa in full fruit, among the many beautiful trees from North America, China, Japan, and the Mediterranean littoral. One of his most interesting and successful achievements was to plant the boulevards of Angers with trees suited to the warm Angevin climate and equable winter. A man of retiring disposition, student habits, and great culture, M. Oberthiir says that he hated publicity, and for this reason, no doubt, was better known as a scientist outside his native city, and even in Britain than in France.

H. R.-B.
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GEOMETRIDÆ IN SOUTH MACEDONIA, 1917.

By P. J. Barraud, F.E.S., R.A.M.C.

The following short list of Geometridae taken by me in South Macedonia last summer may be of interest. Mr. L. B. Prout has kindly identified some of the specimens submitted to him, and made notes on them.

_Rhodostrophia calabara tabidaria_, Z., 3 ♂ ♂, June 3rd–8th.
_Acidalia rubiginata_, Hufn., 1 ♂, June 18th.  _A. marginipunctata_, Goeze, 2 ♂ ♂, May 12th–20th.
_Ptychopoda subsericeata_, Haw., 1 ♂, May 21st.
_Anaitis plagiata_, L., 1 ♂, 1 ♀, common through May.
_C. galiata_, Schiff., 2 ♂ ♂, May 20th, at light. One of these is an ab. with sandy tinge in ground colour.
_Eupithecia breviculata_, Douz., 1 ♂, May 20th, at light.
_E. extremata_, F., 1 ♀, May 21st.
_Opisthograpta luteolata_, L., 1 ♂, May 15th.
_Gnophos onustaria_, H.-S., 1 ♂, May 20th, at rest on white rock, head downwards. "Quite like a Spanish specimen in my collection which has long puzzled me. Are they _ambiguata_, _glaucaria_, or an undescribed sp.?" (L. B. P.).
_Synopsia sociaria_, Hb., 3 ♂ ♂, May 19th–20th, June 4th.
One is ab. _propinguaria_, Bsd. (L. B. P.).
_Nychoides obscuraria_, Vill. (= _lividaria_, Hb.), 1 ♂, June 1st.
The dark grey ab. (L. B. P.).
_Dyscia conspersaria_, Schiff., 1 ♂, June 1st.
_Perconia strigillaria_, Hb., 1 ♀, June 20th, flying in grass, 6 p.m.
_Aspilates ochrearia_, Rossi, 1 ♂, June 1st.
(‘Nomenclature,’ Seitz, vol. iv.)
Mr. Prout writes: "... especially I am pleased to get the nice _C. corollaria_, of which I only had two specimens, Syria.
ENTOM.—JULY, 1918.
one in bad condition, the other undersized, and *Eup. extremata*, of which I had only one, Syria, and also poor."

All the specimens were from Saracli, South Macedonia, Krusha Balkan range, 2000 ft., 1917.

NOTES ON THE BUTTERFLIES OF THE SOMME.

By Lieut. Cecil Martin, A.S.C.

During 1916 I was in the "Somme area" from the first week in May till August, and travelled over most of the wide stretch of country lying between St. Riquier, near Abbeville, and Albert. I had not much time for collecting, but did better than I expected, owing to the locality being such a favourable one.

In mentioning the villages, woods, etc., near which some of the less common species were taken, I hope I may be of possible assistance to other collectors out here.

*Papilio machaon.*—Common throughout the Somme area. The second flight, which took place at the end of July, appeared to be more numerous than the first flight in May.

*Pieris brassicae, P. rapae, P. napi* were common everywhere, both first and second broods.

*Aporia crataegi.*—Two rather worn males taken in July at Frechencourt.

*Euchloe cardamines.*—Plentiful near the river; females especially numerous.

*Colias hyale.*—Seen in suitable fields throughout the summer. I think there were three broods during the season. *C. edusa* not seen.

*Gonepteryx rhamni* very common in the Forêt de Vignacourt during early August.

*Apatura iris.*—Four seen in early July at Frechencourt. One male captured while feeding on some moist substance in a lane bordering a small wood. Probably also found in the Forêt d’Vignacourt, where there are plenty of fine oaks. Unfortunately, I was unable to get there in July.

*Liinenitis sibylla.*—Plentiful in two small woods at Frechencourt. Many fine specimens taken.

*Polygonia c-album.*—A few specimens, all var. *hutchinsoni*, taken near Frechencourt.

*Araschnia levana.*—One taken near Longpré in May. The second brood, var. *prorsa*, produced some fine specimens in July at Frechencourt.

*Eugonia polychloros.*—About sixty caterpillars collected and reared at Belloy-sur-Somme in May. Freshly emerged butterflies also seen in August at Talmas.
Aglais urticae.—Common everywhere.
Vanessa io.—Fairly plentiful.
Pyrameis atalanta.—Only a few seen during August. P. cardui not seen.
Dryas paphia.—Found in all the larger woods; var. valezina not seen.
Argynnis aglaia.—Common in suitable localities throughout the Somme. First male seen May 29th, which appears to be a very early date.

Brenthis euphrosyne.—Common in the Forêt de Vignacourt.
B. selene not seen.
Mellea cinxia.—Plentiful during May round about Belloy-sur-Somme. M. aurinia.—Fairly common at Picquigny in the marshy fields, and doubtless all along the course of the Somme.
Melanargia galatea.—Very plentiful at Frechencourt during July.

Hipparchia semele.—A few taken on the chalk hills bordering the Somme at Hangest.
Pararge egeria var. egerides.—Fairly common in woods at Frechencourt. P. megera.—Very abundant everywhere.
Epinephele jurtina.—Common in many places near the river.
E. titonus.—Large numbers seen in fields near Long.
Aphantopus hyperanthus.—Very plentiful in some damp woods near Frechencourt. Two specimens of var. lanceolata taken.
Cœronymphpha pamphilus.—Found throughout the Somme area, but I did not note much variation in any of the specimens.
Thecla w-album.—One chrysalis found in May and four or five butterflies seen on the wing in July.
Callophrys rubi.—Fairly common in many parts of the Forêt de Vignacourt.

Chrysophanus hippothoe.—A specimen which tallies with the description of this butterfly taken near Corbie. Unfortunately, the store box containing it was smashed in transit to England and the specimen destroyed. C. dispar, var. rutilus ought to be found on the Somme also, the food-plant R. hydrolapathium being very plentiful in places. C. phleas.—Fairly common.
Plebeius egon.—One male taken near Flixecourt in early August.
Aricia medon.—A few seen on the chalk hills near Hangest. They all appeared to be similar to those found in the South of England.
Polyommatus icarus.—Common throughout the Somme. Three female ab. caerulea and two fine ab. icarinus taken.
Argiades corydon.—Seen in fair numbers at the end of July near Long. No varieties taken. A. bellargus.—Common on the chalk hills near Hangest in May, and again in late July.
Celastrina argiolus.—A few taken in early May. Did not see any of the second brood.
Cupido minimus.—Fairly plentiful on the sides of the Roman Camp, La Chaussée.

Nemeobius lucina.—One male taken in the Forêt de Vignecourt, the only one seen.

Hesperia malvae.—Common on the railway embankment near Hangest. H. sao ?—Three specimens seen near Amiens which appear to answer to the description of this butterfly. Unfortunately, I had no net with me at the time.

Nisoniades tages.—Plentiful in May.

Adopona flava.—Common near woods round about Amiens. A. lineola.—Found on most sunny banks near woods in July in the Frechencourt area.

Thymelicus acteon.—Appeared to be very local. I only found it near the village of St. Gratien, but there it was plentiful.

Augiades sylvanus.—Plentiful in the open glades of most of the woods. A. comma.—A few specimens taken near Longue in August.

I should like to mention that I nearly caught a specimen of what I believe to have been Iphiclides podalirius near Picquigny, but my net was a very small folding one, and in my excitement I missed it. I cannot therefore feel certain as to the identification.

SUPPOSED DISAPPEARANCE OF TORTRIX PRO-
NUBANA NEAR PARIS.

By Robert Adkin, F.E.S.

In the ‘Bulletin Soc. Ent. de France,’ No. 4, 1918, p. 99, M. E. Moreau writes: "Tortrix prunubana, a species of the south, whose presence in Paris I established about twenty years since, had become very abundant there; the larvae, introduced probably on evergreen shrubs, lived on ivy. In October, 1916, I still found the larvae in great number on the ivies of the XIVth Arrondissement; in the following spring there was not one left, and though I searched for the imago, I could not find a single one. The long and severe winter of 1916-17 is certainly the cause of this disappearance. The fact of a larva being destroyed by the cold is, I believe, somewhat rare, and the observations of others on the subject would be of interest."

The foregoing translation of M. Moreau's note was sent to me about a month ago by my friend Mr. H. Rowland-Brown, and as the discovery of the species in this country appeared to be much on "all fours" with its detection in the Paris neighbourhood, I felt interested, especially as on looking up my notes for 1917, I found only one doubtful record, namely, that I caught a glimpse of what appeared to be an example of the species on
the wing one fine August morning. Doubtful records and negative evidence are, however, both unsatisfactory, and I therefore determined, if possible, to get something definite to go upon. In passing, I should say that both larvae and pupae are difficult to find in spring, not only are the numbers generally considerably less than in autumn, but, now that they seem to have largely forsaken the Euonymus in favour of the ivy, the heavy spring growth of the last-named plant so smothers the old leaves in which the larvae usually pupate, that a search for them is very much like looking for the proverbial "needle in a haystack." However, by a good hunt over an ivy patch where the species used to occur I at last discovered in an ancient rolled-up leaf a small Tortrix pupa, and had the satisfaction of rearing from it on May 14th a male T. pronubana, and in the bright sunshine this morning I saw another resting on an ivy leaf.

It is, therefore, quite clear that the cold winters have not exterminated the species in this country, and one hopes that M. Moreau may yet find that it has not completely disappeared from the neighbourhood of Paris.

"Hodeslea," Eastbourne;
May 19th, 1918.

Since writing the above, I have seen several imagines of T. pronubana on the wing about the ivy patches here.—R.A.
May 22nd, 1918.

GLEANINGS FROM MY NOTEBOOKS—I.

BY J. W. HESLOP HARRISON, D.Sc.

Except casually, my lepidopterological work during the past half-dozen years has been more or less experimental and is becoming increasingly so; I therefore consider that the present is a fit time to place on record various notes that have accumulated either as a result of holiday visits to somewhat remote localities or during work done locally in other Orders.

Pieris napi, L. This species has always interested me, and wherever I have worked and no matter on what errand bent, I have always contrived to find time to net a fair series as a sample of the locality. By far the finest and darkest have come from the coast of Fife between Kirkcaldy and Burntisland; some of these, except for the less marked ochreous tinge, approach very near to the form known as var. radiata, sent out from Mödling, Vienna. When I worked in Ross-shire, Elgin, Nairn, Inverness-shire, and various other northern Scottish counties, I naturally expected to find variation in a similar direction, but was disappointed, as my captures could have been matched by examples taken in Durham and Northumberland. The same
applies to specimens from Argyll, Dumbarton, and Stirling. I must note, however, that I captured a fine yellow specimen (ab. flava, Kane) at Forres, exactly the same as the yellow Irish specimens. In Ireland I have taken the species in Derry, Tyrone, and Antrim; the most noteworthy came from Mount Slemish in the latter county and were characterised by a distinct yellowish tinge (not so pronounced as in flava), coupled with a tendency to the coalescence of the spots on the fore wings of the female. In all the above localities careful examination revealed the presence of examples with spots on the lower wings.

_Coenonympha tiphon_, Rott. I have taken this insect near Lough Fea in co. Derry and on the mountain slopes below in Tyrone. In Northumberland I have seen it on Whitfield Fell far away from the "stock" localities of the various books. It is not on record for Durham,* but I know of one spot where it occurs in that area; I haven't the slightest intention of mentioning where that locality is!

_Smerinthus ocellatus_, L. This "hawk" is sufficiently rare in Ireland to warrant the recording of larvae on sallow in one of the bogs near Cookstown, Tyrone.

_Sesia formiciformis_, Esp. I do not know a single suitable habitat in Durham and S. Northumberland, where this "clear-wing" fails to occur. In many cases it feeds singly in young sallow (_Salix cinerea_ preferred) twigs, but in other instances it feeds pseudo-gregariously in stems of _Salix caprea, S. viminalis_, etc.

_Drymonia trimaculata_, Esp. I beat a single female, from which I reared a large brood, out of oak in a wood near Great Ayton, N. Yorks.

_Pygæa pigra_, Hufn. Obtained as larvae in enormous numbers on the shores of Lough Fea, Derry, and also near Cookstown, Tyrone.

_Nonagria arundinis_, F. Pupæ plentiful in _Typha_ stems near Birtley, Durham, also near Forres in Elgin but more sparingly; in neither case was there any previous local record.

_Celana haworthii_, Curt. Quite common, sitting on flowers in the daytime—Ballycastle, Antrim; Cookstown, Tyrone; West Allendale, Northumberland.

_Plothedus captiuncula_, Tr. I took this species not uncommonly in a field on the basalt between Kinghorn and Burntisland, Fifeshire, in Scotland. The insect is, of course, not on record for Scotland, but the specimens varied little from those I had taken a few days before at the Black Hall Rocks, co. Durham.

_Agrotis simulans_, Hufn. Taken sparingly on sugar on the sandhills near Kinghorn, Fifeshire.

* Professor Heslop Harrison will find at least one Durham locality cited in my paper on "The Distribution and Variation of Coenonympha tiphon in the United Kingdom," *Lépid. Comparée,* fasc. vii, Rennes, 1913.—H. R.-B.
Mania maura, L. This is another species, rare enough in Ireland to justify a reference to the capture of a fine female by my little girl in Ballymena Station, Antrim. This presented me with a batch of eggs, but I failed to rear the larvae.

Taeniocompa gracilis, F. At sallows in West Allendale, Northumberland. This "Quaker" is rare or local in our two counties, although on record for several Durham habitats. The same applies to T. munda and T. populetii, of which I have taken or seen odd examples at Birtley, Durham.

Xanthia gigraago, Esp. This insect seems to be extending its range. For I obtained a fair number at Great Ayton, Cleveland, and, later, Mr. J. P. Robson took it at Barnard Castle, in Durham.

Cosmia paleacea, Esp. A few larvae beaten from birch in Lonsdale, N. Yorks. I have taken the imago at Forres.

Plusia bractea, F. I have, of course, netted this at various flowers at Forres, but I have to note that it is not uncommon at flowers of Dianthus, Lilium, etc., in West Allendale, Northumberland. Further, I have found it at rest on white dead-nettle, Cookstown, Tyrone.

Selenia tetrabunaria, Hufn. Larvae beaten from larch, birch, and alder at Forres, Elgin; and also from birch Birtley, Durham; and alder Ninebanks, Northumberland.

Selenia lunaria, Schiff. The same remarks apply to this, but the occurrence is not so noteworthy.

Ennomos alniaria, L. Extremely common on birch, alder, and sallow at Forres, Kippen in Stirling; and singly, Birtley, Durham. Very fine, purplish examples can be bred from Forres larvae.

Cleora glabraria, Hb. Sparingly at Forres—a "furthest north" record, I believe, for Great Britain.

Tephrasia bistortata, Goeze. Not very common as larvae Strathpeffer, Ross-shire; Culbin Sands, Forres; imago not uncommon at Townley and Chopwell, Durham; very common Lonsdale, Kildale, and Eston, N. Yorkshire. In all these cases the insect is single-brooded and, what Tutt used to call, the "Perthshire" form.

Tephrasia crepuscularia, Hb. Sparingly, type and var. delamerensis at Dinsdale, Durham; the melanic form once, Nunthorpe, N. Yorks.

Geometra papilionaria, L. Not common in lanes near Cookstown, Tyrone, on alder.

Lobophora halterata, Hufn. I believe this likewise to be very rare as an Irish insect; larvae beaten, however, by a friend and myself at Cookstown from Salix.

Melanthia bicolorata, Hufn. Type and an enormous range of melanic aberrations at Strathpeffer, Forres, and Kippen, Scotland. Only the type, but still in great numbers, at Ninebanks,
Northumberland. Bred with a perfectly different range of a distinct melanic form from larvae taken in Lonsdale, Cleveland.

Zoological Dept.,
Armstrong College,
Newcastle-on-Tyne.

PLANT GALL RECORDS.

By Leslie B. Hall, F.L.S.

From specimens of Plant Galls found during 1916 and 1917 some of the following appear to be first records for the British list, and the remainder have not been recorded in this country upon the host plants mentioned, as far as I have been able to ascertain:

Viola hirta, L.

Perrisia affinis, Kieff. Limpsfield, Surrey; October, 1917. New host plant. Previously recorded on V. odorata, sylvestris, and canina.

Tilia platyphyllos, Scop.

Eriophyes tiliae, Pag., var. exilis, Nal. Symond’s Yat, West Glos.; June, 1916. E. tiliae type is recorded by Swanton on Tilia vulgaris.

Acer pseudoplatanus, L.

Eriophyid, Houard, No. 3976. Newgate, St. Herts; September, 1917.

Acer campestre, L.

Perrisia tympani, Kieff. Near Chichester, West Sussex August, 1917.

Vicia tetrasperma, Moench.


Peucedanum sativum, B. and H.


Galium mollugo, L.

Perrisia sp., Houard, No. 5216. Bosham, West Sussex; August, 1917.

Cecidomyid. Thorn-like projections on stem. Near Amberley, West Sussex; June 27th, 1917. Described by Houard (No. 7372) on G. verum only. First published British record by Bagnall and Harrison October, 1917, on G. verum. I also found it on the latter plant at Bury, West Sussex, in June, 1917.
Phyllocopites anthobius, Nal. Lavant Down, near Chichester, West Sussex; August, 1917. New host plant. First British record by Bagnall and Harrison, in June, 1917, on G. saxatile.

Asperula cynanchica, L.

Phyllocopites minutus, Nal. Lavant Down, near Chichester, West Sussex; August, 1917.

Bideus cernua, L.

Aphis, Houard, No. 5647 (without specific name). Near Chichester, West Sussex; August, 1917.

Chenopodium vulgare, L.


Chenopodium hybridum, L.


Betula pubescens, Ehrh.


Quercus ilex, L.

Eriophyes ilicis, Can. Near Chichester, West Sussex; August, 1917.

Salix purpurea, L., var. woolgariana (Borr.).

Rhabdophaga terminalis, H. Loew (= Perrisia terminalis). Newhaw, Surrey; 1917. This has been recorded on various willows.

Salix cinerea, L.

Iteomyia major, Kieff. Selsey, West Sussex; August, 1917. New host plant. Recently recorded by Bagnall and Harrison on S. aurita only.

Salix myrsinites, L., × nigricans, Sm.

Pontania salicis, Christ. New host plant. Found on specimens of this hybrid willow received from Mr. James Groves. Gathered by him in Mid Perthshire August, 1891.

THE DEATH-WATCH: NOTES AND OBSERVATIONS.

By C. J. GAHAN, M.A., D.Sc.

(Concluded from p. 125.)

In the writings of those older authors there is nothing to suggest how far they were acquainted with the life history of the death-watch beetle, or whether indeed they knew anything
of its younger stages. Dean Swift's fame was not derived from his knowledge of insects, and it is improbable that he knew more on the subject than they did, when in 1725, he introduced the "wood-worm" in his well-known lampoon on Will Wood,* and said of it:

"With teeth or with jaws it will bite or will scratch,
And chambermaids christen this worm a death-watch."

The idea that the noise heard was due to the biting or scratching of the insects or their larvae inside the wood was not confined to Dean Swift's chambermaids nor to his time. That idea was entertained at a later period by Olivier and several other entomologists, who considered it more reasonable than to believe that the beetle could produce the noise by tapping against the wood with its head. Westwood relates that he used to hear all through the winter a ticking noise coming from a chimney-piece infected with A. striatum, and this noise, because of the time of year, he attributed to the working of the jaws of the larvae while gnawing in the wood. As I doubt very much whether such a noise could be made in that way, or, if made, could be heard at any appreciable distance, I have ventured to suggest that what he heard may have been the little book-louse, which, in the beetle-infested chimney-boards of an entomologist's study, would have found conditions well suited to its mode of life.

In 'Zeitschrift f. wiss. Insektenbiologie' for 1910, there is a very interesting paper by Mr. Jensen-Haarup, on "Anobium pertinax and barometrical minima," in which the Danish entomologist claims for this beetle, which he says is known in Jutland as the "Kneewerstork" from the noise it makes, like that of a stork with its beak, that it is a very good weather prophet. Its ticking is usually heard in the autumn and winter, and is most vigorous just before and after a storm, and will, in fact, indicate the coming of a storm, before even the barometer begins to fall. The author's later and more accurate observations were, he tells us, made after several years' travel abroad, when he had returned with his insect collections and was settled in a new house where he hoped to work them out in quietness. But he gives no evidence to show that the ticking he heard was actually due to "the little boring beetle," or, if it were, that he had correctly identified the species. The ticking appears to have been very faint; for, in inviting entomologists to take up the investigation of the remarkable connection between the insect's ticking and the atmospheric conditions, he says that only those living in the country could be successful, as the noise would not be sufficiently well heard in a large town.

* The patentee of the Irish "brass" coinage, against whom Swift's invective was directed.
That is very strange; and very strange, too, that it should usually be heard only in the autumn and winter, a most exceptionable time of the year for an Anobiid beetle to begin calling to "his better half part." Knowing what we do of the ticking of both kinds of "death-watch," shall we not be justified in assuming that the ticking Mr. Jensen-Haarup heard was not that of the beetle at all, but of the book-louse, of whose ticking he had probably never read.

*A. pertinax*, Linn., is nearly as large a beetle as *X. tessellatum*, Oliv., and its ticking, if any ticking be done, which I doubt, should be almost as loud, and like its, not so much dependent upon the weather.

Although I had read much about the tapping of the death-watch beetle *X. tessellatum*, I had no actual experience of it until last year, when for the first time I had the good fortune to hear it and see it as often almost as I liked. The single specimen on which my observations were made first came under my notice on March 30th. It had apparently made its exit that same day from a piece of an old oak stump given to me a few weeks before. It continued to live for seventy-three days, and during the first forty of those there was scarcely a single day on which it was not possible to watch it tapping scores of times. I was able to exhibit it alive and giving quite audible demonstrations at a meeting of the Zoological Society in April and at two meetings of the Entomological Society, one held in April and the other in May, so that many naturalists had an opportunity to investigate the method and the conditions in which its sound is produced.

The method has frequently been described, but with a certain amount of variation in the details, and in no case giving a complete and correct idea of the insect's movements at the time it is tapping. One writer says it lifts itself up on its hind legs, another on its front legs, one that it hits with its jaws, another with its forehead, when it "bobs its head" quickly up and down against the object on which it stands. Most of them give the idea that the movement is one of the head only, or of the head and prothorax combined, independently of the rest of the body.

When the beetle is about to tap, it assumes an attitude
which may, perhaps, be best described as one of attention (see Fig. 1). It rests with the body inclining downwards behind, so that the end of the abdomen is very little raised above the surface, and the insect looks as if squatting on the hind legs, and raised on the middle legs, which are spread apart more widely than the other legs, and have their tarsi resting firmly on the plane of position. When the beetle taps, its whole body is jerked forwards and backwards rapidly, and seems to swing like a battering-ram, balanced on the middle legs and propelled by the muscular force derived from the hind legs. The head and prothorax, instead of being thrust forwards, are at this time pressed back as far as they will go (see Fig. 2), and the head, at each forward stroke, hits the object, sometimes with the front of the mandibles, sometimes higher up, with the forehead, and sometimes the strokes begin in the one way and end up in the other. The front legs are somewhat shorter than the middle legs, and their tarsi, less firmly planted, slide backwards and forwards with the movement of the body. The number of taps given in succession was generally eight, and the time taken rather less than a second, but on cold mornings, when tapping less vigorously than usual, the beetle would sometimes give only five or six taps and at an appreciably slower rate, and on one such occasion it gave twelve taps in succession, the time occupied being fully two seconds. This beetle, which, as I discovered later, was a female, very rarely tapped of its own accord. I noticed it do so only on one or two occasions. But it was always very ready to respond when anyone tapped with a pencil on the table or on any other object near it, so long as the tapping was done at the proper rate.

No one seeing its ready response could for a moment doubt that the beetle possessed the sense of hearing, or, if not exactly hearing, a sense so extremely like it as hardly to admit of distinction. But it seemed to be a rather crude sort of sense, incapable of detecting any difference in the sound or its source, provided there was a quick enough succession of sounds following in definite order like the beetle’s own. The tapping to which it would reply might be made on wood, on stone, on glass, on metal, or any other substance. And when a rapid clicking was made with one’s tongue in the mouth, the response was just as
readily given, as it was also on a few occasions to a quavering note produced by whistling. Suspecting at first that the beetle might be able to feel the vibrations produced by tapping on the table on which it stood, I tested its hearing in other ways before I found out the facts just mentioned. Placed in a little box, on top of a loose pile of cotton-wool, or suspended by a long cotton thread from the ceiling, or floated in a dish of water, the beetle replied to a tapping on the table almost as readily as if it were on the table itself.

Its readiness to stop, listen as it were, and then begin to tap, when it heard a tapping near it, made it easy to get the beetle into any position desired in order to watch its movements closely, and whenever I wished I was able to watch its tapping under the microscope.

A lady present at one of the demonstrations given at a scientific meeting was so impressed by the beetle's performance that she asked me in all seriousness if I had really trained it myself, a fact which should surprise no one who has read George Shaw's account of the same death-watch beetle, which was described by him as _P. fatidicus_. He says of it that, "ridiculous and even incredible as it may appear, it is an animal that may in some measure be tamed," and then goes on to explain that it does at least give one that idea.

Having seen it stated by Stackhouse that the death-watch he saw tapping on the bottom of a chair made a distinct impression about the size of a silver penny on the sedge, I have watched carefully to find out if anything of the kind took place. I could see no impression whatever left on a piece of soft blotting-paper placed for the beetle to beat on with its head. Even under the microscope, I could see nothing of the kind, except a loose fibre or two pressed down at the moment the beetle struck the paper. Jenyns, who was more to be trusted than Stackhouse, has some similar remarks about spots left on the paper of a wall made by the tapping of the beetle. My little beetle always kept its head clean, and I am ready to admit that if it had not there might have been possibilities in the case.

One of the most interesting observations I made on the beetle came about by chance. In order to get it into a position suitable for watching it closely, I used to direct its movements by interposing the end of a strip of paper whenever it seemed inclined to go the wrong way. Happening on one occasion to touch it on the head, the beetle stopped and began to tap. So, acting on this hint, I went on to rub it with the end of the paper along the wing-cases, first one, then the other. The effect was remarkable, and quite enough to show that the insect was completely deceived. It would heel over first to one side and then to the other, as the paper rubbed along the elytra, and very soon the ovipositor began to appear, and the sex of the specimen
became quite evident for the first time. This whole performance was repeated more than once, and on different days, but only at times when the beetle had just before been very ready and very vigorous with her tapping.

It helped to confirm the fact, which Derham was the first to establish, that the tapping is of the nature of a call between the sexes, and is a means by which they find one another and are brought together. And it seemed to show also that, however interesting it may be, and however clever or intelligent it may appear, the death-watch beetle is after all an uncommonly stupid and very easily deceived little insect.

In the following list, which may be found useful for reference, an asterisk prefixed to a name indicates that the author had described or referred to the ticking of the beetle, and a dagger that the name given was due to an erroneous identification of the species with that of the author whose name is enclosed in brackets:

**Chronological List of Names given to the Death-watch Beetle, Xestobium rufovillosum, De Geer.**

*Pre-Linnæan.*

**"Death-watch"** (Scarabaeus domesticus), Wilkins, 'Essay towards a Real Char. and Phil. Lang.,' p. 127 . . . . . . 1668

**"Hooft Klopperken"** (S. sonicephalus), Swammerdam, 'Hist. Ins. Gen.,' p. 127 . . . . . . 1669

**"Death-watch,"** *Browne, 'Vulgar Errors,'* 6th edition (see above) . . . . . . 1672

**"Death-watch"** (S. galeatus pulsator), Allen, 'Phil. Trans. R. S.,' xx, p. 127 . . . . . . 1698

**"Death-watch"** (S. galeatus pulsator), Derham, loc. cit., xxii, p. 832 bis . . . . . . 1701

**"Death-watch"** (S. sonicephalus), Derham, loc. cit., xxiv, p. 1586 bis . . . . . . 1704

**"Death-watch"** (S. galeatus pulsator), Stackhouse, loc. cit., xxxiii, p. 159 . . . . . . 1724

*Post-Linnæan.*

"La Vrillette Savoyarde" (Byrrhus, No. 4), Geoffroy, 'Hist. Ins. Paris,' i, p. 112 . . . . . . 1762

Ptilinus rufovillosus, De Geer, 'Mem. Ins.,' iv, p. 230 . . . . . . 1774

Byrrhus rubiginosus, Müller, 'Zool. Dan. Prod.,' p. 57 . . . . . . 1776


†Anobium pertinax (Fab.), Herbst, in 'Fuessly Archiv.,' iv, p. 26 . . . . . . 1783

‡P. faber, Thunberg, 'Nov. Act. R. Roc. Upsaliensis,' iv, p. 6 . . . . . . 1789


A. tessellatum, Olivier, 'Entomologie,' ii, No. 16, p. 6 . . . . . . 1790
P. fuscus, Gmelin, 'Syst. Nat.,' p. 1606 1790
A. pulsatorium, Scriba, 'Journ.,' i, p. 156 1790
A. tessellatum, Fabricius, 'Ent. Syst.,' i, p. 236 1792
*P. fatidicus, Shaw, 'The Naturalists' Miscellany,' pl. 104 and text 1792
*P. fatidicus, Blumenbach, 'Handbuch der Naturges,' 5th edition, p. 315 1797
*?A. pertinax, Schmid, 'Versuche über die Insekten,' i, p. 158 1803

NOTES AND OBSERVATIONS.

LINNEAN SOCIETY'S GOLD MEDAL.—Entomologists will congratulate warmly Dr. F. DuCane Godman, F.R.S., the recipient this year of the Linnean Society's gold medal. The award is made in recognition of Dr. Godman’s monumental contribution to science, the ‘Biologia Centrali Americana,’ conceived many years ago by himself and the late Mr. Osbert Salvin, F.R.S., covering all branches of the Central American fauna, including Lepidoptera and Arachnida, as well as the regional flora, to which alone five volumes are devoted. Mr. Salvin died in 1898. Happily, Mr. Godman has survived to see the completion of his magnificent work. Honour to whom honour is due.

CELASTRINA ARGIOLUS IN LONDON.—While walking in Piccadilly this morning at 12.45 I saw C. argiolus flying over the tall iron rails in front of Lord Rothschild's house.—G. O. SLOPER; Badminton Club, 100, Piccadilly, W. 1, May 19th, 1918.

NOTIADIES SEMIARGUS IN BERKSHIRE.—You may be glad to hear of a capture which has just come to my knowledge. Mr. L. Matthews, an enthusiastic young collector, recently asked me to confirm his identification of a butterfly taken by a friend of his in July 1908. This proved to be a male of Noniades semiargus (acis), and the locality given is Mortimer, near Reading. I have shown this butterfly to Mr. A. E. Hudd, who took six examples in South Wales in 1871. Barrett speaks of these as captured at Llantrissant, but Mr. Hudd tells me that two only were taken at that place, and four near Penarth. He also recalls, what I had previously heard from the late Mr. J. W. Clarke, that on one occasion, when the Bristol entomologists visited Llantrissant, Mr. Evan John had the edges of one of his fields mown so that they might have a better chance. Now that this new record brings the capture of British species up to ten years ago only, it seems quite possible that a small number of semiargus may still survive in this country.—GEORGE C. GRIFFITHS; Penhurst, 3, Leigh Road, Clifton, Bristol.

[Mr. Griffiths has kindly given me permission to publish the above notice in the ‘Entomologist.’ There is a passage in Mr. Hudd’s interesting reminiscence of the visit to Mr. Evan John’s fields, which conceivably explains the disappearance of the butterfly from that particular locality. It is possible that, by clearing the field edges, Mr. Evan John actually destroyed the larvae or pupae of the “Mazarine Blue.” I think Dr. Chapman has suggested that the dis-
Hibernation of Pyrameis atalanta.—Respecting the hibernation of *P. atalanta* in this country referred to by Mr. C. E. Morris, I may add that in the February number of this journal for 1913 I recorded three instances of this species hibernating which came under the observation of Mr. W. Barnes, of Orpington, Kent; also other interesting facts concerning this butterfly surviving the winter months in this country which Capt. Purefoy had under his observation. Therefore, I think what I then published in the 'Entomologist' was sufficient proof that this species does at times successfully hibernate in Britain.—F. W. Frohawk; May 18th, 1918.

Euvanessa antiopa in Scotland.—I am happy to be able to report the appearance of a fine specimen of the Camberwell Beauty on May 22nd last. It was resting on a sunny stretch of road on the eastern shore of Loch Long, about three miles north of Garelochhead, Dumbartonshire. My brother, a careful observer, was with me, and we both had a close view of the butterfly, well displayed, so that there was no possible doubt of its identity, though, not having a net with us, we were unfortunately unable to capture it.—(Rev.) Arthur S. Hoole; 4, Beaumont Street, Portland Place, W. 1.

Euvanessa antiopa Ovipositing in Captivity.—On May 5th last Mr. L. G. Esson captured a female *Euvanessa antiopa* at Rannoch, in Perthshire, Mr. A. J. Lawrance, of London, being a witness of the capture. As she appeared to be full of eggs she was sleeved on birch and fed with sugar and water in the hopes that she would lay. After eight days she had failed to deposit any ova, though apparently quite lively and feeding well. I happened to be the fortunate possessor of this insect, and, acting on Mr. Lawrance’s advice, had her transferred to Mr. L. W. Newman, of Bexley, in Kent, as we agreed that this would give the best chance of obtaining ova. Mr. Newman writes informing me that she arrived quite safely and that he was glad to tell me that she had commenced ovipositing on the evening of May 16th. Up to the time of writing this, I have news of one batch of ova having been laid, numbering about thirty. I believe I am right in stating that two other specimens of *antiopa* have been taken at Rannoch lately, one by Mr. Esson himself, so that the chances of the eggs being fertile are certainly good.—Arthur H. Foster; Sussex House, Hitchin, May 18th, 1918.

Vanessa antiopa at Banchory, N.B.—As hibernated examples of this species are but very rarely captured in Britain, I have pleasure in placing another instance on record. On April 3rd last Mr. E. J. W. Wood, of Stone, Staffordshire, took a very fine male example at Feughside, Banchory, N.B., and sent it direct to Mr. John R. B. Marsfield, of Cheadle, Staffs, who set the specimen and recorded it in the 'Field' of April 20th. To both these gentlemen I am indebted for their kindness in presenting this interesting example to me. Excepting a small portion missing from the apex of the right primary it is in unusually good preservation for a hibernated individual. It
is rich in colouring, but the margins are very white—whiter than in any others of my series of twelve British-caught examples.—E. W. Frohawk; May 18th, 1918.

Vanessa antiopa at Ardgav, N.B.—Mr. John R. B. Marsfield kindly sent me a letter (dated May 2nd) he received from Mr. Cecil E. Maples regarding a specimen of V. antiopa he observed on the banks of the River Carron, Ardgav, N.B., on April 10th. In a subsequent letter to me Mr. Maples writes: “I first observed the antiopa settled with spread wings on the mossy bank; it flitted about there for some minutes, then rose about 20 ft. and sailed amongst the park trees. Finally, a stiff breeze caught him, and he rose high and went off to the dense wood. I had him under observation for about twenty minutes.”—F. W. Frohawk.

Eugonia polychloros at Kingston.—On May 16th I captured a much-worn specimen of E. polychloros resting on a lamp-post at Richmond Park Gates, Kingston-on-Thames.—A. K. Ing; 57, Durlston Road, Kingston-on-Thames, May 17th, 1918.

Mesotype lineolata.—In Mr. C. G. Barrett’s well-known book it is stated that Mesotype lineolata is essentially a coast insect, but that it has been taken by Mr. W. E. Butlin at Streatham, on the borders of Berkshire. On a recent expedition to the Blewbury Downs, between Didcot and Newport, I had the pleasure, in company with Commander J. J. Walker, of taking several specimens of this insect, including both sexes, among long grass growing on the Downs. They are in first-rate condition, and had evidently not long emerged from the pupa state.—(Rev.) C. F. Thorne will.

Devastation of Oak Trees by Spring Larvæ.—On my daily journeyings to London and back I have a good opportunity of watching the progress of the vegetation of the country-side that borders the railway. May was well advanced before the oak trees put forth their delicate green leaves; now, scarcely a couple of weeks later, the majority of them are as bare as they were in January. The district affected extends from a mile or two south of Hayward’s Heath right away to Horley, and embraces the whole of the run through Tilgate Forest. Between Balcombe station and the tunnel, where oaks are almost continuous, there is hardly a tree that has any green leaves upon it: of a plantation of perhaps a couple of hundred well-grown oaks, just south of Three Bridges, only two green trees are left, and these, so far as I can judge, are not oaks but poplars, while in another and smaller plantation, a little north of the station, the whole of the trees are as brown as in winter; indeed, for some ten miles of the most affected district it is the exception to see a green oak tree, even as far as the eye can reach. I strongly suspect that the chief culprit is Tortrix viridana, but have no doubt that that insect is ably assisted in the work of devastation by species of the Hybernia and kindred genera. It would be interesting if some of our friends, who are able to make a closer inspection, would give us details of the species.—Robert Adkin; Eastbourne, June 1st, 1918.

[Here in North-West Middlesex the oaks are similarly denuded, and the chief offender is T. viridana. Most of the trees are naked, Entom.—July, 1918.]
and, I hope, a considerable number of larvae perished by starvation, as one day in May I noticed them, by no means full-fed, hanging in ropes from the leafless boughs. Starlings have done yeoman service latterly as scavengers of this pest.—H. R.-B.]

Notes from North Cornwall.—Towards the end of May larvae of *L. quercus* were so abundant that I collected over 100 specimens from one strip of hedge. They were feeding on hawthorn, wild plum, bramble, and one on honeysuckle. The majority seem to prefer resting in the shade on the stems inside the bramble bushes. Of those kept, one spun up on June 4th. On May 27th I caught a fresh specimen of *Melitea aurinia*, though I have not noticed the scabious plants here in any abundance. A worn specimen of *P. fuliginosa* was found resting on a grass stem, May 31st. On June 1st a female *M. rubi* was caught flying heavily over the dunes after sunset. Larvae of *Lithosia lurideola* were common, feeding on the leaves of bramble bushes on the sand dunes.—H. K. Woolacott, St. Merryn, North Cornwall.

Shooting Larvae.—On going my rounds of sentry visiting this morning, I heard some shooting going on in an orchard near at hand and went to investigate, and found the farmer with a shot-gun firing into the nests of *Bombus neustria*. There is a plague of these on the apple and plum trees this year, two or three nests on nearly every tree, and sometimes quite out of reach at extreme top of tree. My experience hitherto has been that they are to be found on hedgerows quite low down. The farmer told me that sometimes they use as much as 10 lb. of powder and very small shot. I suggested a mixture of paraffin and water, which might be applied with a syringe, as likely to be less damaging to the trees, but see in to-day’s *Times* ½ lb. of acetate of lead-paste and 10 gallons of water advocated; this, of course, would kill everything that touched the leaves afterwards, such as bees, flies, etc.—R. B. Robertson; Oare Camp, Faversham, May 29th, 1918.

