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## The Entomologist

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ERRATA ET CORRIGENDA.

- P. 122, l. 12 from top, for *Basses-Alpes* read *Basses-Pyrénées*.  
 P. 159, l. 32 from top, delete *cleanthe*.  
 P. 207, l. 10 from top, for *molybdæna* read *molybdina*.  
 P. 235, l. 17 from bottom, for *Euanessa* read *Euanessa*.  
 P. 240, l. 9 from bottom, for *electæa* read *electa*.  
 P. 264, l. 16 from top, for 63 read 263.  
 P. 264, l. 18 from top, for *Plebeids* read *Plebeiids*.

# THE ENTOMOLOGIST.

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[No. 655

## OCCURRENCE OF AN AUSTRALIAN ECOPHORID IN ENGLAND.

BY EDWARD MEYRICK, B.A., F.R.S., ETC.

IN the 'Entomologist,' 1910, vol. xliii, p. 96, Mr. C. G. Clutterbuck recorded the capture by the Rev. J. W. Metcalfe in Devon of an insect identified by me as *Ocystola æthopis*, an Australian species of the *Ecophoridae*. Mr. Metcalfe took this year at Exmouth a similar example and sent it to me for identification; this is without doubt the closely allied and much commoner *acroxantha*, Meyr., and I am therefore now of opinion that the first example was wrongly identified, and was probably a melanic variety of *acroxantha*, the normal form of which is characterised by the yellow terminal cilia of fore-wings. This species has lately been introduced from Australia into New Zealand. I suppose it to be attached to Eucalyptus, but whereas saplings could easily be, and probably are, sent from Australia to New Zealand, it seems very improbable that they are sent to England, plants being easily raised in this country from seed (I have raised five or six kinds myself). Hence the importation is difficult to explain. But Mr. Metcalfe states that the specimen was beaten from an elm in a field, and adjoining this field is a nursery in which imported plants may be growing; moreover, Eucalyptus grows well at Exmouth, where, I expect, several species would stand the winter. He thinks that the former specimen may probably have been from the same locality, and hopes to investigate further.

Thornhanger, Marlborough,  
November 8th, 1917.

## TWO NEW HUMBLE-BEES FROM CHINA.

BY T. D. A. COCKERELL.

SOME time ago Mr. N. Gist Gee sent to the U.S. National Museum two species of *Bombus* from the Chinese province of Kiangsi. Both are new, and are herewith described.

### *Bombus geei*, n. sp.

Female.—Length about 20 mm., anterior wing 16; broad and robust, black, with black hair, but a rather obscure patch of yellow hair on each side of basal part of abdomen sublaterally overlapping

second segment, and from apex of fourth segment to end of abdomen the hair is bright ferruginous; outer side of anterior tibiae and tarsi with some red hair, hair on outer side of middle tibiae and tarsi all red; hind tibiae and tarsi with both tegument and hair red; wings dilute orange, with the outer margin very broadly dusky. Clypeus shining, very sparsely punctured; malar space about as broad as long; third antennal joint about 1.5 times as long as fourth, fourth considerably longer than broad.

Kuling, Kiangsi, China (*N. Gist Gee*, 52*a*). This is very closely related in all respects to *B. latissimus* Friese, from Formosa, and must be considered the mainland representative of that species. It adds one more to the numerous instances in which Formosan species possess close allies on the mainland. Superficially, *B. geei* is like the Japanese *B. ignitus* Sm., but the wings are quite different.

*Bombus kulingensis*, n. sp.

Female.—Length about 20 mm., anterior wing 17; broad and robust, black, the colour-pattern of hair nearly as in *B. pyropygus* Friese, but the thoracic dark patch is very large and subquadrate, the hair is not so long, and the wings are very much darker. Head with black hair, pallid on occiput; clypeus shining, the disc almost impunctate; malar space a trifle longer than broad, not nearly 1.5 times longer; mandibles with two notches on inner half of cutting margin, and a ferruginous patch (tegumentary) near first notch; third antennal joint longer than fourth, but not 1.5 times longer, fifth about as long as third; thorax with pale yellow hair, strongly mixed with black on prothorax, and disc above, extending to middle of scutellum, very broadly black; legs with black hair; wings dark reddish-fuscous, not quite as dark as in *B. fragrans*; abdomen with yellow hair on first three segments, but black on sides of third; fourth segment basally with black hair, more or less mixed with red, and beyond this the hair is bright ferruginous.

Kuling, Kiangsi, China (*N. Gist Gee*, 54*a*). Related to *B. trifasciatus* Sm., but with much longer fourth antennal joint, and black band on abdomen narrow and weak.

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*STEPHANUS (PARASTEPHANELLUS) DAMELLICUS*,  
Westw.

By E. A. ELLIOTT, F.E.S.

IN the June number of this Journal, p. 129, I published some remarks on the differences between Westwood's species as described by him, from Australia, and one from New Guinea and Borneo, considered by Enderlein to be identical. Through the courtesy of Prof. Poulton I have been able to examine the handsome and perfect type, now in the Hope Museum at Oxford, and find certain modifications necessary.

Westwood says of the hind femora: "subtus serratis dentibusque tribus majoribus armatis," whereas they are most distinctly bidentate. Also he describes the metanotum as only basally striate, but Enderlein's species has this part longitudinally striate throughout. In this case I was misled by the different sense in which the two authors understand the term; Westwood includes under it both the narrow visible strip of the true metanotum, which is longitudinally striate, and the median segment, Enderlein describing them separately, and the latter part is rugose in both.