Relaxing Lepidoptera.—Many collectors doubtless find considerable difficulty in relaxing large tropical butterflies that they receive folded in papers. The following simple method of relaxing them was habitually used by the late Mr. J. Hill, of Little Eaton, and communicated by him to me shortly before his death. I have tried the method, and have found it quite successful. The requisites are a spirit-lamp and tripod, the lid of an ordinary cocoa-tin, and a large, common pin (not an entomological one). The lid of the cocoa-tin is filled with warm water to the depth of half an inch; the spirit-lamp is set so that the flame is very minute—in fact, just enough to keep the water in the tin simmering but not boiling. The pin is inserted into the thorax of the butterfly, into its side at right angles to the axis of the wings. The butterfly is then placed in the simmering water, and it floats obliquely because the pin acts as a keel. After two or three minutes’ cooking, the pin is inserted into the opposite side of the thorax and the process repeated. The body and bases of the wings will be moist and soft, and the insect well relaxed. There should be no undue moisture on the rest of the wings, and what there is readily dries off without damaging the specimen. When Mr. Hill
told me his method it sounded drastic, but in practice it is simple and practicable.

Corrections and Explanations.—I refer first to the butterfly supposed to be Melanargia galatea (Entomologist,' vol. 1, p. 90). The example resembles galatea in ground colour and in size, but the markings, especially near the discoidal cell, resemble those of lachesis. It may be M. lachesis var. canigulensis. On the same page the M. deione was at first identified, and rightly so, as M. phaèbe. By some mischance the correct name was erased. M. deione is reported from Molitg. In vol. ii, at p. 72, the example said to be Satyurus amalthea is probably a semenè, unusually pale for the locality. To the butterflies captured at Vernet-les-Bains I must add S. hermione. Some text-books state that hermione is replaced by alcynone in the south of France, but that is an error. Hermione occurs at St. Pons in Hérault; it also occurs at La Massane. It is also found in Spain near Barcelona, and at Tordera.—James R. McClymont; Amélie-les-Bains, France, May 29th, 1918.

[Is this La Massane in Bouches-du-Rhône? Berce records hermione in Héraul, and M. Jullien, of Geneva, from Maguelonne. I have no knowledge of alcynone occurring with it in this Department. I shall be very much obliged if Mr. McClymont will communicate a list of the lepidoptera observed by him in the entomologically rich Héraul. With the exception of some Montpellier observations by Rambur, and other collectors of the earlier nineteenth century, little seems to have been published on the subject. This Department should provide interesting links between the fauna of the Pyrenees and the Peninsula, and the Midi.—H. R.-B.]

Awkward Incidents in an Entomological Career.—Insect-hunting leads one, by its very fascination, into strange places and predicaments; and our experience on April 26th, 1904, was most diverting, though it might have ended—as it would often do, if man-traps and spring-guns were not abolished—in serious consequences. Presence of mind is a useful possession upon such occasions, as old John Scott found when, ordered by the owner off his grounds, he sturdily commented that (when there is but one man's word against your own) might is right (ep. 'Entom. Weekly Int.,' ii, p. 16). From Brandon, Elliott and I had ridden our bicycles from the Lakenheath road, opposite Northcourt Lodge, to a cottage in Elms Covert, where an aged keeper directed us down a road known as "Shakers," when our compass showed a southerly direction and we sought east. So we branched off across a heath which was half gorse and wholly heather (any botanist understands this kind of proportion) of about a foot's growth, and rode as straightly as may be along rabbits' tracks of six inches or less in breadth to Elveden Warren; thence, avoiding Warren Lodge, we emerged upon the Bury road at the classical "Diastictus Place" (ep. 'E. M. M.,' 1903, p. 204), as designed. No lonelier spot exists in Suffolk. There we stacked our machines and fell to investigating the rabbit-holes beneath the turf wall bounding the high road, whence Onthophilus sulcatus and other rarities may be retrieved with sufficient persuasion and labour. Presently I saw, on rising to stretch, a man stalking something unknown in a.
crouching position from the warren, and I drew Elliott's attention to so novel and interesting a spectacle, continuing myself half buried in the bunny-hole at which I was at work. Ere long the man approached and asked somewhat brusquely the object of our subterranean investigations. At the same moment I became aware of a county policeman alighting from his bicycle in my rear. Here, then, was our quartette—an unfair one surely, for who does not know that a bobby's word is more than that of a mere private individual! Fortunately Bluebeard was no less than the Brandon constable, who knew we were staying at the "White Hart" there; and a further reference to a local cousin (Arthur Elliott, Esq., J.P., of Elveden) straightened matters entirely, though the keeper, after his kind, still rejected the evidence of our collecting-tubes, and considered, in a retrogressive undertone, leptophilous coleoptera to be pernicious examples for the local yokel.

When all the world and love is young your best collection is made. I had a delightful landlady at Lowestoft, and on August 3rd, 1904, this good dame (her heart, if not her head, merits the title) cooked three "hard-boiled" eggs. With these upon my person by way of lunch, I sallied forth to the Kessingland sandhills on the Suffolk coast. Upon arrival at these dunes I became utterly absorbed upon the capture of the Culicoid bug, *Metacanthus puncticeps*, which was quite new to me, and abundant upon *Ononis spinosa*. So obsessed therewith was I that I rolled from patch to patch of food-plant in the most abandoned manner—till I heard something *give*: thought I, "The eggs, by George." Most gingerly my fingers sought them in their snug retreat—and found them. Found, too, they had not been hard-boiled; sincerely I wished they had. How Newbery and his niece did laugh!—*Claude Morley*.

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**SOCIETIES.**

Entomological Society of London.—The Annual Meeting took place on Wednesday, January 16th, 1918.—Dr. C. J. Gahan, M.D., D.Sc., President, being in the chair.—Mr. W. G. Sheldon, one of the Auditors, read the Treasurer's statement of accounts, which was adopted on the motion of Mr. Stanley Edwards, seconded by Mr. Frisby.—The Rev. G. Wheeler, one of the Secretaries, then read the report of the Council, which was adopted on the motion of Mr. O. E. Janson, seconded by the Rev. F. D. Morice.—No other nominations in addition to those of the Council having been received, the President declared the latter to have been duly elected as officers and members of Council for the ensuing year: President, Dr. J. C. Gahan, M.A., D.Sc. Treasurer, W. G. Sheldon. Secretaries, Comm. James J. Walker, M.A., R.N., F.L.S.; Rev. George Wheeler, M.A., F.Z.S. Librarian, George Charles Champion, F.Z.S., A.L.S. Other members of Council, A. W. Bacot; E. C. Bedwell; K. G. Blair; Dr. T. A. Chapman, M.D., F.Z.S.; W. C. Crawley, B.A.; H. Willoughby Ellis, F.Z.S.; Dr. H. Eltringham, M.A., D.Sc., F.Z.S.; J. C. F. Fryer, M.A.; A. Hugh Jones; Rev. F. D. Morice, M.A.; S. A.
Neave, M.A., B.Sc., F.Z.S.; Herbert E. Page.—The President then delivered an address, after which Mr. Simes proposed a vote of thanks to him, which was seconded by Dr. Eltringham; the President, in returning thanks, spoke of the neglect of the biological sciences on the part of the Government.—Mr. Collin then proposed a vote of thanks to the officers, which was seconded by Mr. Donisthorpe, both of whom made special allusion to the regret felt by the Society at the retirement of Mr. Jones from the Treasurership, after so long a period of very efficient work in the Society’s interests.—The two Secretaries said a few words of thanks, the Treasurer and the Librarian being absent.

Wednesday, February 6th, 1918.—Dr. C. J. Gahan, M.A., D.Sc., President, in the chair.—The President nominated Dr. H. Eltringham, Mr. A. H. Jones, and Mr. S. A. Neave as Vice-Presidents for the ensuing year.—Dr. John Adams Comstock, Curator of the South-Western Museum, 1275, Bellevue Avenue, Los Angeles, California, U.S.A., and Mr. James W. Monro, Lieut. R.A.M.C., 2nd Sanitary Coy., Duke of York’s Headquarters, Chelsea, S.W., were elected Fellows of the Society.—Mr. Donisthorpe exhibited a ♂ and ♀ of Cenocara subglobosa, Muls., a beetle new to Britain, which he had bred from a “puff-ball” (Lycopodium genumatum) taken at Barton Mills, Suffolk, on September 9th, 1917, together with a specimen (♀) of Cenocara bonistræ, Hoff. Also specimens of Cryptophagus lovandali, Ganglb., which he had found in large numbers in a nest of Vespa germanica in a tree in Richmond Park on November 20th, 1917; a species of which only two specimens had been taken in Britain before.—Hemipterous ova: Mr. E. A. Butler exhibited ova of the following species of Hemiptera: Two species of Pentatomidae, Piezodorus lituratus, Fabr., and Pentatoma rufipes, L.; Chorosoma schillingi, Schml., a Coreid bug; two species of Berytus; three Reduviids, Coranus subapterus, L., Nabis major, Costa, and N. rugosus, L.; a Capsid bug, Miris leviatus; three water bugs, Naucoris cimicoides, L., Notonecta glauca, L., and Neph vesirea, L.—Mr. Kaye exhibited from Mr. Joicey’s collection series of the two Catagramma species, pastasza and excelstor, with races and forms of each, pointing out that the two groups of insects were at once separable by the different tips to the antennae; also a striking new species of Dynamine (D. agatha) from Bolivia.—Lord Rothschild exhibited a series of Pseudaeracea in illustration of a paper on the mimetic associations of these butterflies.—Prof. Poulton said that he had recently received from Capt. G. D. H. Carpenter a new form of Pseudaerae poggei, Dew., mimicking the Dorippus, Klug, form of Danaida chrysippus, L., in ex-German East Africa. He also exhibited examples of sixty-six males and eighty females of Musca autumnalis, captured December 14th, 1917, in the cistern-loft of St. Helen’s Cottage, St. Helen’s, Isle of Wight. Prof. Poulton said that he wished to draw attention to an unfortunate misconception in the recently issued part of M. Charles Oberthür’s beautiful work ‘Etudes de Lépidoptérologie comparée,’ Fasc. xiv, 1917: The Sesias being mimics and not models of the Hymenoptera. Prof. Poulton said that he had just received a letter from Mr. C. O. Farquharson,
dated December 13th, 1917, from Ibadan, describing Harpagomyia and other Diptera being fed by Cremastogaster ants in S. Nigeria.

*Wednesday, March 6th, 1918.—* Dr. G. J. Gahan, M.A., D.Sc., President, in the chair.—Col. Wilfrid Wm. Ogilvy Beveridge, R.A.M.C., C.B., D.S.O. (on active service), c/o Mr. J. H. Durrant, Natural History Museum, S. Kensington, S.W., and Messrs. Patrick Aubrey Hugh Smith, Sconner House, St. German’s, Cornwall, and 28, Bruton Street, Berkeley Square, W., and Lionel Julian Walford, The Cavalry Club, Piccadilly, W., were elected Fellows of the Society.—Prof. Poulton exhibited the *Myrmecophilus diptera* collected and the *Culicid toxorrhynchites* bred by Mr. C. O. Farquharson in S. Nigeria. Prof. Poulton said that he had recently received a letter from Dr. G. Arnold, in Bulawayo, correcting the statement that he had bred *Osmia aurulenta* from whelk shells, on the Wallasey sandhills. The shells were a species of *Helix*, probably *memorialis*. He also drew attention to "Observations on Protective Adaptations and Habits, mainly in Marine Animals," published in English, as one of the papers on Dr. Th. Mortensen’s Pacific Expedition, 1914–16 (‘Vidensk. Medd. fra. Dansk naturhist. Foren.,’ Bd. 69, pp. 57–96, pl. 1), and especially the "Observations on Insects," p. 83.—Mr. W. J. Kaye exhibited, on behalf of Mr. J. J. Joicey, an apparently very rare Dioptrid moth, *Dioptris pellicida*, Warr., and contributed notes on its mimetic association with a group of small Ithomine species.—Mr. Frisby exhibited an ants’ nest, and also three cells of *Zethus cyanopterus*, a wasp of the family *Eumenidae*, sent by Mrs. M. E. Walsh, F.E.S., from Soekaboemi, Java, and read notes. The ants, which were sent in spirit, appear to be a species of *Polyrhachis*.

—The President exhibited a coleopterous larva, together with the box in and on which it had been living for some years. He said that it was the larva of a Longicorn beetle, but was unable to state the species, and observed that similar instances of longevity were on record.—Dr. A. J. Turner read notes on Mr. Tillyard’s discovery of the jugo-frenate wing structure of certain Australian Micropterygidae.

*Wednesday, March 20th, 1918.—* Dr. T. A. Chapman, M.D., F.Z.S., in the chair.—Second Lieut. William Proctor Smith, F.Z.S., Haddon House, Ashton-on-Mersey, and Messrs. John Henry Watson, 70, Ashford Road, Withington, Manchester, and Ronald Senior White, Suduganga Estate, Matale, of the Board of Agriculture, Ceylon, were elected Fellows of the Society. Dr. Paul Marehal, President of the Entomological Society of France, 89, Rue du Cherche-Midi, Paris, was elected an Honorary Fellow of the Society.

—Dr. Turner gave an abstract of his paper, entitled "Observations on the Lepidopterous Family *Cossidae*, and on the Classification of the Lepidoptera," illustrated by drawings of neurotin, shown in the epidiascope.

*Wednesday, April 3rd, 1918.—* Dr. C. J. Gahan, M.A., D.Sc., President, in the chair.—Dr. Allan Chilcot Parsons, M.R.C.S., L.R.C.P., D.Ph., Sanitary Officer West African Medical Staff, and Temp. Capt. R.A.M.C., School of Army Sanitation, Aldershot, was elected a Fellow of the Society.—On behalf of Mr. Prideaux the Secretary exhibited two black and two green living pupae of *P.
megara and read notes.—Mr. Bacot gave an account of experiments as to the distribution of trench fever by lice.—The Rev. F. D. Morice inquired whether androconial scales were known in insects other than Lepidoptera. He thought that he had discovered them among the Sawflies in the Australian genus Periga in two species.—The President said that he had found Kirby's authority for the “tapping” of A. striatum with its mandibles, but suspected an error in the identification of the species. Also that the Danish naturalist, Jensen Haarup, spoke of A. pertinax as tapping most vigorously before a storm and being regarded in Jutland as a weather prophet. As this was described as taking place specially in autumn and winter, the President considered it probable that the tapping was really made by the book-louse. Comm. Walker felt sure that he had heard A. striatum tapping where no X. tessellatum were present.

The South London Entomological and Natural History Society.—April 11th, 1918.—Mr. S. Edwards, F.L.S., President, in the chair.—An exhibition and discussion of the genus Spilosoma.—The President made some general remarks on the distribution of the genus in the Palaearctic Region.—Mr. Ashdown's exhibit included an example of the rare unicolor form of S. lubricipeda with only one slight dot on the costa, from the Wye Valley.—Mr. R. Adkin, series of various local races of the species and series of crossings between the type and var. zatima of S. lubricipeda, very fine smoky, heavily spotted S. menthastri, etc.—Mr. Mera, bred series of the species, including many var. radiatu and intermediates; some fine var. fasciata and aberrations with dark bodies, of S. lubricipeda. He said that the zatima form was originally bred from the Lincolnshire larvae.—Messrs. Kaye, Sperring, Leeds, Turner and Edwards also showed series.—Mr. B. W. Adkin then exhibited his long series, and read a paper, “The Genus Spilosoma.”—Hy. J. Turner (Hon. Editor of Proceed.)

April 28th.—Mr. Stanley Edwards, F.L.S., President, in the chair.—Mr. Ashdown exhibited Lepidoptera bred this year indoors, including Diaphora mendica, Amphidasis betularia, Amorpha populi, Hylophila prasinata, etc.—Mr. H. Moore, the S. American Nymphalids, Catonephile acontius, and C. batesi, pointing out their extremely sexual dimorphism.—Mr. Edwards, living larvae of Hepialus humuli and of a species of Geotrupes (Col.), both dug up at Blackheath.—Mr. Main, living larvae of Timarcha tenebricosa (Col.).—Mr. Turner, series of Teras contaminana, with vars. ciliana, rhombana, dinudiana, and a much less common form recently pointed out by Mr. Sieh (‘Ent. Record’).—Mr. Bunnett, a photograph of a raid of locusts approaching a farm in S. Africa.—Messrs. Edwards, Leeds, Frohawk, and others reported on the season. Vanessa io, Gonepteryx rhamni were in abundance, and Euwenna antiqua had occurred in Aberdeenshire.

May 9th.—The President in the chair.—Mr. E. E. Green, F.E.S., of Bearsted, Kent, was elected a member. Annual exhibition of Orders other than Lepidoptera.—Mr. Ashdown, a large number of Coleoptera taken in Surrey and Hants, 1917, including Leptura nigra, L. sexguttata, Conopalus testaceus, Orsodaca cerasi, Limonius
minutus, Cychrus rostratus, Serica brunnea, etc.—Mr. Frisby, two cases of exotic Hymenoptera—one with large species of solitary, fossorial, and other wasps; the other with bees from many parts of the world, including a large *Megachile* which burrows in the mounds of termites in S. Africa.—Mr. West, his collection of British *Dytiscidae, Gyrinidae, and Hydrophilidae* (Col.), with nearly all the species represented, including the rare *Sphecus emarginatus* from W. Ham. He also showed his British Orthoptera, including *Platycleis reselli* and *Nemobius sylvestris* from the New Forest.—Mr. Priske, sinistral specimens of *Helix nemoralis* (Mol.) from Berndorff, and many British fresh-water shells.—Mr. Main, a living larva of *Cicindela campestris* (Col.) from Epping in its burrow, and the burrow and aerial tube of the British trap-door spider *Atypus affinis*.—Mr. Moore, a number of species of Orthoptera, and read notes on the colours found in the Order.—Mr. Buckstone, a collection of Hymenoptera, Orthoptera, and Coleoptera made on a voyage to Australia some years ago.—Mr. Talbot, living examples of *Pediculus humanus* which carried the bacillus of trench fever, and *Stegomyia fasciata*, the carrier of yellow fever, and showed the ova of the latter hatching.—Mr. Edwards, large species of exotic Coleoptera.—Mr. West, for the Society, drawers of British Odonata, Hemiptera, Hymenoptera, Diptera, and *Carabidae* (Col.).—Mr. Frohawk, varied series of the eggs of the blackbird, thrush, goatsucker, and lapwing.—Hy. J. Turner (Hon. Editor of Proceedings).

**Lancashire and Cheshire Entomological Society.**—April 15th, 1918.—Mr. H. M. Hallett, F.E.S., read an interesting paper on the British Social Wasps. Each species was taken in detail, and any outstanding feature in its bionomics convincingly described. Considerable discussion centred round the position of *Vespa austriaca* as the "Cuckoo" wasp. Mr. Hallett said that he had witnessed the wasp scraping fibre from an old gatepost as if it were gathering nest material; he also stated that in spite of such an observation, it was quite likely that a species which produced no workers would depend largely, if not entirely, upon foster-parents for its progeny. It appears that this tendency of *V. austriaca* requires still further investigation. The discussion also elicited the fact that we have only one record for Lancashire and Cheshire for the hornet, *V. crabro*.—Mr. F. N. Pierce exhibited living larvae of *Solenobia melanella* and *Diplogomma ferchantella* from Northants, and pointed out that no male of the latter species was known. He drew attention to the differences in the form of the larval case in each instance and the method of the feeding of the larvae.—Mr. W. Mansbridge showed a long-bred series of *Lobophora carpinita* (lobulata) from Delamere parents much suffused with fuscous and green in both sexes, but more strongly in the females; also a series of *Odontopera bidentata*, showing a continuous pale transverse line formed by the joining up of the second series of spots.—Wm. Mansbridge, Hon. Sec.
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THE

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L. W. NEWMAN, F.E.S., BEXLEY, KENT.
TWO NEW SPECIES OF SESIIDÆ FROM FORMOSA AND A NEW NOCTUID MOTH FROM JAPAN.

By A. E. Wileman and Richard South.

**Canopia auritincta, sp. n.**

♂. Head black, face lined with white; thorax black, fringed with yellow hairs at sides; abdomen black, posterior edges of the segments with yellow hairs, a broad yellow band on last segment, some yellow hairs in the black anal tuft. Fore wings with costal and outer margins, veins, and broad discoidal bar, black; inner margin yellowish from base to bar; orange yellow scales between the veins on outer fourth. Hind wings black on the veins and outer margin, yellow on other margins, no discal bar; some orange-yellow scale dots before termen, placed between the veins. All fringes grey.

Expanse, 18 millim.

Collection number, 1702.

A male specimen from Yakanron, Formosa, June 15th, 1908.

**Paranthrene tricincta, sp. n.**

♀. Head black, face white, collar ochreous; thorax and abdomen black, the former with ochreous hairs, and the latter with three yellow rings, of which the first is narrow, the second very broad, and the third incomplete. Fore wings clouded with blackish-brown hairs, especially on the outer half; margins, veins, and discoidal bar black on all the wings.

Expanse, 20 millim.

Collection number, 1273.

One specimen from Kanshirei, Formosa, May 10th, 1908 (1000 feet).

**Pocus albilincola, sp. n**

♀. Fore wings brown with a slight purplish tinge, darker clouds on central area; costa suffused with greyish marked with black, a few white dots before apex; venation pale, almost whitish; reniform and orbicular stigmata white; antemedial and postmedial lines white, the former outwardly oblique, the latter excurred round cell and slightly incurved before reaching the inner margin; submarginal line whitish, wavy, indistinct; terminal line black; fringes concolorous.
with outer area. Hind wings fuscous, with a pale-edged dark transverse line beyond the middle; terminal line blackish, fringes greyish. Expanse, 36 millim.

Collection number, 1392.

A female specimen from Yoshino, province Yamato, Honshū, Japan, October 21st, 1900.

THE NOCTUIDE OF GREAT BRITAIN AS ARRANGED IN THE GENERAL COLLECTION AT THE NATURAL HISTORY MUSEUM.

By Richard South.

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NOTES ON COLLECTING IN 1917.

By C. Granville Clutterbuck, F.E.S.

The longest and coldest winter for twenty-two years terminated on April 15th, when the frost ceased and once more "the vernal airs breathed mild." With the exception of Vanessa io, Gonepteryx rhamni, Scoliopteryx libatrix, Theria rupicaparia, and Gymnoscelis (Eupithecia) pumilata, practically nothing was observed during the first three months, but on April 19th I spent the afternoon in a wood on the outskirts of the Forest of Dean. On the way a crippled male specimen of Biston stratarius (prodromaria) was noticed at rest on a telegraph post, at least a month late. In the wood Aglais urticae (hybernated), Brephos parthenias, 2 Hybernia marginaria (progennaria), Cheimatophila torricella (hyemana), Semioscops avellanella, Micropteryx purpuracela, and M. semipurpurella were taken sparingly, but it was evident that the species were all belated and were only just awakening from their winter's sleep. On the 22nd I visited the same district with an ornithological friend, when the same species were noticed in increasing numbers, with the addition of Alucita monodactyla (hybernated), Cerostoma radiatella (hybernated), and M. unimaculella. The strenuous exertions of my friend to catch the male B. parthenias as they came within reach along the wood paths afforded me considerable amusement. He had never before seen the species on the wing. On April 26th I again visited the wood, but the afternoon was dull, and my bag consisted of one Polia areola (lithorhiza) at rest on a telegraph post, three Trichopteryx
(Lobophora) carpinata (lobulata) at rest on tree trunks, one M. unimaculella, one M. semipurpurella, and three M. purpurella. Cycling home through the streets, I was an eye-witness of a rare sight in Gloucester, a crowd chasing an escaped canary. Time pressed, otherwise I felt tempted to join in the chase with my net.

May 1st was a glorious sunny day, and Celastrina argiolus appeared in my garden. During recent years this species has become a common garden insect in Gloucester, possibly owing to the ivy not having been cut back regularly through shortage of labour owing to the war. A visit to our hills on the 3rd revealed the fact that Callophrys rubi was flying in some numbers and settling on the lower branches of the larch trees, with whose young leaves the green on the under side of its wings closely assimilated. Ancylis complana was flying amongst the short turf on the top of the hill, Lithocolletis faginella amongst the beech trees, and M. subpurpurella along a hedge largely consisting of nut bushes under oak trees. On the 4th Pammene rheedieula appeared in my garden, flying in the hot sunshine between 6 and 8 p.m. (summer time) on the top of a pear tree. This species has appeared in my garden for some years, although there is no hawthorn near. Is it possible that the larva feeds in the berries of the fire-berry (Crataegus pyracanthus) which grows here and in my neighbour’s garden? A specimen of Gymnoscelis pnunilata appeared in the house on the 5th, whilst on the 7th a visit to a neighbouring osier bed produced Xanthorhoe designata (propugnata) in fine condition, and also Laspeyresia perlepidana, Swammerdamia pyrella, and Lithocolletis viminiella. On the 10th my wife and I paid a visit to the hills, and, thanks to the kindness of Mr. S. J. Coley, of Stroud, we had the pleasure of picking the Pasqué flower (Anemone pulsatilla) for the first time. The only lepidoptera to be observed were Pyrausta cespitalis and A. complana. The 13th was a fine hot day, and on our hills in the beech woods C. argiolus and the males of Drepana cultraria (unguicula) were flying freely, but were somewhat passé. Other species noted were Pieris rapa, C. rubi, Euclidia mi, Ancylis bindana, L. perlepidana, and Nepticula anomalella. On the 15th Cucullia verbasci emerged from a pupa resulting from a larva found near here in July, 1916. On the 20th I visited a locality near the foot of our hills, which for upwards of fifty years has been a favourite resort of Gloucester collectors, but which is now in jeopardy, as an aerodrome has recently been erected close to it. The only species observed were Hesperia malvae, Euclidia glyphica, Laspeyresia compositella, Adela rufimitrella, Elachista rufoacinerea, and E. obscurella. An inspection of my gooseberry trees on the 22nd showed that they were attacked by the larva of the gooseberry saw-fly (Nematus ribesii), and a male and two female flies were captured flying round the trees. Hand-picking
checked the pest, and a good crop of fruit resulted. The flies were subsequently exhibited at a meeting of the Cotteswold Field Club.

A visit to a local oak wood on the 24th produced _Loobophora halterata_ (hexapterata) at rest on a tree trunk, _Gymnoscelis abbreviata_, _Ancylis lundana_, _Nemophora schwarziella_, _Lithocolletis querccfoliella_, and _L. cramerella_. A rising temperature on the 25th and 26th brought out _Ecophora sulphurella_ and _Lampronia rubiella_ in my garden. _Gracilaria syringella_ was first noticed amongst the lilac bushes on the 27th, a very wet day. The next day (Whit-Monday) being a holiday, advantage was taken of a fine afternoon following a dry morning to visit the hills. The males of _Eriogaster rubi_ were dashing about on a dry bank and amongst the beech bushes at the bottom. I made several ineffectual attempts to net them, both at the top and at the bottom of the bank, but towards 8 o’clock (summer time) I noticed that they flew lower, just above the tops of the grass, and I then managed to catch three in very fair order. _Brenthis euphrosyne_, _Polyommatus icarus_, _Opisthograptis clathrata_, _Oxyptilus parvidactylus_, _Adela rufimitrella_, and _Eriocephala calthella_ were also on the wing. On the 29th I visited the woodlands in the Severn Valley, and by beating the small oaks, birch, and nut trees along the wood rides I secured a lovely fresh _Halias prasinana_, a perfect pair of _Pleymryia hastata_, _L. halterata_, _Hydrionccna corylala_, _Anclylis lactana_, _Nepticula argentipedella_, and _Lithocolletis postijoliella_, whilst the males of _Euprécilia maculosana_ were flying over the bluebells in the sunshine. My long projected visit to the famous Leigh Woods materialised on May 31st, when, thanks to the kindness of Mr. G. C. Griffiths and Mr. A. E. Hudd, joint authors of ‘Fifty Years Entomology in Bristol,’ I spent a pleasant afternoon in their company. The afternoon was cloudy and rain threatened, but, although we did not secure the great prize _Drepana harpapula_ (sicula). I was pleased to take for the first time _Roeslerstammia exilebella_ at rest on a leaf of the small-leaved lime ( _Tilia parviflora_). Other species noted were _H. prasinana_, _Dusychira pudibunda_, _Gonodontis bidentata_, _Pseudopanthera macularia_, _Cepphis advenaria_, _Tortrix ministrana_, _Lipoptycha plumbana_, _Nemophora swammerdamella_, _Adela crosella_ (sulzella), _Chrys ochista aurifrontella_, and _N. argentipedella_.

By beating the lime trees outside a wood near the Forest of Dean, besides _R. exilebella_, I was fortunate in securing a nice pair of _Buccautrix thoracella_, a species not mentioned in Mr. V. R. Perkins’ manuscript Gloucestershire list, but which I see is recorded from Gloucester in Mr. Meyrick’s handbook. In the wood _Falcaria falcataeria_, _P. hastata_, _Abraxas sylvata_ (alnata), _Enochrea lutenta_, _Elachista atricocella_, _Lithocolletis spinolella_, and _N. argentipedella_ were obtained. That serious pest of our apple trees _Carpocapsa monomera_ first appeared on the 4th.
On the 5th a flying visit in the evening to a marshy field near here produced *Melitaea aurinia*, *Enuxanthis straminea*, *Chlidonia baumanniana*, and *Acompsia luctella*, in addition to a larva of *Asteroscyopus sphinx* (cassinea). On the 7th I was able to visit our hills in the afternoon. In one corner of a field a colony of *Cupido minimus* was discovered. *Adela fibulella* was present amongst the germander speedwall. *Cucullia umbratica* was taken at rest on a stone wall, and *Platyptilia gonomactyla* on the herbage at the side of a lane. On the 9th in our osier beds I took *Hydriomena abulata*, *Epermenia illigerella* (first brood), *Eidophasia messingiella*, and *Elachista cerusella*. The next day found me in our woods, when *P. hastata* again appeared. This species seems to have become suddenly almost common in this district. *Hydrocampa nymphea*, *Eucosma arcuella*, *Harpella geoffrella*, *L. spinolella*, and *Eriocephala aruncella* (seppella) were out in small numbers. I beat a couple of *Polyplaca videns* larvae out of oak.

On the 13th a specimen of *Pammene regiana* was found on a neighbour’s fence under a sycamore, under the bark of which no doubt the larva had fed. This sycamore tree has fortunately escaped the tree felling which has lately become so general in this city.

Another visit to the hills on the 14th provided specimens of *Agriades bellargus*, *Deilephila porcellus*, *Euonymatece tersata*, *O. parvidactylus*, *E. aruncella*, and *Elachista cygnipennella*. *Enarmonia weberiana* appeared in my garden on June 15th. The larva feeds under the bark of cherry, laurel, and pink may (*Crataegus oxyeantha* var. *rubra*). The same evening, between 8 and 9 p.m., I was fortunate in taking for the first time, *Hemimene sequana* in our osier beds. The next day a specimen of the form of *Hydriomena truncata*, known as *centum-notata*, was seen at rest on a tree trunk in the city. *Troxchium formiciforme*, *Epiblema turbidana*, and *Nemophora metaxella* were flying in our osier bed here, where a wild species of gladiolus grows and where *Petasites* flourishes, on June 17th. The longest day found me in the woods again when I had the good fortune to beat a fine male specimen of *Apoda limacodes* (testudo) out of oak into my umbrella. The Rev. G. M. Smith had previously found the species here, and these are, I believe, the only two records for the county. A few *Cacocia cratogiana*, *C. zylostenna*, *Tortrix laylingiana*, *Cacocia podana*, *Argyro stigma brockelae*, *A. retinella*, and one male specimen of *Funa casta* (intermediella) was also taken.

I spent the evening of the 26th on our hills when I secured *Zygæna trifoliis*, *Pterophorus tetradactylus*, *Epiblema fidrana*, *A. complana*, *N. metaxella*, and *Elachista disertella* (polliuariella). In the Forest of Dean, on the 28th, I saw a specimen of *Polygonia c-album*, and captured two female specimens of
Euchlena prunaria, one of which was the purple-brown form with a narrow yellow band and spot in apex, C. crataegana, Calothysanus amata (anataria), Anisotaenia ulmana, and A. reticella, before being driven home by heavy rain. On the 30th P. c-album was seen in my garden, and Acompsia lunaris and Gelechia similis were taken on a fence near. On July 1st Argynnis aglaia were fresh on the wing on our hills, and other species noted were Hadena lithosylea, Eucoema ochroleuca, Lampronia praelatella, and Gelechia tricolorella. In my house, on the 2nd, I took a variety of the male Diacriadia lubricipeda with the usual spotting obsolete except for two dots in the apex of each fore wing. I cycled ten miles down the Severn Valley on the 5th, and spent the afternoon in the fields with the Rev. J. W. Metcalfe and Mr. W. E. B. Davis. (I have read the article by the former in a recent number and have noted their discoveries in this district with great interest having originally introduced them to each other.) My best capture was Enarmonia oppressana on the wing near some poplar trees. While we were sitting on the grass enjoying our sandwiches a specimen of Ochsenheimeria birdella crawled up the side of the paper bag lying on the grass by me. Other species seen included Ourapteryx sambucaria, Hydriomena dotata (pyraliata), Tephroclytis isogrammaria, Tortrix chrysanthemana, and Gelechia vulgella. On the 10th Nola cacullatella appeared in my garden where the larvae fed regularly every year on the apple leaves. On the 11th specimens of Notocelia rosacolana, Enarmonia reberiana and Tinea fascipunctella were also seen here. On the 12th, in a wood near the Forest, the trees and bushes were swarming with moths mostly Tortrix viridana. Amongst the better things were Xanthorhoe viridaria (pectinataria), Hydriomena sordidata (clutaia), Euchoea obliterata (heparata), Metrocampa marginaria, Acróbasus zelleri (tumidella), Cacoecia cratoegana, Tortrix diversana, Eucoema belutetana, Schreckensteinia festaliella, Acompsia flavifrontella, and Coleophora nigricella.

(Brill to be continued.)

BRITISH ODONATA IN 1917.

By W. J. Lucas, B.A., F.E.S.

Although an example was sighted at a distance on May 26th at the foot of Boxhill in Surrey, my first real experience amongst the dragonflies was on May 29th, when I paid a visit to the Basingstoke Canal near Byfleet (Surrey), and met with nine or ten species. Pyrrhosoma nymphula, Sulz., was plentiful, and Agrion puella, Linn., with Enallagma cyathigerum, Charp., appeared to be common also. Brachytron pratense, Müll., was frequently seen and I captured one, while L. Balcomb, who was
with me, took three. By waiting longer apparently we could have taken a considerable number, as they kept flying over the margin of the water near the luxuriant vegetation along the bank. Probably Cordulia æneæ, Linn., was present too, but it was not absolutely identified. Several Erythromma nudus, Hans., were seen at the place where the railway-bridge crosses the junction of the Basingstoke Canal and the Wey Navigation, but they were very wary, and we caught none. The stream was flowing rapidly in the Wey Navigation, and they had the habit of settling on the floating leaves and other refuse a little out of reach. Calopteryx splendens, Harris, was numerous along the Wey Navigation (and was also met with near the Wey at Wisley), but it was often in teneral condition, if not usually so. One Ischnura elegans, Lind., was taken, while Libellula quadrimaculata, Linn., and Libellula depressa, Linn., were seen. In this locality dragonflies were numerous, although the season was not an early one.

Two days previous to this, Mr. Lyle took at Wicken Fen:—B. pratense, two males; P. nymphula, one female; I. elegans, one male; and Agrion pulchellum, Lind., one female; while on July 19th he took at the same place Æschna grandis, Linn., female; Lestes sponsa. Hans., male; I. elegans, female; E. cyathigerum, female; and A. pulchellum, female. As late as August 27th he took at Wicken a teneral E. cyathigerum. On June 11th Dr. R. N. Goodman caught a specimen of B. pratense between Hook and Leatherhead in Surrey. In the New Forest from June 8th–16th South found plentifully Calopteryx virgo, Linn., L. depressa, and Anax imperator, Leach, their frequency being in the order given.

Near Marlborough, Mr. E. A. C. Stowell found L. depressa and A. puella common on May 22nd, and at Froxfield, near Hungerford (Wilts), he captured on June 9th what he took to be Platycnemis pennipes, Pall., and E. cyathigerum, the latter being excessively abundant. On August 11th he took Æschna cyanea, Mull., in Savernake Forest.

On June 9th, at a pond in Chatley Woods, Surrey, a teneral example of L. quadrimaculata, approaching var. premunibila, Newm., was taken, while C. spendens was found to be plentiful the same day at one spot on the Mole near Cobham. On June 17th L. depressa was seen over a small pond between Norbury Park and Fetcham in Surrey, while A. puella was taken at the Mill Pond, Leatherhead. On Epsom Common (June 23rd) I. elegans, E. cyathigerum, and A. puella were met with, while the last occurred also between Lower Malden and Steer Lane in the same district of Surrey. On July 2nd South found E. cyathigerum at Elstree in Middlesex, while on July 7th Balcomb and myself found L. depressa and E. cyathigerum between Horsley Station and the Sheepleas (Surrey), the former occurring again the same day between Netley Heath and Horsley. On July 18th Æ. grandis was seen in the dull afternoon on the wing in the station at
Kingston-on-Thames. *I. elegans* (two males and a female) was taken in July at Moreton in Cheshire (Standen) for the Lancashire and Cheshire Fauna records.

In the New Forest from July 28th to September 11th about seventeen species of dragonflies were met with. At Duck-hole Bog, between Rhinefield and Wilverley, a female of *Sympetrum scoticum*, Don., was noticed on August 2nd in the process of emerging from the nymph-skin, the wings being only partly expanded. Both were brought away, although the imago naturally, under these circumstances, became a cripple; they were put together in formalin. It is clear that in this instance *S. scoticum* was breeding in the bog, since it was emerging at the edge of one of the small watery bog-holes. At Briken Wood on August 12th I saw a partly developed *Sympetrum striolatum*, Charp., that had met with a misfortune in emerging and fallen alive into the water. Near it was the empty nymph-skin, which, with the cripple, I placed in formalin. Since such chances as these constitute one of the methods of identifying dragonfly nymphs, the skin and its late occupant should always be secured when the opportunity offers.

At the shallow "shade-pond" at the Apsley Passage of Oberwater I took on August 5th a female *Gomphus vulgatissimus*, Linn.—a very late date for the species. She appeared to be ovipositing, but as I wished to be certain of a capture, I did not ascertain. I could find no eggs, however, when eviscerating the specimen previous to setting it. It seemed quite fresh, and may possibly have been an abnormally late emergence. Two days later at the same pond I took a nice male *Orthetrum cancellatum*, Linn., of which I had previously taken but one specimen in the Forest (in Dames Slough Inclosure). I have more than once seen *L. depressa* at this pond; possibly some might have been unsuspected examples of the scarcer species.

On August 7th, at Duck-hole Bog, I took two male *Agrion mercuriale*, Charp., and saw no others. They should not be over or even scarce by that date; but those were all I was able to find in two days' search, so I concluded that the rains had played havoc with them. I could find no trace of *Ischnura pumilio*, Charp., at all during my stay in the Forest. *P. pennipes* and *Pyrrhosoma tenellum*, Vill., were common enough.

Dragonflies, with their prey in a recognisable condition, were secured on three occasions. At Blackwater on August 9th a female *Cordulegaster annulatus*, Latr., had captured a male Humble-bee, *Bombus lucorum*, Linn. So intent was it on its meal that I almost caught as it flew by. It immediately settled on a bush, whence I was able to take it by its wings; and it was a bright morning too. On two previous occasions I had taken this species with its prey—in each case a wasp. Again, on August 31st, I captured the same species (a male) with its prey.
almost at the same spot. This time it had secured a male *Sphecodes pilifrons*, Thoms.—also an Acalante hymenopteron. A female *S. scoticum* was caught, on August 10th, feeding on a small Dipteron—a female of the Syrphid *Melanostoma melinum*, Linn.*

On August 10th I paid a visit to Crockford Pond to see if by any chance *Sym pretus* fen-colombii, Selys, or any other migrant dragonfly was present, but found none. Those seen were: *S. striolatum*; *S. scoticum*; *Orthetrum arenulcescens*, Fabr. *I. elegans*, and its var. *infuscens*, Leach; and *P. tenellum*, one.

That interesting locality, Marlborough Deeps, was visited on August 16th, when the dragonflies met with were: *E. cyathigerum*; *L. sponsa*, common; *P. tenellum*, one; *S. striolatum*, common; *O. arenulcescens*, one, apparently but recently emerged: *C. annulatus*, one, at rest as the sun was not shining; and *Eschna cyanea*, Müll. Of the last I caught four. *Æschnas* were, in fact, numerous, but whether all were of this species I am not certain, as they are not always easily distinguished on the wing.

Towards the end of August and at the beginning of September, dragonflies were less frequent, as was to be expected, this being the time chiefly for the late species—*Æschnas* and *Sym pretus*. *C. annulatus*, however, remained fairly common. On September 6th, near Denny Bog, *S. scoticum* was plentiful; *S. striolatum* was also found commonly that day, and a couple of *Æschnas* were seen. *S. striolatum* in September and October is a very common insect in the New Forest. On September 10th, at the sandhills in the south-west corner of the Forest, an *Æschna cyanea*, Linn. (judging by a sight of it when it settled), kept flying round and near me. It was busily feeding, but as I had no net I failed to secure it. Not every insect was accepted as prey, for it let one go that it attacked. Suddenly a hawk, or some such large bird, flew up from the further side of the sand-hill and made for the dragonfly, but failed in its stroke, or saw me and turned away. Possibly it may have taken the insect for a small bird, and, having seen its mistake, did not take it; or, could it have been intending to make the dragonfly its prey?

Mr. E. B. Nevinson tells me that he took his first *A. imperator* at Oxshott, Surrey, on June 9th. On July 12th it was abundant locally in the New Forest, Mr. Le Marchant and himself taking eleven in half an hour. He captured a female *Æschna mixta*, Latr., at Surbiton in a garden near the station on August 14th, and sixteen males, September 8th—29th, at Oxshott and Ockham. He also took a male *L. quadriramaeulata* at the Black Pond, Surrey, on September 16th, a very late date for the species. A female *E. grandis* was secured by him on September 29th.

* In all three cases the prey was named for me by Mr. A. H. Hamm, and the insects were added to Prof. Poulton's collection of "Predaceous Insects and their Prey."
Mr. W. Evans records *Æ. juncce* near Peaton, in Dumbartonshire, on September 17th, and sends an interesting list of dragonflies caught or seen by his son, Lieut. W. E. Evans, at Cannock Chase, in Staffordshire: *Æ. juncce*, a male caught at Rugeley Camp, July 21st. *Æ. grandis*, one watched for some time at Norton Bog, July 3rd, but not captured. *P. nymphula*, settling in numbers on alders close to a shallow pond in Sherbrook Valley, near Brockton, May 28th (two males and two females sent to Mr. Evans were "teneral"); one male in Sherbrook Valley, June 4th, also teneral; one male at Rugeley Camp, June 17th. *I. elvans*, two males and two females from Sherbrook Valley, June 4th; a male and a somewhat teneral female from a pond in Brindley Valley, near Hednesford, June 5th; two males (one teneral) and five females (all teneral) at Upper Sherbrook Pond, June 7th. *A. pumella*, a male at a wayside pool near Chartley Park, June 30th; a male at Beaudesert, July 1st. *E. cyathigeraum*, a few of both sexes settling on rushes near a shallow pond in Sherbrook Valley, May 28th (a female sent to Mr. Evans was teneral): four males and two females, all more or less teneral, at Lower Sherbrook Pond, June 7th, (they were abundant that day, but no *P. nymphula* were seen, although they were numerous at this pond on May 28th); a female, north of Rugeley Camp, June 19th; a male at Norton Bog, July 3rd. He also took a female *E. cyathigeraum* at Dovedale, in Derbyshire, on July 7th.

Kingston-on-Thames;
June, 1918.

A NEW SPECIES OF *LEPIDIOTA* FROM NORTHERN QUEENSLAND.

BY A. A. GIRAULT.


*Female.*—Like *frenchi*, with which compared, but larger; dorsal prothorax and base of elytron very dark brown, thence shading into reddish, thus not uniform; joints 6-7 of male antenna shorter than in the female, also club longer in proportion; teeth on outer edge of front tibia obtuse and not equidistant; scaly areas on venter of abdomen 2-5 much narrower widely across meson, in the middle segments not nearly covering the segment. Gordonvale.

In the larva, the patch or naked area on the distal venter is not ovate and closed, but flask-shaped and open cephalad; also the head is wider.

Messrs. Edmund Jarvis and A. P. Dodd first pointed out the above characteristics of this species (see Bureau Sugar Experiment Stations of Queensland, Bulletins Nos. 5 and 6, heir No. 683). Types in Queensland Museum.
NOTE ON AZANUS UBALDUS, CR.

By Capt. P. P. Graves, F.E.S.

Further to my notes on Azanus ubaldus, Cr., published in the 'Entomologist,' p. 98, et seq., I have received the following communication from Dr. Bronislaw Debski of Helwán:

"December 19th, 1909.—A battered specimen of above, taken while flying about blossom of Cajanus indicus (Leguminosae) in the garden of the Villa Wanda, Helwán.

"1916.—Sept. 24th, 1 ♂ None in good order; all on
Oct. 6th, 4 ♂
Oct. 7th, 1 ♂
Oct. 9th, 2 ♂, 1 ♀

"Oct. 15th, 4 ♂
Oct. 18th, 2 ♂, 2 ♀
Oct. 21st, 1 ♂, 1 ♀
Oct. 22nd, 1 ♂, 1 ♀
Oct. 24th, 1 ♂

"Flying round the tree of Acacia farnesiana in the garden of the Hotel des Bains, Helwán.

"On October 16th, 1916, I found several empty Lycænid ova on the buds of A. farnesiana, and two from which no larva had emerged. On October 22nd, 1916, I found larvae frequent on the inflorescent buds of A. farnesiana. A larva 2·5 mm. in length on that date was 7 mm. long on October 26th, 8·5 mm. on October 28th, and pupated on October 30th. The butterfly emerged on November 7th."

Dr. Debski suggests that the rather battered A. ubaldus found in September and early October on and near A. farnesiana are immigrants bred on Acacia nilotica, and perhaps A. tortilis, which is usually a desert tree.

It is certainly noteworthy that A. tortilis or A. seyyal, with A. nilotica, occurred at Kassassin, where I took A. ubaldus (very worn ♀) in early October, 1916, but no A. farnesiana.

NOTES AND OBSERVATIONS.

Correction Corrected—CÆNONYMPHA TIPHON IN DURHAM.—I owe Prof. Heslop Harrison an apology. The "Durham" locality for C. tiphon, cited by me (footnote, p. 150, antea), is in Northumberland; and his statement that this butterfly has not been reported hitherto from a Durham locality, therefore, holds good. This is a good opportunity, also, to point out that, in my paper in 'Lépidoptérologie Comparée,' the Lough Fea locality should be placed in County Derry.—H. Rowland-Brown.

PAPILIO MACHAON, AB.—Last year Capt. Bagwell Purefoy very kindly sent me some Wicken stock P. machaon larvae, which I reared on carrot. As it was likely that I should be away from home at the
normal time of emergence, I distributed the majority of the pupae among my correspondents. I kept about a dozen, however, and among the imagines I find one extremely beautiful male aberration. The others are more or less typical in both sexes, with the red costal spot on the hind wings, in two instances, well developed. The fore wings of the male aberration are much narrower than usual and taper towards the apex. The marginal line of primrose spots is intact, but the black ante-marginal band invades the whole area outside the discoidal cell, the normal median primrose being represented by very small, asymmetrical blotches. The hind wings are normal, and without the red costal spot. I assume this to be a transitory form in the direction of var. *hippocrates*, Feld. (‘Entomologist,’ xxiv, p. 82). I may add, as a warning, that the colour of one or two examples left too long during my absence, under the influence of ammonia, suffered a change from clear primrose to a dull ochre, rather suggestive of some var. *burdigalensis*, Trim., I have seen in collections abroad.—H. Rowland-Brown; Harrow-Weald, July 14th, 1918.

Unusual Pupation of *Zygæna filipendulae.*—While walking under the foot of St. Bees Head at high-water last June, I was interested to observe a number of the cocoons of *Z. filipendulae* attached to the rocks and boulders at the foot of the cliffs, just above high-water mark, within two or three yards of the waves. Some of the larvae were also crawling over the boulders, preparing to pupate. The nearest vegetation on the side of the cliff was perhaps three or four yards above. As this species usually pupates on a grass stem or twig of heather, perhaps the readers of this Journal may regard this method of pupation as unusual. *Chiasmia clathrata* also occurs in the hedgerows at St. Bees, and in that locality the ground colour of the insect is invariably pure white. In my own locality, near Carlisle, wherever this species occurs, the ground colour ranges from dirty white to an ochreous colour. On mentioning this fact to an old entomological friend, he remarked that wherever he had taken *clathrata* on the coast, he had noticed that the ground colour was always a pure white, but that in inland localities it always tended more or less to the ochreous shade. Does this experience agree with that of other collectors?—H. D. Ford; Thursby Vicarage, Carlisle.

Devastation of Oak Trees by Spring Larve and After.—Some five weeks ago I wrote of the denudation of the oak trees in the Tilgate Forest district (*antea*, 161). Then hardly a green oak leaf was to be seen, now those same trees are leafing again and have much the same appearance as they had in the middle of May before the attack by the larvae commenced. It is to be hoped, therefore, that no serious damage has been caused to the trees beyond possibly a temporary cessation of growth.—Robert Adkin; Eastbourne, July 6th, 1918.

*Tortrix viridana* Eaten by Birds.—Mr. Rowland-Brown’s note of the service done by starlings in the destruction of this pest (*antea*, p. 162), brings to my mind that, at the last meeting of the South London Entomological and Natural History Society, Mr. Harry Moore exhibited some four dozen pupæ of *Tortrix viridana* that had been taken from the gullet and crop of a recently shot jay.—Robert Adkin; July 6th, 1918.
PONTIA (PIERIS) DAPLIDICE IN HERTS.—On May 27th last I caught a male specimen of *Pieris daplidice* in a wood not far from Watford.
—LESLIE DUDLEY; Wentworth, The Avenue, Bushey Grove, Watford.

MELIThea ATHALIA IN GLOUCESTERSHIRE.—It may be interesting to record that a specimen of *M. athalia* was taken on the Cotswolds, near Gloucester, on June 21st, by a young officer from Cambridge. It was shown to me and was in fine condition. I am not aware that the species has ever been taken in this county before. *Lycaena arion* was early this year, for I saw a worm specimen on the 13th ult.—C. GRANVILLE CLUTTERBUCK, F.E.S., 23, Heathville Road, Gloucester, July 18th, 1918.

VANESSA ANTIOPA IN Sutherland.—In the 'Field,' June 15th, Mr. W. A. Burwell records having seen, on June 3rd, about 4.30 p.m., a fine specimen of *V. antiopa*; it flew by him within two or three yards several times, and he observed the margins of the wings were very light in colour, and he again saw it the following day at the same place and at about the same time. He writes from Strathnaver, Sutherland, N.B. : “From the number of specimens recorded in Scotland during the past spring it appears likely that a vernal immigration of this species may have taken place, as usually hibernated specimens are of very rare occurrence in Britain.”—F. W. FROHAWK.

AGROTRIS SIMULANS NEAR OXFORD.—On June 15th last I found a fine female of *Agrotris simulans* (pyrophila) in my bedroom, evidently only just out. It had probably come into light on the previous evening. I do not know whether it has previously been recorded from this district; I took it several times at Portland about thirty years ago; but the nearest recorded locality to Oxford that I can find is in the Cotswolds.—A. W. PICKARD-CAMBRIDGE; St. Catherine's, Headington Hill, Oxford.

BUTTERFLIES IN ABBOTS WOOD, SUSSEX.—I spent about two hours and a half with a net in Abbots Wood, near Eastbourne, on July 7th. *L. sibylla*, *D. paphia*, *M. galatea*, *A. hyperanthus*, and *E. Ianira* abounded. With the exception of *Ianira* and *Hyperanthus*, *Sibylla* was the commonest fly in the wood. We took in all about thirty beautifully fresh specimens of this butterfly.—W. G. HARDING, F.L.S., F.E.S.; Aeshan, St. Vincent's, Eastbourne.

[*L. sibylla* was noted in the New Forest on June 15th. During the first week of July the species was abundant at blackberry flowers, especially in the Hurst Hill enclosure.—Ed.]

HYLOPHILA BICOLORANA AT SHOOTERS HILL.—On June 13th I collected a cocoon of *H. bicolorana* from which a male emerged on June 27th. The cocoon was on the under side of a beech leaf, and the nearest oak or birch was quite twenty yards away.—GEORGE H. HENSHALL, junior; 19, Greenvale Road, Eltham, S.E. 9.

XYLOMYGES CONSPICILLARIS.—For the purpose of rearing a brood of larvae of *X. conspicillaris* I recently dug up and potted a large turf of *Lotus corniculatus*. In this were several plants of broad-leaved plantain (*P. major*), and I find the larvae are eating this even more
readily perhaps than the *Lotus*.—PERCY C. REID; Feering Bury, Kelvedon.

**Eupithecia pusillata in Cambridgeshire.**—Amongst several interesting "Pugs" taken by me this spring occurs *E. pusillata*. It was beaten out of a small spruce-fir growing between beech-trees in a chalk-pit near Shelford and is a male in fine condition—the first of the species I have seen in this neighbourhood—so thought a record would be of interest.—HUGH PERCY JONES; 19, Tenison Avenue, Cambridge.

**Geometra vernaria in Ireland.**—During the first week of July this year two males and a female of this species were captured in the garden at Roan House, Coalisland, co. Tyrone, by Mr. J. S. Wilson and myself.—G. COUTLER.

**Colias edusa in Ireland.**—On June 5th, 1918, I observed a specimen of *C. edusa* flying through Ranelagh Road, Dublin, and on the 6th I observed another in Harcourt Street, Dublin.—G. COUTLER.

**Turnip Flea-Beetles—Wireworms.**—In reference to Mr. Walsh’s inquiry in the June number of *The Entomologist,* *Phyllotreta nemorum,* L., does not appear to be a common turnip pest in this district. My field of observation has not been a very wide one so far as turnip flea-beetles are concerned, but, speaking at least for the farm attached to the Experimental Station, the commonest flea-beetles found on turnips are *P. undulata* and *P. vittula,* Redt. I have not identified any specimen of *P. nemorum.* In Westmorland also, in the district between Windermere and Kendal, my experience corresponds with Mr. Walsh’s in finding *P. undulata* to be the common turnip flea-beetle. I should further like to ask for information in regard to the occurrence and relative abundance of the common species of *Agriotes.* *A. lineatus* is frequently referred to as one of the common wireworms. Locally this may be so, but in this part of Hertfordshire I have been unable to find it, the common species of wireworms being *A. obscurus* and *A. sputator.* I gather from several correspondents in different counties in the South of England that *A. lineatus* is not so common as had been supposed, and it seems desirable to obtain what information is available of well-authenticated records of its present distribution and abundance relative to the other two species named. Ford (‘Ann. App. Biol.’, iii, (1917), 114) found the common wireworm in Cheshire, North Staffordshire, and South Lancashire to be the larva of *A. obscurus,* and in Westmorland my experience has been the same. *A. sputator* is recorded from the area mentioned by Ford, but probably its numbers are not so great as to constitute it a serious pest. I have not found it in Westmorland, though it may perhaps occur in localities which I have not worked. With regard to the other species of *Agriotes,* *A. sobrinus* and *A. palidulus* are found here fairly commonly by sweeping or searching the early umbelliferous flowers. Though it does not at present seem likely that they are to be classed among the dangerous pests, it would be interesting to have details of their distribution.—A. W. RYMER ROBERTS; Rothamsted Experimental Station, Harpenden.

**Strange Nest of Odynerus sp.**—A friend on active service in
France writes under date June 26th: "When I was at G.H.Q. last week, a man told me that his razor case had a hole in the top of it, and on opening it one day, a thing 'that looked like a wasp' flew out. The next day the same thing happened, and he also found some earth on the case. He threw this away, and next day the wasp again flew out, and again there was earth, and also two green caterpillars about half an inch long. He threw them away. Next day there was no wasp, but more earth, and again two green caterpillars. Then he closed up the hole where the razor case was broken, and that is the end of the story." I mentioned the occurrence to the Rev. F. D. Morice, and he says the wasp-like insect was, no doubt, a wasp. It would be an *Odynerus*, and probably of the "*Ancistrocerus*" group, several of which make clay nests in holes of various kinds, and store them with green larva as provision for their offspring. The spot chosen for the nest, however, is somewhat uncommon, as the razor case apparently was in use.

-H. R.-B.

**Gnorimus nobilis**, Linn., at Ealing.—On June 7th I took a specimen of this rare and beautiful Trichiid beetle in the garden here, where it was found embedded in the heart of a well-developed rose of the kind called "Harry Kirk." I have not succeeded, however, in discovering the breeding-place of the species, and, although I have made repeated searches for the beetle in the most favourable circumstances, I have never met with it again. My specimen has been placed in the collection of British Coleoptera at the British Museum (Natural History).—F. W. Campion; 58, Ranelagh Road, Ealing, W. 5.

**Panchlora exoleta**.—It may be of interest to record the capture of an example of *P. exoleta* among bananas received at Etherley Hospital, co. Durham, in July, 1917, where I was then nursing. I am indebted to Mr. Rowland-Brown and Mr. Distant for its identification.—B. A. Conk; V.A.D. Hospital, Daventry, Northants, June 14th, 1918.

**Sugaring.**—Your correspondent, Mr. A. E. Burras, may possibly be interested in a few conclusions I long ago arrived at, after many years' experience of sugaring on the Devon coast and elsewhere. I have tried all sorts of mixtures—combinations of different treacle, sugars, syrups, stewed fruits, and jams, with and without rum, methylated spirits, beer, and various synthetic essences. As a result, I am inclined to think that, provided a reasonably sweet material of some such kind be used, the only thing that matters is—the weather! All my sugaring in later years up to the time of the outbreak of war (after which, of course, no light was allowed on the coast), was done with common treacle thinned with beer, and a small quantity of rum added just before use. It is little trouble to prepare. An old collector I knew placed great faith in the beer, and I am inclined to agree with him. But the weather is the really important factor, and on some nights moths will come to almost any sweet stuff. I have had good catches with golden syrup and nothing else, and blank nights with the most carefully prepared mixtures. I have no faith in essences;
at least, I have got on no better with than without them. In the autumn of 1898 I was sugaring one night with common treacle thinned with methylated spirits—nothing else. It was cold and so windy I could hardly keep my lamp alight; nevertheless, I boxed five Heliothis armigera in about as many minutes. In turning up my diary for 1900—the most remarkable year for sugaring I have ever known—I see that September 17th is specially mentioned as being the best night I ever experienced in my life. I well remember it for several reasons, principally, I suppose, because of the night's "bag," but also because it was a very beautiful evening—still and very warm, with a gorgeous sunset. I had not intended going out, but the weather conditions seemed so favourable that I could not resist the attraction of the cliffs; so, hastily procuring a pot of ordinary treacle and a modicum of rum, off I set for a two-mile walk to the scene of action. That night, insects positively swarmed, and I had the satisfaction of taking besides other good species, several Leucania albipuncta, L. vitellina, Laphygma exigua, and H. armigera. I had never previously taken these four insects together on one night. As to what constitute favourable conditions, who can say? Like other collectors, probably, I have found some nights, apparently the most likely, to be quite unproductive. And, again, I have had great sport with quite a keen north-west wind blowing, together with heavy showers. Speaking generally, however, windy nights are unsatisfactory. But sometimes throughout certain years sugar seems specially attractive, whatever the weather: 1900 and 1906, for instance, were remarkable in this respect. The former year, as mentioned above, was a record one. Yet September, 1906, was extraordinary in some ways. Most collectors would be glad of an evening which produced between forty and fifty L. exigua. I had the good fortune to get them, and a friend working near by took thirty-two the same night. As regards a vehicle to carry the sugar I always used what was most convenient. I have sugared positively miles of flower heads for Leucania putrescens and other coast insects; but besides being a very messy and back-aching operation, it is quite unnecessary if there are any posts or palings upon which you can put the sweets. I got more putrescens (all I wanted, in fact) by sugaring the latter than from sugared flowers. And here I come to what I think an important point about this method of collecting, viz. the cumulative effect of continually sugaring in one district or one run of posts or trees. The greatest successes I have known in this way—the rarest insects and the greatest number of them, too—have occurred to a man I know who continually sugars the same run every suitable night, from spring to autumn. It is not a particularly long stretch, nor particularly selected for its position; but it happens to be the nearest to the town where he lives, and he has consequently made it his own, so to speak. I have worked the same piece of coast further on, where conditions might reasonably be supposed to be even better than those nearer the town; but he has taken insects that I have never seen at my sugar, and I attribute his success to the fact that his run is so often sugared that it has become peculiarly attractive. "Go farther and fare worse" is a motto well
worth a collector's serious attention. I remember being crazy to take *Dasycampa rubiginea* at sallows, and trampling miles for the purpose. Well, I got it; or I might say, them, for I have taken a good many; but one evening I shook a sallow bush in a hedge close to my front door and right in the town, and down came a beautiful *rubiginea*!—C. M. Mayor; Bank House, Dawlish, South Devon.

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**SOCIETIES.**

The South London Entomological and Natural History Society.—May 23rd.—Mr. Stanley Edwards, F.L.S., President, in the chair.—Mr. Main exhibited the pupa of *Ocyrus olens* (Col.) in the pupal chamber and pointed out the strong spines which prevented direct contact with the earthen sides. He also showed the larva of *Timarcha tenebricosa* ready for pupation on its back in the cell.—Mr. Ashdown, Albin's 'Natural History of English Insects,' 1720, one of the first coloured English entomological works.—Mr. Dennis, stereoscopic slides of *Tortrix cristana*, etc.—Mr. Main, *Anopheles bifurcatus* and other mosquitoes.—Mr. Adkin asked for support for the 'Wicken Fen Fund,' indicating the object of the Fund and what had been done so far. The remainder of the evening was spent in an exhibit and discussion of *Minas tiliae*, introduced by Mr. Sperring.—Messrs. Leeds, R. Adkin, and Sperring exhibited their series of *M. tiliae*.—Mr. Leeds, a wild captured ab. *suffusa* and a number of ab. *maculata*. Mr. R. Adkin, series of local races, a long graduated series of modifications of the central transverse bands, and gynandromorphous examples.—Mr. Sperring then read his notes dealing with nomenclature (shortly), Ova, Larva, Pupa, Time of Emergence, Forcing, Assembling, Pairing and Variation, the last in some detail. A discussion ensued, Messrs. R. Adkin, B. Adkin, S. Edwards, W. West, Dennis, Main, and others taking part. *Minas tiliae* was noted as being a very common suburban insect in the larval stage, until recently invariably attached to lime trees, feeding well on birch, formerly common in the pupal stage at the foot of oaks in Greenwich Park, recently commonly attached to elms, always small when bred from elm trees, occurring in Hyams Park on alder, etc.—H. J. Turner (Hon. Ed. of Proceedings).

June 13th, 1918.—Mr. Stanley Edwards, F.L.S., President, in the chair.—Prof. F. A. Dixey, M.A., M.D., F.R.S., was elected an Honorary Member. The evening was mainly devoted to an Exhibition of Living Specimens of Natural History.—Mr. Ashdown exhibited living larvae of *Anatis ocellata* (Col.), and living imagines of *Rhagium inquisitor* (Col.).—Mr. R. Adkin, winter nests and living larvae of *Epipactis simulis* (anriflu) and of *E. chrysorrhea*, the one solitary in hibernation, the other gregarious; and also living *Scoparia dubitalis* and its white form, to show the Depressaria-like attitude of the latter.—Mr. H. Main, various early stages of *Chrysomela graminis* in tansy, of *Timarcha violaceonigra* on wood-ruff, of *Timarcha tenebricosa*, of *Necrophorus mortuorum* (all Col.), of *Gastrophila equi* (Dip.), of *Podisus luridus* (Hem.), of *Pseudoterpnia pruinata*
and Coleophora genisae on petty-whin, and of Dasychira pudibunda.
—Mr. Dennis, living larvae of Diceranura vinula feeding on aspen, and
stereoscopic slides.—Mr. K. G. Blair, various early stages of the mos-
quitoes Anopheles maculipennis, A. bifasciatus, and Culex pipiens; of
the wasp Odynerus spinipes, of the beetles Lena melanopa, and the two
sexes of Ptilinus pectinicornis, and, on behalf of Mr. F. W. Campion,
the rare beetle Gnirinmus nobilis, from Ealing.—Mr. H. Moore, a living
Agniades syzoyanus, and seasonal forms of the American Papilio
marcellus (ajar) the spiny form, and form telamoides, the late spring
form, a transition to lecontei (marcellus) the summer form.—Mr.
Hy. J. Turner, Pyrameis atalanta, with pale red bands, from W.
Cornwall and Ireland.—Mr. F. W. Frohawk, the rare Trichius
fasciatus (Col.) from S. Wales, a male Euvanessa antiope from N.
Britain, a series of female Pieris brassicae show gradation in the
development of a band on the fore wings, one example having a
black spot on the hind wing.—Mr. Lachlan Gibb, the very rare yellow
form of Pieris rapae from Canada.—Mr. Neave, a partially banded
Pieris brassicae, bred from nasturtium.—Mr. Simms, larvae of Ruralis
betulae and Strymon pratii.—Mr. Edwards, a Calosoma sycophanta
from Epping Forest.—H. J. TURNER (Hon. Ed. of Proceedings).

June 27th, 1918.—Mr. S. Edwards, P. L. S., President, in the chair.
—Mr. Main exhibited the stalked seeds of Geranium robertianum
attached to leaves, etc., near the ground, much resembling ova of
insect species.—Mr. Moore (for Mr. Cooke), living Tortrix viridana
which had emerged from a mass of pupa taken from the throat and
stomach of a dead jay.—Mr. Priske, the rare blue form of the beetle
Calosoma inquisitor, the egg-mass of the water-beetle Hydrophilus
piceus beneath a Potamogeton leaf, and pointed out the "mast."—
Mr. Neave, an extremely pale brown form of Hesperia malva and an
example of Polyommatus icarus ab. icarintus.—Mr. Sperring, aberrations
of underside Agriades thetis from Cuxton; one with unusually
dark and well-developed submarginal spots, another with somewhat
sagtattate spots, and another deficient in the basal spots.—Mr. Main
noted that Ptychopoda (Icidalia) aevsata, male, rested on the four
front legs with the hind legs extended backwards.—Mr. Turner (for
Dr. Chapman), a larva of the W. American Orgyia, O. vetusta, from
California.—Mr. B. W. Adkin (for Mr. E. B. Kershaw), an example of
Lyceena arion, with all markings absent except the discoidal spot
and the marginal spots; also a specimen of the Hong Kong butterfly,
Clerone eumenes, belonging to the Morphinae. The rest of the evening
was devoted to the exhibition and discussion of Ematurga atomaria.
—Mr. R. Adkin exhibited series from many parts of the British Isles,
including a unicolorous dark brown male from Epping Forest, and
the Lancashire dark form.—Mr. B. W. Adkin, races from many
southern localities, and a blackish-brown race from Durham.
Mr. Ashdown, series from Surrey with the yellow Swiss form for
comparison.—Mr. Leeds, series from the Midlands, one having a
bright yellow ground.—Mr. Burnett, pale examples from the Fens
and various series from the Surrey hills.—Mr. H. J. Turner, British
forms, and a series from various places in France, Italy, Switzerland,
and Germany, showing the strong sexual divergence in colour in the
former and the strong sexual convergence in colour in the latter.
series. He then read a paper dealing with the named forms, and summarising the lines of variation.—Hy. J. Turner (Hon. Report Editor).

RECENT LITERATURE.


Mr. C. W. Bracken has followed up his account of the Orthoptera of Devon by a very interesting paper on the Diptera of the county, read at Barnstaple on July 25th, 1917. The author states that he is not equally conversant with all the families of this great Order, consequently his paper is, to some extent, a preliminary one. After referring to the literature of the subject and giving a short account of the Order as a whole, certain families of the Brachyereae are dealt with in detail—Stratiomyidae, Tabanidae, Oestridae, Leptidae, Asilidae, Bombylidae, Therevidae, Scenopinidie, and Cyrtidae. There is evidently much good work left for Mr. Bracken to do before the bulk of the Diptera of Devon can be said to be well known.—W. J. L.


I have received from M. Melou a brochure which should be useful to entomologists interested in the investigation of the Lepidoptera peculiar to the regions indicated. M. Melou is a schoolmaster in the French Colonial Service, and he occupies his leisure in the study and in the field on a grand scale. By organising the natives he claims to have collected 170,000 Heterocera and 30,000 other insects in a period of eight months, and by way of assurance that these wholesale methods do not jeopardise the existence of species, he tells us that a single small bat will destroy 200 moths in a single night, and this regularly throughout the course of its natural life. He has declared war, therefore, on the Cheiroptera. M. Melou states that the natives take kindly and quickly to the work, and are special adepts at packing for postage, the majority of his captures finding their way to England. He is, however, not merely a collector. In this pamphlet he poses several interesting problems, and sets out the results of his experiments in connection therewith, among them whether certain heterocerous females, which remain more or less stationary, attract the males by means of the fluid excreted on emergence from the pupa. He asks for observations on the subject, but I am not aware that it has been handled by British lepidopterists, at all events. If so, perhaps some reader of the ‘Entomologist’ will oblige with a reference. Finally, M. Melou asks to be put into direct communication with students and amateurs. His desire is to dispense with the intermediary dealer and to establish a Cabinet entomologique of the rich French colonial fauna where his operations are conducted. His present address is Mananjary, Madagascar.—H. R.-B.
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L. W. NEWMAN, F.E.S., BEXLEY, KENT.
A NEW SPECIES OF THE GENUS PARALLELIA, HÜBN., FROM THE PHILIPPINES.

By A. E. Wileman and Richard South.

Sect. 3. Termen of hind wing in the male strongly lobed about middle, thus agreeing with the Stenopis section of the genus Anna, Walker.

Parallelia postica, sp. n.

♂. Head, thorax, and abdomen dark olive-brown, becoming greyish-brown towards anal extremity of the abdomen. Fore wings dark olive-brown to the postmedial line and apex; costa marked with pale brown towards apex; medial band broad, whitish, clouded with brownish, the inner edge straight and the outer edge incurved, a black dot between veins 5 and 6; postmedial line whitish, outwardly oblique to vein 6, thence incurved to dorsum, terminating close to outer edge of the medial band; apical area beyond oblique portion of postmedial line dark olive-brown, terminal area paler brown; sub-terminal line darker, wavy; terminal line blackish, indistinct; black dots on termen between the veins; fringes slightly paler than the terminal area. Hind wings olive-brown, of a paler shade than fore wings, traversed by an oblique whitish band, the edges of which are diffused; terminal area paler brown, a black spot between veins 2–3 and a whitish dot above it; terminal line and fringes as on fore wings. Under side ochreous-brown, powdered with darker brown, except on lower half of medial area of fore wings; clouded with blackish on terminal and basal areas of fore wings, and on terminal area of hind wings; all wings have a blackish discal dot and three transverse lines beyond.

♀. Similar to the male in marking, but the termen of hind wings are not lobed; the areas beyond subterminal line and also the fringes are greyish on all wings, and the black dots on termen of fore wings more distinct.

Expanse, 84 mm.

Haight's Place, Panai, subprov. Benguet, Luzon (7000 ft.)

A male specimen taken on the 1st and a female on the 2nd of December, 1912.

In colour and marking comes nearest to P. crameri, Moore.
BUTTERFLIES COLLECTED IN THE PYRÉNÉES-ORIENTALES IN 1917 AND 1918.

By James R. McClymont.

This paper records the species and varieties captured by me in 1917 and 1918 in the vicinity of Amélie-les-Bains and of La Preste, both of which places are situated to the south of the Canigou agglomeration. Forms which I had taken at Vernet-les-Bains in 1916 are not invariably mentioned a second time. When the example is of the same species or variety but of differing sex it is mentioned a second time. Certain species and varieties which had been captured at Vernet-les-Bains in the month of July, 1916, were observed at Amélie-les-Bains in June of the following year. Amongst these were A. crategi, C. edusa. G. rhamni, L. camilla, P. mœra var. adrasta, and E. pasiphaë. Others which had been captured at Vernet-les-Bains in July were observed at Amélie-les-Bains in June, and also at La Preste in July. Amongst these were V. io and A. aglaia. Yet others, captured at Vernet-les-Bains in July, were observed at La Preste also in July. Amongst these were P. c-album, C. dorilis, and C. phleas. Finally C. hyale, captured in the month of September near Menton, and L. boeticus, captured there in October, and also P. machaon and G. cleopatra, captured there in the month of April, were all observed at La Preste in July, 1917. I take this opportunity of adding Nomiadas sebrus to the species captured near Menton in May, 1917. In 1917 I began to collect at Amélie-les-Bains on June 11th, and collected until June 23rd, when I went to La Preste, where I collected from June 25th to August 6th, with the exception of a few days at Camprodon in July, where I caught Everes argiades, a butterfly which has been said not to exist in Spain. I resumed at Amélie-les-Bains on August 7th, and ceased to collect on August 18th. This year (1918) I collected a few examples at Amélie-les-Bains in May.

Some remarks, addressed especially to elderly entomologists who may visit the elevated portions of this district, may not be out of place here. About the middle of July, 1917, I accompanied two Spanish muleteers, who were returning with three mules from Prats-de-Mollo to Camprodon. The route followed was across the Col Pregon (5365 ft.), which I had ascended several times on foot as far as the Franco-Spanish frontier looking for Erebia, which I obtained, and for Colias philomone, which I neither obtained nor saw. E. antiopa was very plentiful near the summit of the col on the Spanish side. My ride was by no means a pleasant one, for the gait of a tall, lanky mule resembles that of a camel, and a sheepskin pack-saddle is an uncomfortable seat. After leaving Mollo we were overtaken by rain, which fell in torrents, and continued until we reached Camprodon. These
sudden rainstorms must be reckoned as one of the disadvantages attendant upon collecting in the Pyrenees. A disadvantage attendant upon the collecting of mountain species in general is that, when a man past middle life has climbed 1500 or 2000 ft., the necessity of sitting down to rest (if weather permits) is forced upon him, and he is not in a fit condition to run down mountain butterflies, for some species are so shy that they can be approached in no other manner.

As our Government has re-arranged the hours of the day and night, let us, imitating it, re-arrange the years, and begin with May and June, 1918, following these with June, July, and August, 1917. We thus obtain a rudimentary lepidopterist’s calendar as follows: The season began most auspiciously. I caught in May Thais rumina, var. medesicaste (the only one seen alive), E. antiopa (taken also at Perpignan in March), a Hesperii, and Melitaea phæbe. The Hesperii closely resembles P. sao, if it is not a form of that species. The under surface of the hind wings is dull reddish-brown with pearly white spots, and the nervures, being of a much lighter brown than the ground colour, appear very distinctly. Another example, taken in the same locality in August, is more brightly coloured underneath. I think that the example which I took at Vernet-les-Bains, being smaller and much paler, is probably merely a form of sao.

In June, 1918, the principal capture made at Amélie-les-Bains has been a podalirius which I have good reason to believe to be var. feisthamelii (June 9th). It is rather above the average size of podalirius, the ground colour is white, the costa and hind margin of the hind wings are yellow which contrasts with the ground colour, the streak above the anal spot is dark chocolate-brown, a line between two black lines on the under surface of the hind wings is paler chocolate-brown, the abdomen is yellowish-white with four interrupted black lines, two underneath, and two at the sides, a broad black stripe above which tapers to a point at the anal extremity. Another example which was caught on May 18th in the same locality differs from that described by its smaller size, and also in having only two abdominal black lines which are uninterrupted, and much thicker than on the other example. The ground colour is not so white. The long tails of the first-mentioned example have a very evident twist which reminds one of the twist in the leaf-stalks of the blue-gum. The other captures made at Amélie-les-Bains in June were Plebeius eogen ęż, Agriades bellargus, ab. ceronus, Cupido minimus ƺ, Melitaea cinxia ƺ, Breathis selene ƺ ƺ, Epinephelus jurtina ƺ, and E. jurtina, var. hispaula ƺ. And at La Prese Parnassius delius ƺ, Agriades hylas ƺ (the hylas captured at Menton was ƺ), Polyommatus melagier ƺ, A. urticae ƺ ƺ, Melitaea cinxia ƺ, B. euphrosyne, Erebia neoridas, Hesperia serratula, and H.
malvce. I observe that there is a red spot surrounded by black near the costa and a red dot in the centre of a large black spot near the inner margin on the under surface of the hind wing of *P. delius* ♂. I name the Hesperiidae with great diffidence knowing the attendant difficulties.

In July at La Preste the majority of my examples were captured and included *P. delius* ♀, *A. crategi* which differed from normal *crategi* by its smaller size and by the peculiar silkiness of the white, *Thecla ilicis*—not, I think, *esculi* for the chain of white spots is distinct on the under surface of the fore wings; the antennae are alternately black and white with fulvous clubs; *P. argus* ♂ ♀, *L. icarus*, var. *icarinus* ♀, *G. lysimon* ♂, *Celastrina argiolus* ♀, *L. arion* ♂ ♀, *L. alcon* ♂ ♀, *Melitea didyma*, having the ground colour a rich red and thus to be distinguished from var. *occidentalis* which is much paler. The other butterflies caught at the same time and place were *Melitea dictymna* ♂ ♀, *Issoria lathonia* ♂ ♀, an *Erebia* (I believe *stygne* ♂ ♀), *E. neoridas*, *E. erias* ♂ ♀, *Aphantopus hyperantus* ♂ ♀, *Cœnonympha iphis* ♀, *Carcharodus laraeterae*, *C. bético*, *Rbr.* (also known as var. *marrubii*), *H. carthami*, *H. alvens*, and (at Camprodon), *P. proto*.

The butterflies captured in August near Amélie-les-Bains were *Pontia daplidice* ♂ ♀, *Zephyrus betulae*, *Melitea didyma* var. *occidentalis* ♂ ♀, *Satyrus statilinus* var. *allionia* ♂ ♀, and *S. julia*.

**SOME OBSERVATIONS ON MR. MCCLYMONT'S CAPTURES.**

**BY H. ROWLAND-BROWN, M.A., F.E.S.**

I sympathise most readily with Mr. Mc Clymont's perplexities in dealing with the black Hesperiid group. Our knowledge of the East-Pyrenean species, however, has been greatly assisted and identification made easier by the researches of Dr. Reverdin and M. Oberthür. I cannot find that *H. malvce* occurs in the Pyrenees. The Skipper, until comparatively recently passing as of this species, is the double-brooded *H. malvoideas*, Elw. and Edw. Mr. Mc Clymont's description of what he takes to be *Pyrgus sao* may very well apply to *H. fritillum* (♀ *cirii*, Rbr.), the distinctness of the nervures on the under side and presence of pearly spots being suggestive of this, also, double-brooded species.

With regard to *Carcharodus bético*, Rbr., this again has been separated specifically from *C. althæae*. The name *marrubii*, Rbr., I think, is *nomen ineditum* (cp. "Notes sur les genres Hesperia et Carcharodus, par le Dr. J. L. Reverdin," 'Bull. Soc. Lépid. Genève,' vol. ii, fasc. 4, 1913).
As a guide to other species than the Hesperiids which had not been worked out at the time of publication, Mr. McClymont will find M. P. Rondou’s ‘Catalogue des Lépids. des Pyrénéées’ of invaluable assistance. I am sure too that if he will write to the author—Instituteur, Gedre, Htes.-Pyrénéées—M. Rondou will be pleased to give him any information he may desire about the lepidoptera of this delectable mountain chain.