The characteristic points in *damellicus*, Westw. are: the conspicuous transverse carina on vertex, and the rather broad white line under the eyes, both of which are wanting in Enderlein's species; the sculpture of the pronotum is also different.

In the 'Arkiv för zoologi,' ix, 1915, p. 1, Roman describes a species from West Australia which certainly comes very close to *damellicus*, West., if not actually, as Roman suggests, a dark variety of it. He quotes the erroneous tridentation of the hind femora as the principal difference, which now disappears. His species has the carina on vertex and the white line under the eyes, though apparently less developed, as they might well be in a melanic variety, but the five frontal tubercles are all well developed and the posterior margin of the head is not bordered; in *damellicus* the two posterior tubercles are subobsolete and the occipital margin is strongly bordered, hence I prefer to retain Roman's name *pictipes* for his species, which has also the intermediate tarsi basally white.

16, Belsize Grove, N.W. 3,  
November 12th, 1917.

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PERONEA CRISTANA, FAB., AB. NOV. SUBNIGRANA.

By PROF. SELWYN IMAGE, M.A., F.E.S.

PALPI, head, and thorax cinereous. Fore wing divided in colour diagonally from the base to near the apex into two portions. Of these the upper portion, including the button, is a dull strong blackish-brown; the lower portion is shining purplish-grey, with usually some small blackish tufts in the tornal area.

*Subnigrana*, though closely allied to the *nigrana* of Clark, is readily distinguishable from it, inasmuch as *nigrana* has no division of colour in the fore wing, which is blackish throughout and brilliantly mottled with darker colour.

This aberration is, I think, worth a special name, because, at any rate in Epping Forest, it is by far the most common form of the species, and is very constant in colour and markings.

Between the years 1905 and 1914 my friend, Mr. Janson, and I must have seen in the Forest many hundred *cristana*, and he agrees with me that certainly the majority of these were the form I have ventured to name and describe above.

78, Parkhurst Road, Holloway, N.,  
October 19th, 1917.

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*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.

(Continued from p. 250.)

There are two features that are apparent immediately one commences to study the variation of *P. cristana*. The first of these is that, whilst the majority of the forms to be found in each locality are identical, in each there are quite a number that are peculiar to it, or that are abundant or frequent in it, and rare elsewhere.

The second point is that there has been a great change in the forms to be found, at any rate in certain localities, and probably throughout the species' distribution, during the last twenty or thirty years; certain forms that were obtainable then do not seem to occur now, and, on the other hand, a large number of new forms have appeared; many of these are quite common, and in two cases the new form has outnumbered any other to be found at the present time.

These facts being apparent, I have thought it desirable to place on record the present position of the species, so far as its variation is concerned, by giving lists of the forms to be found in its three principal localities—the New Forest, Epping Forest, and Folkestone—to the extent that I have been able to compile them.

These lists will accomplish two objects—firstly, they will inform the student what aberrations are to be found in each of these localities; and secondly, what is much more important, they will constitute a record of the present stage the variation of the species has reached, from which it will be possible to trace and establish future developments and their significance.

I will first deal with the variation in the New Forest, following with that in Epping Forest, and finishing with the Folkestone aberrations.

The specimens in the first of these lists have been either captured or observed by myself. There are in the New Forest quite a number of habitats of *P. cristana*, but my specimens, in



order to make the comparison as reliable as possible, were all captured in one locality, which is of considerable extent. They were, as the list states, taken in the years 1915, 1916, and 1917, and the numbers represent the quantities of each form met with. Many of the forms, and probably all, are exceedingly local; for instance, in certain thickets almost any specimen knocked out is ab. *nigrana*; one of these thickets which I have in mind has an area of perhaps half an acre, but in the immediate neighbourhood are other thickets that do not produce more than 8 or 10 per cent. of this aberration. This is, of course, to be expected when one knows the extreme tendency in captivity of the offspring to produce the parent form.

LIST OF ABERRATIONS TAKEN IN THE NEW FOREST IN THE YEARS 1915, 1916, AND 1917, WITH THE NUMBER OF EXAMPLES OF EACH ABERRATION CAPTURED.

	1915.	1916.	1917.		1915.	1916.	1917.
<i>cristana</i> , Fab.	5	7	15	<i>merlana</i> , Clark	7	2	2
<i>fuscana</i> , Clark	2	—	1	<i>nigropunctana</i> , Clark	2	1	3
<i>albipunctana</i> , Stphs.	2	1	—	<i>xanthovittana</i> , Dsvs.	—	2	—
<i>o:hreapunctana</i> , Clark	1	1	—	<i>semiustana</i> , Curt.	20	8	15
<i>albomigrana</i> , Clark	6	4	—	<i>bentleyana</i> , Curt.	10	4	4
<i>subvittana</i> , Stphs.	—	—	1	<i>provittana</i> , Dsvs.	1	—	2
<i>punctana</i> , Clark	1	2	2	<i>jansoniana</i> , Webb	1	—	2
<i>chantana</i> , Curt.	4	1	—	<i>nigrana</i> , Clark	36	25	44
<i>subchantana</i> , Clark	3	1	—	<i>atrana</i> , Clark	5	1	6
<i>spadiceana</i> , Haw.	11	12	11	<i>desfontainiana</i> , Fab.	8	3	8
<i>vittana</i> , Stphs.	6	—	5	<i>consimiliana</i> , Stphs.	4	1	3
<i>intermediana</i> , Clark	3	1	1	<i>sericana</i> , Hub.	1	—	—
<i>brunneana</i> , Stphs.	10	—	6	<i>ulotana</i> , Clark	4	4	4
<i>rufinigrana</i> , Clark	6	5	9	<i>flammeana</i> , Webb	2	3	1
<i>alboruficostana</i> , Clark	1	2	4	<i>cristalana</i> , Don.	16	3	13
<i>nigrocostana</i> , Clark	—	—	1	<i>sequana</i> , Curt.	1	2	2
<i>albovittana</i> , Stphs.	1	2	—	<i>fulvovittana</i> , Stphs.	1	—	1
<i>fulvocristana</i> , Stphs.	—	—	1	<i>subfulvovittana</i> , Clark	12	4	9
<i>striana</i> , Haw.	15	3	9	<i>sepiana</i> , n. ab.	—	—	2
<i>substriana</i> , Stphs.	4	1	2	<i>nigrosuvittana</i> , Clark	—	—	1
<i>prostriana</i> , Clark	—	—	1				
<i>semistriana</i> , Dsvs.	5	3	—	Total	218	109	192
<i>insulana</i> , Curt.	1	—	—				

In addition to the forty-three forms enumerated in the above list, I am indebted to Mr. South, who has worked *P. cristana* for many years in the New Forest, and who has kindly furnished me with a list of eight additional forms which he has met with there; these are abs. *nigrocristana*, Clark, *postchantana*, Webb, *subunicolorana*, Clark, *ruficostana*, Curt., *subcapucina*, Dsvs., *profanana*, Fab., *masoniana*, Clark, and *flavostriana*, Webb; and this autumn I have received three specimens of ab. *subcristalana*, Curt., a form which, whilst common at Folkestone, has, so far as I am aware, not been previously met with in the New Forest.

The total number of forms that I have been able to locate as having occurred in the New Forest for the past ten or twelve years is therefore fifty-two.

In addition to these there are the following old records: ab. *capucina*, Johnson, the original type specimen ('Ann. Mag. Nat. Hist.,' x, p. 366); ab. *alboflammana*, Curt. Mr. Sydney Webb mentions having taken this form in 1891 (cp. 'Ent.,' xxiv, p. 271).

In the foregoing list I have included the name *sepiana* n. ab. The head and palpi of this aberration are ashy grey, the superiors are of an almost unicolorous grey-brown, of a tint intermediate between that of abs. *subunicolorana* and *profanana*; the button and a number of minute points are dark fuscous; there is no trace of a vitta. I have five examples of this form from the New Forest and one from Epping Forest, and I have seen in various collections quite a number which came from the Hampshire locality.

It will be noted that I have included in the list two specimens of ab. *xanthovittana*, and one of ab. *nigrosuvittana*. The determination of these forms by the authorities is exceedingly vague, and therefore it seems incumbent upon me to explain precisely what these specimens of mine are.

To take first ab. *xanthovittana*. Desvignes's description ('Zool.,' iii, p. 841, 1845) is indefinite and quite insufficient. He says: "Similar to ab. *unicolorana* and ab. *alboflammana*, but with a yellow or fulvous dash; palpi, head and thorax of the same colour." This description is quoted by Clark; in his paper (*l. c.*) he describes another form, ab. *proxanthovittana*, which he diagnoses, "The almost complete absence of the button constitutes a marked difference between this aberration and ab. *xanthovittana*." Obviously, therefore, he intended to express his conviction that the two forms were alike, except that one had a button and the other had not, or had only a very small one; he does not, however, say what colour the button in ab. *xanthovittana* is; neither does Desvignes; and therefore we are in doubt upon the point, except that, as the latter does not call attention to the button, it was probably of the same colour as the surrounding area of the superiors, *i. e.* a shade of brown.

Turning next to 'Ent.,' xliii, p. 266, we find Mr. Sydney Webb—whose knowledge of the forms of *P. cristana* in the old collections is probably at the present day unique—writes of a "similarly coloured *brown tufted* insect, which has long stood in a mixed series in our cabinets under the name of *xanthovittana*." (The italics are mine.) I should say that Mr. Webb expresses the opinion that Desvignes's description, "similar to ab. *unicolorana* and ab. *alboflammana*," means "absence of the central tuft," which, of course, these two forms possess in common with ab. *proxanthovittana*, Clark, and thereupon sinks the latter as being identical with ab. *xanthovittana* Dsvs.

It appears to me, however, that there is another, and a very much more probable, interpretation of Desvignes's meaning. I take it that, "similar to ab. *unicolorana* and ab. *alboflammana*," refers to the ground colour of the superiors, which is similar in all three forms; and if I am correct, Clark's ab. *proxanthovittana* will stand.

My two specimens have a button of a bright brown colour, and are thus easily separable from ab. *nigropunctana*, of which Clark writes that it has a "large blackish button."