*Iphiclides podalirius.*—The type form is replaced by var. *feisthamelii* in the Eastern Pyrénéées, at least as far north as the plain of Rousillon. The forms described here are *gen. vern. miegii* and the typical *gen. æst.*

*Parnassius delius* has never been reported authoritatively from any part of the Pyrénéées. Anatole Carterou, who collected at Céret, not far from Amélie-les-Bains, in the early sixties, and published some diverting and highly unscientific ‘Causeries sur l’Histoire Naturelle’ in 1868, rightly excludes *delius* (= *phœbus*, Prun.,) from the Canigou region, but wrongly includes it with *apollo* and *mnemosyne* in the Hautes-Pyrénéées in the neighbourhood of Montlouis and Saillagousse. I venture to suggest the *Parnassius* captured by Mr. McClymont is one of the forms of *apollo* haunting the district south of Mont Canigou. M. Oberthür describes and figures the Pyrenean races as var. *pyrenaicus*—“a polymorphic race” (‘Lépid. Comparée,’ fasc. viii, Rennes, 1912).

Among the forms of *apollo*, especially those figured from the Central Pyrénéées, there are some of both sexes superficially resembling *delius*. In Count Emilio Turati’s admirable paper, “Variabilità del *Parnassius apollo pumilus*, Stich.” (‘Att. Soc. Ital. Sci. Nat.,’ vol. lvii, 6 coloured plates, 1918), which the author has most kindly sent me during the last month, on plate iv, *delius cercinicolus*, Fruhst. -indent, from Piedmont (the form I took at Susa in June, 1899), is figured side by side with the form *apollo bispupillata*, Turati, indent, and they are extraordinarily alike: so much so, that one cannot help the conclusion, long since, I believe, come to by Dr. Chapman, that there is a zone not only of intermixture between *apollo* and *delius*, but where the two species actually interbreed, and the resultant forms *apollo × delius*, as might be expected, throw back to the ancestral *delius*.

*Glacoclype lysimon.*—Mr. McClymont’s record of an example of this “Blue” in the Pyrénéées-Orientales is interesting. M. Oberthür does not admit it into the French catalogue, though he says he has been assured that it has been taken at Montpellier and Marseilles, though he has never had authentic proof. Neither he, nor de Graslin, Bellier, or Mr. Elwes, nor any of the later collectors have reported it. Rühl (‘Pal. Gross-Schmett.,’ bd. 1, p. 252) cites three French localities—Bayonne, Pau, and Perpignan. The first two localities may. I think, be rejected. He
does not cite authorities for any of them. I cannot trace his authority for Perpignan, which is in the region of Mr. McClymont's locality (ep. my note, 'Entomologist,' xlix, p. 131). Some forms of *S. baton* might possibly be mistaken for *G. lysimon*.

**GLEANINGS FROM MY NOTEBOOKS—II.**

**By J. W. Heslop Harrison, D.Sc.**

In continuing this series of notes I do not propose to follow any definite order: as the title indicates I am simply extracting what seem to be interesting records, and therefore possibly helpful to others.

*Vanessa io*, L. This species had vanished from our counties thirty years before I had ever captured an insect, and therefore but little hope existed that I should ever see it here. Within recent years it appears to have regained ground, and has been taken in the Team Valley, N. Durham, by several friends and myself in late summer. I caught a hibernated female at Lamesley on June 3rd, 1918.

*Eunessa ant lop a*, L. Taken on the Durham coast by Mr. J. Baxter and myself about six years ago, both specimens being of the *American* form, with the 'border heavily black-speckled; captured inland and recorded in the 'North Mail' at Axwell the same year. I had not realised to what form the specimens belonged until I gave my wrecked specimen to Mr. Burrows for dissection. After he got it he asked my permission to set it up instead of making a preparation of its genitalia. When he had done so its identity was revealed. I have only recently learned from Mr. Carter, of Sunderland, that the species had been seen at the Black Hall Rocks by other observers precisely where we obtained it.

*Clymnia diffinis*, L. Recorded, but erroneously, for the county of Durham in Robson's catalogue—an error which Mr. Gardner has since corrected, as his specimens were *C. affinis*. It can be reinstated, as I have beaten larvae from *Ulmus montana* in Lambton Woods, N. Durham.

*Xanthia citr aco*, L. Another species supposed to be very rare in vice counties 66, 67, 68; in fact, its sole claim to be included rested on captures near Durham. Larvae, however, were very plentiful on lime in the Derwent Valley a few weeks ago, in stations where they have been common enough for twenty years.

*Tapinstola elymi*, Tr. Odd specimens on the sandhills at Kinburn, Fifeshire. Whether it occurs there now or not is a different matter as the sand was removed to a very great extent five years ago.
Noctua depuncta, L. Sparingly at Ninebanks in Northumberland.

Triphena ianthina, Esp. Taken in great plenty both by my friend Baxter and myself near Cookstown, co. Tyrone, at flowers.

Aplecta prasina, F. Sparingly at Forres and at Ravensworth, co. Durham

Hadena furva, Hb. Apparently very plentiful along the Fife coast, between Dysart and Burntisland.

Hadena unanimis, Tr. Abundant, but local, throughout Northumberland and Durham, its distribution being restricted by the fact that, unlike most grass-feeders, it feeds on a special grass (Phalaris arundinacea). The larvæ almost always refuse to eat, and therefore die if offered any other grass as a substitute.

Bryophila perla, F. In spite of the total disappearance of lichens, other than in the granular immature state, this species still maintains itself in small numbers throughout the Team Valley, N. Durham, in pale typical forms. Very fine melanic green and blue-black forms are common enough on the rocks and cliffs at Kinghorn, Fife.

Acronyctea leporina, L. Very far from being as rare as supposed, and, indeed, often pretty common in N. Durham in the larval condition on alder, birch, and poplar in the Derwent and Team Valleys. Common on birch at Kippen in Stirlingshire and at Forres.

Porthesia similis, Fuesl. Once only at Lamesley, N. Durham.

Cidaria prunata, L. Regarded as rare in the north-eastern counties, but incorrectly, as it has occurred in practically all the old gardens I have worked in Durham and Northumberland. Captured freely at Kinghorn, Fifeshire; at Kippen, Stirling; and at Forres.

Ypsipetes ruberata, Fr. Sparingly near Cookstown, Tyrone, and Lough Fena, co. Derry.

Ypsipetes trifasciata, Bkh. Common enough in the larval condition everywhere in E. Tyrone, Forres, and Allendale, Northumberland. Both species are as abundant as ever in their Durham stations.

Emmelesia unifasciata, Haw. I was greatly amused at Mr. Gardner's remarks on this species, as he did precisely what he states that I did in overlooking certain records of Gelechia obsoletella. In his addenda to Mr. Robson's list he himself carefully mentions my very recent records for Birtley and Killingworth! It still occurs at Birtley in small numbers. It was warming at flowers of Bartsia odontites at Cookstown, Tyrone, n late July and early August, 1910.

Eubolia cervinata, Schiff. Larvæ in swarms at Runswick Bay and Staithes in N. Yorks, and less commonly at Seamer. Rather scarce at Kinghorn, Fife, on Malva growing near the beach.

Apocheima hispidaria, F. Very rare at Great Ayton, N. Yorks,
and at Gibside, Durham; also taken in the Derwent Valley by my friend Johnson.

Epione apiciaria, Schiff. Rare in the north, but recently found near Birtley and also at Chester-le-Street in Durham. Quite common near Cookstown, Tyrone, and Lough Fea, Derry, in the latter case feeding on alder. Also taken freely over Salix repens on the Culbin Sands, near Forres, flying very vigorously by day.

Fumea intermediella, Brd. No Psychides have been recorded definitely from either Durham or Northumberland, so it was with great pleasure that I captured several larvae of the casta group near Chester-le-Street. I had announced to Mr. Burrows that it was hopeless expecting material from me, and thus the surprise was greater. The imagines have since emerged with Mr. Burrows. Having seen the enormous divergence in such a well-known species as Orgyia antiqua when obtained from habitats throughout its range, I have become very sceptical as to the value of the various casta segregates.

Narcyia melanella, Haw. In view of the reputed absence of the Psychides from Durham, the capture of this species during the same week in which I secured the preceding form added considerably to my amazement. Taken in the Tileshed Wood near Low Fell.

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NOTES ON COLLECTING IN 1917.

By C. Granville Clutterbuck, F.E.S.

(Continued from p. 179.)

On the 13th, in and near an osier bed, I took Tortrix forskaleana, Tmetocera ocellana, Gelechia vulgella, Argyresthia nitidella, and Nepticula filipendula?

Although the 15th was a windy and showery day Polygonia c-album, Melanchra brassice, and E. weberiana were seen in my garden. The evening of the 16th was spent on our hills and my bag included Z. trifoli, Xanthorhoe bipunctaria, Pterophorus tetradactylus, Marasmarcha phaedactyla, Tortrix costana (very fresh), Notocelia mandmanniana, Catoptria cana, Argyresthia sorbiella, Mompha miscella, Gelechia artemisiella, and Coleophora niveicostella.

On the 17th my favourite osier bed produced Depressaria angelicella and Argyresthia nitidella. Pempelia fusca was boxed on a neighbour's garden wall on the 18th. On the 19th I cycled beyond Cheltenham to a marshy spot on the hills where
botanists tell me the marsh helleborine (Epipactis palustris) grows. Butterflies were fairly numerous and included P. c-album, Argynnis aglaia, Melanargia galatea, and Adopea flava.

Near the osier bed in the evening of the 21st, Epiblema fenella (at rest on mugwort leaves), Tortrix forskaleana, and Coleophora viminetella were taken. On the 26th, E. waveriana again occurred in my garden. In the evening on the Severn bank Eucosma salicella (which only occurs sparingly here), and E. fenella (worn) were noticed. On the 27th I took Elachista obscurella in my garden. The last few days of July were busily occupied with preparation for my family’s annual visit to the seaside and, notwithstanding war conditions and difficulties, we were again fortunate in securing accommodation in North Devon. We travelled on the 31st, and experienced all the discomfort of an over-crowded train.

On August 1st a cold east wind was blowing, but in a sheltered hilly lane a wood in the morning I took Celastrina argiolus, Hydriomena unangulata, Phlyctena crocealis, Eurhodope marmorea, and Phalonia badiana at (rest on a burdock leaf). In the afternoon on the sandhills carpeted with wild pansies (Viola tricolor v. curtisii), I noticed a few Aricia medon amongst the common “browns” and “blues.” The latter had a lively time at the hands of my son David (aged 4½). Several specimens of Pyrausta purpurealis and Crambus uliginosellus were beaten out of the clumps of the great sea rush (Juncus acutus) amongst which the flowers of Epipactis palustris were in full bloom. A specimen of Gelechia domestica was taken at rest on a stone wall. The evening was spoilt by heavy rain.

The 2nd was windy and showery but specimens of G. marmorea and G. domestica were taken, and my wife found ten larvae of Agdistis benettii by searching the plants of sea lavender (Statice maritimum) growing on the cliffs. The 3rd was also a windy day but by beating the hedges in the lanes I obtained H. unangulata, Hemimene simpliciana, Laspeyresia ulicetana, Recurvaria cinerallá, S. festaliella, Agryesthia nitidella and A. albistria, and a freshly emerged Lasiocampa quercus was found at rest on a roadside stone wall. In the afternoon, at the back of the sandhills, Abraxas adnastata and A. grossulariata were beaten out of spindle and Laspeyresia ianthinana was taken flying over hawthorn. On the 4th, Phalonia atricapitana recurred amongst hoary ragwort (Senecio tenuifolius), and between 8 and 9 in the evening H. simpliciana was flying freely amongst mugwort (Artemisia vulgaris). On the 5th the heat wave from New York reached us. Macroglossa stellatarum was seen flying over the house where we stayed, E. marmorea and Lithosia lurideola (complanula) were beaten out of hawthorn whilst among wormwood (Artemisia absinthium), Cydia pupillana,
Depressaria purpurea, and Coleophora laripennella were taken. The 6th was a calm, warm day, and in the morning a fog came in from the sea which caused a bat to fly about over the sands, evidently under the impression that night was approaching. Metachrostitis muralis and Leptomeris marginipunctata were taken at rest on walls, and a lovely fresh specimen of Tinea semifulvella was taken in the house probably brought in with wild flowers which were in great profusion. On the downs in the evening a wandering mole was an object of interest to some poultry. On the 7th, my captures included Cilix glaucata, Gonodontis clinquaria, Enchlea apiciaria, Hydriomena decolorata, Aphomia sociella, Tortrix conspersana, L. ianthinana, C. pupillana, Enxanthis straminea, R. cinerella, and Tinea argentinaeulella. The wormwood amongst which C. pupillana occurs, grows about three miles from the house, and as the species does not move much before dusk I had to come off the ground about an hour too soon to do much with it to avoid keeping our landlady up late at night.

Rain fell all night, and the weather did not clear until 10 a.m. next day. A short but smart shower fell at 1 p.m.; the rain began again at 5 p.m. and poured all night. Between the storms on the 8th I secured a few A. sociella, E. marmorea, L. ianthinana, and Depressaria alstroemeriana.

On the 9th the weather was stormy and showery, and very little collecting was possible, but specimens of P. atricapitana, G. domestica, and Tischeria marginea were taken at rest on a stone wall on the road side.

The 10th was windy but fine until 5 p.m., when rain again set in. One of my favourite spots was a prehistoric hedgerow, composed chiefly of sallow and hawthorn, dividing the sand hills from the "cow grounds." The prevailing sea breezes had beat the hedge over away from the sea, giving it a flat-topped appearance. Soap-wort (Saponaria officinalis) and hemlock (Conium maculatum) grow on the seaside side, and fleabane and ragwort on both sides. I found beating there in the afternoon on the landward side paid well. On this particular afternoon I beat out a freshly emerged specimen of Depressaria luteella (flaxella), which my small son caught in quite professional style in a net as large as himself. I have only once before seen the species in the district. Just after he called my attention to a male L. quercus which was resting on a plantain leaf after its mid-day flight. Crambus pinellus (pinetellus) and Lithocolletis corylifoliella were also taken. The 11th was another windy day. Nearly every blow of the beating stick applied to the aforesaid hedge brought one or more specimens of E. marmorea into the umbrella besides common Tortricina and Tineina. Some beautiful dark forms were obtained in this way, and also specimens of Crambus geniculens, Gelechia costella, and G. marmorea.
A C. glancata (spinula) larva was also beaten out, and a Tephroclystis pulchellata larva found on foxglove. In the evening, walking up a hilly lane where the elm trees met overhead and excluded a good deal of daylight, I saw a specimen of Lithocolletis schreberella at rest on a Bramble leaf. The glint of its beautiful metallic colouring caught my eye, and the specimen was promptly boxed. Scoparia cembra, Laspeyresia ulicetana, and Euxanthis zeegana were also taken.

The 12th was also windy. Besides a few E. marmorea, the only capture worth noting was Pamphene spiniana. The evening was very rainy.

The 13th was windy and showery. By beating my favourite hedge more specimens of E. marmorea, C. glancata, P. atricapitana, G. costella (very dark var.), and G. marmorea were obtained.

The next day we returned home. I had left my setting boards behind, and trusted to Mr. L. W. Newman’s relaxing box. The Tineina were all right if set at once, but if left longer than a few days the fringes were apt to get matted and the specimens looked ragged after setting. I brought home a large grey Dipteron taken amongst the sand-hills, where it takes short flights of six feet or so, sometimes holding another Dipteron in its front legs. Mr. Claude Morley says it is ‘Dysmachus trigonus, Mg. You will find a full account of it in Verrall’s ‘Brit. Flies.’ It is quite common in sandy places, especially on coast sand-hills as at Lowestoft; but not found off sand in my experience. I have taken it carrying the Dipteron Borbornus equinus in its front legs. It is certainly local, and worth a note in the ‘Entomologist.’

Of the species mentioned I find that the following are not included in Mr. C. G. Barrett’s list of lepidoptera in the ‘Victoria County History of Devon,’ published in 1906: A. bennettii, S. festaliella, D. liturella, G. costella, R. cinerella, and C. larinipennis.

Since my return I have done very little, the following captures being recorded: Triphaena inanthina, E. marmorea, and Lithocolletis sylrelia (for the first time amongst maple on August 16th), Depressaria subpropinquella (in the house on the 17th), Agrotis glareosa (taken by my wife in the Forest on September 6th), M. stellatarum (in the garden on the 24th at phlox), and Tinea pallescentella (in the house on October 24th).

On August 27th my wife took a variety of Metachrostitis muralis (glandifera) on a fence here which was innocent of green colouring but had some very distinct dark markings. I submitted it to Dr. Edward Meyrick, F.R.S., who named it, adding “unusual form, but cannot be any other described species.”

On September 9th, in the pit at the local rifle range, I boxed Anybia epilobiella.

The feature of the autumn here was the prevalence of
Polygonia c-album and Catocala nupta. It was quite a daily occurrence in September to see three or four specimens of the former in my garden. On the afternoon of the 24th I was an interested spectator of the evolutions of a "comma" which was feasting on a half-eaten pear left by the starlings hanging on a neighbour's tree. The butterfly walked up and down the sound side of the pear, gently waving its wings in the sunshine whilst imbibing the juice of the fruit. C. nupta was so common in the city and district that one of my daughters boxed seven specimens in one day. November 22nd was so mild that a specimen of Aglais urticae fluttered out of a lime tree on to a footpath at mid-day as I was walking home from the office.

A larva of Manduca atropos was brought to me on September 10th, having been found feeding on kidney beans. The pupa was unfortunately attacked by mould.

On December 13th, by digging at poplar trees, my wife and I found four pupae of Palimpsestis octogesima (ocularis), two of which have produced splendid imagos.

On the 26th, whilst digging at oak, I turned up three lizards evidently hybernating just below the surface.

The foregoing, I think, constitutes a fair season's work for a busy professional man, much of whose spare time was occupied by volunteer and police duties.

In conclusion, my thanks are due to Mr. Meyrick for kindly identifying some doubtful specimens, to Mr. Morley for naming the Dipteron, and to Mr. Gervase F. Mathew, who kindly told me of the locality in North Devon where I have enjoyed a good series of entomological and botanical holidays.

THE NOCTUIDÆ OF GREAT BRITAIN AS ARRANGED IN THE GENERAL COLLECTION AT THE NATURAL HISTORY MUSEUM.

By Richard South.

(Continued from p. 175.)

Subfam. ACRONYCTINÆ. [Vol. vii (1918).]*

2756. Amphipyra pyramidea, L.
Amphipyra pyramidea, E.S.L., p. 8; M., p. 114; T., iv, p. 37; M.B.I., i, p. 323.

2766. Amphipyra tragopogonis, L.
Amphipyra tragopogonis, E.S.L., p. 8; M., p. 114; T., iv, p. 39; M.B.I., i, p. 324.

* I have recently noted that some of the names of genera in this subfamily, now used in the Museum Collection, do not quite agree with those in the 'Catalogue.' All such changes will be indicated in an appendix to the present list.—R. S.
2780. **Stygiostola umbratica**, Goeze.
   *Rusina tenebrosa*, Hb., E.S.L., p. 7; M., p. 113; T., ii, p. 2;
   M.B.I., i, p. 322.

2785. **Mania maura**, L.
   *Mania maura*, E.S.L., p. 8; T., iv, p. 40.
   *Hadena maura*, M., p. 129.
   *Mormo maura*, M.B.I., i, p. 292.

2802. **Dipterygia scabriuscula**, L.
   *Dipterygia scabriuscula*, E.S.L., p. 6; T., i, p. 82; M.B.I.,
   i, p. 281.
   *Hadena scabriuscula*, M., p. 129.

2811. **Parastichtis lithoxylea**, Schiff.
   *Xylophasia lithoxylea*, Fb., E.S.L., 6; T., i, p. 74; M.B.I.,
   i, p. 279.
   *Hadena lithoxylea*, M., p. 131.

2822. **Parastichtis sublustris**, Esp.
   *Xylophasia sublustris*, E.S.L., p. 6; T., i, p. 75; M.B.I.,
   i, p. 279.
   *Hadena sublustris*, M., p. 131.

2830. **Parastichtis monoglypha**, Hufn.
   *Xylophasia monoglypha*, E.S.L., p. 6; M.B.I., i, p. 280.
   *Hadena polyodon*, L., M., p. 130.
   *Xylophasia polyodon*, T., i, p. 72.

2837. **Parastichtis hepatica**, L.
   *Xylophasia hepatica*, E.S.L., p. 6; T., i, p. 80; M.B.I., i,
   p. 280.
   *Hadena hepatica*, M., p. 132.

2839. **Parastichtis rurea**, Fabr.
   *Xylophasia rurea*, E.S.L., 6; T., i, p. 76; M.B.I., i, p. 278.
   *Hadena rurea*, M., p. 131.

2900. **Trachea atriplicis**, L.
   *Hadena atriplicis*, E.S.L., p. 9; M., p. 128; T., iii, p. 86.
   *Trachea atriplicis*, M.B.I., i, p. 264.

2931. **Trachea pabulatricula**, Brahni.
   *Apamea connexa*, Bork., E.S.L., p. 6.
   *Apamea pabulatricula*, T., i, p. 86; M.B.I., i, p. 273.

2941. **Trachea obscura**, Haw.
   *Apamea gemina*, Hb., E.S.L., p. 6; T., i, p. 87; M.B.I., i,
   p. 272.
   *Hadena gemina*, M., p. 130.

2946. **Trachea basilinea**, Schiff.
   *Apamea basilinea*, Fb., E.S.L., p. 6; T., i, p. 84; M.B.I.
   p. 272.
   *Hadena basilinea*, M., p. 133.
2947. Trachea unanimis, Hüb.n.
Apamea unanimis, Tr., E.S.L., p. 6; T., i, p. 90; M.B.I., i, p. 273.
Hadena unanimis, M., p. 135.

2981. Trachea furva, Schiff.
Mamestra furva, Hb., E.S.L., p. 6; T., i, p. 113.
Hadena furva, M., p. 132.
Hama furva, M.B.I., i, p. 271.

2982. Trachea anceps, Schiff.
Mamestra sordida, Bork., E.S.L., p. 6; T., i, p. 111.
Hadena sordida, M., p. 133.
Hama sordida, M.B.I., i, p. 271.

2983. Trachea oblonga, Haw.
Mamestra abjecta, Hb., E.S.L., p. 6; T., i, p. 109.
Hadena abjecta, M., p. 133.
Hama abjecta, M.B.I., i, p. 270.

2987. Trachea secalis, L.
Apamea didyma, Esp., E.S.L., p. 6; T., i, p. 91.
Hadena didyma, M., p. 135.
Apamea secalis, M.B.I., i, p. 274.

3023. EuPLEXiA lucipara, L.
Euplexia lucipara, E.S.L., p. 9; T., iii, p. 64; M.B.I., i, p. 291.
Hadena lucipara, M., p. 128.

3194. Oligia ophiogramma, Esp.
Apamea ophiogramma, E.S.L., p. 6; T., i, p. 87; M.B.I., i, p. 274.
Hadena ophiogramma, M., p. 134.

3199. Oligia fasciuncula, Haw.
Miana fasciuncula, E.S.L., p. 6; T., i, p. 102; M.B.I., p. 275.
Hadena fasciuncula, M., p. 137.

3201. Oligia scolopacina, Esp.
Xylophasia scolopacina, E.S.L., p. 6; T., i, p. 81; M.B.I., i, p. 281.
Hadena scolopacina, M., p. 132.

3204. Oligia strigilis, Clerck.
Miana strigilis, E.S.L., p. 6; T., i, p. 99; M.B.I., i, p. 275.
Hadena strigilis, M., p. 137.

3216. Oligia literosa, Haw.
Miana literosa, E.S.L., p. 7; T., i, p. 106; M.B.I., i, p. 276.
Hadena literosa, M., p. 136.

3221. Oligia furuncula, Schiff.
Miana bicoloria, Vill., E.S.L., p. 7; T., i, p. 103.
Hadena bicoloria, M., p. 136.
Miana bicoloria, M.B.I., i, p. 277.
3222. Oligia captiuncula, Treit.
   *Phothis* captiuncula, E.S.L., p. 7; T., i, p. 107; M.B.I., i p. 277.
   Hadena captiuncula, M., p. 136.

3223. Oligia havorthi, Curt.
   *Celaena* havorthii, E.S.L., p. 7; T., i, p. 107; M.B.I., i, p. 269.
   Hadena havorthii, M., p. 135.

3242. Eremobia ochroleuca, Schiff.
   *Eremobia ochroleuca*, Esp., E.S.L., p. 9; T., iii, p. 24; M.B.I., i, p. 263.
   Hadena ochroleuca, M., p. 134.

3262. Eremobia maillardi, Geyer.
   *Crymodes exulis*, Lep., E.S.L., p. 9; T., i, p. 118; iv, p. 125; M.B.I., i, p. 262.
   Caradrina exulis, M., p. 123.

3286. Sidemia fissipuncta, Haw.
   *Orthosia upsilon*, Bork., E.S.L., p. 8; *ypsilon*, M., p. 64.
   Dyschorista fissipuncta, M.B.I., ii, p. 8.

3289. Sidemia zollikoferi, Frf.
   *Xylophasia zollikoferi*, T., i, p. 71; M.B.I., i, p. 279.

3319A. Luperina gueneei, Doubl.
   *Luperina testacea*, E.S.L., p. 6; M., p. 112; T., i, p. 138; M.B.I., i, p. 268.
   Luperina gueneei, Hampson, Cat. Lep. Phal., ix, p. 510.

3322. Luperina testacea, Schiff.
   *Luperina testacea*, Hb., E.S.L., p. 6; M., p. 112; T., i, p. 137; M.B.I., i, p. 267.

3323. Luperina dumerili, Dup.
   *Luperina dumerili*, E.S.L., p. 6; M., p. 113; T., i, p. 136; M.B.I., i, p. 268.

3347. Trigonophora meticulosa, L.
   *Phlogophora meticulosa*, E.S.L., p. 9; M.B.I., i, p. 291.
   *Hadena meticulosa*, M., p. 127.
   Brotolomia meticulosa, T., iii, p. 63.

3501. Bryophila muralis, Forst.
   *Bryophila muralis*, E.S.L., p. 5; M., p. 138; T., i, p. 9.
   *Bryophila glandifera*, M.B.I., i, p. 200.

3502. Bryophila perla, Schiff.
   *Bryophila perla*, FH., E.S.L., p. 5; M., p. 138; T., i, p. 7; M.B.I., i, p. 200.

3518. Bryophila algæ, Fabr.
   *Bryophila algæ*, E.S.L., p. 5; M., p. 138; T., i, p. 8; M.B.I., i, p. 201.

3577. Thalpophila matura, Huén.
   *Caradriina matura*, E.S.L., p. 6; T., i, p. 123; M.B.I., i, p. 269.
3603. Daseocheta alpinum, Osbeck.
    *Moma orion*, Esp., E.S.L., p. 5; M., p. 139; T., i, p. 11.
    *Diptera orion*, M.B.I., i, p. 189.

3633. Craniophora ligustri, Schiff.
    *Acronycta ligustri*, Fb., E.S.L., p. 5; M., p. 142; T., i, p. 12.
    *Craniophora ligustri*, M.B.I., i, p. 198.

3638. Acronycta strigosa, Schiff.
    *Acronycta strigosa*, Fb., E.S.L., p. 5; M., p. 141; T., i, p. 16;
    M.B.I., i, p. 194.

3676. Acronycta rumicis, L.
    *Acronycta rumicis*, E.S.L., p. 5; M., p. 143; T., i, p. 25;
    M.B.I., i, p. 198.

3686. Acronycta psi, L.
    *Acronycta psi*, E.S.L., p. 5; M., p. 141; T., i, p. 20; M.B.I.,
    i, p. 195.

3687. Acronycta tridens, Schiff.
    *Acronycta tridens*, E.S.L., p. 5; M., p. 141; T., i, p. 19;
    M.B.I., i, p. 195.

3697. Acronycta aceris, L.
    *Acronycta aceris*, E.S.L., p. 5; M., p. 142; T., i, p. 13;
    M.B.I., i, p. 192.

3705. Acronycta alni, L.
    *Acronycta alni*, E.S.L., p. 5; M., p. 140; T., i, p. 16; M.B.I.,
    i, p. 193.

3717. Acronycta auricoma, Schiff.
    *Acronycta auricoma*, Fb., E.S.L., p. 5; M., p. 143; T., i,
    p. 22; M.B.I., i, p. 196.

3719. Acronycta menyanthidis, View.
    *Acronycta menyanthidis*, E.S.L., p. 5; M., p. 144; T., i,
    p. 23; M.B.I., i, p. 196.

3741. Acronycta megacephala, Schiff.
    *Acronycta megacephala*, Fb., E.S.L., p. 5; M., p. 142; T., i,
    p. 15; M.B.I., i, p. 193.

3754. Acronycta euphorbe, Schiff.
    *Acronycta myricae*, Gn., E.S.L., p. 5.
    *Acronycta euphorbe*, F., M., p. 143; T., i, p. 24; M.B.I., i,
    p. 197.

3757. Acronycta leporina, L.
    *Acronycta leporina*, E.S.L., p. 5; M., p. 140; T., i, p. 14:
    M.B.I., i, p. 191.

3777. Simyra albovenosa, Goeze.
    *Arsilonche albovenosa*, E.S.L., p. 5; M., p. 144; M.B.I., i
    p. 199.
    *Viminia albovenosa*, T., i, p. 28.
3821. Lithomgea rectilinea, Esp.
   *Hadena rectilinea*, E.S.L., p. 10; M., p. 129.
   *Hyppa rectilinea*, T., iii, p. 95; M.B.I., i, p. 265.

3878. Laphygma exigua, Hübn.
   *Laphygma exigua*, E.S.L., p. 6; T., i, p. 144.
   *Spodoptera exigua*, M., p. 113.
   *Caradrina exigua*, M.B.I., i, p. 319.

3904. Stilbia anomala, Haw.
   *Stilbia anomala*, E.S.L., p. 7; M., p. 125; T., iv, p. 43;
   M.B.I., i, p. 315.

3940. Athetis alsines, Brahni.
   *Caradrina alsines*, E.S.L., p. 7; M., p. 122; T., i, p. 147;
   M.B.I., i, p. 317.

3941. Athetis blanda, Schiff.
   *Caradrina taraxacii*, Hb., E.S.L., p. 7; M., p. 123; T., i,
   p. 149; M.B.I., i, p. 317.

3942. Athetis ambigua, Schiff.
   *Caradrina ambigua*, Fb., E.S.L., p. 7; M., p. 123; T., i,
   p. 148; M.B.I., i, p. 318.

3967. Athetis clavipalpis, Scop.
   *Caradrina quadripunctata*, Fb., E.S.L., p. 7; M., p. 122;
   T., i, p. 152; M.B.I., i, p. 318.

4003. Athetis morpheus, Hufln.
   *Caradrina morpheus*, E.S.L., p. 7; M., p. 122; T., i, p. 146;
   M.B.I., i, p. 316.

4093. Aocosmetia caliginosa, Hufln.
   *Aocosmetia caliginosa*, E.S.L., p. 7; M., p. 114; T., i, p. 143;
   M.B.I., i, p. 321.

4095. Petilampa minima, Haw.
   *Caradrina arcuosa*, M., p. 121.
   *Chortodes arcuosa*, T., i, p. 47.
   *Petilampa arcuosa*, M.B.I., i, p. 320.

4096. Petilampa palustris, Hübn.
   *Hydrilla palustris*, E.S.L., p. 7; T., i, p. 143.
   *Caradrina palustris*, M., p. 121.

4201. Monodes venustula, Hübn.
   *Erastria venustula*, E.S.L., p. 10; T., iv, p. 4; M.B.I., ii,
   p. 59.
   *Eustrotia venustula*, M., p. 165.

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4318. Gortyna leucostigma, Hübn.
   *Apamea leucostigma*, E.S.L., p. 6.
   *Helotropha leucostigma*, T., i, p. 67; M.B.I., i, p. 293.

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4321. Apamea nictitans, L.
   Hydrœcia nictitans, Bork., E.S.L., p. 6; T., i, p. 58; M.B.I., i, p. 294.
   Hadena nictitans, M., p. 135.

4329. Xanthœcia flavago, Schiff.
   Gortyna ochracea, Hb., E.S.L., p. 6; T., i, p. 57.
   Ochria ochracea, M., p. 110; M.B.I., i, p. 295.

4340. Hydrœcia petasitis, Doubl.
   Hydrœcia petasitis, E.S.L., p. 6; T., i, p. 66; M.B.I., i, p. 295.
   Caradrina petasitis, M., p. 119.

4342. Hydrœcia micacea, Esp.
   Hydrœcia micacea, E.S.L., p. 6; T., i, p. 64; M.B.I., i, p. 294.
   Caradrina micacea, M., p. 119.

4357. Pyrrhia umbra, Huín.
   Chariclea umbra, E.S.L., p. 10; T., iii, p. 122.
   Caradrina umbra, M., p. 119.
   Pyrrhia umbra, M.B.I., ii, p. 47.

4491. Ipimorphe retusa, L.
   Tethea retusa, E.S.L., p. 9.
   Caradrina retusa, M., p. 118.
   Plastenis retusa, T., iii, p. 19; M.B.I., ii, p. 9.

4495. Ipimorphe subtusa, Schiff.
   Tethea subtusa, Fb., E.S.L., p. 9.
   Caradrina subtusa, M., p. 118.
   Plastenis subtusa, Fab., T., iii, p. 20; M.B.I., ii, p. 9.

4496. Meristis trigrammica, Huín.
   Grammesia trigrammica, E.S.L., p. 7; T., i, p. 140; M.B.I., i, p. 314.
   Caradrina trigrammica, M., p. 123.

4544. Calymnia diffinis, L.
   Calymnia diffinis, E.S.L., p. 9; T., iii, p. 20; M.B.I., ii, p. 4.
   Caradrina diffinis, M., p. 117.

4547. Calymnia pyralina, Schiff.
   Calymnia pyralina, View., E.S.L., p. 9; T., iii, p. 20; M.B.I., ii, p. 2.
   Caradrina pyralina, M., p. 116.

4548. Calymnia affinis, L.
   Calymnia affinis, E.S.L., p. 9; T., iii, p. 21; M.B.I., ii, p. 3.
   Caradrina affinis, M., p. 117.

4557. Calymnia trapezina, L.
   Calymnia trapezina, E.S.L., p. 9; T., iii, p. 22; M.B.I., ii, p. 4.
   Caradrina trapezina, M., p. 117.

4609. Dicycla oo, L.
   Dicycla oo, E.S.L., p. 9; T., iii, p. 17; M.B.I., ii, p. 1.
   Caradrina oo, M., p. 118.
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*Cosmia paleacea*, E.S.L., p. 9; T., iii, p. 19; M.B.I., ii, p. 5.
*Caradrina paleacea*, M., p. 118.

*Nonagria arundinis*, Fb., E.S.L., p. 6; M., p. 111; T., i, p. 54; M.B.I., i, p. 297.

4680. *Arenostola lutosa*, Hüb. 
*Calamia lutosa*, E.S.L., p. 6; T., i, p. 55; M.B.I., i, p. 303.
*Caradrina lutosa*, M., p. 119.

4681. *Arenostola phragmitidis*, Hüb.
*Calamia phragmitidis*, E.S.L., p. 5; M.B.I., i, p. 303.
*Caradrina phragmitidis*, M., p. 120.
*Leucania phragmitidis*, T., i, p. 42.

4682. *Arenostola brevilinea*, Fenn.
*Nonagria brevilinea*, E.S.L., p. 6.
*Caradrina brevilinea*, M., p. 120.
*Leucania brevilinea*, T., i, p. 37; M.B.I., i, p. 308.

*Tapinostola elymi*, E.S.L., p. 6; T., i, p. 43; M.B.I., i, p. 302.
*Caradrina elymi*, M., p. 120.

(To be continued.)

NOTES AND OBSERVATIONS.

The Crimson *Augochlora* Bees.—The species of *Augochlora*, closely related to *Halictus*, are of various colours, but usually brilliant green. There is, however, a little group in which the whole body is crimson or brilliant copper-red. A study of these peculiarly coloured forms brings out the fact that they belong to three entirely distinct sections or subgenera, and hence must represent quite independent developments of essentially the same peculiar coloration. The following table will separate them:

- Mesothorax very strongly punctured; abdominal segments fringed or vibrissate (Mexico). *flammea* Sm.
- Mesothorax very minutely punctured; abdominal segments not vibrissate.
- Mesothorax dull; basal area of metathorax covered with radiating striae; hind spur of hind leg minutely denticulate (Dominica, West Indies). *ignifera* Crawf.
- Mesothorax shining; basal area not covered with radiating striae; hind spur with long, stout spines (Mexico and Guatemala). *fulgur* (Vachal)

The Guatemala record of *A. fulgur* is based on a specimen in the U.S. National Museum, collected by Schwarz and Barber, April 20th, at Cacao, Treee Aguas, Alta Vera Paz. It differs a little from Vachal’s description, in that the hair on the abdomen is fulvous. *Halictus anthrax* Vachal and *Augochlora aureocuprea* Friese both appear to be synonyms of *A. flammea*. — T. D. A. Cockerell; Boulder, Colorado.
ON THE "CALLING" ATTITUDE OF HEPIALUS SYLVINUS. — When watching this species on the wing on the evening of August 7th I saw a female H. sylvinus sitting on, or rather hanging from a grass-stem with her wings going, as is the habit with this species, evidently "calling." Something peculiar in the attitude of the insect attracted my attention, and on kneeling down to observe her more closely I saw that only the upper pair of wings were extended and in vigorous motion, the lower wings being at rest and closed along the body. The latter was hanging almost vertically from the grass-stem, to which she appeared to be clinging by the two anterior pairs of legs only. I watched her at close quarters for about five minutes, without any change in her position or cessation of motion of her fore wings, but no male put in an appearance. By this time, the short flight-period being over, she apparently gave up hope of obtaining a mate and came to rest. On several successive evenings I endeavoured to confirm and amplify these observations, and was able to ascertain that the female flies to the grass-stem on which she takes her stand, and does not merely climb up when freshly emerged from the pupa. On the arrival of the male, which often occurs almost as soon as she starts calling, she at once closes her wings. For a few moments he keeps his in motion, but when union is effected he closes them and hangs straight downwards, often without further support than the grasp of his claspers, though if another grass-stem lies suitably he will cling to it with his fore-legs. Pairs boxed and taken home in cop. would remain so for about one and a half or two hours. The lack of a frenulum connecting the lower with the upper pair of wings is, of course, one of the characteristic features of the family Hepialidæ, but I am not aware whether the action of one pair of wings independently of the other has been previously noticed, and if so whether it has been observed in other species. It is, perhaps, most likely to be found in H. lupulinus, which is stated to behave very similarly to H. sylvinus when calling, the habits of the other British species being very different in this respect.—W. G. Blair; 23, West Hill, Highgate, N., August 17th, 1918.

PAPILIO BIANOR, CRAM., IN HAMPSHIRE.—The other day I showed Mr. W. M. Christy some wonderful butterflies I caught in my garden in September, 1917. They are large black Swallow-tails four and a half inches across, and were identified as Papilio bianor. They were introduced and reared at Oxshott, I think, by Mr. Cecil Floersheim ('Entomologist,' vol. xivii [1915], p. 255). The first specimens appeared here last year at the end of September. I caught three and left three or four others. This year the first one appeared on May 30th, flying rather high and very strong over the top of high laurel and rhododendrons. I have only seen one at a time this year, and that one is still about, having been seen on the place three days ago. I think it probable they have bred here. Last year they were very tame, flying low round the house, but this year's example seems much stronger, and would be very difficult to catch.—F. J. Roig; Hollybank, Emsworth, Hants, June 22nd, 1918.

[A similar escape is recorded at Henley by Mr. Hugh Scott in
NOTES AND OBSERVATIONS.