The difficulty with respect to ab. *nigrosubvittana*, Clark, is that his figure, or rather the figure of his artist—see Fig. 4 in the plate given with his paper (*l.c.*)—does not agree with his description. It shows a form with *dark brown* superiors, a *lighter* button, three *lighter* dots, and a short cream-coloured vitta. Turning now to his description, we read: "Head, thorax, and palpi ashy white; anterior wings *black*, with an ashy white patch at the extreme base of the inner margin, and a large *blackish* button; there are also from three to five minute mixed spots in the marginal area" (the italics are mine). There being this discrepancy, it is obvious that the description, which is Clark's work, must be followed in preference to the plate, which is not, in all points on which they differ, especially as the figures in this plate are many of them unsatisfactory.

My specimen agrees with Clark's description in every respect.

Unquestionably the striking feature of the trend of the variation of *P. cristana* in the New Forest of recent years is its movement towards melanism.

The first recorded instance of a melanic tendency that I am aware of is contained in an article by Mr. Sydney Webb, written in 1891, and to be found in 'Ent.,' xxiv, p. 271, in which he says that he took "one with the whole of the wing and tuft of a unicolorous blue-black." This, of course, refers to a specimen of ab. *nigrana*, Clark. Mr. Webb further says in 'Ent.,' xliii, p. 269 (speaking of ab. *nigrana*): "The form first appeared in the New Forest a year or two earlier than 1890, and we only saw one of it among a series of nearly two hundred specimens examined in the following year."

If the reader will turn to my list of New Forest forms, he will see that the proportion this form bears to the total of specimens captured by myself was—in 1915, 16½ per cent.; in 1916, 23 per cent.; and in 1917, about 23 per cent.

As Mr. Webb's specimen represented about ½ per cent. of the total number taken, it will be seen at once what enormous progress towards *total* melanism the species has made in the last twenty-five years.

In addition to ab. *nigrana*, there are at the present time ten other forms found in the New Forest which are more or less melanic, and it is important to note that *all these* are of recent

origin; they are not mentioned by Mr. Webb in 1891, and their names date from a period not before Clark's paper in 1901.

These melanic forms are *ab. albonigrana*, *nigrocostana*, *rufinigrana*, *merlana*, *jansoniana*, *atrana*, *ulotana*, *flammeana*, *nigrocristana*, and *nigrosubvittana*.

If the total number of specimens of all the melanic forms in my list is taken, and a calculation made of their relation to the total of specimens captured of *all* forms, the proportions work out in 1915 about 31 per cent., in 1916 about 40 per cent., and in 1917 about 37 per cent.; and taking the average of the three years together, over 35 per cent., or more than one third.

These statistics give an idea of the rate at which *P. cristana* has progressed towards becoming, in the New Forest, a melanic species; but of course to fix the approximate date when this development is likely to culminate, if it ever does, it would be necessary to collect statistics for a much greater number of years than I have been able to do; but there can be no doubt as to the present tendency.

It is interesting to speculate on the manner by which the change now going on has been brought about, and how the new forms have originated. Two theories seem to me possible. According to the first of these, a specimen of a melanic form—say, *ab. nigrana*—may be the direct issue of a specimen of any one of the non-melanic forms. According to the second theory, which seems to have evidence in support of it, each melanic form is descended from a certain non-melanic form, or group of forms. Take first *ab. nigrana*. Mr. Webb says ('Ent.', xliii, p. 267) it "is only an intensified form of *ab. profanana*." I am afraid I cannot agree with this view. In the first place, *ab. profanana* is—now, at any rate—a very rare form in the New Forest. Then *ab. profanana* is a plain form, without any darker markings—except the button—or cloudings, according to Fabricius. *Ab. nigrana*, on the other hand, is by no means a plain insect, in spite of its blackness. Clark's description reads: "Anterior wings blackish, mottled over with darker colour." I think that its parents were probably *ab. cristalana*, and perhaps *ab. semiustana*, and other strongly clouded and variegated forms; and in support of this theory I may say that Mr. Charles Gulliver, who has collected *P. cristana* in the New Forest for over forty years, informs me that previous to the advent of *ab. nigrana*, *ab. cristalana* was by far the most abundant form. At the present date, so far as the evidence of my list shows, it has receded in number to the fourth place.

Of course, once *ab. nigrana* had evolved, we know from our experience during the past half century of other species of Lepidoptera displaying a melanic tendency, how very dominant it would be likely to become. This tendency, with the remark-

able power which the species seems to possess for the offspring to produce the parent form, is quite sufficient to account for the present position of ab. *nigrana*.

Ab. *albonigrana* is undoubtedly a development of the type form of *P. cristana*; ab. *nigrocostana* is, of course, a melanic *alboruficostana*; ab. *merlana* and ab. *jansoniana* are obviously derived from a member, or members, of the ab. *striana* group; ab. *rufinigrana* bears strong evidence that it is a melanic form of the abs. *chantana* and *spadiceana* or forms closely allied to them; ab. *ulotana* is plainly derived from ab. *desfontainiana*; and ab. *flammeana* from ab. *consimiliana*. The origin of ab. *atrana* is more obscure, but I take it that it is a modern development of abs. *fulvovittana*, *subfulvovittana*, or *bentleyana*, or all of them.

Ab. *nigro-subvittana* is obviously a melanic ab. *punctana*, or ab. *subvittana*. Of course there is no doubt that all these new melanic forms are more or less dominant, and in addition to obtaining recruits in each generation—once the melanic tendency was established—from certain of the old non-melanic forms, each melanic form would tend to reproduce itself each generation in increasing numbers.

(To be continued.)

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## LEPIDOPTERA COLLECTED IN 1917, MAINLY IN GLOUCESTERSHIRE AND SUSSEX.

BY THE REV. J. W. METCALFE, M.A., F.E.S.

A RATHER bad break down in health during the trying winter led to a three months' rest from work by doctor's orders. Fortunately it was possible to arrange that my holiday should cover the three best collecting months in the year—May, June, and July—and, if it represented a rest from normal work, it afforded a most acceptable opportunity for work of another kind amongst the insects. The weather proved all that could be desired, and the long spells of brilliant sunshine were only broken by an occasional day's rain.

As we all know, the winter prolonged itself far into the spring, and the season on May 1st, when the fine weather really set in, was undoubtedly three weeks behind-hand. So favourable, however, were the ensuing weeks that by the beginning of June insects, with the probable exception of those that feed up in the early spring, were fully up to time, if not ahead of it. Undoubtedly the season now going over has been, from the collector's point of view, one of the best experienced for many years; and equally beyond doubt this fact is due to the bitterly cold and prolonged winter. Not only must the cold weather

have kept hibernating larvæ from moving about, and so greatly increased their chance of escaping destruction, but it also must have kept their enemies at home, and marauding trips after larvæ, pupæ, and ova could seldom have been undertaken. Whether all will agree with these statements or not, the fact remains that insects, usually extremely scarce, were met with in profusion, whilst others, seldom or never met with in the localities visited, were found in quite respectable numbers. A bag of over 1200 insects, amongst which very few could be set down as really common, and the result of three months' collecting, speaks for itself.

My main interest lies with the "Micros," but good "Macros" were worked for as the opportunity occurred.

Before May 1st not much had been done save the forcing of a few nice series of *Lithocolletis*, and, on going to Exmouth on that date, the immediate prospects did not appear very bright. *C. festaliella* and *I. muscalella* were the insects most in evidence, whilst on Dawlish Warren, where a fortnight later *E. vectisana* began to appear, *G. velocella* was in great numbers. It was a pleasure to note that *M. virgata* has not quite been exterminated by the squatters and golfers. The capture of a very bright form of *E. ciliella* on Woodbury Common, amongst heather and gorse and far removed from any cowslips, was the event most worthy of note.

Leaving on May 18th for Gloucestershire, a stop of a few days was made *en route* near Taunton, but nothing much was taken except one *S. gallicolana* and some cases of *T. pseudo-bombycella*, which afterwards produced one ♂ and several ♀♀. *P. lewenhoekella* was noted in numbers on the hills.

The end of May was spent in the Stroud district of Gloucestershire, where the early Tortrices of the locality abounded. Single examples of *E. euphorbiana* and *P. dimidiana*, a few *C. aspidiscana* amongst golden-rod, and three or four specimens of the new *D. æratana* were met with, whilst *E. satyrata* showed some nice forms. On the upper slopes of the hills *O. parvidactylus* flitted about with *A. sabbaumanniana*; lower down *B. pandalis*, *M. murinata*, and *E. trigemminata* were much in evidence; in the meadows, amongst plenty of *D. plumbagana* and *D. plumbana*, the pretty little *A. fibulella* was to be taken. *E. ciliella* was going over, but one patch of tansy was the home of many *D. saturnana*.

June 1st found me at Fareham, in Hampshire, the guest of the Rev. J. E. Tarbat. The following day, a very windy one, produced, beside a couple of *A. servilana*, one other insect of note in *S. communana*. Any one who takes a *Sciaphila* the size of the common *S. chrysanthæana* at the end of May or the beginning of June should be careful to box it. At that date it will almost certainly be *S. communana*. My six specimens, including one

much wanted ♀, had a distinct bluish tint, such as one sees in some forms of *S. conspersana*.

Arriving at Lewes on June 4th, to be joined by Mr. Tarbat on the following day, a start was at once made on the search for *I. globulariae*. Having not much by way of guidance except the name Cliff Hill, and a rather indistinct remembrance of an article on the Lewes Foresters, it was a piece of luck to strike *I. globulariae* in plenty and fine order after barely an hour's walk. *I. geryon* flew in equal plenty higher up the hills. On the Downs *A. bellargus*, *O. ahenella* (some fine forms), and *C. chrysonucellus* were the predominating insects. The small fry were rather disappointing; *P. dilutella*, *P. sellana*, *C. straminea*, and one ♀ *E. fractifasciana* were the best things taken. Mr. W. E. Nicholson spotted two fine ♀ *A. cinerea* crawling up from the turf, fresh from their chrysalids.

Two journeys to Abbot's Wood produced *M. hastata*, *E. dolobraria*, and *P. barbalis* in some numbers, whilst *C. bistriga*, *P. lactana*, *P. upupana*, *R. arcuana*, *A. degeerella*, *T. fulvimitrella*, *D. olivierella* were also netted. One fine *C. fluctuosa* was a forerunner of what was after to be met with at Tilgate Forest. At the last-named favoured spot *C. fluctuosa* was really plentiful amongst the birch trees in company with *M. notata*. The same trees also harboured many *A. corticana*, *P. bilunana*, *E. nana*, and *T. proximella*. A few *E. venustula*, kicked up in the early afternoon, led to much heavy work, which might have been avoided, as it flew in great numbers at dusk, but wanted picking over. The special object of our visit to Tilgate, viz. *S. sphegiformis*, was rather poorly satisfied by one specimen.