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the 'Entomologist,' vol. xlviii, p. 212, but this is, I think, the first notice of a spring emergence at large in England, and it would appear, therefore, that the species has bred successfully in this particular locality.—Ed.]

**Polygona c-album in Shropshire.**—This is, as I hoped and expected, reappearing this season in Shropshire. Having been so abundant in this county in 1917, it was hardly likely it would not again, at all events, put in an appearance. I have caught specimens in my garden, hovering over sweet-scented flowers, in fine condition on August 2nd and 9th, and seen a few others. Hibernated specimens occurred rarely in the early spring. It is to be desired that this beautiful species should again reassert itself in plenty in its old haunts in the western counties of England.—J. Cosmo Melvill; Meole Brace Hall, Shrewsbury, August 9th, 1918.

**Pyrameis cardui abundant in Cornwall.**—I am surprised that, so far, no one has called attention to the great invasion of *Pyrameis cardui* in May. It may have been confined to these parts. I saw it first on May 20th, and during the remainder of the month it abounded along the cliffs, playing about in groups of three and four every few hundred yards, and was to be met with all over the country in smaller numbers. The specimens were very bleached—almost colourless. Larvae have since then abounded on thistle, and on July 21st I took the first newly emerged specimens along with *P. atalanta* and *Vanessa io.*—E. A. C. Stowell; Fowey, Cornwall.

**Mesotype lineolata in Wiltshire.**—Referring to your correspondent’s note on *M. lineolata* occurring inland (*antea* p. 161), I may point out that this species is abundant, in both broods, on Marlborough Downs.—E. A. C. Stowell; Fowey Grammar School, Cornwall.

**Note on Rearing Hemaris fuciformis.**—Last year I obtained some wild-laid ova of *H. fuciformis* on June 4th. These hatched out on June 5th and 6th and the larvae went down on June 21st, 22nd, and 23rd. The imagines emerged on May 21st, 22nd, and 23rd of this year.—D. F. Taylor; Hill Side, Godalming.

**Hyppa rectilinea, AB.**—I obtained a very beautiful aberration of *H. rectilinea* this spring from a wild larva. The coloration of the insect is entirely jet-black and pale grey. The sepia-brown tints are entirely absent, and the median area of the fore wings is very heavily suffused with black, on which the reniform and orbicular spots stand out in pale grey, the former being much the more distinct of the two. The grey markings on the outer margin of the wing form at one point a fairly conspicuous Σ. I obtained the larva while papa digging in January; it ceased hibernation early in March, duly pupated, and the imago appeared at the end of May last.—(Rev.) Harold D. Ford; Thursby Vicarage, Carlisle. [Appears to be a modification of ab. virgata, Tutt.—Ed.]

**Plusia moneta at Wanstead.**—On July 27th, in the early evening, I was searching a fence for "micros" and when stooping down to box a specimen of *Laverna stephensi*, where the boughs of an oak overhung, I noticed a good-sized moth quite at the bottom. Taking
very little interest in the larger moths, I was about to pass on, when its peculiar attitude, reminding me of *Endotricha flammealis*, caused me to examine it more closely, when I found I was looking, for the first time, at *P. moneta* “in the flesh.” It is a fairly good, but not quite first-rate, male. I have not heard of its occurrence in this neighbourhood before.—A. THURNALL; Wanstead, Essex, August 4th, 1918.

**Eucosmia undulata in Cumberland.**—I notice that in ‘Moths of the British Isles’ Westmoreland is given as the northern limit of *E. undulata*; it may therefore be of interest to state that I take it regularly, though rather sparingly, in this district. In fact, I have three localities near here, each some miles distant from the other, where it may be found with fair certainty, but it is nowhere plentiful.

—(Rev.) Harold D. Ford, Thursby Vicarage, Carlisle.

**Eupithecia oblongata (centaureata) bred from Garden Gladiolus.**—In the autumn of 1917 Mr. W. West, of Lewisham, sent me a *Eupithecia* larva that he had found feeding in the blossom of a *Gladiolus* in his garden. During the fortnight that it was in my possession it fed readily on the flowers of the same species with which I supplied it, then pupated in a slight cocoon spun between one of the blossoms and the muslin cover of the cage, and to-day produced an undoubted *E. oblongata*. One is so accustomed to regard the *Umbelliferæ* and *Composite* as furnishing the natural pabulum of this larva that to find it attached to a species so far removed from them botanically as the *Irideæ* appears to be somewhat remarkable.—R. Adkin; Eastbourne, July 22nd, 1918.

**Gynandromorphous *Dryas paphia* in the New Forest.**—When visiting the Natural History Museum recently Dr. G. A. K. Marshall showed me a very interesting specimen of *D. paphia* that had been captured by Mr. P. Darling at Bank, Lyndhurst, on August 7th last. This was a gynandromorph exhibiting the characters of male *paphia* on the left side and those of *vallesia* on the right side. Examples of gynandromorphism in *D. paphia* have rarely been recorded in Britain, perhaps the most recent—previous to the present note—being that of a specimen (taken in the New Forest) exhibited by Capt. Cardew at a meeting of the South London Entomological Society, held on February 24th, 1910. Up to the date of my departure from Brockenhurst (July 10th) I had not heard of any varieties of *D. paphia*, although the species was “well out” at that time. I understand that several aberrations were seen or captured at a later date, among these being pale spotted forms and individuals with confluent markings.—Richard South.

**Aberration of Zygeina trifolii in the New Forest and the Christchurch Marshes.**—On June 25th last I struck a colony of this species in the New Forest, and on that day and on two others towards the end of the month some interesting aberrations were obtained, including *basalis, glycerrhiza*, *minutodes*, and modifications of those forms—eleven specimens in all. From some two hundred cocoons of *trifolii* sent to me from the Christchurch Marshes, one *basalis* and three *glycerrhiza* were obtained among the one hundred
and seventy-odd specimens of the species that emerged. It may be added that the bulk of these specimens were taken to a suitable spot in the Forest and there liberated.—Richard South.

Burnet Pupae attacked by Birds.—On June 15th, 1918, in a rough spinney in the north-west corner of Bedfordshire, I saw many hundreds of pupae of *Z. filipendulae* and *Z. lonicera*. A large number were attached to a wire net fence, and most of these had been devoured by birds. In each case a hole had been pecked in the middle of the cocoon and the pupa extracted. None of those attached to grasses or to dead stalks of the St. John’s wort had been attacked. In many instances there were four or five pupae on a stalk of the latter. The reason the birds attacked those on the wire fence, no doubt, was that they could get a secure foothold while pecking out the cocoon, but they could not hold on to the stalks and grasses. I have never seen this before.—W. Gifford Nash, F.R.C.S.; Clavering House, De Farys Avenue, Bedford.

Scardia boleti and Coleoptera on a Fallen Beech Tree.—During June an old beech log in the New Forest was frequently examined for *S. boleti*, and about twenty were selected from the many specimens noted thereon. Eight specimens of *Tinea parasitella* were also obtained. On each visit to the log attention was given to any species of Coleoptera that might be about. Up to about the middle of the month one or more *Leptura scutellata* occurred every morning, and on one occasion three females and two males were secured. Other beetles found on the log at various times up to the 20th were *Leptura sexguttata* (2), *Melandrya caraboides* (1), *Tomoxia bifutitata* (3), *Pyrochroa coccinea* (1), *Elater pomone* (2), *Rhamium bifasciatum* (3).—Richard South.

Calosoma inquisitor and Silpha quadrifunipunctata Abundant in New Forest.—Judging by the frequency that one or the other of these beetles fell into the umbrella when beating the lower oak branches, both species must have been in large numbers in parts of the Forest this year. Remains of their lepidopterous victims were also much in evidence.—Richard South.

Lema puncticollis in the New Forest.—Among some Coleoptera taken at Brockenhurst in June this year was a specimen which Dr. Sharp has identified as a colour variety of *Lema puncticollis*, Curtis. He states that it is a form he had not seen before, and that the species was new to the district. As the form was not represented in the series of the species in the collection at South Kensington, the specimen has been given to the Museum.—Richard South.

Note on the Habits of the Bee Melitta (Cilissa) leporina.—In the late evening of July 7th there was brought to me a withered flower-head of “cockspar grass” in which were clustered thirteen males of *Melitta leporina* asleep. The boy who brought it informed me that three specimens had dropped off while he was carrying his find to my house. Mr. R. C. L. Perkins (‘Ent. Mo. Mag.,’ February, 1889, p. 207) mentions similar occurrences in the case of *Nomada ochrostoma*, but, so far as I can ascertain, this behaviour of *M. leporina*
has not been previously recorded, nor is much known of the habits of this genus.—Oswald H. Latter; Charterhouse, Godalming, July 25th, 1918.

Occurrence of Habrosyne derasa at Hammersmith.—Last month my sister sent me a specimen of H. derasa which she had found in her garden at Hammersmith. In the days of my boyhood, some forty years ago, a very large number of Heteróceera were to be found in that district. There existed then a good many houses with large gardens where sugaring could most successfully be carried on, but these houses and gardens have long since given way to streets of villa residences, and scarcely a garden of any size remains. It is, therefore, surprising to find a species like H. derasa, which we look upon as a woodland insect, surviving in a wilderness of bricks and mortar.—(Rev.) J. E. Tarrant; Fareham, Hants, August, 1918.

Errata.—Page 139, lines 12 and 13, for “also took Larentia multistrigaria. On February 17th, Thera variata (obeliscata). April 23rd and 25th, Phragmatobia fuliginosa,” read “also took Larentia multistrigaria on February 17th; Thera variata (obeliscata), April 23rd, and on the 25th Phragmatobia fuliginosa.”

SOCIETIES.

The South London Entomological and Natural History Society.—July 25th, 1918.—Mr. Stanley Edwards, F.L.S., President, in the chair.—Mr. Ashdown exhibited aberrations of Leptura maculata (armata) a fine graduated series, also Chytra 4-punctata, Chrysomela orichalcea (♂ and ♀), and Clesias (Tiresias) serra, all from Surrey.—Mr. Barnett, a bred series of Ephippiphora scutulana from Epping Forest and its Hymenoptous parasite; a bred series of Cydia pomonella; and blue females of Polyommatus icarus.—Mr. West, Coleoptera taken in the New Forest in June, Leptura scutellata, Hypera rumicis, Luperus nigrofasciatus, Ceuthorkynchus chrysanthemi, and Cleonus nebulosus.—Mr. B. Adkin, a photograph of the under side of the specimen of Lyccena arion with obsolete marking previously exhibited.—Mr. Mera, living larvae of Amphidasis betularia. Brood A (1) on sallow and A (2) on beech. Brood B (1) on sallow, B (2) on blackthorn. In both broods those on sallow were green in colour, those on beech were dark, and on blackthorn very dark. The decision of colour occurred only in the very early stage.—Mr. Bunnett, Dicranula vinula, in which the hind wings were unusually hyaline, and a Toxocampa pasithum from Coulsdon.—Mr. Moore, butterflies from Florida, including Heliconius charitonius, Thecla acis, Lyccana hanno, Papilio cresphontes, Anosia benenice, Dione vanillia, Junonia coenia, Limenitis floridensis, L. disstippus, Pyrameis atalanta, etc., and discussed the distribution of the various species.—Mr. A. Sich read a paper discussing the aberration of Lampronia quadripunctella and naming two recurrent forms.—Mr. Edwards discussed the devastation caused by Phylloxera vastatrix to the vine, Hylesinus piniperca to the pine, and Doryphora decemlineata to the potato, illustrating his remarks with a series of large diagrams.—Hy. J. Turner, Hon. Editor of Proceedings.
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A. J. SPILLER, CHINNOR, WALLINGFORD.
NEW SPECIES OF PYRALIDÆ FROM FORMOSA.

By A. E. Wileman and Richard South.

Surattha (?) albistigma, sp. n.

♂. Antennæ ciliated. Fore wings pale-brown powdered with black, chiefly on basal area; medial line black, oblique and diffuse, not clear towards costa; a whitish mark at outer end of the cell; subterminal line of the ground-colour, faintly edged with blackish, angled below costa; terminal dots black, placed between the veins. Hind wings whitish suffused with fuscous, terminal line dark. Fringes of all wings of the ground-colour. Underside whitish tinged with brown on the costal and terminal areas of fore wings.

Expanse, 28 mm.

Collection number, 1123.
The type from Tainan, May 15th, 1906.
Another male, from Anping, May 27th, is rather worn.

Mesolida bipunctella, sp. n.

♀. Head and palpi whitish marked with cinnamon-brown; thorax and abdomen cinnamon-brown, the latter paler beneath. Fore wings cinnamon-brown with a darker irregular band beyond the middle; terminal line brown; three white oblique streaks on costa before termen, the second broadest, the third including basal half of the apical fringes; a white spot about middle of termen, enclosing two black dots; fringes brownish mixed with silvery towards tornus and traversed by a darker line. Hind wings fuscous, fringes whitish traversed by a fuscous line. Underside fuscous, markings of apex and before termen as on upper side but only the black dots of the latter distinct.

♂. Termen of fore wings very worn but otherwise similar in colour and marking.

Expanse, ♂ 13 mm., ♀ 15 mm.

Collection number, 456.
The female described is from Tainan, April 14th, 1906. Another specimen of the same sex from Kanshirei was captured on September 14th, 1905. The male type is from Tainan, and was taken on July 5th, 1904.
Five specimens from Kanshirei (Wileman) and one from "Formosa" are in the British Museum.
This species comes near M. apicistrigella, Meyr.

Leechia formosensis, sp. n.

♂. Head, thorax and abdomen white; palpi marked with black at base and before tip. Fore wings white, costa black at base; antemedial and postmedial lines black, the former straight, the latter sinuous, followed by an ochreous brown shade which is broadest towards dorsum; terminal line black, slender; discoidal mark dusky, linear, indistinct; a black mark at apex; fringes white, inclining to brown at tips, traversed by a brown line. Hind wings white, a blackish mark, preceded and followed by ochreous-brown shading, on terminal half; fringes as on fore wings. Underside white, markings as above, but the antemedial of fore wings absent and the black mark becomes a transverse line.

Expanse, ♂ 18 mm., ♀ 15 mm.

Collection number, 1088.
Male and female types from Kanshirei, April 22nd, 1906.
There are three specimens from Formosa (Wileman) in the British Museum.
Near L. sinuosalis, South.

Scirpophaga nigropunctata, sp. n.

♂. Head and thorax white with brownish tinge, abdomen slightly darker tinged. Fore wings white with brownish tinge, a black dot at base of veins 4, 5; fringes white. Hind wings and underside of all the wings white.

♀. Similar to the male, but the brown tinge of fore wings is of a paler tone, the black mark at base of 4, 5 is elongate in shape, and there is a black dot above it at base of vein 7.

Expanse, ♂ 28 mm., ♀ 42 mm.

Collection number, 1114 ♂, 1488 ♀.
A specimen of each sex from Kanshirei, the male taken June 11th, 1906, and the female April 26th, 1908.
Three specimens from Formosa (Wileman) in the British Museum, two labelled Kanshirei and the other Banshoryo, May, 1906.
Comes near S. monostigma, Zell.

Patissa (?) impurella, sp. n.

♂. Head white; thorax and abdomen white powdered with brownish except on anal segments of the latter. Fore wings white finely powdered with brown except on the veins, fringes white. Hind wings white. Underside as above.

Expanse, 20 mm.

Collection number, 273.
A male from Tainan, June 8th, 1904.
Comorta albivenella, sp. n.

♂. Head and thorax pale brown with a slight reddish tinge; abdomen pale brown. Fore wings pale brown tinged with reddish, costa and nervures whitish; short blackish streaks between the veins, a series of black dots on termen; fringes pale brown traversed by a darker line near base. Hind wings whitish, clouded with dusky on terminal area; fringes whiter, traversed by a dusky line near base. Underside of fore wings brownish and of hind wings whitish.

Expanse, ♂ 22 mm., ♀ 29 mm.

Collection number, 403.

A male from Takow, September 4th, 1904, and a female from Kanshirei, August 3rd, 1908. Another female specimen from Kanshirei, August 29th, 1907, measures 26 mm. in expanse. A specimen from Takow (Wileman) in the British Museum.

Allied to C. nigricostella, Walk.

Cryptoblabes formosella, sp. n.

♂. Fore wings grey-brown; antemedial line straight, dark brown inwardly edged with whitish, outer edge diffuse; postmedial line dark brown, wavy, outwardly edged with whitish; terminal line whitish, preceded by a series of black specks. Hind wings whitish, some dark scales at apex; terminal line whitish inwardly edged with dark scales.

♀. Similar in colour and pattern to the male, but the postmedian line is only distinct on dorsum.

Expanse, 18 mm.

Collection numbers; 398 ♂, 395 ♀.

Three male specimens and one female from Takow, July and August, 1904.

Nearest to C. angustipennella, Rag.

(To be continued.)

GLEANINGS FROM MY NOTEBOOKS—III.

By J. W. Heslop Harrison, D.Sc.

Dryas paphia, L. This handsome insect is now quite extinct in Durham and Northumberland, and, arguing from the fact that the climate in Co. Antrim, Ireland, is certainly not more suitable than ours, one would not have anticipated its survival there. However, in spite of this, and of Meyrick's statement that it is absent from the North of Ireland, I can record it as being extremely plentiful in Glenarriff in that county. Furthermore, it appears to be not uncommon near a little church, called Clare Church, three or four miles from Cookstown, Co. Tyrone.

Argynnis aglaia, L. Still common enough in suitable spots
in the west of Durham and Northumberland like Satley, Derwent Valley, and Corbridge. In Scotland I have captured it at Achterneuk, in Ross-shire, and in Ireland I have seen it on rare occasions dashing along the shores of Lough Fea, Co. Derry.

_Satyrus semel_, L. Like all grass-feeding butterflies, this is decadent in these two counties. I saw it last in Durham near Horden twelve years ago, although I took a single specimen at Budle Bay, in the sister county, in 1915. No such disappearance is threatened on the Moray Firth, for it still remains excessively plentiful all along the sandhills from Burghead to the Culbin Sands, and the same holds good of the sandhills in Lancashire near St. Anne’s. On Fair Head, Co. Antrim, it abounds on the heather just behind the highest point. In Fife near Kirkcaldy it seems to be excessively rare.

_Pararge megera_, L., and _P. aegeria_, L. In the north-west of England, wherever _P. megera_ occurs, it abounds, whereas its congener _P. aegeria_ has vanished; hereabouts both are gone, but in Ireland, in counties Tyrone, Derry, and Antrim, _P. aegeria_ is very common. Only in Antrim, at Glenarriff, have I taken _P. megera_, and then very sparingly.

_Diantheoria nana_, Rott. (conspersa, Esp.). Quite typical forms are to be picked freely enough off the rocks on the beach at Kinghorn, Fifeshire.

_Agrotsis agathina_, Dup. Larvae singly on all of the northern Cleveland moors; imagines at _Erica_ flowers at Findhorn, Elgin.

_Asphalia flaveicornis_, L. Formerly I considered this moth somewhat a rarity in the north-eastern area. Now I find it plentifully everywhere with its food-plant birch. Not far from Birtley, Durham, in a small enclosed wood, I find a beautiful melanic form of a curious green-black colour. Also plentiful at Strathpeffer, Ross-shire, Forres, and Kippen, Stirling.

_Demsa coruli_, L. Very common on birch at Forres; rare on _Salix cinerea_ in Newham Bog, Northumberland.

_Notodonta ziczac_, L. Apparently well distributed in the north. On _Salix cinerea_, _S. aurita_, _S. caprea_ at Ninebanks, Northumberland; on _S. rimalis_, _S. alba_, _S. repens_, _S. triandra_, St. Anne’s, Lancashire; on _S. cinerea_ at Cookstown, Tyrone; on _S. aurita_, S. Derry; on _S. triandra_, Ballycastle, Co. Antrim; on all the _Salices_ of the _caprea_ group in Elgin.

_N. dromedarus_, L. Even commoner and more widely spread than the last species, not only in precisely the same localities, but in addition found at Kippen, Stirling, and in many stations in N. Durham. It also swarms as larvae on birch on Eston Moor, Cleveland. I have seen the larva feeding quite freely on _Salix cinerea_, although birch and alder are the favoured trees in general.

_N. dictceoides_, Esp. Occurs fairly numerosely on birch at Eston and Ingleby Greenhow, Cleveland; less commonly in
N. Durham and at Kippen, Stirling; more freely at Achterneed, Ross-shire, and Forres.

*N. chaonia*, Hb. Ova discovered on oak at Beamish, N. Durham, and Corbridge, S. Northumberland, the latter being the first county record. On July 25th, when in search of certain material for experimental work in Genetics, I found full-grown larvae at Great Ayton, Cleveland.

*Pocilocampa populi*, L. Larvae regularly but in no great numbers from oak, birch, and alder, N. Durham and in Lonsdale and Kildale, N. Yorkshire.

*Eupithecia valerianata*, Hb. Seemingly only recorded previously in our counties from Hesleden Dené, the observer being Mr. Gardner. Since I commenced to study cecidology I have found the larvae widespread in Durham on both *Valeriana sambucifolia* and *V. dioica*. It is common at Billingham, S. Durham, and far from rare at Chester-le-Street, N. Durham.

*E. pulchellata*, Stph. Of this "pug" there is no Northumberland record given by Robson; it swarms, however, as larvae in the foxglove blossoms both in the ravines and in gardens in West Allendale. In Ireland I found it ubiquitous in Tyrone and Derry.

*E. pygmaeata*, Hb. This minute Geometer can be secured in numbers on the outcrop of basalt just behind Kinghorn in Fifeshire; it flies in the bright sunshine toward the end of July.

*E. tenuiata*, Hb. Quite common, but local, as larvae in the catkins of *S. aurita*, *S. cinerea*, and *S. caprea*; apparently subalpine in its preferences as I have taken it at 800 ft. in the Cleveland, at 1200 ft. in West Allendale, Northumberland, at lower altitudes in the Derwent Valley, Durham, and Forres.

*E. indigata*, Hb. Common enough at Eston, and in Lonsdale, Cleveland; rarer in Dighton Woods, Northumberland.

*Melanippe hastata*, L. Found in spun leaves of birch in the Cleveland Hills, and in leaves of *Myrica gale*, treated similarly, on Kippen Moss.


*Venusia cambrica*, Curt. In South Northumberland I used to get very typical forms sitting on mountain-ash trunks at Corbridge. On July 25th I noted some very fine-rayed melanic forms seated similarly at Great Ayton, Cleveland. Why this species and *Melanithia bicolorata* should be melanic in this particular wood whilst it provides *Opobaria dilutata* and *Amphidasys betularia* with the only local habitat for forms with a white-ground colour passes all understanding. In the same way the Northumberland locality yields fine melanic forms of *Ypsipetes impluviata*, whilst those found in the Yorkshire wood are quite ordinary.

*Larentia olivata*, Bkh. To be scraped in great numbers
from the crests of overhanging banks in Altyre Woods, Forres, and elsewhere in the vicinity; also common at light in Allendale, S.W. Northumberland.

_Gnophos obscuraria_, Hb. Dark, badly characterised forms are common along the coast of Fifeshire, between Kirkcaldy and Burntisland, wherever _Helianthemum_ grows freely.

_G. obfuscaria_, Hb. Can be startled by day from rabbit holes amongst the _Ericha cinerea_ at Findhorn, or netted at the period of natural flight later.

_Lycia hirtaria_, Cl. This favourite of mine can be beaten freely from birch as full-grown _larvae_ in August at Forres. From these imagines precisely the same as type forms from Central Europe will be bred in the three succeeding years. What I breed from London ova cannot be distinguished in many cases from those I reared from authentic ova and _pupae_ of the alleged variety _hanociensis_ (Hey.) from Germany; of the value of this form I have great doubts.

Zoological Department,
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Newcastle-on-Tyne.

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**MYRMECOZELA OCHRACECELLA**, TGST., AT RANNOCH.

BY THE REV. JOHN W. METCALFE.

Whilst spending a month at Rannoch, in company with Mr. F. G. Whittle, we were both very anxious to obtain specimens of one of the special insects to be found in that famous locality, _viz._ _Myrmecozaela ochraceella_. As is well known, this strange moth inhabits the nests of _Formica ruja_—an apparently welcome guest. The _larva_ lives in long galleries within the nest, and the _imago_ seems equally at home both within the nest and on its surface, suffering no harm from the swarms of ants. Certainly on two occasions we did observe a _M. ochraceella_ being carried away by an ant in a _moribund_ condition, but these may have been specimens injured by agents other than the ants, and which the latter considered to be fair meat for the larder. At any rate, these were the only two exceptions to the rule of amity we noted, and we will hope that no ant so far forgot herself as to attack a guest that had been received into the home, or more probably had been reared therein.

But this is to forestall matters. During the end of June and early July, at different hours of the day, and by every possible means, we searched a large number of nests with but poor success. Not more than half a dozen specimens were captured, and these for the most part not in or on the nests, but knocked out of the surrounding herbage. We were beginning to think the effort hardly worth the labour, when, returning one evening
about 7 p.m., I happened to catch sight of the flicker of a moth's wing on a nest by the roadside. The sight inspired a further search, and to my astonishment, within half an hour I had captured some forty-five specimens from this single nest. Subsequent visits hardly ever failed to produce specimens, whilst other nests still continued barren of result, and before I left, the nest which became known to us as "the gold mine," had yielded over seventy *M. ochraceella*.

The question arises, Why was this particular nest so amazingly prolific? It was not situated in the Black Wood but on the road up the Camghouran Burn, on the edge of the moorland. Its position on the top of the roadside bank made it easy to search, but that does not take us very far. It was not a case of assembling, as the majority of the specimens were ? ? . Nor was it a case of a sudden emergence, as the moths were in all stages of freshness. On returning to Devonshire it occurred to me that perhaps the hosts were not *Formica rufa* after all. Mr. Whittle, who was still at Rannoich, very kindly sent on a sample of the ants, which I forwarded to Mr. H. St. J. K. Donisthorpe. The latter authority at once identified them as specimens of *F. rufa*, var. *alpina* (see ‘British Ants,’ p. 265), and the nest was situated very near the spot where, in 1911, and again in 1913, he discovered the variety.

The question remains whether this apparently rare variety is preferred as a host by the *M. ochraceella* to the common type. Further observations may supply the answer.

In any case, our experience with *M. ochraceella* was an interesting one, but I fear it sheds no light whatever on the greater question: To what advantage either to ant or moth their life in a common nest may serve?

I may add that the best way to secure the moths is gently to *scratch* the nest with a stick. In a few moments the moths appear as from nowhere and can be easily boxed. The time of day does not seem to matter very much, but perhaps the late afternoon is the best.

Ottery St. Mary,

September 4th, 1918.

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**BRISTOL MUSEUM: INTERESTING COLLECTION OF BRITISH LEPIDOPTERA.**

By George C. Griffiths,

Hon. Curator of Entomology, Bristol Museum.

The insect collections of the Bristol Museum were, prior to 1894, small in number, the Museum then forming a part of the Literary and Philosophical Institution. They included the interesting series of Lepidoptera formerly belonging to Dr. John N.
Duck, who in 1852 wrote a book called the 'Natural History of Portishead.' This book contained a list of insects, birds, and wild flowers found at Portishead, the insect list being based upon the Duck Collection.

In 1894 the subscribers of the Literary and Philosophical Institution decided to present the building and the whole contents of the Museum and a valuable Reference Library to the Corporation of the City of Bristol, the liabilities of the Institution being discharged by a gift of £3000 from the late Sir Charles Wathen. Since the Museum has become the property of the City all its departments have made rapid progress.

In 1898 Miss Barton-Johnson presented the fine collection of Buprestis made by her uncle, the late Stephen Barton, F.E.S. This was his favourite group, and contains many beautiful and rare species. This group of beetles was afterwards reinforced in 1912 by Mr. Alfred Hudd, F.E.S., who presented 1300 specimens. In 1901 Lady Smyth presented to the Museum the entire collections, British and foreign, made by Sir Greville Smyth, Bart., deceased, comprising eggs of the Great Auk and Apiornis maximus, a very large collection of British and exotic birds' eggs and nests, and upwards of 14,000 insects, principally Lepidoptera, many of which were captured in India and Ceylon by Sir Greville himself.

In 1909 Lady Smyth defrayed the whole cost of the addition of the Greville Smyth Room in the hall formerly occupied by the Reference Library, and here a special range of insect cases and cabinets has been set up about 60 ft. in length. Still more recently an additional room was brought in, named the Dame Emily Smyth Room. In addition to general insect collections, special cases containing groups illustrating Mimicry and Protective Re-semblance, type-cases of the Orders of Insects, and a series of exhibits devoted to Economic Entomology.

In 1903 the British Museum presented 8000 of their insect duplicates, and in 1906 Mr. H. J. Charbonnier gave his collections of Hymenoptera and Diptera, principally captured in the neighbourhood of Bristol, including every specimen the occurrence of which in Somerset is recorded in the 'Victoria County History' as having been taken by him. Then in 1907 the Museum Committee were able to purchase a Gloucestershire collection of Hymenoptera, Diptera, Neuroptera, Trichoptera, and Coleoptera formed by the late Mr. C. J. Watkins, F.E.S. These specimens were upwards of 13,000 in number.

In 1913 Mrs. E. Roden presented a number of British and exotic insects, and an additional interest attaches to this gift in that most of the British specimens were collected by the well-known naturalist, Frank Buckland. In the same year, also, Mr. W. Matthew Hale gave to the Museum a fine sixty-drawer cabinet containing the collection of British Lepidoptera formed
by the late Mr. G. W. Braikenridge. This includes twelve specimens of *Chrysophanus dispar*, three *Nomia des semiargus*, and many other rare species.

Coming down to the present year, a collection of British Lepidoptera of more than common interest has recently been presented to the Museum. In the summer of 1917 there passed from us, full of days, one whose name was formerly well known to students of the Micro-Lepidoptera, Mr. Philip Henry Vaughan, of Redland Hill House, Bristol, and it is to the liberality of his surviving sister, Miss Lucy A. Vaughan, that the City of Bristol is indebted for this valuable addition to its already large series.

In the pages of the 'Zoologist,' 1846, Vaughan recorded the finding of a larva of *Manduca atropos* beneath an ash tree on Durdham Down, also the capture of two *Sphinx convoluti*, and from this date notes from his pen appeared frequently in the 'Zoologist' and the 'Entomologist's Weekly Intelligencer.' In the latter publication, *circa* 1857, and in the 'Zoologist,' 1858, he described *Nepticula pomella*, which he discovered near Bristol; also in the following year he wrote a note on the habits of *N. argyropeza*, and mentioned, in reply to an editorial remark, that he had bred one specimen of the "Ornix of the beech"—*O. fagivora*; this specimen, it may be noted, is still in the collection.

Mr. A. E. Hudd informs me that the locality "Brs" in that classic of the nineteenth century lepidopterist, 'Stainton's Manual," was furnished from records supplied either by Mr. Vaughan or Mr. Sircom. The latter collected strenuously in the neighbourhood of Brislington, Bristol, from about 1840 to 1850, and added several species of "Micros" to the British list, including *Anacampsis sircomella*, which was named after him by Stainton. This species, by the way, Vaughan regarded as a variety of *A. teniolela*.

Sircom's collection was afterwards acquired by Vaughan, and his insects also have thus passed into the possession of the Bristol Museum. As he resided at Brislington, on the southern or Somerset side of the city, whilst Redland, where Vaughan lived, is on the north-west or Gloucestershire side, their localities were, in a sense, complementary to each other, embracing the whole environment of Bristol. As both these entomologists devoted their principal attention to the Micro-Lepidoptera, this section is very largely represented in the collections, and it is easy to see from the condition of the specimens that in the "Micros" their late owner took the greatest interest. It is worthy of note that of the forty-three species of the genus Nepticula dealt with in 'Stainton's Manual,' twenty-nine are credited to the Bristol district, and this large average is in great measure due to the painstaking work of Vaughan and Sircom in breeding these brilliant little atoms.
It has not yet been possible to arrive at the total number of specimens contained in the Vaughan collection, but this is very great, and it may be mentioned that the insects are placed in ten cabinets, with an aggregate of 258 drawers.

Some of the most interesting of the insects are as follows:

19 _Chrysophanus dispar._
7 _Nomia des semiarynus._
9 _Deilephila galii_, one labelled "Taken at Easton, Bristol, 1836, Parsons."
3 _D. euphorbia_, one labelled "Taken on the coast near Swansea."

(The Bristol Museum already possesses a specimen from Braunton Burrows, with Raddon's name on label; this formed part of the Stephen Barton collection.)

3 _Charocampa celerio_, all locally captured.
1 _Smerinthus populi_, gynandromorph, right side ♂, left side ♀ (labelled "taken on the wing at Henbury, June, 1839").
3 _S. hybr. hybridus_ (Tutt).

3 _S. hybr. hybridus_ (Tutt).

3 _Tinea argentimaculella_, one specimen of which was captured by Mr. Sircom at Brislington.

16 _Gelechia acuminatella_. This species was described by Sircom in the 'Zoologist,' 1850, from specimens taken at Brislington.
5 _Tinagyma resplendella_, captured by Sircom at Brislington.
3 _Ornix scoticella_. Stainton says of this species: "More peculiarly a northern insect, though it occurs at Bristol," 'N.U. Tineina,' vol. viii, p. 258. Unfortunately these specimens are not labelled.

18 _Elachista zonariella_. Stainton remarks: "In the south of England this has only been met with by Mr. Sircom, near Bristol." Mr. Vaughan also took a few on the banks of the Avon at Keynsham.

21 _E. triseriellae = dispunctella_, discovered by Vaughan on Durdham Down.
7 _Coleophora ibipenella_, taken by Vaughan in Leigh Woods.
18 Lithocolletis amyotella, Brislington. This species was figured by Sircom, 'Zoologist,' vi.

42 L. salicicolella. Both these species were described and figured by Sircom from Brislington specimens.

60 L. viminiella. (Zoologist,' vi.

42 L. ulicicolella, first discovered by Vaughan amongst furze bushes on Durdham Downs, 1850.

3 Nepticula sericopezella, Z. = louisella, Sircom. These specimens were all captured at Brislington, two by Vaughan and the other by Sircom.

19 N. tiliae. Larvae of this species were found by Vaughan in Leigh Woods in 1859 mining in the leaves of Tilia parvifolia.

For much of the above information I am indebted to Mr. A. E. Hudd, F.E.S., and to his two excellent lists, "The Lepidoptera of the Bristol District," 'Proc. Bristol Naturalists' Society,' and "The Lepidoptera of Somerset," 'Victoria County History.'

Under the directorship of Mr. Herbert Bolton, M.Sc., F.R.S.E., every department of the Bristol Museum and Art Gallery has of late so grown and expanded that even its present large premises are badly cramped for lack of space. Additional ground has been acquired for future extension, and it is to be hoped that after the war the great collections of insects may be housed in a manner suitable to the needs of the naturalists in the City of Bristol, as well as worthy of their own intrinsic importance and interest.

AN ENTOMOGENOUS FUNGUS GROWING FROM THE COCOON OF A BRACONID.

By G. T. Lyle, F.E.S.

Most entomologists are acquainted with the fungus Cordyceps militaris which so often attacks pupae of Lepidoptera, but the nearly-related species, of which I now give a figure, is apparently but little known.

In the autumn of 1915, while searching the underside of oak leaves in the New Forest for pupae of Gracillaria sweederella,
I noticed many cocoons constructed by Braconidæ of the aphidivorous genus Praon, Hal.; the cocoons of this genus are quite unmistakable, being somewhat tent-shaped and firmly affixed to leaves beneath the bodies of the hosts, whose dried skins usually remain attached. Sprouting from the summits of some of these cocoons were curious pale brown or dirty-white processes which a pocket lens showed to be of a fungoid nature. In some cases the fungus in growing seemed to have pushed off the empty skin of the aphid which as a rule surmounts the cocoon, but in others the skin of the puceron was still to be seen in its usual position, though more or less covered by the fungus.

Thinking this fungus might be of some interest to a mycologist, I sent one or two specimens to my friend, Mr. J. F. Rayner, of Southampton, who most kindly took considerable trouble in identifying the species, which he considered could be none other than Isaria arachnophila, Ditmar, supposed heretofore to be always parasitic on spiders. Mr. Rayner asked if I could procure further specimens, but this I was not able to do until October, 1916, when I found the fungus to be even more plentiful than in 1915, so that two dozen or more examples were easily collected. Some of these Mr. Rayner forwarded to Miss Annie Lorrain Smith, F.L.S., of the British Museum, South Kensington, asking for her opinion. She replied as follows: "I still think that the Isaria agrees with Ditmar's description and original figure. More recently it has been mixed up with another thing—Gibellula, which is parasitic on the Isaria. I fancy your correspondent ought to publish his figures, etc., of the whole thing, and say that it evidently corresponds with the Isaria arachnophila."

At the time these fungal parasites were gathered I also collected several cocoons of the Praon which showed no signs of having been attacked by the fungus, in the hope that I might breed the braconid. Unfortunately, in this I was unsuccessful; there is little doubt, however, that the species was Praon volucre, Hal., a common and well-known parasite of many puceros—among others, Callipterus quercus, Kalt. In the specimen photographed it will be noticed that there are fifteen or sixteen stems sprouting from the summit of the cocoon, but in most of the examples there were not more than five or six of these excrescences, while in a few only one or two. The stems are from 1 to 2 mm. in length, slightly thicker towards the apex, pale-brown in colour, almost smooth, and having a velvety appearance under magnification.

This would seem to be the first time an entomogenous fungus has been recorded as attacking a braconid, though Cordyceps myrmecophila has been found on an ichneumon.

In 'Vegetable Wasps and Plant Worms,' Mr. M. C. Cooke
gives the following account of a species described by him as *Isaria stellata*: “Some mango-leaves from India came into our hands some years since, and upon the under surface were found beautiful, star-like, snow-white objects, almost like crystals of snow. Minute examination proved them to be minute insects, apparently *Aphides*, encrusted with an *Isaria*, about two millimetres in diameter, and sometimes confluent. The rays were numerous, radiating from a sort of discoid centre, regular, and not at all corresponding to any members, or projections of the imbedded insects; the latter impossible to extricate for identification. The whole mass of fungus was composed of delicate agglutinated threads.”

As a glance at the illustration will show, anyone unacquainted with the life-history of the host would very naturally imagine the cocoon from which the growth springs to be part of the fungus itself, and it will be noticed that Mr. Cooke, in his description of *Isaria stellata*, mentions that the mass of fungus was composed of delicate agglutinated threads. There seem to be several other points of resemblance between the species described by Mr. Cooke and that of which I am writing, viz. the numerous rays radiating from a centre, the embedded aphis, etc. Can it be possible, therefore, that *I. stellata* also grows from the cocoon of a species of *Praon*?

**BRITISH ORTHOPTERA IN 1917.**

**BY W. J. LUCAS, B.A., F.E.S.**

No observations of striking importance in connection with the British Orthoptera can be recorded for the season of 1917. Little more can be attempted, in fact, than to add a trifle to our knowledge of their distribution.

*Forficulodea.*—*Labidura riparia*, Pall., was sought for in the Southbourne locality on one occasion—September 3rd—but was not found. It is to be feared that the species is on the way to extinction as a British insect at no very distant date. Amongst a consignment of earwigs captured by J. R. le B. Tomlin on October 16th in some bone-works at Acton Bridge in Cheshire were two males and a female of *Labia minor*, Linn. In addition there were over forty *Prolaia arachidis*, Yers., the majority by a considerable number being females or nymphs. The latter were not numerous, but the larger nymphs closely resemble the females. Two of the males had broken or deformed callipers. Further there were two females of *Anisolabis annulipes*, Luc., one being of large size. The association of the last two species in the Acton Bridge bone-works, as under similar conditions at Queenborough in Kent, is worthy of note. In connection with the ‘Lancashire and Cheshire Fauna Record’
I received *Forficula auricularia*, Linn. (a male, taken April 1st, 1916) from a garden at Levenhulme, Lancs. (S. Paulson); and from a wasp's nest at Manchester (Mrs. Cawley) four males and two females (taken September 8th, 1916), the former having callipers of various kinds, one being var. *forcipata*, but not of an advanced type. On April 6th, 1917, G. T. Lyle found two mature females of this species inside rotten wood in the New Forest. Obviously they had hibernated. It may be by chance only, but I do not meet with *F. auricularia* at all frequently in the New Forest. B. S. Harwood sent me a few *Apteryxida albipennis*, Meg., of both sexes, taken at Sudbury in Suffolk on August 31st. Though not infrequently beaten from herbage in the district, its range is not a wide one.

*Blattoidea.*—In January, 1917, H. R. Wakefield sent me from Swansea three species of cockroaches. Eight mature examples of *Blattella germanica*, Linn., came from the Church Army Home at Swansea. *Periplaneta americana*, Linn., was caught in the Pentre Pit (depth unknown). They are abundant in the workings, where the colliers call them “pit-beetles.” *Periplaneta australasiae*, Fabr., was brought to him by the Spanish Consul, who said that these cockroaches had played havoc with his orchids, more especially the Catleyias and Vandas. As new growth made its appearance it was immediately devoured by the unwelcome visitors. Probably they came with some South American orchids.

*Gryllodea.*—*Gryllus domesticus*, Linn.—a male from Darwen in Lancashire—sent for the ‘Lancashire and Cheshire Fauna Record,’ is the sole cricket of which I have any note for 1917.

*Locustodea.*—*Leptophyes punctatissima*, Bosc.: On June 23rd small nymphs were seen (L. Balcomb) between Lower Malden and Oxshott in Surrey. E. A. C. Stowell sent me a male taken from a bramble-leaf in West Wood near Marlborough, Wilts, on August 13th, and the next day I took a male sunning itself in the New Forest on a bramble-leaf at Hurst Hill, where at the same time it was being beaten from trees. Harwood took the species in his garden and elsewhere at Sudbury. *Mecocnema thalassimum*, De Geer: Three were taken on August 30th at Sudbury by Harwood. *Conocephalus dorsalis*, Latr.: A nymph, approaching maturity, was taken by Lyle at Wicken Fen on July 19th. Two nymphs, male and female, were captured by G. C. Champion at Budleigh Salterton, South Devon, on October 2nd. I could not find the species at Denny Bog in the New Forest, where I found it some years ago. *Phasgonura ciridissima*, Linn.: Harwood had it brought to him at Sudbury towards the end of August. *Pholidoptera griseoaptera*, De Geer: Stowell sent me one female from West Wood, taken on August 12th. *Metrioptera albopunctata*, Goeze.: Found by Stowell upon rough herbage on the cliffside at Fowey in Cornwall on
September 30th. *M. brachyptera*, Linn.: Of this grasshopper, fairly common on damp ground in the New Forest, I caught several on August 10th at Beaulieu Heath.

Acridiodea.—*Gomphocerus rufus*, Linn.: On September 16th this grasshopper appeared to be common on the Sheepleas, near Horsley, in Surrey. *G. maculatus*, Thunb.: Stowell sent females from the Marlborough district. Harwood met with it commonly at Tuddenham and also found it at Royston. Stowell tells me that it occurs at Fowey. W. E. Evans found the species on July 8th in Dovedale, Derbyshire. W. Evans, on September 28th, took both sexes, almost black, on ground where heather had been burnt at the side of the hill road above Peaton, Loch Long, Dumbartonshire. *Omocestus viridulus*, Linn.: Stowell took a specimen flying, and therefore mature, on July 19th, in the Marlborough district. On the same day a female was taken on the North Downs in Surrey. In the New Forest on August 14th I took a very conspicuous female, with much strong dull crimson in its colouring. Even when seen on the grass it was so strikingly coloured as to catch one's attention immediately: antennae tinged with crimson towards the base; dorsal surface green generally as usual except for a median crimson line on head and thorax; face crimson; sides of head and thorax crimson; costal region of elytra dull crimson; dorsal surface of thighs of all the legs crimson. W. Evans took on August 30th one male and five females at Craigbarnet, Campsie, Stirlingshire. *O. rufigenes*, Zett.: Quite common at Marlborough Deeps in the New Forest on August 16th. *Stauroderus bicolor*, Charp.: Stowell reports both sexes from the Marlborough district, and found it to occur at Fowey. *Chorthippus elegans*, Charp.: On September 6th this not very common species was plentiful near Denny Bog in the New Forest. *C. parallellus*, Zett.: Stowell met with both sexes in the Marlborough district, and found it also at Fowey. W. Evans took both sexes at Coulport, east side of Loch Long, Dumbartonshire, on September 21st. *Mecostethus grossus*, Linn.: I took this fine insect on August 10th at the bog above Crockford Pond in the New Forest, and found it plentiful at Denny Bog on September 6th. *Tetrix*: These little grasshoppers were often in the nymph stage at Marlborough Deeps in the New Forest on August 16th. The few mature ones captured were *T. subalatus*, Linn. The nymphs might have been taken for *T. bipunctatus*, Linn., seeing that the pronotum was not produced to any great length, and perhaps some did belong to the common species.

Kingston-on-Thames,
September, 1918.
CONFIRMATION OF TRIGONALYS HAHNI, OF THE HYMENOPTEROUS FAMILY TRIGONALIDÆ, AS BRITISH.

By Claude Morley, F.E.S., F.Z.S., Etc.

So long ago as 1841, Shuckard described in this journal (p. 122) an insect with an altogether foreign appearance, under the name of Trigonalys anglicana. Whence came this type I do not know, and our only subsequent reference to the name is by Fred. Smith in the 'Zoologist,' vi, 1848, p. 1994, who gives a good figure. Rev. T. A. Marshall, in his 'Entom. Soc. Catalogues' of 1872, duly enters the insect under this name, nor does he ('Trans. Entom. Soc.,') 1872, iv, p. 264) doubt its British origin, probably because he had examined four examples in the British Museum. These four alone are still there. They were captured by Dr. T. C. Heysham, who died early in 1857 ('Morl. Brit. Ichn.,' iv, 1911, p. vi), and whose captures are all supposed to have been effected in the district of Carlisle: but Mr. G. E. Routledge has never seen this insect thereabouts. To the best of my knowledge these are the only extant indigenous specimens.

Late last year I was delighted to receive a single beautiful example from Dr. H. H. Corbett, of Doncaster, for determination. This was swept from aspen bushes in Martin Beck Wood (vice-county No. 63), near Doncaster, during July, 1917. Dr. Corbett has most generously presented it to me, but it was not immediately recorded before further investigation of the locality. Unfortunately none occurred during 1918.

The position of the Trigonalidæ is among the Fossors (though Rev. F. D. Morice repudiated the present specimen!) in spite of their 24-25 jointed antennæ. It had been of uncertain location till the publication of 'Ashmead's Classification of the Fossorial Wasps' ('Canad. Entom.,' 1900-3), but in every other respect they agree ut omnium ovo. The family, as far as is known, may be regarded as quite small. Dalla Torre places only thirty-two kinds in 1901, though entirely cosmopolitan, since these are from the West Indies, North, South and Central America, Australia, Philippines, Celebes, Burma and Ceylon; one species occurs in Natal and only one in Europe. The last is T. anglicana, Shuck., 1841 = T. hahni, Spinola, 'Mag. Zool.' x. 1840, p. 1, pl. liii; but we are rapidly learning more of the family, and, among others, I will mention Strand's new S. Cameroons and Spanish Guinea species ('Mitt. Zool. Mus. Berl.,' vi, 1912) and Schulz's masterly 'Distribution of Trigonalidæ' ('Entom. Tidskr.,' 1910, pp. 108-8).
NOTES AND OBSERVATIONS.

Pararge mегера in North-West Middlesex.—The past two seasons have been wonderfully prolific of Lepidoptera in my experience. Absentees have turned up after many years; others usually rare in this district have been comparatively common. In the former category is P. mегера, which I had supposed actually to be extinct on the Middlesex north border until August 24th, when I discovered a wasted female sunning herself on a plant of ragwort in a small orchard attached to the garden. It is twenty-four years since I last met with the butterfly in Middlesex or in this neighbourhood. The late Mr. A. E. Gibbs, in his last Presidential Address to the Herts Natural History Society (‘Trans.,’ vol. xvi, part 3, p. 175, January, 1917), said that he had not seen mегера at St. Albans since June, 1902, adding that it is now very scarce in the county, “if it has not altogether disappeared from the south and west”—that is, the part which abuts on the Middlesex frontier within half a mile of our house. On reference to my diary I find that the last example of mегера noted by me was flying on the L.N.W.R. bank within the Middlesex boundary on May 18th, 1894. I made a search, therefore, of this locality on the 24th, and was pleased to meet with a male on the Little Oxhey Lane railway-bridge, which is just in Hertfordshire. It will be interesting to hear whether other observers have encountered mегера in Middlesex or South Herts this or last year. It seems always to have been rare in the latter half of the nineteenth century hereabouts. ‘Harrow Butterflies and Moths’ (vol. i, 1895) includes no record later than C. Melvill’s ‘Flora of Harrow,’ and I think that the list of Lepidoptera in this work was completed before 1867. My own observation appears in the supplement to vol. ii (1897), and is the only one more or less modern. In a list I have seen, compiled by Dr. F. A. Dixey, F.R.S. (1874), it is stated to occur at Highgate; Mr. Harold Hodge (‘Entomologist,’ vol. xx, p. 266, 1887) mentions a single example in a plot of ground adjoining a house in Highbury Place, N. This is not repeated in “A Preliminary List of the Insect-Fauna of Middlesex” (op. cit., vol. xxix, p. 31, 1887), where, however, Hampstead is cited (Godwin, 1872–75); and Mill Hill by Mr. South. A single example is reported also by Mr. H. D. Sykes on Enfield Cedars Estate on August 17th, 1889 (op. cit., vol. xxvi, p. 12, 1893). I give these several notes, as the localities are at no great distance from mine.—H. Rowland-Brown; Harrow-Weald, Middlesex.

Courtship of Pararge mегера.—P. mегера swarmed this year in August on the Corfe and Swanage Downs. During the first week it was in beautiful condition, but became worn very quickly, and the rich tawny colouring of the wings seemed to be particularly evanescent. One afternoon I watched a female settled low down on a bare patch of warm earth on the hillside. She commenced “calling,” her wings vibrating continuously and rapidly until a male answered. The male, after a preliminary flutter, settled down in front of the female, and commenced butting at her with his antennae, she answering back—for all the world like a pair of rams fighting. After some

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x
minutes this odd courtship was interrupted by another male; where-
on the original wooer engaged his adversary, and in precisely the
same manner as he had engaged the female. Meanwhile she had
flown away. But I saw the same kind of approach adopted on a
subsequent occasion, this time without interference.—II. Rowland-
Brown; Harrow-Weald, Middlesex, September 7th, 1918.

Papilio machaon in Thanet.—It may be of interest to record
that a very beautifully coloured larva of the swallow-tail butterfly
was sent me on September 12th from Birchington-on-Sea. It was
taken by a boy who found it feeding on carrot. Late in July I saw
two swallow-tail butterflies close to Minster Station on the same
day and another on some marsh land some way distant.—Fred. V.
Theobald; Wye Court, Wye.

Polygonia c-album in Cheshire.—This species would seem to be
spreading steadily northward in the west of England. I met with
it in the Chester district on August 21st, and saw three or four
specimens between that date and the 24th.—T. W. Gardner (Major,
R.A.F.); Kingsnorth Air Station, Hoo, N. Kent.

Epinephele tithonus ab. mincki in Essex.—Some fifteen years
ago two of my pupils were collecting near here and caught a very
fine example of this aberration, in which the red-brown band was
replaced by soft pale yellow. Ever since I have been looking out
for something similar, but without success, until on August 29th
last I saw, and promptly captured, a female which was basking in
the sun upon a bramble-flower. The yellow in this specimen is not
quite so pale, but more of a chrome tint. As she was not in
the best possible condition, although not so worn as the typical
specimens I encountered that day, I determined to sacrifice her for
eggs, of which she laid some two dozen on a plant of Poa annua
which I potted, a few being also laid on the muslin cover of the
pot.—(Rev.) Gilbert H. Raynor; Hazeleigh Rectory, Maldon,
September 10th, 1918.

Agriades corydon ab. in Bucks.—While collecting butterflies
near Prince's Risboro' in August last I captured a fine dark grey
male of A. corydon. The normal blue colour is entirely absent in
this specimen.—C. H. Williams; 5, Lower Belgrave Street, Eaton
Square, S.W. 1.

Cupido minimus in September.—It may be of interest to your
readers that Cupido minimus was taken to-day on the Downs near
Rottingdean in perfect condition and evidently recently emerged.
So late a second brood is not mentioned by either Mr. Tutt or in
South’s ‘Butterflies of the British Isles.’ Two specimens were
taken and both were typical.—G. K. Gregson (Major); Onslow
House, Dyke Road, Brighton, September 5th, 1918.

Adropia lineola in the Bedford District.—In Mr. South’s
‘Butterflies of the British Isles’ it is stated that five specimens of
this insect were taken near Bedford in 1898. These were evidently
stragglers from a colony which I found on August 5th, 1918, and which was about 300 yards distant. At the new spot during the first half of August hundreds could have been taken. Having found this spot I kept a sharp lookout for the insect. Wherever I went I found it along the roadside in many directions. In the north I found it as far as Kimbolton, in the east as far as Biggleswade, and in the south-east beyond Shefford and at Royston. It is evident that in this district it is common and widely distributed.—W. Gifford Nash; Clavering House, De Parys Avenue, Bedford.

Unusual Pupation of Zygeena filipendulae.—It is quite true, as Mr. Ford says, that the more general place for this Zygoenid to pupate is the stems of grass or rushes or some vegetation of erect growth, but it is by no means always so. I have found the insect (the chrysalid) on stone walls in Cornwall and the Isle of Wight, whilst this summer in the Welsh hills I observed more chrysalids on rocks and large or small boulders than on plants, and they were quite abundant.—G. F. Bethune-Barker; 19, Clarendon Road, Edgbaston, August 26th, 1918.

Stauroptus fagi on Sallow.—When beating some sallow yesterday I got a S. fagi. As none of my books give sallow as a food-plant of this larva, I think the record interesting to other entomologists.—Reginald J. Ford; Manor House, Stoke Canon, August 23rd, 1918.

Cucullia verbasci in Co. Durham.—I was very pleased to see a small brood of about a dozen half-grown larvae of this species feeding in the middle of July upon a large plant of Verbascum growing in my garden—how many more the sparrows (which swarm about the house) had accounted for I cannot say, but am very suspicious that they had reduced them, for I have several times seen them with caterpillars of some species or other in their mouths feeding their young. This is an interesting addition to our Northumberland and Durham list. The species appears to be extending its range northward, as I understand that my friend, Mr. T. A. Lofthouse, of Middlesbro’, also found the larvae in his garden a few years ago. My plant of Verbascum is now close upon 10 ft. high!—J. Gardener; Laurel Lodge, Hart.

Lyttia (Cantharis) vesicatoria at Chichester.—During July of last year L. vesicatoria was somewhat abundant in this locality, as recorded by me in the ‘Entomologist,’ vol. I, pp. 188, 210. I know of only one specimen noticed this season, which was captured and brought to me on July 11th last.—Joseph Anderson; Chichester.

[Mrs. South picked up a specimen of this beetle at Highcliffe on June 19th last. It was lying on its back on the sand quite close to the receding tide. The agitated movement of the legs attracted attention, otherwise the insect might have been passed unnoticed. R. S.]

Hylophila bicolorana at Chichester.—A specimen of H. bicolorana was taken here in bred condition on June 30th. This is the
first record of its occurrence here, I believe.—Joseph Anderson; Chichester.

Vespa crabro and its Prey.—Hornets seem to have been more numerous than usual in the New Forest this summer, and apparently they have destroyed a large number of other insects. They seem to have the habit of hunting over flowers in search of their prey. On August 16th, after capturing one which was feeding on what looked like a fly, a second was watched flying from head to head of a bed of Mentha aquatica in flower. It suddenly pounced on a butterfly—Pararge egeria—which it carried away in its jaws.—W. J. Lucas, August 29th, 1918.

Clusters or Assemblies of Bees and Wasps when Resting.—With reference to the clustering habit of Melitta leporina recorded by Mr. O. H. Latter ('Entomologist,' ante, p. 215), the same is to be observed of the males of many other bees and wasps. Halictus calceatus (cylindricus) and albipes very commonly congregate in great numbers on flowering heads of grasses towards evening, sometimes both species being found in a single cluster. In other countries some species of Nomia form very large clusters. In all non-parasitic bees the males alone have this habit; but in the case of some parasites both sexes may be found either in clusters or at least a number together in close proximity (e.g. Nomada, Epeolus, certain Nyssonidae, and others). In some cases the males may be found at rest in the closed flowers which they frequented by day. Thus, while the male Chelostoma florisonnui frequently forms clusters or assemblies, the small C. campanularum sleeps in the flowers of Malva or Campanula, often several in a flower. Cilissa hemorrhoidalis & may be found in numbers at night in these same flowers. A year or two ago I noticed some large holes in wooden posts quite filled up with the males of Crabro cribrarius—a very unlikely resting-place, one would have thought, for this sand-loving Fosсор.—R. C. L. Perkins.

Notes on Lepidoptera in Middlesex and in Hampshire.—During last June and July moths were abundant at sugar (in Edgware). Amongst many specimens taken were the following: Dicyela oo, eight taken, one being ab. renago; Palimpsestis ocyogessima, two; Habrosyne derasa, eight; Dipterogia seabriuscula, one. From the third week in July until now I have taken nothing on sugar. Seven larvae of Cuculla verbasci were taken on clematis, and one on budlea. In and around a wood near Whitchurch, Hants, the following butterflies and moths were taken: May 28—Neneobius lucina, abundant; also Brenthis euphrasynae, Eulype hastata. July (middle)—Limenitis sibylla, Dryas paphia, Argynnis hyllapia, Melanargia galathea, Apanteles hyperanthus. My wife caught L. sibylla on June 2nd near Brockenhurst.—G. de Haviland; Woodcote, Edgware.

Notes on Butterflies from Lulworth.—In 1917 I took a male Colias edusa in June, and saw four other specimens—two of them var. helice—during the autumn. This year a single male put in an appearance at the end of July. Pararge egeria, var. egerides: for the first time in my thirty-five years' acquaintance with the locality
I have encountered this species. A fresh male was taken from a bird-cherry bush in my garden in August, and a female was noted a hundred yards away from the same spot on September 7th. I have failed to detect any in the neighbouring woodlands.—*Thymelicus acteon*: having frequently taken *acteon* in worn condition quite early in the season I made special captures this year from May onwards. During the hot spell which occurred at the end of that month both sexes were flying in about equal numbers; but not until nearly the end of June did I see the bright golden undersides of the fresh males, while females in good condition were hardly to be found before mid-July. I am strongly of opinion that this species must hibernate in great numbers, the dense, tufty grass they frequent offering an excellent winter refuge.—M. J. Mansfield; Greybank, West Lulworth, Dorset, September, 1918.

**Additions to Lists of Butterflies Collected at Amélie-les-Bains and La Preste.**—A careful re-examination of the Lepidoptera collected at La Preste in July, 1917, enables me to add to those already recorded in 'The Entomologist' (antea, pp. 194–6), *Melitta dictyna* ?, *Nemeobius lucina* and *Agriades corydon* ab. *syngrapha*. I find, on the other hand, that *Glaucopsyche lysimachia* must be omitted, having been too hastily included (op. antea, p. 197). The extreme variability of *Melanargia lachesis* both as regards size and as regards coloration calls for a few remarks. I have five examples of this butterfly, which differ from one another in the following respects: No. 1 may be regarded as normal; its expanse is 2-25 in.; the markings on the underside of the hind wings are grey outlined in black. No. 2 has an expanse of about 1-88 in.; the markings in the same position are much paler than on No. 1. No. 3 has an expanse of about 2-5 in. The markings on the under surface of the hind wings are bistre and are faintly outlined in a darker shade of the same colour. No. 4 has an expanse of about 2-15 in. On this example only those markings which lie nearest to the costa on the under surface of the hind wings are pale grey, and of the others on the same surface there are only the black outlines, for the centres have entirely disappeared. This example thus approaches ab. *catalaenca*, Stgr. No. 5 is the example taken at Vernet-les-Bains in August, 1916. The ground-colour is pale straw, and the markings on both sides are dark brown. I have also observed some further peculiarities in the abdominal marks of *I. podalirius*, var. *feisthamelii*. On one example (Amélie-les-Bains, August 11th, 1918) the distal half of the dorsal surface of the abdomen is white with the exception of a thick black line down the centre. Finally, some of my examples of *Cupido minimus* are without rows of submarginal spots; another has these rows very clearly marked; on yet another they are faintly indicated. I do not know if these differences are sexual or varietal. The butterflies captured at Amélie-les-Bains in June which I had not captured previously were *Brenthis dia*, A. *cydippe* ? (June 27th), *Adopea lineola* var. *ludoviciana* ? ("ala postica subitus squamis nigris creberrimis consitae"), and *Thymelicus acteon* ?. I also captured in June *Laopeis robotis* ?, *Nomiades semiargus* ? (a much worn
specimen; I had previously captured a male near Menton), *P. aegon* ♂, *L. arion* ♀, Epinephele pasiphae ♀, and Augiades sylvanus ♀. In July the new captures were *Thecla acutet*, *Z. quercus* ♀, *Limoniis sibylla* ♀, *Polygonia egea*, *Vanessa io* var. *ioides*, *M. deione* ♀, *Hippparchia arethusa* var. *erythia*, *Epinephele ida* ♀, *Canonympha doras* ♀, and *A. lineola* ♀. I also captured opposite sexes as follows: *Pontia daplidice* ♀, *Gonepteryx cleopatra* ♀, *Chrysophanus dorilis* ♀, *C. phlaeas* ♀, *Eorees argiaedes* ♀, *A. bellargus* ♀, *E. jurtina* var. hispulla ♀, and *P. c-album* ♀. In August I added the following butterflies: *Argynnis aglaja* ♀, *Dryas paphia* ♀ and *A. comma* ♀. *Satyurus stiltinus* var. *allionia* ♀ was captured in August of last year.—J. R. McClymont; Amelie-les-Bains, Pyrénées-Orientales, France.

**Note on the Lepidoptera of Fowey.**—The 'Victoria County History of Cornwall' contains hardly any allusion to Fowey in its list of Lepidoptera, and as several species, there described as barely recorded in Cornwall, are not uncommon here, it may be of interest to note them. I have practically collected in the Fowey district only during the months of May, June, and July, and, as light and sugar on the coast are strictly "verboten" just now, collecting resolved itself into "bush-whacking" by day, and duskng with the net. From my experience I should judge that it would be a remarkably productive locality in normal times. I had little time for exploration except at a few week-ends. The most interesting spot was the headland at the mouth of the bay. It is crowned with a thicket of perhaps an acre of old blackthorn fringed with masses of bramble, through which grow quantities of *Lauchmis diurna*, wood-sage, and *Galium mollugo*. There are also bracken, gorse, and patches of *Silene maritima*. I visited this spot on most favourable evenings and took a nice little series of seven good *Dianthecia conspersa*, as well as plenty of *Eupithecia venosata* at the *Silene*. The blackthorn yielded a similar series of *Semiorthis alternata*. Later in the season five *Leucania putrescens* occurred at the wood-sage, but were past their best when I discovered them. The cliff edge produced one *Hypenoides albistrigalis* and a good number of *Stenia pucrealis*; later on *Gnophos obscurnia* were common in medium shades of light to dark grey. *Multochrista miniata* flew at dusk with *Thyatira batis*, *Hubrosyna derasa*, and countless commoner things. Although clematis is scarce and local about here, I put up single specimens of *Melanthia procollata* from isolated clumps in two localities. One wonders how it got there. June 22nd was a notable day when I struck a bilberry "ride" near the entrance to the Tuxulyan valley, where, in less than an hour, I took five beautifully fresh *Bomolocha fontis*, three *Chloroclystis debilitata* (faded), two *Perinephele lancealis*, one *Eucosmia undulata*, and numerous *Lygris populara* (sarily an early date for this, and they were not very fresh). The same ride produced *Aethena testacea* and other things. Apart from these two localities, I took three *Bapta bimaculata*, one *Chloroclystis coronata*, *Enyemene dolabraria*, and *Cidaria picata*. In all I noted seventy species of Geometridae. Of other families *Areta villica* seems to be common there. *Atolmis rubricollis* swarmed on
a sycamore tree in a farmyard. *Bryophila glandifera* was fairly common and in fine variety. The males of *Lasiorhyncha quercus* flew literally in thousands at the end of July, but it would be tedious to enumerate the commoner species. I recorded thirty-one species of butterflies, but nothing peculiarly local. The most interesting to me was a *Eugonia polychloros*, which I took an hour and a half to catch! The behaviour of this butterfly was very peculiar. I may say that I missed it four times, but, trusting to the inveterate habit of the Vanessidae of returning to the same spot, I sat down with a pipe and waited for it to return. Although it was midday, it repeatedly came down on the shady side of a tall hedge and penetrated to the stem of a small elm, on which it sat for a time. It came three times, after considerable absence, to the same identical spot, and I can only conclude that it proposed to hibernate there, though the date was July 27th. Although the butterflies were not particularly striking, their distribution was. I think it has been observed before that in the far south-west, species elsewhere confined to woods are found in the open. Here in bare lanes with turf walls and no tree near may be found in abundance *P. egeria* var. *egerides*, and *A. hyperantus* consorting with *P. megera* and *E. tithonus*, as well as *Venilia maculata*. Every copse has a few *Dryas paphia* loosely attached to it and roaming within a radius of half a mile. *Brenthis selene* affects rough slopes above the bay, where there is no tree bigger than gorse and blackthorn, but I had noticed this peculiarity some time ago in West Sussex, where *B. euphrasynae* was found more commonly inside a wood, and *B. selene* on the moor outside, as is the case with *Argynnis cydippe* and *A. aglaia*. *A. cydippe* is the only one of these five “fritillaries” that is not found here. The district is poor in “blues,” only *Cyaniris argiolus* being common (double-brooded) and *Polyommatus icarus*. All the more generally distributed “skippers” and Satyrids occur freely, including *Hipparchia semele*. Of the Vanessids *Aglais urticae*, *Vanessa io* and *Pyrameis cardui* are very abundant; *P. atalanta* is this year very scarce.—E. A. C. Stowell.

**OBITUARY.**

**William Francis de Vismes Kane, M.A., M.R.I.A. 1840–1918.**

Mr. W. F. de Vismes Kane died in April last at the age of 78. As a Lepidopterist he had achieved a unique reputation. He was the first of our countrymen to publish an up-to-date, accurately illustrated and compendious guide to the butterflies of the western palearctic region. I have no hesitation in saying that this work is not only a *chef-d'œuvre*, but that it will survive for years to come as the best possible all-round handbook for the travelling Lepidopterist. It has inspired many insular collectors to wider fields, myself among the number, and I, for one, owe a deep debt of gratitude to the genial pocket companion of so many successful tours—from the lower Danube in the east to the western Pyrenees, from the far north
to the Mediterranean. When the war is over I trust I shall be able
to resume the revision of 'European Butterflies,' * with which I was
occupied in 1913–14, the author having assigned the copyright to
me with full approval of a revision on the lines I suggested.

Mr. Kane was educated at Cheltenham College, and Trinity Col-
lege, Dublin, where he took his degree in arts and engineering.
Having succeeded to family estates in Monaghan, he settled down at
Drumreaskie House in the early sixties, and after 1879 divided his
time between that place and Monkstown, where he was known as a
first-rate yachtsman and fisherman. In 1886 he organised the natural
history unit of the South-west Ireland Dredging Expedition, and
from that date onward contributed valuable papers on Crustacea to
the Royal Irish Academy's 'Proceedings.'

His first contribution to the 'Entomologist' was, I think, in 1882,
'Causes of Abundance or Otherwise of Lepidoptera' (vol. xv, p. 244),
and hardly a year passed without some interesting contribution,
chiefly in connection with the then little-known entomological fauna
of Ireland. The most valuable of these is: *A Catalogue of the Lepi-
doptera of Ireland,' continued from 1893 to 1901, and eventually
published as a separate work with a beautiful plate by Messrs. West
Newman & Co. in the latter year. The introduction is an admirable
example of his power of clear thinking and clear reasoning. He was
a sometime President of the Royal Academy of Science, and for several
years a Fellow of the Entomological Society of London. Besides
the many notes on British and Irish Lepidoptera—I cannot find that
he published, outside the handbook, any of his observations abroad—
his works, for which he was an authority on the Crustacea, vertebrates, and archaeology
of his native island. A list of his works in all these departments
is published, with an excellent portrait and biography, in the July
number of the 'Irish Naturalist.' I knew him personally only
in his later life, when he had come to spend a part of the year at
Sevenoaks. His manner was charming and agreeable. He was
always ready to help when appealed to on his favourite branch of
Science, which was, and remained, the study of Lepidoptera. *The
Lepidoptera of Lambay,' in the 'Irish Naturalist' of 1907, appears
to be his last published note. He leaves a host of friends on both
sides of the Irish Channel.

Mr. Kane was twice married. His first wife died in 1901, his
only son in 1897. He married a second time, and is survived by a
dughter. He was remarkably young for his age. When I met him
for the last time on a bitter winter night in London in 1913 I little
realised that he was then well past three score years and ten. *If
you publish your edition of my book,' he said, "I want you to retain
the first few pages of the Introduction intact." They include a
perfect description of a first spring day's collecting at Hyères—from
the pen of an artist and true lover of Nature. It is as though he
conjured up "the pastures of the Blessed" themselves, all "decked
in glorious sheen," as many another butterfly-hunter since remembers
to have gazed down upon them from the rightly named Mont de
Paradis.

H. R.-B.

* 'European Butterflies,' Macmillan & Co., 1885.
EXCHANGE

[The publication of Notices of Exchange, or of Advertisements, in the ‘Entomologist’ is in no way a guarantee for the British nationality, authenticity, or good condition of the Species. This Notice is not given to throw doubt on the bona fides of Exchangers or Advertisers, but to absolve the Editor from responsibility, in case the liberty allowed should be abused.] Marked * are bred.

 Notices of Exchange should be received by the 21st of Each Month to insure insertion. Not more than Six Lines can be allowed for each.

Duplicates.—Asworthi, Lucern. Desiderata.—Irish Butterflies particularly, and offers.—Joseph Anderson, Alre Villa, Chichester.


Duplicates.—Many desirable species of butterflies, unset, in papers, from Western North America. Desiderata.—Diurnal Lepidoptera from all parts of the world.—Dr. John A. Constock, Curator of Entomology, Southwest Museum, Marnian Way Avenue 46, Los Angeles, Cal., U.S.A.

Duplicates.—Blandina, Plantaginis, Hecus, Carpini, Runici, Menyanthidis, Graminis, Chi and var. Olivacea, Protea, Gluca, Hirtaria, Punctularia, Luteata, and a few Aurina, Io, T. rubi, Potatoria, Umbratica, Festuca, Ulnata, etc. Desiderata.—Senex, Irrorella, Deplana, Or, Ridens, Orion, Aceris, Populeti, Miniosa, Upsilon, Rubiginea, Advena, Contiga, Chamomille, Vireata, Berberata, and many others.—G. Fleming, Wolfsdale, West Grove, Merthyr Tydfil.

Duplicates.—Larvae of Hera and Lichenaria; imagos Capsinula set with black pins and data. Desiderata.—A. crateagi, Polychloros, Betula, Hyale, Antiopa, W-Album, Sinapis, Aglaia, Astrarche, Iris, Epiphron, Arion, C-Album, Æthiops, Typhron. Set with black pins and data on flat boards preferred.—Reginald J. Ford, Manor House, Stoke Canon, Exeter.

Duplicates.—Adippe, Galatea, T. rubi, Actaeon, Lucina, Porcellus (pupa), Globulariae, Geryon, Potatoria (dark ?), Exulans, B. rubi (larvae), Conspera, Serena, Polycommaria, Oblongata. Desiderata.—Epiphron, Æthiops, Arion, H. comma, Melliloti and other Zygena, Immorata, and local Noctœa and Geometœa. Louis Meaden, Melbourne, Dyke Road, Preston, Brighton.


Duplicates.—Lepidoptera from Natal and Trinidad unsat in papers. Desiderata.—Tropical Lepidoptera from other countries; also some of the less common British moths.—E. J. Paterson, Fairholme, Crowborough.

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Change of Address.—H. Wood, from “The Nook,” to Albert Villa, Kennington, near Ashford, Kent.

To Correspondents.—All notes, papers, books for revi-w. &c., and notices of Exchange should be sent to the Editor—

RICHARD SOUTH, 4, MAPESBURY COURT, SHOOT-UP HILL, BRONDES-BURY, N.W. 2.

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Entomological Society of London, 11, Chandos Street, Cavendish Square, W. 1.—Next Ordinary Meeting, Wednesday, October 2nd.


London Natural History Society (Hall 20, Salisbury House, Finsbury Circus, E.C.).—The first and third Tuesdays in the month, at 7 p.m.—J. Ross, 18, Queen's Grove, Clingford, N.E., Hon. Sec.

Lancashire and Cheshire Entomological Society.— Meetings at Royal Institution, Colquitt Street, Liverpool, 3rd Monday in month at 7.30 p.m., October to April.—Hon. Sec., Wm. Mansbridge, F.Z.S., “Dunraven,” Church Road, Wavertree, Liverpool.

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For some time past M. R. Vitalis de Salvaza has sent me collections of Rhynchota from this very interesting region, and I believe he intends at some future date to publish an illustrated work on the insect fauna of Indo-China. The Homoptera are in course of publication in the Ann. and Mag. Nat. Hist.* In this contribution I give a rough list of twenty species belonging to the Family Lygaeidae, eight of which are described as new species. Examples of all these, including types and uniques, are placed in the collection of the British Museum.

List of Species already received.

Lygaeus hospes, Fabr.
Lygaeus tonkinensis, Dist.
Graptostethus servus, Fabr.
Clenocoris floridulus, Dist.
Bochrus hoabinhensis, sp. n.
Bochrus tokinensis, sp. n.
Geocoris annulicornis, Sign.
Phenacantha bicolor, Dist.
Clerada apicornis, Sign.
Paromius pallidus, Montr.

Pamera vincta, Say.
Pamera viciineri, Dohrn.
Pamera vitalisi, sp. n.
Pamera genimata, sp. n.
Diniella antennalis, sp. n.
Aphanus sordidus, Fabr.
Aphanus funestus, sp. n.
Metrochus uniguttatus, Thunb.
Lethaus maculipennis, sp. n.
Lethaus pictus, sp. n.

Bochrus hoabinhensis, sp. n.

Black; apex of head castaneous; apical half of clavus with a luteous discal streak; corium with the lateral area and an oblique fascia extending from base, where it is narrowest, to about one-third from apical angle, where it is broadest, luteous; membrane just

* Ser. viii, vol. xix, p. 100 (1917), and onwards from time to time.
passing the basal margin of the penultimate abdominal segment, black with sub-basal spots and the lateral and apical margins luteous; legs blackish, femora more or less castaneous; antennæ pilose; second joint slightly longer than the third, fourth joint mutilated; eyes more or less castaneous; pronotum shining black, with a central, transverse, depressed, coarsely punctate median area in front of which are two transverse lineate impressions; connexivum dark castaneous; membrane not reaching abdominal apex, which is shiny black.

Long, 8 mm.; greatest width, $3\frac{1}{2}$ mm.

Habitat.—Tonkin: Hoabinh.

 Allied to B. foveatus, Dist., in general colour and markings but with the pronotum distinctly narrower, and its transverse median constriction straighter and more regularly excavated and preceded by two transverse impressions.

*Bochrus toukinensis*, sp. n.

In colour and markings of the clavus and corium resembling the previously described species *B. hoabinhensis*, but the membrane black with the lateral and apical margins concolorous, a sub-basal spot divided by a black vein and a minute marginal spot near apex of corium, luteous; pronotum with two discal foveæ as in *B. foveatus*, but a more elongate species and the connexivum broader, more centrally foveate pronotum, etc.

Long, 10½ mm.

Habitat.—Tonkin; Hoabinh.

*Pamera vitalisi*, sp. n.

Head, pronotum and scutellum black, posterior lobe of pronotum with two small ochraceous spots on margin before scutellum; corium very pale ochraceous, longitudinal suffusions to clavus, a small spot near basal angle, two small spots in obliquely transverse series near middle, and broad apical angle, black; membrane dull ochraceous, almost basal half brunnescent; body beneath, antennæ, and legs black, bases of the intermediate and posterior femora, ochraceous; basal joint of antennæ—excluding extreme apex—more or less dull ochraceous, second joint longest; anterior pronotal collar narrow but distinct, posterior lobe thickly coarsely punctate; anterior femora thickened, distinctly finely spined beneath on apical area.

Long, 6 mm.

Habitat.—Indo-China; Kompong Kedey.

*Pamera gemmata*, sp. n.

Head and anterior lobe of pronotum dull black, posterior pronotal lobe and the corium reddish-ochraceous, the latter with two small spots in transverse oblique series near middle, and the apical angular area fuscous or black; scutellum fuscous-brown, darker at basal margin; membrane brownish-ochraceous, with darker suffusions on basal area; head and sternum beneath black: abdomen beneath testaceous; legs ochraceous; anterior femora black, with the extreme
apex ochraceous; antennae ochraceous, second joint longest; rostrum ochraceous, almost reaching posterior coxae; anterior pronotal lobe convex, with reddish ochraceous longitudinal vitta; anterior pronotal collar narrow and ochraceous, the posterior marginal apices moderately tubercularly prominent; scutellum depressed on basal area; corium finely but distinctly darkly punctate, the lateral marginal areas almost impunctate.

Long, 6 mm.
Habitat.—Tonkin; Hoabinh.

Diniella antennalis, sp. n.

Head, pronotum, and scutellum black; pronotum with narrow anterior and posterior margins, and the extreme basal angles dull ochraceous; antennae black, the apical joint ochraceous; corium dull ochraceous, distinctly somewhat darkly punctate, the apical margin fuscous-brown; membrane somewhat pale ochraceous; body beneath black, legs ochraceous; antennae with the third and fourth joints subequal in length, and each a little shorter than the second joint.

Long, 3 mm.
Habitat.—Tonkin; Hoabinh.

Allied to D. sevosa, Dist., from which it differs by the pale ochraceous apical joint of the antennae, of which the second joint is distinctly longer than the third, the more opaque coloration of the pronotum, etc.

Aphanus funestus, sp. n.

Ochraceous, thickly mottled and punctured with fuscous; lateral margins of pronotum and corium pale ochraceous and less interspersed with fuscous; scutellum with the basal area much darker, and the extreme apex paler in hue; membrane black, subapically brownish-ochraceous; body beneath and legs ochraceous, the sternum darkly punctate; antennae, with the basal joint fuscous, slightly passing apex of head, second joint dull ochraceous, blackish at apical area, nearly twice as long as first; remaining joints mutilated; pronotum thickly, darkly punctate, a little more palely so on basal area, the lateral margins laminate; anterior femora strongly thickened and prominently spined beneath near apex; rostrum slightly passing intermediate coxae, but imperfectly seen in carded type.

Long, 7 mm.
Habitat.—Indo-China; Kompong Kedey.

Lethæus pictus, sp. n.

Head, anterior area of pronotum and scutellum black; posterior area of pronotum and the corium fuscous-brown; anterior and lateral margins of pronotum and lateral margin of corium ochraceous; antennae and rostrum fuscous-brown, antennae with the apices of the

ENTOM.—NOVEMBER, 1918.
first, second and third joints blackish, fourth joint greyish-brown; body beneath blackish, the abdomen more opaque; legs brownish-ochraceous; pronotum about as long as broad at base, the lateral margins laminate, the anterior black area moderately convex, the posterior area coarsely darkly punctate; posterior margin of corium with about two small paler spots; corium coarsely punctate, especially on its lateral area; membrane pale brownish, and passing the abdominal apex; anterior femora much thickened and finely-spined beneath.