Returning to Gloucestershire on June 18th, the splendid character of the season at last became fully apparent. My collecting was now done in co-operation with Mr. W. B. Davis, of Stroud, who has a unique knowledge of the district.

The first brood of *P. c-album* var. *hutchinsoni*, seldom seen in this district, was quite plentiful from now onwards, and before the end of July early specimens of the second brood were out, so that the two broods overlapped and flew together. On one occasion, after a storm, scores of *T. w-album* were seen resting upon a row of thistles, a truly beautiful sight. *A. corydon* was observed very early, and was well on the wing before the end of July. Two very interesting and scarce Eupœciliæ were found in a field that had gone out of cultivation for some years. *E. manniana*, of which I took a single specimen last year, was there in great numbers, and flew at dusk. In smaller numbers *E. flaviciliana* was to be had, and these two are, I think, new records for the county, and certainly amongst the prizes of my holiday. In the same field *C. fulvana* was very common, whilst *S. verticalis* was not rare, and *N. scabiosellus* waved its long antennæ from the flower heads of *Scabiosus arvensis*.

Near Nailsworth the scarce *T. semialbana* was to be beaten in one limited locality. It occurs on the edge of a beech wood, and I have taken it now for several years in succession. It is seldom easy to move, and where not one could be induced to fly, an hour later, and perhaps the next day an hour earlier, half a dozen might be had. My best bags were made after heavy rain, when possibly they had been compelled to descend from the tops of the beech trees, and on one occasion only I saw a considerable flight at dark.

Of *S. pallifrontana* one specimen before and one after my visit to Lewes were taken. On one occasion *T. cinnamomeana* occurred in extraordinary numbers amongst larch, from which *H. lariciana* and *P. occultana* could also be beaten. In a beech wood, that had been carpeted with bluebells in the spring, *S. sinuana* could be beaten in great numbers, two or three coming from every tree in perfect condition. Neither Mr. Davis nor myself had ever taken more than an occasional specimen in the district before. Returning home the same evening with our pockets full of *S. sinuana*, we struck a colony *B. furfurana*, also a new thing to the district. On another day *O. ericetana* swarmed on the edge of a cornfield, whilst a few evenings later *E. fractifasciana* was flying in crowds on a hill slope, but amongst the many ♂♂ only one ♀ was netted.

*P. verhuellella* flew gently in an artificial grotto where earlier in the year the larvæ had been noted feeding on the seed-vessels of the heart's-tongue; and the cases of *L. ferchaultella* occurred on a paling by the canal and produced many ♀♀. *H. oppressana*, *H. neglectana*, and *H. aceriana* were all found on a row of poplars hard by. But I must cut the story short. The following were also taken in some numbers: *R. consociella*, *A. salicella*, *P. ochroleucana*, *O. ulmana*, *S. ianthiana*, *T. aurana*, *S. compositella*, *D. acuminatana* (2nd brood), *A. cnicana*, *A. badiana*, *E. ciliella* (2nd brood), *S. arcella*, *L. prælatella*, *L. luzella*, *O. lunaris*, *L. conterbatella*, *L. lacteella*, *L. miscella*, *L. raschiella*, *C. therinella*, and other Tineina not yet determined. Amongst the plumes *O. lithodactylus*, *H. pterodactylus*, *H. bipunctidactylus*, *A. baliodactyla*, *A. tetradactyla*, *O. teucarii*, were all common except the last named. Long series of *E. fænella*, and *G. limoniella*, were bred from larvæ kindly sent from Essex by Mr. F. G. Whittle, and of *S. flexana*, from pupæ earlier supplied by Mr. Davis.

I have said nothing of *P. brachydactylus*, which after our last year's discovery, was naturally not neglected. Several visits at the end of June to its rather distant locality, proved in vain, and when at last it was found early in July it was going over and only four specimens were taken, not in the best condition. Something, however, of its habits was learned, and whilst it probably flies after dark, it certainly has a very brief flight about 7.30 p.m. Our experience leads us to conclude



that the insect can only occur in very small numbers in this restricted locality, its two supposed food-plants, though present, being by no means common. As, however, the larvæ probably feed up in the early spring it may have suffered from the prolonged cold.

My particular thanks are due to Mr. Davis for his able guidance to many choice spots, and I was only too pleased to help him turn up several species new to the district.

On August 1st I returned home to Devonshire, and the weather almost immediately broke up. Not much has been done since then save the capture of a few *C. splendana*, and *P. profundana*, together with a goodly number of larvæ of *A. cosmодactyla*, and *A. punctidactyla*.

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## NOTES ON THE LEPIDOPTERA OF THE BRITISH LINE IN FRANCE.

BY CAPT. H. D. SMART, M.C., R.A.M.C., F.E.S.

(Concluded from p. 253.)

I DID not spend many weeks of the season of the Pyralidæ in France, and consequently added only a few species to last year's list.

*Aphomia sociella* was taken at Heuchin and more commonly at Fruges.

*Crambus falsellus* I caught at Caestre.

In one camp near Locre *Ephestia elutella* was abundant.

My short visit to Nieppe Forest produced *Scoparia basistrigalis* and *S. ambigualis* var. *atomalis*.

*Pionea prunalis* was plentiful at Caestre and in the adjacent part of Belgium. *P. stachydalis* was quite common in one of the marshes near Kimmel.

In the early part of the year I found hibernated examples of *Acalla literana* in several of the woods between St. Pol and Arras.