Long, 9 mm.

Habitat.—Laos; Luang Prabang.

Allied to L. extremus Walk. from Siam and Ceylon, but differing by the more elongate pronotum, which in Walker’s species is distinctly shorter than broad at base.

*Letheus maculipennis*, sp. n.

Head and anterior area of pronotum black, posterior area of pronotum, scutellum and corium castaneous-brown; lateral pronotal margins—excluding posterior angles—a small central spot at middle of pronotal posterior margin, apex of scutellum, a small spot at base of corium, and two spots near the middle, one near apical margin, and the apical angle of same ochraceous; membrane piceous, its extreme margin paler; head beneath and sternum dark castaneous, abdomen beneath paler castaneous; legs ochraceous, anterior femora, apices of intermediate and posterior femora, apices of the tibiae and tarsi castaneous; antennae with the basal joint piceous, second and third joints paler with their apices piceous, second joint longer than third, fourth joint mutilated; rostrum with the basal joint black, its extreme apex and the whole of the remaining joints ochraceous, apical joint almost reaching the posterior coxae; posterior pronotal area coarsely punctate and with a distinct central longitudinal ridge; scutellum sparingly punctate but much more thickly so on basal area; clavus and corium more or less thickly punctate; anterior femora strongly thickened and finely spined beneath.

Long, 8½ mm.

Habitat.—Indo-China; Kompong Kedey.

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**THYMELICUS ACTEON, AND OTHER LEPIDOPTERA OF THE ISLE OF PURBECK IN AUGUST, 1918.**

By H. Rowland-Brown, M.A., F.E.S.

The butterflies of the Isle of Purbeck are familiar to most collectors, but a few remarks on some of them may even yet be not out of place. I spent a short holiday at Swanage and Corfe Castle from August 2nd to the 13th, and after a preliminary wet and windy day or two the weather settled down, and all the time I was at Corfe (August 8th to 13th)
I was favoured with glorious sunshine, blue skies, and warmth—favourable to day observation. Night collecting, of course, is impossible in these days on the sea coast.

The enormous profusion of certain common down species was most striking. *Pararge megera* and *Melanargia galatea* were in thousands—the latter, especially the males, running extremely small, compared with those encountered a fortnight earlier on the Chilterns, where for the first time in my experience I found this butterfly in some numbers. Indeed, I am happy to think that *galatea*, which seemed to have become extinct a few years ago on the Buckinghamshire chalk hills, has recovered itself, and is again spreading in all directions in suitable localities. But, while only the females were in good condition when I was on the spot on July 13th, the Purbeck *galatea* of both sexes were perfectly fresh, and remained so until the day of my departure.

In sharp contrast to the Chiltern profusion, *Agriades corydon* on the Corfe and Swanage downs was few and far between—it may be, again, not yet fully out. The few females met with and turned back presented nothing in the way of variation; and the same may be said of *Polyommatus icarus*, which at this time, at all events, was anything but the "Common" Blue. The males of the latter species observed were generally much below the normal size, the females displaying, also, less tendency to blueness than those in Buckinghamshire. *Plebeius ægon* was evidently over on the heaths between Corfe Castle and Wareham, but I netted one perfectly fresh male on August 7th, among the rough furze above the Lighthouse near Tillywhim Caves. This is rather a late date, I think; and on the same day I observed one very worn female *Cupido minus* at the same spot. When I left Corfe *A. bellargus* was just emerging.

I see in the list of "Lepidoptera of the Isle of Purbeck" ("Proc. Dorset. Nat. Hist., etc., Club," vol. vi, 1885) that *Dryas paphia* is represented there by a single individual. On August 11th I watched a couple of males flying round the privet flowers by the roadside about a mile on the Wareham road. Of *Argynnus cydippe* I saw nothing, nor does it appear to occur in the Isle, and I only mention its absence in contrast again to its sudden and abundant recurrence after many years in 1918 in certain haunts in the Chilterns, to which it has been stranger for a long time past. On the same day about 10 a.m. (summer time) the only specimen of *Colias edusa*—a male—seen this year was flying on the slope of the down facing the railway just outside Corfe Castle Station. *Pieris brassicae* was quite rare at Corfe.

The scarceness of Geometers was disappointing, especially on the Swanage side; nothing was really common, but I made
acquaintance with *Aspilates ochrearia* (*citricia*), and occasional males of *Selidosema ericetaria* scouring the hillside with the restless energy of *Lasiocampa quercus*, which was everywhere in evidence, especially in the cyanide bottles of the host of youngsters after "Oak Eggars." *Anaitis plagiata* was not in its usual abundance, or *Gnophos obscurata*.

The following list of butterflies suggests that I met with almost all that may be expected in the Isle of Purbeck at this particular season. Single examples are marked with an asterisk.

**Hesperidae.**—*Nisoniades tages*, gen. est., two examples near Corfe. *Adopea flava*, less common than *Thymelicus acteon*, and in better condition as a rule.

*Thymelicus acteon* is generally distributed, as is well known, from Ballard Down to Corfe, and again less frequently on the west downs from Corfe Castle; it occurs, also, all along the coast downs west of Swanage, but I found it in August more plentiful inland. With regard to Mr. M. J. Mansfield's interesting note in the 'Entomologist' for last month (p. 237), suggesting possibilities of hibernation as imago, Tutt in his 'British Butterflies' (vol. i, p. 125) disposes, I think, of the idea that the early observed examples are of a separate brood. At the time these observations were published (1904-5) he had come to the conclusion that *acteon* passes the winter in the egg, and the larva hatches in the early spring, though he was still uncertain when the larva actually leaves the egg. In a forward season such as 1898 the first imagines would be early on the wing. At all events it is quite clear that the seasonal flight is very much more extended than commonly supposed, and to this fact more than any other, I think, is due the successful resistance of the "Lulworth Skipper" to its human enemies. Mr. Lister found it in varying condition in mid July last year on the Corfe downs (*antea*, p. 54).

This year, from August 1st to 13th, I came across occasional obviously freshly-emerged examples, though, curiously enough, the really perfect were confined to the male sex. By this time the Swanage downs were invaded by crowds of school-boys wielding nets, out for the "Lulworth Skipper." No doubt the eggs for the coming generation had already been laid by the early emerged females to ensure continuity. To revert to the hypothesis of hibernation as imago, Mr. Eustace Bankes and other local collectors who gave the species very close attention in the eighties are not likely to have missed hibernating individuals when collecting larvae in the early spring. I have recently made a search of available literature on the subject. In all the numerous catalogues, local and regional, of the French departments, one only hints at a double brood, and none hibernation as imago. This solitary notice is to be found in the
Transactions of the Linnean Society of Bordeaux' (vol. xlviii), where M. Tarel ascribes two broods to Thymelicus (Hesperia) actaeon. In this southern department, as elsewhere, actaeon would make its first appearance early in the spring. Mr. H. L. Earl ('Ent. Record,' xxvii, pp. 78–85) took it at Hyères on May 6th, 1914, and this is the earliest date of which I have information in the west of Europe, north of the Pyrenees. M. Oberthür’s testimony, however, should be conclusive for the western palaearctic region that there is only one emergence in the year, and this holds good also in Algeria, where, if anywhere, a second generation might be expected ('Lépid. Comparée,' fasc. iv, p. 359).

Fortunately, again, for the survival of the species in the Isle of Purbeck and the south of England, it is subject to no variation, and extermination by variety-hunting fanatics is not, therefore, so immediate a contingency as for certain forms of our native Lycænids. In ordinary seasons, then, English actaeon began to emerge after mid-June and July to the end of August, later in backward years. In the Midi flight is continuous under favourable conditions from the first days of May onwards well into September.

Lycænidae.—Chrysophanus phleas, common, and in fine condition, some very dark; *Copido minimus; Celastrina argiolus; Plebeius aegon*, practically over; several worn males, and one female near the lovely blue lake on the great heath towards Wareham, August 11th; Agriades corydon, chiefly near the Waterworks at Swanage; A. bellargus, a few males only, Corfe downs; Polyommatus icarus; Aricia medon, gen. est., generally distributed, but by no means common.

Pieridae.—Pieris brassicae, P. rapae, P. napi—perhaps the commonest of the three; *Colias edusa; Geneteryx vhamnii.*

Nymphalidae.—Dryas pophia; Argynnis aglaia, common, but worn; Pyrameis cardui; Vanessa io, common; Aglaia urticae.

Satyridae.—Pararge megara; P. egeria var. egerides, fresh individuals between Corfe and Swanage; Hipparchia semele, everywhere, heaths and downs; Epinephele jurtina; E. titonius,


With regard to the stage in which T. actaeon passes the winter on the Continent, I find that Lambillon ('Papillons de Belgique,' pp. 272–3) says that after the first moult the larva retreats to the roots of the food-plant, and resumes feeding in the middle of April. Frisonet ('Les Premiers États des Lépids. Français,' p. 273) repeats Dale’s legend, while referring to Tutt’s work. Goossens, whose interesting collection of preserved larvae I have seen in the little museum of the Association of Levallois-Perret Naturalists (Paris), was a careful and accurate observer. He found the larvae of actaeon in the environs of Paris, sometimes congregated together at the roots of grasses in May only ('Ann. Assoc. des Nat. de Levallois-Perret,' 1904, p. 24). As to the actual stage at hibernation, Mr. Frohawk has, I believe, bred actaeon through, and can, no doubt, clear up the ambiguity, if he has not already done so.
in abundance and beautiful condition; *Caenonympha pamphilus*, rather scarce; *Melanargia galatea*, abundant.

Harrow Weald,
October, 1918.

SOME MINOR BUTTERFLY ABERRATIONS OF 1918, AND NOTES THEREON.

By Hugh P. Jones.

Having only recently paid much attention to the Lepidoptera, my series of the butterflies, at least, are decidedly meagre and invariable. So this year (1918) I determined to give the last-named family a thorough overhauling for varieties.

I started operations in May on *Pieris napi* and *Euchloe cardamines* chiefly because their numbers offered a fair chance of success, *P. brassicea* and *P. rapae* being the reverse of common. In fact I only saw one *brassicea*, the parasites of last year evidently having been too much for them, as frequently happens after a period of abundance.

*Pieris napi.*—Of this interesting and variable species I took at least two worth mentioning. Both were males, and one is totally destitute of spots on the upperside, and with the usual black apical patch reduced to a few faint, wedge-shaped markings along the veins, producing a rather striking effect, which will be readily understood if one remembers how characteristic even the faintest of black markings are to the species, and then imagines them taken away. For, at a first glance, my specimen looks all white in the cabinet, even in comparison with the preceding one, itself faintly marked, similar to the first example shown on pl. 13 of South's 'British Butterflies.' My second specimen has all the wings on the underside exactly the same as the upper, i.e. pale creamy white, without a trace of other colour.

Black scales along the veins thick as usual, and appearing doubly effective against the pale background. Upperside typical, although markings somewhat reduced. A large insect, 2 in. across the wings. Rich, yellow undersides from the same locality (Shelford) were also much in evidence, but all—even those from the Fens—of a much clearer and paler yellow than in the best Irish examples.

As regards the type of the ♂ spring brood (upperside), fig. 2, pl. 13 of South is the prevailing form about Cambridge, although a more heavily-spotted race is almost equally as abundant. In fact, the chief difference in the ♂ upperside, between first and second brood *napi*, is in the shape of the wings, and not markings, those of the spring form being rather narrow, and the upper pair somewhat pointed, whilst in the later insects the apices
are blunter and the outer margin rounded, in some examples much more than others. Although I examined some fifty representatives of the first brood, only one female was noticed: so naturally I am unable to give any particulars of the gentler—and perhaps more handsome—sex. Why this great disparity between the sexes I am unable to say, although males are always the most abundant.

_Euchloe cardamines._—Of the males several deserve notice. Two had the discoidal spot absent, and were both taken on the same day (at Shelford) out of probably twenty specimens examined—a rather high percentage. Other forms of interest are two with the usual grey or greyish-black apical patch deep black, and, in the better insect, extending along the veins into almost the middle of the neighbouring orange, presenting a most handsome effect. These were also from Shelford, and I wish I had given more time to this locality, as the Fens proper and the chalk district of Cambridge produced hardly anything in the way of varieties. However, a few otherwise typical males from Chippenham had the discoidal spot at the edge instead of _in_ the orange area, which is supposed to be peculiar to var. _turritis_ (hesperidis, Newn.).

Dwarf forms of both the male and female were not uncommon at Shelford, the males presenting the usual smooth and slender appearance, and having the fore wings narrower than in the type. But as the aforesaid spot was well within the orange patch, I suppose they cannot be considered as true _turritis_, although in my experience the position of the spot proves nothing, as witness the Chippenham specimens.

_Females._—Nothing very striking appeared, but two must be mentioned. They were taken on the chalk near Cambridge. One (rather small) has the discoidal spot very strongly pronounced, and branching off at the top along the subcostal vein, where it joins the blackish area around the body. This gives the butterfly a quite menacing look, as it appears to be frowning!

No. 2, a large specimen measuring 2 in. in expanse, has the discoidal spot as small as that of an average male, and the ground-colour on one side extending through the usual blackish "tip" to the apex splitting the patch into two.

_Aricia medon_ (first brood).—A good ♂ referable to var. _allous_ was captured on the Via Devana, together with several intermediate forms.

_Cupidio minimus_ (first brood).—This little species has an even wider range around Cambridge than I anticipated, although always very local. The neighbourhood of Shelford produced the best specimens, and a very good best it was! They are all over the usual size, and some, perhaps, deserve the name of giants.

The smallest (a ♂) measured $\frac{3}{10}$ in., and the largest (also
a ♀ just over an inch across the wings, which will give an idea of how uniform in size the species is in this locality, as well as defend the title of giant race bestowed upon them. Both males and females of those selected are very richly coloured, and two of the former sex have the usual silvery blue scales replaced by rich dark blue, which decidedly adds to their beauty.

Towards the evening is the best time for collecting this species (as, indeed, all "blues"), as they are then not so lively, and can frequently be taken at rest. One warm corner will often produce scores of the insect, and as the collector walks through the long grasses which abound here, it is a very beautiful sight to watch the disturbed butterflies as they float, rather than fly, up before him, seeming to hang suspended in the air.

The males always look bluer in flight than they actually are; but then this also applies to other members of the family (except Agriades corydon, which appears almost white).

On a hot sunny day C. minimus often flies so rapidly that it is quite difficult to follow, and even when in the net is almost impossible to box, which is the only way to capture without damage so small and fragile a creature.

Variation in the underside of many examined was practically nil as regards the spots, but differences in the ground-colour occurred in specimens from various districts, e.g. in the aforementioned locality the undersides are generally very pale and silvery, whilst in examples from Fulbourn and the Via Devana they are duller and browner; applying also to the upperside in these latter insects, which are frequently dwarf in size.

Epinephele jurtina.—This species is always worth examining, males often verging to the female colour and vice versa. A rather good ♀ was taken by accident in Hunts in June. It appeared over a blackthorn bush at the same moment as a Thecla pruni, and plebeian and aristocrat were engulfed in the net together. The usual plain or paler brown area around the "eye" was, in this case, quite a bright fulvous,* very similar to rather faintly marked females I have seen. This form of ♂ jurtina appears to be commoner in woodlands than anywhere—at least I have seldom met with it in the chalk.

In July and early August I visited one of my favourite haunts, the Fleam Dyke—one of two great earthworks running between Cambridge and Newmarket. This is a good place for Agriades corydon, Augiades comma, and Hipparchia semele, the latter especially favouring that portion of the dyke that has been planted with pine trees.

Agriades corydon occurs here in thousands and in all sizes, from 1½ in. across the wings (one very fine female) to less than the inch! Some of these dwarfs were males, and thus presented

* Very much brighter than fig. 2, pl. 84 of South, which is quite common.
a very extraordinary effect. I suppose this stunted growth is to
be accounted for by the excessive abundance of the species, the
later, and possibly feebler, caterpillars finding a shortage of food.

In many of the smaller moths (notably *Tortrix viridana*) the
late-comers are frequently starved to death through this super-
abundance of the species, and the oaks in many parts of
Huntingdonshire this year were a pitiable sight owing to the
exertions of this moth’s caterpillars, the resulting imagines being
in such countless thousands that at every stroke of the beating-
stick it was impossible to see or do anything for some minutes—
nothing but *viridana*!

However, I had no occasion to complain of the abundance of
*corydon*, as it enabled me to take many fine aberrations.

Ab. *semi-syngrapha* does not occur here to any extent, but the
following forms made up for them:

Several males with the “eyes” at the base of the hind wings
on the upperside topped, and more rarely filled, with orange; a
handsome form with distinct black discoidal spots, and very
broad and dark borders to the fore wings.

Another beautiful and interesting form was one in which the
male approached ab. *fowleri*, with the outer margins whitish
instead of black, and with the ground-colour of a much more
intense blue than typical, *i.e.* lacking to some extent the usual
silvery tint.

Ab. *fowleri* is, I believe, supposed to be confined to the Dorset
coast; if so, my capture should be worth recording. The form
also occurred to some extent amongst the females, but is in
their case the more striking on the underside, the fore wings of
which are whitish, instead of the usual pale chocolate, and the
hind wings rich orange-brown, with the “eyes” large and con-
spicuous.

Before proceeding with the females, another upperside variety
of the male deserves notice. This has the fore wings rather
thickly sprinkled with blackish scales, which presumably have
overflowed from the outer margin. The effect, however, is not
very noticeable in some lights.

Aberrations of the female were numerous, and some rather
extraordinary uppersides were taken having one pair of wings
heavily besprinkled with blue and the opposite pair plain brown.
In all cases the blue wings were somewhat smaller than the
others, although perfectly proportioned. Variation amongst the
spots of the underside in both sexes was practically nil.

*Hipparchia semele.*—One brightly coloured but rather small
female, with an extra spot on each fore wing situated between
veins 1 and 2.

Many of the undersides were fine, but very pale, and in some
cases almost unicolorous, differing greatly from examples from
the New Forest and elsewhere. My specimens are probably peculiar to the chalk.

The species was very abundant on the Dyke this year, especially amongst pine-trees, where it showed its usual penchant for the trunks.

The above notes are very far from being a complete list of aberrations noticed by me this year, and my cabinet has greatly benefited by my exertions.

No extreme forms were taken; no ab. alba of phlaes; no gynandrous or "rayed" specimens. Such things do not fly into my net. But the little variation that did come my way so interested me that I thought a few notes on the subject would be acceptable.

Of course the chief interest of variation is the question of district, insects varying according to their environment, and so on. But this can in many cases be carried too far. Corydon alone would half fill a twelve-drawer cabinet if some enthusiasts had their way!

19, Tenison Avenue, Cambridge.

CANNOCK CHASE, 1918.

BY MAJOR H. D. SMART, M.C., F.E.S.

My justification for these notes lies, not in the discovery of new species or fresh localities, but in the fact that the ever-changing troops in the area must contain from time to time entomologists who will be glad to have some idea of where the insects are to be found.

My collecting has been of a war-time character—neither sugar nor light has been used. I have been busy and have given little attention to larvae or to the Micro-lepidoptera—in other words, my survey has been very incomplete.

The weather has been fairly reasonable up to August 22nd, after which the season finished abruptly.

There is no need to mention species of universal distribution unless they present local abnormalities of form or frequency. The names of localities are taken from the last published one-inch Ordnance map, with the exception of one. The part of the Chase I call the Valleys comprises all the valleys running from the crown of the moor, where the ranges are towards the Trent and Sow rivers. The most important of these is Sherbrooke Valley. They are all steep, narrow glens of alder and birch, with marsh or stream in the bottom and bracken-clad confining hills.

The butterflies have not been numerous as regards number of species, and many common insects I have not seen. Chryso-
phannus phleas has been abundant in all localities and has afforded some good aberrations. One specimen has one fore wing of pale metallic yellow, the other wings being normal. Other aberrations taken show variation in size, shape and arrangement of the black spots; a few are suffused with black scales throughout.

*Callophrys rubi* is common in many parts of the Chase.

*Celastrina argiolus*, a few specimens of the spring brood near Pottal Pool.

*Polyommatus icarus* was found sparingly in Cavan’s Wood only.

Several good forms of the summer flight of *Pieris napi* were taken, including a female, in which the usual black marks are greatly reduced in size and but faintly indicated in pale grey. I found no summer male without discal spot, but several in which it was only faintly indicated, one in which it is very black and large, and one with a trace of an additional dorsal spot.

*Enchloris cardamines* universal, but not numerous.

*Argynnis eydippe (adippe)*, one wasted specimen in the valleys.

*Polygonia c-album*, a pair in Cavan’s Wood on the last day of butterfly weather.

*Carnonympha pamphilus*: This species deserves mention from the marked local tendency to spots on the upper side. The apical spot is practically always well defined, and many specimens have additional dots on upper and lower wings.

Notable absentees have been all the Skippers, *Pyrameis cardui* and *P. atalanta*, *Pararge megæra*, *Epinephele tithonus* and *Aphantopus hyperantus*.

I took two specimens of *Metopsilus porcellus*, one in Rugeley Camp and one in Mansty Wood.

*Pheosia dictæoides* I found sparingly distributed throughout the valleys.

*Notodonta dromedarius* is very common in all the places visited, as also is *Lophopteryx camelina*.

*Phalera bucephala* not very common.

*Polyplaca flavicornis* very common and very variable.

*Orgyia antiqua*, and *Dasychira pudibunda* both occur at Milford.

*Macrothylacia rubi*, one moth and many ova from Brindley Heath.

*Epicnaptera ilicifolia*, no luck!

*Saturnia pavonia* is common on Brindley Heath.

*Drepana falcata* and *D. lacertina* both occur throughout the district, becoming more plentiful as the valleys are approached. The former is more in evidence in the perfect state, the latter as a larva.

*Parasemia plantaginis* flies over all the Chase, but seems to have its headquarters on Brindley Heath.

*Hipocrita jacobaeae* I have found only in one small locality in
the valleys. I took one abnormally dark grey *Acronycta leporina* in the same spot.

*Agrotis striquata* is common throughout.

The only *Aploceta nebulosa* I took was found in Mansty Wood, and this specimen was sufficiently dark in colour to make the locality worth working for melanics.

*Mamestra contigua*, and *M. glauca* both occur in the valleys.

*Charceas graminis* has not been very common, but has appeared in small numbers everywhere.

I took one *Minoa literosa* in Cavan’s Wood.

One melanic *Xylophasia monoglypha* was taken on Brindley Heath, all others seen being of the southern form.

One specimen of *Polia chi* (type) was found in Hednesford.

*Agriopis aprilina* is not uncommon on oak trunks in Sherbrook Valley. I found two larvæ which I believe were of this species in Mansty Wood.

*Euplexia lucipara* has not been very plentiful.

*Tapinostola fulva* I found common in Cavan’s Wood only.

Of the Tæniocampid moths I hope to know more next year. This spring I had only recently come to the district and had found only two partially workable sallow bushes. These brought me two *T. incerta* and a partial immersion. In Cavan’s Wood I have since found some good bushes growing on dry land close to a mixed wood of pine, larch and oak. Flying round these bushes in the autumn *Xanthia fulvago* and *X. flavago* were in larger numbers than I have ever previously seen them.

*Xylocampa areola* occurs in Mansty Wood.

*Anarta myrtilli* is very common on all the heather-clad parts of the Chase.

I caught one *Plusia interrocatio* on Brindley Heath.

*Zanclognatha tarsipennalis* and *Z. griscalis* occurred in small numbers in Mansty Wood.

Of *Brephos parthenias* I saw only one example, in Shugborough Park.

I found *Euchloris pustulata* in Mansty Wood in large numbers, but not, unfortunately, till most of them had lost their colour and were not worth taking.

*Acidalia subsericeata* was not uncommon on Brindley Heath. *A. inornata* was taken on Brindley Heath and in Mansty Wood, flying with *A. aversata*. The latter were unusually numerous. Although large numbers were caught and examined, the total bag of *inornata* was only four.

*Ephyra punctaria* was very common in Mansty Wood.

*Ortholitha plumbaria* was much less common than usual. *O. limitata* numerous but local, being chiefly found on the sides of the colliery railway near Huntington.

*Odezia atrata* was only found by the pond in Mansty Wood.
I was surprised to find a worn *Scotosia rhamnata* in a pine-wood on Brindley Heath.

*Lygris testata* was common, most specimens being of the Yorkshire form. *L. populata*, common, showing no great variation.

*Cidaria corylata*, very common in Mansty Wood.

*Thera variata*, on Brindley Heath, Cavan’s Wood.

*Coremia designata* was common in Mansty Wood and on alder-trunks in the valleys.

One example of *Oporabia autumnata* was taken in Shugborough Park.

*Mesoleicca ocellata* was fairly common; *M. bicolorata* very common in all alder clumps, most of the specimens being of *ab. parvula*.

*Perizoma affinitata*, *P. alchemillata*, and *P. flavofasciata* were all common in Mansty Wood from May to July.

*Hydriomena furcata* was not at all plentiful, but *H. impluvia*, mostly of the *infuscata* form, was abundant in the valleys and by Pottal Pool. To find the larva of the latter examine trees where the contour of the ground gives access to the higher branches, or, if possible, a tree that has recently fallen.

*Eupithecia goossensitata* (*minutata*) is abundant on the moor; *E. lariciata* on Brindley Heath; *E. castigata* in Mansty Wood; *Gynnoscelis punilata* throughout the district.

*Chloroclystis coronata* was taken in Mansty Wood and Birch Wood, near Abbott’s Bromley.

*Abraxas grossulariata*: I did not see this species at all.

*Lomaspilis marginata* was fairly common.

*Semiothisa literata* was common wherever the fir-trees were numerous.

*Phigalia pedaria* was normally common, some of the specimens being abnormally large. This species could be taken in good condition from January to the end of May.

*Pachysstrataria* was very common in Shugborough Park, the insects being large and heavily marked. Although many were taken in cop., efforts to obtain fertile eggs were quite unsuccessful. Of *P. betularia* I found a few larvae in various localities.

*Boarmia repandata* was common, but devoid of notable variation.

*T. bistortata* was common, mostly of the *delamercensis* and similar forms.

*T. punctularia* was more plentiful in the valleys than I have ever before seen it.

*Ematurga atomaria*, though abundant, was disappointing as regards variation.

*Bupalus piniaria* common on Brindley Heath, all of the northern form.
Scodiona fagaria (belgiaria) was found fairly commonly on a very small patch of Brindley Heath. The form was intermediate between that found in the south and the smaller, darker insects of the Yorkshire moors.

Perconia strigillaria was very common on the whole moor, one ab. griscaria being taken.

Of the Hepialidæ I did not see II. humuli at all, and H. lupulinus was far from common. The bracken-feeding species were very much in evidence. I took one H. fusconebulosa, ab. gallicus, and a long and varied series of H. hecta, including forms with gold dashes on the hind wings.

Pyralid moths were conspicuous by their comparative absence, the Crambidae being the best represented family, and the Pterophoridae, in my experience, completely unrepresented.

Crambus pinetellus occurred sparingly in all suitable localities. C. margaritellus was abundant and C. pascuellus not uncommon in the valleys.

Tortrix viridana did more damage in the oak-woods of the lowlands than I have ever before seen. Although larvae of the genus Hybernia were not very plentiful, the oak-trees were stripped bare, and the Tortrix larvae held overflow meetings on the hazel-bushes to the detriment of these. The oak-trunks received a uniform coating of silk spun by these caterpillars, and the crevices of the bark later on held countless pupæ. A large proportion of the moths emerging from these pupæ became entangled in the silk web and failed to properly expand their wings. The insect appeared in smaller numbers on the high moors, even on bushes a foot or two in height growing well apart from other oak-trees.

The only other insect I should like to mention is a Nepticula—I think N. intimella—which appeared in Mansty Wood in the spring in even greater numbers. One sweep of the net would capture dozens, most of which at once regained their freedom by walking through the meshes.

NOTES AND OBSERVATIONS.

Anosia plexippus in Cornwall.—As recorded in 'The Field' for September 21st last, a perfect specimen of Anosia plexippus was captured by Master Mostyn L. Wandle, aged 13, at Porthcurne, Cornwall, on August 19th. Mr. J. G. Wandle has since kindly sent me an account of the capture made by his son. The butterfly was at first seen flying round a veronica bush and settled on a flower; when approached it flew off and settled again on the other side of the bush. When it rose his son made a stroke with his net but missed it, and it flew some distance and settled on an escallonia leaf and closed its wings. As he again approached it flew back to the veronica and settled, when he caught his prize. It is a female,
rather over 4½ in. in expanse. I may add this example brings up the number of British caught specimens to thirty-one. The last example was captured on October 20th, 1916, by my friend Major Chavasse, in co. Cork (the only Irish specimen known), and recorded by me in this journal for December of that year.—F. W. Frohawk.

Note on the Fitful Appearance of Pararge megerea.—Mr. Rowland-Brown’s note on the reappearance of Pararge megerea in north-west Middlesex after an absence of many years (antea, p. 233) appears to me to be of far more than merely local interest. Many even of our commonest butterflies have their seasons of abundance and comparative scariness, but in few is it more marked than in P. megerea. Being generally regarded as a common species, at any rate in the southern counties of England, records regarding it are few, and one has to fall back largely on one’s own experience to gain any idea of its behaviour. For many years I have kept a close watch upon the butterflies occurring over a very limited area in this immediate neighbourhood, covered by the western end of the parades, the strip of downs extending thence to Beachy Head and my own garden—in all a strip of coast of between two and three miles in length. I have made a careful search of my note-books for the past ten years, from which it appears that from 1909 to 1912 inclusive the species was not met with; in 1913 two were observed on the Downs under Beachy Head; in 1914 and 1915 none were seen; in 1916 one visited the garden on August 22nd; in 1917, on June 2nd, another was seen in the same place, and on September 2nd one at the parade end, but in 1918 it appears to have become quite common. The first noted was one on the parade on May 26th, the only butterfly seen there that morning, and on June 2nd another was met with there; and at the end of August several were to be seen whenever one went there, and along the Downs under the Head it was quite a common insect, and it also visited the garden. Thus after many years of scariness it has again become quite common. It would be interesting to know whether P. megerea has been more abundant this year than usual over the country generally, and especially in those districts where it may be regarded as a species of common occurrence.—Robert Adekin; Hodeslea, Eastbourne, October, 1918.

Aglais urticae, br. ichinusoides.—During a fortnight’s collecting in June in Sussex I had very poor sport, considering the district—Abbot’s Wood, etc. Sugaring was very disappointing, and during twelve consecutive evenings I did not secure fifty insects, even of the most common kinds. However, I was well rewarded in the end, as I found several large batches of Aglais urticae larvae, and for lack of something better to do I just picked up a dozen full-fed ones, and one has emerged a beautiful aberration. On referring to ‘The Butterflies of the British Isles,’ p. 68, you mention and figure a similar aberration. As it may interest you I enclose a life-size photograph, with the following description: The costal margin is one black patch continued from the base to quite near the apex, where there is just a tiny dull white spot. The outer margin, ⅔ in. wide, blackish-brown with lighter shadings, leaving only a small space in centre of fore
wing a reddish-brown, with one dark spot. Hind wings blackish-brown throughout, with lighter shadings on outer margin, and not a sign anywhere of the usual red, blue or yellow markings.—C. SAVILLE; 16, Mincing Lane, E.C. 3.

[The photo, print, which is too dark for reproduction, appears to represent ab. ichnusoides, Selys, or a modification of that form, and seems to agree with a specimen, also from Sussex, figured in the 'Entomologist' for 1900, pl. iii, fig. 1.—Ed.]

Catocala nupta, ab.—In 'Moths of the British Isles,' series ii, it is mentioned that specimens of Catocala nupta had been taken in the environs of London, the hind wings of which were of a brown tint. It may be of interest to record that I took such a specimen at sugar in early September, 1917, the hind wings being of a rich warm brown—chocolate-brown.—R. A. S. REDMAYNE; Claremont Lodge, Cobham, Surrey.

Catocala nupta, ab.—On September 12th of this year I caught on a telegraph post just outside Loughton, Essex, a male specimen of Catocala nupta, with its underwings a dusky brown without any shade of red on either side of the wings.—HARRISON COPELAND; The Cottage, Lower Park Road, Loughton, Essex.

Note on Pieris napi.—While collecting on the mountains near Llangollen on August 9th, at an elevation of 1600 feet, where the vegetation appeared to consist entirely of heaths and grasses, I met with abundance of Pieris napi. Being curious to know what plant the larvae had fed upon I made a careful search. The only likely plant I could find was the Hairy Bittercress (Cardamine hirsuta), stunted examples of which, a few inches high, were scattered all over the moors. No doubt this would be the food-plant. The butterflies were of normal size.—A. H. THOMPSON; 54, Church Road, Northwich.

Saturnia pavonia ♀ flying in Daytime.—I have observed that all authors of works on entomology who allude to this point state that the female "Emperor Moth" (Saturnia pavonia) flies at night only. On May 3rd last I caught a fine female flying about from gorse-bush to gorse-bush, sipping the honey from the flowers. Her flight was quite different from that of the males, of whom there were many, on the wing, in that it was much slower and less erratic, resembling more that of, say, a Garden White Butterfly. Incidentally I may mention that I took Phragmatobia fuliginosa on the wing May 3rd on the same common (Fairmile Common). Surely an early emergence!—R. A. S. REDMAYNE; Claremont Lodge, Cobham, Surrey.

Aporia crataegi, and Pararge megæra in West Herts.—I was much interested in Mr. Rowland-Brown's account of Pararge megæra in N.W. Middlesex. I obtained a male specimen myself this past summer on Oxhey golf course, and I fully concur that the past two seasons have been extremely good ones for lepidopterists. I made a capture of some local importance on June 16th last in the neighbourhood of Hemel Hempstead, no less than a fine specimen of Aporia crataegi, which, according to the particulars before me, is the second record only for the county of Hertford. I understand the species
still maintains itself in a certain favoured locality in Kent, and it
would be interesting to hear whether any of your readers have met
with the insect in any other of the southern counties in 1918.—
Ernest W. Nimmy; 210, Whippendell Road, Watford, Herts.

Latest Captures at Amélie-les-Bains in 1918.—In September
Pieris rapæ was still plentiful, and the widely distributed P. egerides
at Amélie-les-Bains. In that month I captured there Colias hyale
flying in company with Pieris rapæ, Satyris circe?, a small specimen
or an individual of a small race of that butterfly, and Pararge mora.
But the most important capture was effected on October 7th. As I
knew that the nettle-tree grew near Amélie-les-Bains I was not sur-
prised to see Libythea celtis there. But some text-books say it appears
in May and June. However, I caught it in October, almost in the
village. Whilst I watched it, the butterfly alighted only on twigs of
trees at some elevation from the ground. It is, I presume, double-
brooded.—James R. McClymont; October 7th, 1918.

EuoRIS occulta in Lincolnshire.—I noticed in Mr. South’s
‘Moths of the British Isles,’ series i, p. 236, that the latest record of
EuoRis occulta from this county is 1896. It may therefore be of interest
to report that I had a larva of one brought me in April, 1912, which
pupated and produced an imago in due course. The larva was found
by a small boy in a ride in some small woods near this town.—Thos.
H. Court; De Aston Grammar School, Market Rasen, Lincolnshire.

Note on Lasiocampa quercus.—Perhaps some of your readers
may be willing to enlighten my ignorance with regard to the follow-
ing incident. On July 26th I opened a cocoon of L. quercus with
the intention of examining the pupa. In my clumsiness I chanced
to cut the pupal case and noticed that the moth was fully formed
within. Prompted by curiosity, I carefully removed the coverings
of the head and thorax, when the moth began to struggle, and with
further assistance liberated itself entirely. For two days it clung to
a curtain with heavy, sagging abdomen and small undeveloped
wings. But on the evening of the 28th it was found fluttering on
the floor of my room, its wings being now fully developed, although
the body was unchanged, and in consequence it was unable to raise
itself from the ground. I then enclosed it in a box, and the next
day it deposited a number of ova, which I supposed must be sterile,
but kept for interest. On examining these ova weeks later I found
that a number of larvae had emerged and perished from lack of food.
The moth was liberated and flew off with ease. I had always
thought that if a moth’s wings did not expand soon after emergence
they never did so. Also, if the moth was fertilised, copulation must
have taken place while the body was still undeveloped.—H. K.
Woolacott; Bedales, Petersfield, Hants.

Plusia moneta, and Palimpsestis octogessima in Surrey.—
Plusia moneta: Referring to your correspondent Mr. Thurnall, I
have found this insect very plentiful here this season, having taken
ten specimens during July, all of which were captured hovering over
Delphinium. Palimpsestis octogessima (ocularis): On July 20th I
took a fine male at rest on fence. It is the first time I have taken
this insect, or heard of its capture, in this locality.—H. A. Morell; Heathdene, Wordsworth Road, Wallington, Surrey.

Strangalia aurulenta in Cornwall.—On July 19th of last year (1917) I was lucky enough to capture a ♀ specimen of the rare Longicorn, *Strangalia aurulenta*, on the cliffs at Millhook, a few miles south-west of Bude. I was sitting near a few plants of *Vicia sylvatica*, waiting till it got dark enough (lights being forbidden) for the larvae of *Toxocampa cracce* to come up and feed, when the beetle flew on to the sleeve of my coat. I see in Fowler’s “British Coleoptera” that the species is sometimes described as “of a deep velvety-black colour, with four transverse reddish-yellow bands on elytra,” or “as reddish-yellow with four black fasciae”; my specimen is distinctly referable to the latter description.—E. O. Armytage, F.E.S. (Lieut.); Millhook, nr. Bude, Cornwall.

Anopheles bifurcatus in Wanstead District.—It may be of interest to record that Anophelines have been most prevalent in the Wanstead and surrounding districts this season. From specimens captured I was easily able to determine them as *A. bifurcatus* from E. K. Pearce’s book on Diptera; also *Theobaldia annulata* has been very abundant, and this little beast can make things very uncomfortable for us humans; but although a vicious biter, I do not think it is a malaria-carrying species. In my opinion the increase of these dangerous enemies of mankind is due to neglect, in not being able to provide the necessary labour for clearing and keeping clean the damp, grass-covered ditches, canal-sides, ponds, and ornamental waters, for it is these places which provide ideal breeding-grounds. One way of destroying these germ-carriers is cyanide dissolved in boiling water, the fumes of which have a fatal attraction, and the insects readily drown themselves in it.—Leonard Tatchell; Wanstead, August 26th, 1918.


Societies.

The South London Entomological and Natural History Society.—August 8th.—The President in the Chair.—Mr. Ashdown exhibited a variable series of *Malacosoma neustria* and a dark *Notodontia dromedarius* v. *perfusca* from the New Forest.—Mr. Neave, bred *Hyles euphorbiae* from the “front” in France, and a *Vespa norvegica* from Rotherhithe.—Mr. Ashby, a long series of *Cetonia aurata* from Portland, and a *Lasiocampa quercus* near v. *calluna* from the same place.—Mr. W. West, the Neuropteran, *Osmius maculatus*, from the New Forest.—Mr. Blair described the pairing habits of the “Swift” *Hepialus sylvinus*, referring especially to the folding down of the hind wings of the females.—Mr. Bunnett, larvae and pupae of Coleoptera species *Cassida equestris*, *Cionus blattaric*, *Chrysomela polita*, etc.—Mr. Sims, ova of *Priesodorus lituratus* (Hem.) on furze.—Mr. Edwards, exotic *Pieridae*, including *Callosone zoë*, *C. ialone*, *Pieris charina*, etc.—Mr. Sich read a paper, “Species in the Genus *Cerostoma*.”—H. J. Turner (Hon. Editor of Proceedings).
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SOME HALICTINE BEES.

By T. D. A. Cockerell.

**Halictus ripariellus, n. sp.**

♀. Length about 8 mm., anterior wing 7 mm.; black, with dark brown tegulae (pale-margined in front), and dilute reddish-grey wings, the stigma amber-colour; clypeus and supracylpeal area polished, the former with sparse punctures; clypeus prominent, with long black hairs from its lower margin; mesothorax shining, the small punctures not very dense on disc; hair of thorax above pale ochreous; area of metathorax large, semilunar, finely rugulose; posterior truncation with no sharp rim at sides; hind spur with triangular saw-like teeth; abdominal segments 2 to 4 with broad basal bands of ochreous-tinted tomentum, in old specimens practically white.

Florissant, Colorado, June 26th, 1907, nesting in a bank (Cockerell); type. Also Florissant, June 23rd (Rohwer). I had confused this with *H. trizonatus*, Cresson, which also occurs at Florissant in June, but it is smaller, with the apical part of second abdominal segment shining (dull in *trizonatus*). Under the microscope the punctures on apical part of first segment are seen to be very minute and piliferous, while in *trizonatus* they are large and coarse in comparison. A nearer approach to *H. ripariellus* is found in the eastern *H. coniaecus*, Smith, which is, however, larger and stouter, with the flagellum largely ferruginous beneath (very dark brown in *ripariellus*). The area of metathorax in *coniaecus* is very delicately plicatulate on basal half; in *ripariellus* it is microscopically reticulate in the same region, and has very delicate oblique lines on apical part toward the sides.

**Halictus typographicus, n. sp.**

♂. Length about 7.5 mm., anterior wing 6 mm.; clypeus with a broad pale yellow band; vertex, mesothorax and scutellum dark blue; abdomen very obscurely greenish; flagellum very long, light ferruginous beneath; tegulae rufous, dark at base; wings clear; stigma and nervures ferruginous. Close to *H. nearcticus*, Vachal, differing thus: clypeus more produced, and its yellow band paler;

ENTOM.—DECEMBER, 1918.
mandibles wholly without yellow; front and mesothorax blue instead of green; tegulae darker; stigma much darker; area of metathorax longer; dark areas on tibiae much larger; abdomen scarcely metallic.

Printing Office, Pikes Peak, Colorado, 10,000 ft., Sept. 17th (Cockerell). From similar high altitudes we know two closely-allied forms of this group in the female sex, *H. virgatellus*, Ckll., and *H. frasera*, Ckll. These have dusky wings, and seem to be quite distinct. *H. frasera* has the mesothorax olive green, and the margin of the stigma is not darkened as in the new form. *H. virgatellus* has the area of metathorax coarsely wrinkled; in *typographicus* it appears finely rugose under a lens, and cancellate under the microscope.

*Halictus inconditus*, Cockerell.

This was described from the high mountains of Colorado, but I find I cannot separate three females from Olympia, Washington State, May 25th, June 2nd and 3rd (Kincaid).

♀. Tegula very bright ferruginous or apricot colour (dark or brown in typical form); apical part of flagellum ferruginous beneath.

Mesilla, New Mexico, at flowers of *Leucosyris spinosus*, June 25th (Cockerell); type of variety. Also Mesilla, June 24th (Cockerell); Mesilla Park, at *Sophia*, April 16th (Cockerell); Las Cruces, on *Solidago*, August (Townsend).

*Halictus orontis*, n. n.

*Halictus divergens*, Pérez, 1910 (not of Lovell, 1905); near Homs (Emesa), Syria. A few years before his death I wrote to Prof. Pérez, stating that the name he had given was pre-occupied. In replying he proposed a substitute, but this also is pre-occupied, so it is left to me to find a name.

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**A MONTH'S COLLECTING AT RANNOCH.**

**By the Rev. John W. Metcalfe.**

An unexpected holiday, with no definite plan for its employment, in conjunction with an early morning thought, led to the expedition indicated by the above title. It is said that our waking thoughts have a value all their own, and I am certainly very glad that, on that particular morning, mine were turned towards Mr. F. G. Whittle, who was spending the summer alone at Rannoch. A suggestion that I should join him was promptly despatched, and was most kindly received. Mr. Whittle secured me a room in the cottage where he was staying, and generously offered a share of his sitting-room.
A MONTH'S COLLECTING AT RANNOCH.

I must say at once that to his kindly companionship, and wide knowledge of the district, all the pleasure and success of my trip are entirely due.

Early on the morning of June 24th I left Exeter for Glasgow, and travelling thence by the North British Railway, with its charming views of Loch Long and Loch Lomond, I found myself at Rannoch Station about 10.30 a.m. on the morning of the 25th. I had still eight miles to go, and it was rather discouraging to be told by the somewhat dour mail-driver that I had arrived on a wrong day, for that on Tuesdays he went by the north side of the Loch and not by the south. However, he soon relented so far as to offer to put me down at the Bridge of Gaur, within three miles of Camghouran, my destination, and to bring round my baggage later in the day on his return from Kinloch-Rannoch.

A brisk tramp in the glorious air was most acceptable after the long journey, and at Finnart I was met by Mr. Whittle himself, who was soon introducing me to Mrs. Laing, our hostess, and the cottage where the holiday was to be spent. The situation of the latter, I was later to discover, was an extremely convenient one for a collector, whilst the cottage, if small, was spotlessly clean, and its inhabitants thought nothing too much trouble for the comfort and service of their guests.

I must leave Mr. Whittle to tell the story of his doings in the earlier and later part of the season, only remarking that he showed me on arrival such boxes of insects as to rouse the expectation of a southern collector to the highest pitch, and it was not long before nets were out, and the work of collecting begun. Our chief energies were concentrated on the "Micros," and for the sake of brevity I will follow a topographical rather than a chronological order.

Mrs. Laing's cottage lies just west of the Black Wood, eight miles from Kinloch, and the collector may start operations as soon as he steps outside the door. At the back of the small garden was a patch of tansy which harboured a few Dicerorampha herbosana. This tansy form differs much from that found on Achillea millefolium, and might well be taken for a different species. It is a much larger and stouter insect, but the genitalia show that the two forms are but one species. Passing upwards from the garden, the rocky heather-clad slopes rise gently to the south, and are covered with numerous birches, Scotch firs, and an occasional mountain ash, whilst there are frequent patches of Vaccinium and Myrica gale. Portions of the heather had been recently burnt, and here Plusia interrogationis was common, sitting, not on the stones, but on the burnt ground. It was not easily seen until startled, and then was not easily caught. On the same burnt patches occurred Gymnacula fusca and Gelechia obscurella, the latter
since kindly determined for me, with other Gelechias, by Mr. E. Meyrick. Amongst the heather was *Eupithecia satyrata*, *Scoparia atomalis* in all its forms, *Eupaucilia angustana*, *Pleurota bicostella*, with other common species. Here also was taken a *Blabophanes*, which, if that insect is really distinct from *B. rusticella*, may very likely turn out to be *B. weaverella*. On the small Scotch firs Mr. Whittle had previously taken a few pupae of *Retinia posticana*, but a prolonged search produced no imagines much to our disappointment. The same trees, however, sheltered, amongst great numbers of *Stigmonota coniferana*, a few *S. cognatana*—an insect easily passed over but abundantly distinct on close examination. A few *Coccyx cosmophorana* were also netted. Later the birches gave *Grapholitha ranella*, whilst a queer form of what I take to be *G. geminana* was disturbed from the firs—an odd habitat for a *Vaccinium* feeder which sets one speculating on something possibly new. From the rocks an occasional *Gelechia galbanella* would fly off amidst the clouds of *Larentia cœstita*. On still evenings *Lithocolletis vacciniiella* might be had amongst *Vaccinium*, and a few belated *L. corylifoliella* var. *caledoniella*, no doubt from the birch.

Between the cottage and the Loch lay some flat daisy-covered meadows known as the Park. Over the road-side ditch there flew at dusk *Coremia munitata* and *Philalapteryx rittata*, whilst by the same road-side was taken *Emmelesia albula* and *Monochroa tenebrella*. In the meadows dwelt a fine dark race of *Sericoris virulana*, also *Gelechia politella* and *Opostegus salaciella*, whilst by the Loch-side the ash trees gave *Argyresthia conjugella* and *A. sorbicella*. The daisies held out promise of *Dicrorampha consortana*, which later turned up, not there, but in a small meadow nearer the Black Wood, where also could be swept the pretty little *Buccalatrix nigromaculella*.

Passing eastwards, the Black Wood is soon reached, famous in most collectors’ minds as the home of the “Rannoch Sprawler.” Alas for one’s early beliefs! I gather that *Brachionyche unbiculosa* is seldom, if ever, taken in the Black Wood, but that its metropolis lies considerably further west. However, in addition to appalling swarms of flies, the wood has some nice things to offer. Beautiful *Boarmia repandata* var. *sodorensium*, *Eiloppia fasciari*a, and the northern forms of *Bupalus piniarius* came from the pines. Later *Halia brunnea* was extremely common, but how hard to get undamaged! Wonderful forms of *Cidaria populata*, with a few dark *Larentia didymata* just coming out, were taken at the end of my stay. On one patch of rushes, but apparently very local, *Crambus margaritellus* was netted in numbers. *Sericoris daleana* was everywhere, whilst the pale forms of *S. urticana* and an extremely small form of *S. lacunana* were of interest. Some old junipers were suggestive of much, but only produced a series of *Argyresthia arcuathina*. 
Cedestis farinatella, C. gysselinella, and Teleia dodecella were common, and again Lithocolletis vacciniella appeared.

The Black Wood is bounded to the east by the Dall Burn, whose sheltered banks provided one of the most charming and prolific localities. Here Sericoris daleana, S. urticae, S. lacunana, Mizodia palustrana, and Coccyx ustomaculana flew in almost baffling numbers, shining like jewels in the last rays of the setting sun as they rested on the heather, rejoicing in the protection of the banks from the strong wind which so constantly prevails in this high and storm-swept district. With them were a few belated Enchromia mygindana and an occasional Incurvaria ochlomanniella, whilst from the firs could still be beaten Pedisca rubiginosana, Stigmonota coniferana, and S. cognatana. Lower down, the spruces of Dall Lodge gave swarms of Coccyx tedella and C. nanana, with one battered specimen of Eupithecia togata, the larva of which could doubtless later be collected in the cones. Emmelesia blandiata was also not uncommon.

The foothills at the back of Carie was the only other spot visited further east, and that on a day when neither the weather nor myself were up to the mark. Mr. F. C. Woodbridge had five years before taken me to this promising locality, which even under the above adverse conditions yielded Plutia interrogationis, Dasylidia obscura, Emmelesia cricetata, Crambus ericellus, and other useful things.

Returning now to our starting point and passing up the road towards the Bridge of Gaur, we come immediately to the Camghouran Burn. Here a road leads straight up into the mountains, and opens out a splendid series of collecting grounds. I was very anxious to obtain larvae of Peronea maccana, which are said by some authorities to feed on Vaccinium vitis idea and by others on Myrica gale. The Vaccinium in the Black Wood was almost destroyed by the work of larvae, but the larvae had practically disappeared, and I only collected some half dozen. To these I added a good number from Myrica collected a short way up the Camghouran Burn road. They were collected quite at haphazard, since the larva of P. maccana appears to be undescribed. My shot in the dark, however, was most surprisingly rewarded, as, since my return, I have bred nearly a score of P. maccana and five or six P. rufana. Unfortunately, having very little expectation of success, I made no description of the larva, and can only add one fact, viz. that it feeds on both Vaccinium and Myrica.

Passing a short way up the road we came to the nest of Formica rufa var. alpina, which gave us so many Myrmecozela ochraceella, particulars of which I have given in the October number of the 'Entomologist.' Soon the road opens out into some grassy meadows. Here was a fine colony of Crambus dunetellus, which often helped to swell the day’s captures.
Here also the small Achillea feeding form of Dicrorampha herbosana occurred.

After the meadows came the foothills, a lovely spot with most attractive hollows. The weather seldom favoured us when we came this way, and a very promising spot gave rather poor results. Melanippe tristata flew with some well-marked M. sub-tristata, whilst the solitary birches harboured wonderful forms of Cidaria truncata, but, oddly enough, no C. immomata. The dead and rotting pine-trunks often gave a specimen of Ecophora stipella. Surmounting the foothills we come out on to a very large and wet plateau. Before crossing this a turn to the left will lead to an easy ascent up Cross Craig. Although this high ground looked most promising, we only ascended once, and then did not obtain much, Mixodia schulziana, Coecux nemorivaga, Elachista kilmunella being amongst the most interesting things taken. More work here would doubtless produce good results. The large plateau beyond looked as if it might produce anything almost, but here again the weather nearly always spoiled sport. Cononympha tiphon and Erebia cassioppe were common when the sun condescended to shine, and fine Argynnis aglaia were also seen. Amongst the small fry, Crambus ericellus, Tortrix viburnana, Amphisa gerningana, Elachista rhynocosporrella were captured. Crossing the plateau we come to the foot of Meall Grayvel, which rises to nearly 3000 ft. The ascent is quite easy, though rather trying to wind and limb. Great hopes were centred on what might be had on the summit, and Mr. Whittle ascended twice and I four times in all. We saw enough to realise how much, given good weather and sunshine, ought to be taken, but as it was we got not much more than samples of the good things, captured in the extremely brief intervals of sunshine vouchsafed to us. It was evidently an off year for Psodos coracina, as I only saw two specimens. Larentia salicata was abundant, but going over, whilst Coremia munitata and Scoparia alpina were not rare. In the past I have had many a vain climb after Scoparia alpina, and here at last I found it, in some numbers, but poor condition. Of Crambus furcatellus, a much-wanted insect, I secured a short series in the finest order. Sericoris irriguana was in great plenty, and a solitary prize, in the shape of Gelechia scotinella, taken on the extreme top, has left us wondering what it was doing there. Altogether Meall Grayvel is a most promising mountain to work, but we were not favoured with the absolutely necessary good weather. Once we got badly caught in the clouds, and were much relieved to find ourselves safe at the bottom again; and once, when alone, a big thunderstorm overtook me, and the experience was something to be remembered. The smallness of the bag, however, was amply compensated for by the wonderful views and the still more wonderful atmospheric effects.
And now it only remains to mention the great birch woods of Finnart. Here in its season the “Rannoch Sprawler” must be looked for, and here, too, is the home of Sesia scoliaformis. We worked hard for the latter, which was probably in pupa or just emerging, but without success. The rain had washed away the tell-tale frass and no mines could be discovered. Many of the earlier species still lingered on, such as Penthina sauciana, P. dimidiana, Phoxopteryx biarexana, and P. myrtilana. An occasional dark Cymatophora duplaris was taken, but the most acceptable capture was, perhaps, a single Lithocolletis froelichiella, although Ornix loganella was far from being despised. In addition were taken Penthina sororeculana, P. corticana, Grapholitha penkleriana, Phyllopria bistrigella, Argyresthia glaucinella (what could this have fed on, as there was certainly no oak?), A. conjugella, A. sorbiella, A. brochiella, A. goedartella, A. retinella (the last three in countless swarms), Ornix scoticella, O. betulce, Lithocolletis ulmifoliella, L. spinodella, and Swammerdamia herobia. Of Coleophorae both here and elsewhere there was great abundance, but in the uncertainty of recognising the species I have made no particular mention of them.

This brings me to the end of the story. Sugaring was tried once or twice, but with no success. The weather, for the first fortnight quite good, grew steadily worse, until it became really bad. When the mail-driver deposited me once more at Rannoch Station, en route for home, my last glimpse towards Schiehallion showed me everything enveloped in clouds and darkness. I thought again of Mr. Whittle, still sticking it out alone, and my gratitude for all his kindness in giving me so splendid a time was expressed in the heartfelt wish that the weather might soon improve.

Ottery St. Mary,
Devon.

THE SEASON’S ENTOMOLOGY IN SOUTH HAMPSHIRE.

BY A. E. BURRAS, B.A.

Lest the brief summary of the season’s work should give a wrong impression of the range of our local entomological fauna, I should like to preface it with a short explanation. No local sugaring or other form of night collecting being possible Noctue are left practically unmentioned. In addition, my own leisure has been limited, so that there is no intention of representing these notes as anything beyond a loosely connected survey. Except for the unusual abundance of larvae in May and early June, the season has been quite a normal one here.

Hybernia leucophearia and Phialia pilosaria were abundant in the second week of February. The former showed a very
fine range; 50 per cent. were var. marmorinaria, but not more than 1 per cent. of the true melanic form. On February 25th examples of the very light local form of Polypleca flavicornis were taken. On March 9th a visit to a local wood showed a plentiful emergence of Tephronia bistorta and on yew trunks. On the 17th I saw my first Brephos parthenias. By the 23rd these were unusually abundant, and a nice form with yellowish underwings was taken. Sallow bloom was very late in appearing. A flying visit to the New Forest, in the hope of taking a female Dasycampa rubiginea was barren of results, owing to the prevalence of clear, frosty nights. Demas coryli began to emerge in the cages at the end of March. From a few local pupae Mr. A. J. Lawrance had the good fortune to breed a couple of melanic specimens. On April 8th I paid a visit to our local Downs and found Parasemiu plantaginis larvae small and comparatively scarce. Those taken suffered severely from two forms of disease, one fungoid and the other parasitic. As a rule the fungoid disease is most prevalent after a wet winter. A mild February is most destructive to them. Drepana cultraria began to emerge on April 12th, from larvae taken late the previous October.

The second week in April also gave larvae of Geometra papilionaria, Boarmia roboraria, Hylophila bicolorana, Thera variata, and Ellopia fasciaria. With reference to B. roboraria larvae, my experience is, that it is hopeless to expect normal-sized imagines from larvae taken quite small, though I have bred beautiful specimens from full-fed larvae. In the wild I have never taken small larvae of the species except from oaks well covered with lichen. I am inclined to believe that they feed, at least partially, on this in their early stages.

On April 19th I received some ova of Nyssia lapponaria from one friend (to which were added later some larvae from another). All were sleeved on birch. From the sleeve a few larvae escaped, and were found later on sallow. Finding that the sallow-feeders thrive better, I transferred all the larvae to the latter pabulum. In their last instar I placed them, according to advice, in two large boxes, on heather, growing over hard peat. After feeding for a few days they disappeared, as I hoped, for pupation. Unfortunately, one box collapsed whilst I was away, and the enclosed larvae escaped or became the prey of some of my too many garden pests. The second lot, however, were examined on September 7th, and were found to have pupated successfully.

On May 5th a visit was paid to a local birch wood for pupae of Sesi: culiciformis. They were found, as usual, in all stages—larva, large and small, pupae recently turned, and ready for emergence, and lastly empty pupa cases of recently-emerged imagines. According to my experience the emergence of S. culiciformis extends from April to July.
An addition to the list of local Sesiidae was made this season by the discovery of three pupae of Sesia andreniformis in the stems of dog-wood (not, as I expected, in those of the Wayfaring tree); the three pupae duly produced two imagines and one ichneumon. May 25th and 26th gave larvae of Boarmia abietaria, Lithosia deplansa, Geometra vernaria, Zephyrus quercus, Scotosia rhamnata, and Laspeyria flexula. The L. deplanes larva, reared on yew lichens, gave some very nice forms, some almost melanic. Repeated and careful observations have led me to believe that the larvae of this insect do not feed on any of the larger lichens of the yew, but on the minute conferva covering the smaller branches, thus necessitating a constant renewal of food, which must be kept at no greater dampness than that which would be produced by an evening’s dew. On the evenings of the 25th and 26th I made the only two local attempts at sugaring. I had hoped to take Agrotis cinerea, but the only insects that turned up were one Craniophora ligustri and a few Mamestra dentina. The nights were too gloriously bright for successful entomology. On the 27th larvae of Limenitis sibylla and on June 2nd those of Zephyrus betulae were taken full fed, and some nice confluent forms of Zygaena trifoliata captured.

The first week in June gave ova and small larvae of Hemaris fuciformis on honeysuckle growing among stunted juniper on the otherwise bare downs. Larvae of Cucullia verbasci were plentiful at the same time and place, and Chaeocampa porcellus was flying in the evening over the flowers of campion, along with Dianthocia carpophaga, D. capsincola, D. cucubali, H. sordida, M. dentina, N. reticulata, and Eupithecia venosata.

On June 14th two imagines of Cochlidion limacodes were beaten out with larvae of N. trepida, Drymonia chaonia, and Pacilocampa populi.

It may be mentioned here that, locally, spring larvae swarmed this season, and were followed by countless hosts of the larvae of T. viridana. The latter soon reduced acres of woodland to the bareness of winter, thus partly accounting for the scarcity of later larvae, which, on hatching, died for lack of food.

On June 22nd Argynnis cydippe began to appear, and imagines of B. roboraria were to be seen high up on the trunks of the oaks, often fully exposed to the brilliant sunshine. On the birches larvae of B. parthenius could be beaten out—literally dozens at a stroke.

From among some hundreds of A. cydippe one heavily spotted and two very pale forms were taken. The capture of the season, however, was a magnificent, very dark blotched ♂ of D. paphia, with the silver marking of the under wings concentrated into a broad line.

A part of August was spent in the New Forest, and save for the extraordinary abundance of D. paphia, with its variety
valesina, the season was disappointing. Sugaring was an absolute failure, and I have never before known heather-haunting insects to be so scarce. This may be partly explained by the fact that, of the previous season's heather-feeding larvae, quite 90 per cent. were found to be ichneumoned. Larvae beating in the New Forest also gave poor results. A few larvae of Drymonia trimaculata, N. trepida and N. dromedarius, with a fair number of Thera firmata, were the only captures worthy of note. Only one Apatura iris was seen, and not many Eugonia polychloros.

As some compensation for this, I took two more varieties of D. paphia, one ♀ and one ♂, both with almost suffused black upper wings. The male, however, had one under wing slightly damaged.

After my return from the Forest I visited the local sandhills on August 31st, to find the larvae of Macroglossa stellatarum fairly plentiful on bedstraw with a few Pyrrhia umbra on rest-harrow. A little mixed beating on September 2nd gave larvae of Cerura furcata, Stauropis fagi, Demas coryli, Notodonta dromedarius, and Drepana cultaria, with a few larvae of Cucullia lychnitis still lingering on the black mullein.

I may add, in conclusion, that Colias edusa has not made its appearance here this autumn, as it did in 1917, though a young friend of mine took a pair of Colias hyale in July.

3, Connaught Road,
North End,
Portsmouth.


BY NORMAN C. PILLEAU.

Being very desirous of again visiting some of my old haunts in the New Forest, I decided to go down on the above-mentioned date.

The first morning I went out at 7.30, and before I had had time to rig up my net, the first insect to be seen was the much coveted "Black" Limenitis sibylla, fanning itself on some bracken, which was promptly captured.

The same day I also took one with the under side of the black variety, but practically normal on upper side, and also one (which I released, as it was damaged), not bigger than Euchloe cardamines.

As for Dryas paphia, it was to be seen in thousands, my friend and I counting over 100 (to be correct, 117), on some brambles with fifty-four sibylla, and countless jurtina and hyperanthus flying around them.

Having known that I was coming down, I presume my old Forest friends, Mrs. and Miss Mosdell, had been on the look-out
to see in which enclosures I should find plenty to do, and they
told me that (in one of these) they had seen very many "velvety
green" insects flying with presumably D. paphia, and on visiting
this one I found that the expected valesina was most
abundant, one of which I took having the top left wing slightly
"smear" brown. I must have seen at least 200 that day.

Of Apatura iris, about twelve were seen, and I think only
two were captured (all males), but on the last day, I missed a
perfect one ovipositing on the sallow.

With regard to D. paphia, I was most fortunate in securing
some very fine varieties (some being damaged). In the same
enclosure, where valesina was so abundant, I happened to see
(well within reach of the net), about 1 yard apart from each
other, a male and a female with no spots at all, but with black
streaks all over them. Luckily, I got both in the net at the
same stroke. There were also many males (and a few females)
having the white "patches" on all four wings, but the commonest
of the varieties was the male, with one white spot on the hind wing.

Towards the end of my visit E. polychoros seemed to get quite
plentiful, frequenting the grassy paths by the side of swamps.

As for Argynnis clypepe, it was most abundant, especially
near the railway line at Brockenhurst, it quite putting paphia
in the shade there.

I also met a friend who told me he had taken some perfect
to examples of Thecla vic-album, and although he directed me to his
spot, I failed to obtain it.

With regard to aberrations of paphia and sibylla, I find that,
having compared specimens with friends that we each took the
variety of the former with no spots at all, but black streaks, and
as for the coveted "Black" sibylla, seven were taken, of which
three apiece fell victims to my friend and me, and the other one
(which we both struck at) to another friend.

I may add that, had it not been for my friend, Mr. J. H.
Carpenter (of Leatherhead), I should never have been on the qui
vive so much, for having seen his series of paphia (all from the
Forest?), I was then enabled to see what aberrations to look for.

The last few days being wet, I decided to stay another three
days, but I did not gain much by doing so, except that the last
insect to be captured was the "Black" sibylla; so I think I
was most lucky during my visit, as the first and last insect to
be caught was this most coveted variety. I also heard that
there were quite a crowd of well-known entomologists after it,
but with what success I do not know.

14, Strathearn Road,
Sutton, Surrey,
July 25th, 1918.

We understand that all the above mentioned "Black" sibylla
are not true ab. nigrina but modifications of that form.—Ed.
THE NOCTUIDAE OF GREAT BRITAIN AS ARRANGED IN THE GENERAL COLLECTION AT THE NATURAL HISTORY MUSEUM.

By Richard South.

(Continued from p. 211.)

4691. Arenostola fluxa, Hübn.
   Tapinostola hellmanni, Evers., E.S.L., p. 6; T., i, p. 43; M.B.I., i, p. 301.
   Caradrina hellmanni, M., p. 121.

4692. Arenostola pygmina, Haw.
   Tapinostola fulva, Hb., E.S.L., p. 6; T., i, p. 44; M.B.I., i, p. 300.
   Caradrina fulva, M., p. 120.

4697. Arenostola bondi, Knaggs.
   Tapinostola bondii, E.S.L., p. 6; M.B.I., i, p. 301.
   Caradrina morrisii, M., p. 120; T., iv, p. 96.
   Chortodes extrema, T., i, p. 47.

4698. Arenostola extrema, Hübn.
   Tapinostola extrema, E.S.L., p. 6; M.B.I., i, p. 301.
   Caradrina concolor, M., p. 121.
   Chortodes extrema, T., iv, p. 96.

4701. Archanaara geminipuncta, Haw.
   Nonagria geminipuncta, E.S.L., p. 6; M., p. 111; T., i, p. 50; M.B.I., i, p. 297.

4703. Archanaara dissoluta, Treit.
   Nonagria neurica, Hb., E.S.L., p. 6; T., i, p. 49.
   Nonagria dissoluta, M., p. 116; M.B.I., i, p. 298.

4704. Archanaara neurica, Hübn. (1808).
   Nonagria dissoluta (part), M.B.I., i, p. 298.

4707. Archanaara sparganii, Esp.
   Nonagria sparganii, E.S.L., p. 6; M., p. 111; T., i, p. 53; M.B.I., i, p. 296.

4712. Archanaara algæ, Esp.
   Nonagria canne, Ochs., E.S.L., 6; M., p. 111; T., i, p. 52; M.B.I., i, p. 296.

4714. Coenobia rufa, Haw.
   Coenobia rufa, E.S.L., p. 6; M., p. 112; T., i, p. 48; M.B.I., i, p. 299.

4750. Nonagria maritima, Trusch.
   Syna maritima, E.S.L., p. 5; M., p. 124; T., i, p. 48; M.B.I., i, p. 299.

4771. Oria musculosa, Hübn.
   Synia musculosa, E.S.L., p. 5; T., i, p. 29; M.B.I., i, 302.
   Caradrina musculosa, M., p. 120.

4977. Panemeria tenebrata, Scop.
   Holiuca tenebrata, E.S.L., p. 10; T., iv, p. 127; M.B.I., ii, p. 46.
   Panemeria tenebrata, M., p. 167.

(To be continued.)
NOTES AND OBSERVATIONS.

To our Subscribers.—The 'Entomologist' started its 1918 career with a 37½ per cent. rise in the cost of printing, etc. In June of that year the increase rose to 55 per cent., and in October mounted to 100 per cent. The result of these heavy additions to the cost of production has been that, on a subscription of seven shillings per annum, the receipts and cost balance unfavourably for the year. As the cost of our 1919 volume will be at least double that of 1914 we are reluctantly obliged to advance the subscription to twelve shillings. It may be noted here that the 'Entomologist' has for many years been conducted not as a profit-earning publication but as a self-supporting journal. Any surplus of receipts over expenses there may have been in one year has been expended in additional pages or extra illustrations in the next volume. We may add that without the financial assistance of some of our supporters the Special Index for 1916 and also that of 1917 could not have been printed.

Retarded Emergence of Eustroma (Cidaria) silaceata.—In July last I bred a number of E. silaceata and imagined that all the moths had emerged. I was therefore surprised to find an image freshly emerged on October 22nd, and another on November 3rd. This is not a case of a second brood, as I did not continue the strain.—(Rev.) J. E. Tarbat; Fareham, Hants.

Peronia cristana in the New Forest in 1918.—I spent a fortnight, September 12th to 26th, in the New Forest, chiefly in hunting for P. cristana. I was not at all sanguine of a good bag, for three visits to Epping Forest had only resulted in seventeen examples, and generally speaking I had found the Peroneae exceedingly scarce in Surrey; probably the cold snap that spoilt the fruit crop, and which occurred whilst they would be in the larva stage, was accountable for the scarcity of this group. I was accordingly agreeably surprised to see P. cristana in its Hampshire locality by far more abundant than it has been my fortune to find it in previous years. On a good day five or six dozen examples could be netted, and these numbers represent more than double those that it has been my lot to discover in previous years; and, moreover, there were far less of the prevalent melanic form, ab. nigrana, than is usually the case. Altogether, I suppose I must have examined five or six hundred examples, the majority of which were, of course, released. Unquestionably the best form obtained was the true ab. ruficostana, with the yellow vitta as figured by Curtis. This is an exceedingly rare form, of which one only sees one or two examples in the best collections. I also obtained three of the beautiful and rare form, ab. nigrocostana, Clark, one ab. subcapucina, two ab. sepiana, several ab. fulvocristana, provittana, insula, flammearna, nigrosobvittana, alboryficostana, semistriana, jansoniana, fulvovittana, suberistelana, subchantana, all of which I have in previous years found to be rare; quite a feature of the varieties was the number of abs. albipunctata and ochreapunctata that occurred.—W. G. Sheldon; October 29th, 1918.
Peronea cristana, ab. albovittana, Stephens, in Epping Forest.—Amongst the few P. cristana obtained this year in Epping Forest was one example of the handsome ab. albovittana, Stephens, which I had not previously taken, or seen recorded from there.—W. G. Sheldon; October 29th, 1918.

Grapholitha scopariana in Sussex.—This brilliant little Tortrix was introduced to the British fauna by the late J. B. Hodgkinson, who took it in the north-west of England some forty years ago. The food-plant, Genista tinctoria, is locally abundant in the neighbourhood of Three Bridges, and I have often wondered if G. scopariana did not frequent it. I have even searched for it and its larva a good many times, without, however, obtaining any success. On May 11th last I was passing through a certain field in which G. tinctoria grows plentifully, and which I had passed through scores of times during the past forty years. It occurred to me that possibly G. perlepidana, which is found plentifully in this field, and the larva of which is not certainly known, might be flying. It was not, but I netted a small Tortrix which was flying in the afternoon sun. I at once recognised that I had obtained G. scopariana. It was quite plentiful, and in the course of half an hour’s intermittent sunshine I secured about thirty examples. I should say that in Sussex, at any rate, the first week in May is the proper emergence time.—W. G. Sheldon; October 29th, 1918.

Nepticula intimella (?).—I feel sure Major Smart will forgive me when I ask if his supposed Nepticula intimella he met with in such numbers, as recorded by him in the last paragraph of his note in this (November) month’s issue, was really a Nepticula at all. Intimella is a decidedly local species, and by no means a very common one; the larva feeds in willow leaves, Salix fragilis being its favourite, I think. I have never seen the imago at large, and a large majority of the many species in this extensive genus are hardly ever seen in the perfect state except, of course, when bred. Now, I think it quite possible that his moth may have been Heliozela sericiella. This little moth flies in numbers round oak in April and May, and might very easily pass for a Nepticula. I well remember, many years ago, seeing it flying in dozens round a furze bush close to an oak tree, and thought I had made a discovery, as I had never heard of a Nepticula (as I supposed it to be at the time) feeding upon furze. I mentioned the matter to Dr. Wood, and he told me that he also had noticed this habit. I wish some of our young collectors could be persuaded to pay attention to this highly interesting genus; many of the species are very easy to breed, and some of them brilliant in the extreme. Although greatly interested in them, I find it now quite impossible to pin and set them as in former days, owing to indifferent eyesight.

—A. Thurnali; Wanstead, November 6th, 1918.

Late Occurrence of Pyrameis cardui.—The brilliant sunshine of October 24th tempted me out to see if there were any butterflies about. Nothing turned up till I discovered a field full of knapweed in full flower. Rumicia phleas was conspicuous by its absence, but half a dozen fresh Vanessa urticae were dispersing themselves on the flowers. In the distance I saw a strong-winged insect flying wildly
about, and with some difficulty I succeeded in capturing it. It proved to be a recently emerged female *Pyrameis cardui*, large and perfect, but perhaps a little pale in colour. Such an incident would have been interesting in any year, but seems to me to be especially so at the end of the wet and sunless autumn of 1918. To me *P. cardui* has been quite rare this year. I saw an immigrant specimen here at 5 p.m. on May 27th, but could find no larvae during the summer, nor did I see the species again till August 10th, when I noticed a very battered specimen, evidently not born in England. A similar specimen was observed about the same time by my brother at Latton, near Harlow. The only fresh specimen I came across this summer was on August 14th in a clover field at Dunstable, in Bedfordshire.—(Rev.) Gilbert H. Raynor; Hazeleigh Rectory, Maldon, November 5th, 1918.

A Sale of Lepidoptera and Cabinets.—On October 29th the collections formed by the late General Seafield Grant and Lieut.-Col. Carden were disposed of at Stevens' Auction Rooms. The more ordinary lots sold, as a rule, at good prices, but anything in the way of a "good variety" appeared to be keenly sought after. Thus, a lot containing some light specimens and some varied underside *Melitea cinxia* brought £7 10s.; an underside *Agriades bellargus* (adonis), "disc whitish, margin rayed," £6; and an "hermaphrodite, left side male, right female," *Agrotis puta*, also £6. Two specimens of *Chrysophanus dispar*, male and female, in good condition, realised £8 for the former and £7 for the female. But if the insects sold well, the cabinets that contained them brought, at any rate, equally satisfactory results for the sellers. An English pattern mahogany 40-drawer sold for £65; a 32-drawer for £39; two 12-drawer at £19 19s. and £17 17s. respectively; and a 10-drawer for £15 15s.; while three others of various makes and sizes all brought good prices.—R. A.

SOCIETIES.

The South London Entomological and Natural History Society.—August 22nd.—The President in the Chair.—The death from wounds of a member, Mr. C. P. Emmett, F.E.S., was announced. —Mr. Court, of Market Rasen, was elected a member.—Mr. Turner exhibited 'Exotic Moths,' Jardine's Library, 1840, and referred to the portrait and memoir of the great French naturalist, Latreille, contained in it.—Mr. Edwards, *Papilio lama* from Thibet, and *v. plutoius* of *P. alcinous* from Thibet.—Mr. Ashdown, larvae of *Noto daintonovem- darius*.—Mr. Barnett, undersides of *Agriades coridon* (1) with all discl markings obsolete, (2) with markings much emphasised and dark, from Royston, and a pale *Anaitis plagiata* from Colley Hill.—Mr. Neave, a living *Trichitura cratægi* and three aberrations of *Aricia caja*, (1) and (2) with discl markings on hind wings mainly obsolete, (3) a yellow form.—Mr. Holden, three aberrations of *Aricia caja*, (1) a salmon pink form, (2) with discl markings on hind wings obsolete, (3) a rich yellow form, and a *Mimas tilia* with costal blotches only.—Mr. Carr, several series of *Abraxas sylvata* (unata) from Chalfont, Wye, and Delamere.—Mr. Bunnett, a very pale *Miltochrista miniata* from Crowborough.
September 12th, 1918.—Mr. R. Adkin, F.E.S., Vice-President, in the chair.—Mr. Ashdown exhibited series of the Homopteron Ledra aurita, with living larvae. Some females had the frontal horns more developed than in the males.—Mr. Blair, two very similar beetles, Coccinella distincta and C. septempunctata, the former associated with ants, and pointed out their differences.—Mr. Bowman, four successive broods of Dysstroma (Cidaria) truncata: (1) an average wild female; (2) including the yellow-clouded and dark suffused forms; (3) more or less typical, October and November; (4) also more or less typical—(3) and (4) quite as large as the parent.—Mr. Sich, the Micro-lepidoptera, Cocccia podana ab. sauberiana, bred from ivy; Pseudepis rubens with very faint markings; P. hepatica, a dark specimen bred from rose; Euarmonia voliberviana, a dark specimen, Bath; Acalia contaminata, the aberrations ciliata and rhombana and the form which has been provisionally named omicron.—Mr. Barnett, a series of Aricia medon, one underside striated on the fore wings, Chipstead.—Mr. B. W. Adkin, a series of Nisoniades tages, some finely-marked varied females, and a remarkable khaki-coloured form.—Mr. Sperring, eight specimens of Abraxas grossulariata from Aberdeen, bred, gradations of the dark suffused local race, and two very dark ones bred from suburban collected larvae, also the ab. fulvopicata form from S.E. London. Mr. Sperring also showed ten specimens of Arctia caja, bred this year from S.E. London, including aberrations with orange hind wings, predominance of white on fore wings, a banded form (hind), a banded form (fore), specimens much suffused.—Mr. F. B. Carr, series of Royston Agriades corydon, 1918, including ab. roystonensis ab. semisyngrapha, and specimens close to ab. syntagruma, with several underside aberrations.—Mr. Dennis, heads of the common rush on which the very young larvae of Coleopthera caespititella had, since the heads were gathered, made their cases.—Mr. H. Moore and Mr. H. J. Turner, a large number of Japanese Rhopalocera.—Mr. Turner read a short paper, "Notes on the Butterflies of Japan."—Reports on the season were given. The broom was flowering again, butterflies were scarce in Essex, remarkable aberrations had turned up in the New Forest, Pararge meaora second brood was common locally, and Epinephelus tithonus was plentiful.—H. J. Turner (Hon. Editor of Proceedings).

September 26th.—Dr. T. A. Chapman, F.R.S., in the chair.—The decease of Mr. W. de Visnes Kane was announced.—Mr. Muir, for Mr. Carr, mines of Phyllotoma vagans (Sawfly) in alder leaves from Blackheath.—Mr. Moore, specimens of a second brood of Sphinx liguistri; August and September emergence.—Mr. Main, living examples of Dytiscus circumcinctus, a water-beetle, without secondary sexual characters.—Mr. Bunnett, galls of Rhodites olanteria and P. rose, gall-flies.—Mr. West, examples of the "fire-beetle," Melanophila acuminata, from Crowthorne.—Mr. B. W. Adkin, aberrations of Pararge meaora, with large ocelli, with small ocelli, with suffused area between central lines, from Dartmoor.—The remainder of the evening was devoted to the exhibition of lantern-slides.—Mr. Main, slides showing resting positions of native species of Mosquitoes and Gnats.—H. J. Turner (Hon. Editor of Proceedings).
IMPORTANT NOTICE.

Mr. J. C. STEVENS regrets to inform his Clients that the Sale of the Collection of British Lepidoptera, advertised to take place on Tuesday, December 10th, has been CANCELLED.

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