Several forms of *A. schalleriana*, including ab. *latifasciana*, were common in the Kimmel area.

*Capua favillaceana* was common near Avesnes.

*Cacæcia podana* and *C. rosana* were abundant at Fruges, especially the latter. I found *C. xylostæana* in the Forêt de Nieppe.

*Pandemis heparana* was common on Mont Kimmel.

*Eulia ministrana* was very common at Avesnes.

I found *Tortrix læflingiana* on the Scherpenberg, in Belgium.

The comparative scarcity of *T. viridana* on the Somme in 1916 was by no means repeated further north in 1917. The

insect caused considerable damage to oak foliage in all woods visited in the Pas-de-Calais.

*Cnephasia chrysanthæana* was quite common from Messines to Locre.

I renewed my search for *Cheimatophila tortricella* (*hyemana*) this spring in the Avesnes woods, but was successful only to the extent of one specimen. Allowing for the possibility of local and yearly fluctuations, I feel sure that this insect is less common in northern France than in any part of Britain I have visited at appropriate times.

*Conchylis curvistrigana* was taken at Arras.

*Olethreutes betulætana* was abundant everywhere; *O. variegana* at Fruges; *O. pruniana* at Fruges. *O. nigricostana* appeared less commonly at Fruges and Avesnes. *O. urticana* was very abundant throughout the Pas-de-Calais, and *O. lacunana* common at Kimmel. I took *O. ericetana* at Fruges.

I found *Steganoptycha corticana* on nearly every tree in the Forêt de Nieppe, all variations through black, grey and green being equally numerous. *S. trimaculana* was quite common at Fruges.

*Bactra lanceolana* abundant throughout the Pas-de-Calais.

*Notocelia udmanniana* was common at Locre; *N. roborana* very common at Avesnes and neighbourhood.

I took *Epiblemia cana* at Kimmel and *E. subocellana* at Fruges. *E. tripunctana* also occurred at Fruges.

*Ancylis lætana* I took at Avesnes, *Dichrorampha alpinana* at Fruges, and *D. simpliciana* very commonly at Arras.

*Glypliptyryx schœnicolella* was taken at Fruges.

*Swammerdammia lutarea* (worn) at Kimmel.

*Gelechia* (*Teleia*) *lucullella* was abundant in Nieppe Forest.

*Xystophora atrella*, Fruges.

In reporting *Blabophanes fenestratella* as universally common last year, I was seriously misled by my ignorance and the absence of books. The insect I meant to indicate was *Endrosis lacteella* (= *fenestrella*, Scop.).

*Semioscopis avellanella* was very common in Beaufort Wood, Avesnes.

*Alabonia geoffrella* was very common, but local, near Fruges.

*Borkhausenia tinctella*, Avesnes and Heuchin.

*Antispila pfeiferella* (Hb.) was common at Avesnes.

*Coleophora limosispinella*, Forêt de Nieppe.

*Elachista argentella*, common at Arras.

*Gracilaria syringella*, at Avesnes.

*Lithocolletis cramerella* was abundant at Avesnes; *L. bremiella*, common at Arras; *L. tristrigella*, common at Avesnes.

*Bucculatrix boyerella* was taken at Arras and Avesnes.

*Monopis* (= *Blabophanes*) *fenestratella* was very common in some of the unused rooms of the château at Radinghem, Fruges.

This time I have Mr. Durrant's support for the identification. It is a curious coincidence that I should thus come across this rare insect after having already erroneously claimed its capture. *Trichophaga tapetzella* was very common in the same château.

*Tinea corticella* occurred in Nieppe Forest; *T. granella* at Arras.

*Incurvaria cehlmanniella* and *I. muscalella* were both taken at Avesnes.

*Nemophora swammerdammella*, at Avesnes.

*Adela degeerella* was taken at Avesnes, very commonly at Fruges, and in Belgium.

*Eriocrania subpurpurella* was abundant at Avesnes.

I am greatly indebted to Mr. Durrant and Mr. B. Morley, of Huddersfield, for great assistance in the identification of Tineidæ, and to the Army Post Office for conveying to England many boxes of insects with no loss and a minimum of damage.

CORRIGENDUM.—On p. 253, for *Epione apiciaria* read *E. advenaria*.—H. D. S.

## NOTES AND OBSERVATIONS.

CHÆROCAMPA ELPENOR LARVÆ ON BALSAM.—MR. A. G. Scorer, in the September number of the 'Entomologist,' mentions the wild balsam as a food-plant of the larva of *C. elpenor* hitherto unnoticed. I should like to say that when I lived at Weybridge I always found the larva of *elpenor* feeding on that plant, which grows abundantly on the banks of the Wey, and never found it on anything else.—(Rev.) J. E. TARBAT; Fareham, Hants.

APPLES ATTACKED BY THE LARVÆ OF PORTHESIA SIMILIS (AURIFLUA).—On September 29th I was looking round an apple-tree in my garden, to see if the fruit was ready for gathering, when I noticed that a small bunch of leaves at the end of a branch were skeletonised. On seeking the cause I found that an apple growing just below them had been denuded of a large portion of its skin, and on an adjacent one I discovered about a score of young larvæ of *Porthesia similis* busily engaged in devouring its skin also. There were plenty of leaves on the tree, and it would therefore appear that the larvæ had taken to the fruit from choice rather than from necessity.—ROBERT ADKIN; "Hodeslea," Eastbourne, October, 1917.

MACROGLOSSA STELLATARUM IN BEDFORDSHIRE.—On October 24th last I found in an empty house in Bedford a live specimen of *Macroglossa stellatarum*. It was somewhat rubbed on the thorax and at the wing tips and died the same evening.—H. F. STONEHAM, Capt., F.E.S., M.B.O.U.; "Stoneleigh," Reigate, Surrey.

TORTRIX PRONUBANA IN LONDON DISTRICT.—During the past week I have taken larvæ, pupæ, and imagines of *Tortrix pronubana* commonly on *Euonymus* and privet bushes at Chiswick.—

H. DOUGLAS SMART; A. Z. Ward, 4th London General Hospital, S.E. 5, October 13th, 1917.

NOTE ON EGG-LAYING OF *TORTRIX PRONUBANA*.—This species lays its eggs in flat patches on the upper surface of the euonymus leaf. I recently watched an unpaired ♀ laying on glass. She stood over the patch already laid, waving her abdomen from side to side rhythmically and slowly. The abdominal segments were extended and retracted as the extremity felt its way backwards and forwards along the edge of the patch. The orifice was dilated, but no external ovipositor was brought into use, being of course unnecessary. The eggs appeared at the orifice at intervals of one to two minutes, as bright green, flaccid spheres. At the moment of laying each egg was pushed under the edge of the patch and moulded into position under the still flaccid side of a previously laid egg. As the egg finally left the passage it was accompanied by a gush of bright green liquid. This liquid rapidly sets, though that covering each row of eggs remains sufficiently soft for the introduction of the next row. The final result is a roughly circular patch of eggs, each row overlapping the next further from the centre, the whole covered by a green varnish. The varnish is much thicker in recently laid masses than in older ones exposed to the weather, suggesting that it may be more or less dissolved by rain. The old egg-masses very easily become detached from the leaves, but retain their connection with each other and hatch out in due course.—H. DOUGLAS SMART; Escrick Park, York.

*ACRONYCTA ALNI* IN OXFORDSHIRE.—It may be of interest to record the capture of a single specimen of the larva of *Acronycta alni* near Milton in Oxfordshire during the last week of August, as I do not think this species is of regular occurrence in that locality. Its proper food plant is, of course, Alder, but this specimen was resting exposed on a hawthorn bush to which it had probably wandered in search of its rightful food which grew at some distance from the spot. Its bright warning coloration attracted my attention from a considerable distance.—COURTENAY LODGE; Sutton Courtenay, near Abingdon, Berks.

*POLYGONIA C-ALBUM* IN SHROPSHIRE.—*Polygonia c-album* has been plentiful in this part of Shropshire of late. Since about 1887, when I first remember seeing the species commonly, I have seen one or two specimens most years, though never taken or allowed any specimen to be taken in my garden; but this year, after one or two on July 16th and 22nd, I saw no more of it until September 4th, from which date the numbers increased daily on rotting plums, and on 9th and 10th eight were seen at one time; since then the weather cooled down and became changeable and I saw few until last week, when three or four re-appeared on Saturday and four yesterday. To-day at least seven were here, as I counted that number at one time, amid numerous *Pyrameis atalanta*, on rotten plums, *Vanessa io* and *A. urticae*, equally common, stick to the flowers. One of the specimens—a very light dull-coloured variety—has become very worn, but the others look bright and fresh still. A male and female were taken by a friend of mine near Shrewsbury on September 29th. I don't

know whether the increase is general this year, most likely it is. In 1900 Mr. F. B. Newnham writing in 'Church Stretton' (Ent. part) says: "Common some seasons, scarce some years." The latter, I hear, took *Agriades corydon* there this year, on the Longmynds, I fancy. Unless I am much mistaken *Ewanessa antiopa* passed close to me this morning as I was watching *c-album* etc., but it went straight on, when apparently making for the plums, on seeing me, and I only caught a sight of hind wings as it vanished over a hedge, except when it sailed overhead. I found a large larva on potato tops on July 8th which puzzled me and others; the imago came out from pupa on 20th ult., viz. *C. vetusta*. The spots on dorsal region were uniformly 2 on each side of a segment. It finished larval state on same food plant. Butterflies have been very plentiful this year, but I have unfortunately had no time to go far afield.—GEORGE POTTS; Benthall House, Broseley, Salop, October 1st, 1917.

POLYGONIA C-ALBUM IN SHROPSHIRE.—I can confirm Mr. Martin Harding's interesting note (*antea* p. 237) on the prevalence of this beautiful and local species in Shropshire this past summer and autumn. Mr. C. G. Barrett (vol. i of 'Brit Lep.', p. 125) speaks of it as "one of the receding species we so greatly regret," and adds that "there is little doubt that at no very distant period it occurred all over the South, Middle, and East, as well as the West of England." Apparently up to 1893, the date at which this volume appeared, it had not been recorded from Salop, for Mr. Barrett uses the words "*probably* Shropshire" when referring to its range in the Western counties. Forty-six years ago, in 1871, I took it, but not plentifully, in Delamere Forest, Cheshire, and did not observe it again till September, 1915, when I saw one only in my garden at Meole Brace, near Shrewsbury. This year, however, it has been very abundant there indeed, settling, with *A. urticae*, on flowers of various species of *Aster*, and other American Compositæ, e. g. *Helenum autumnale* and *bolanderi*, etc. Most of my specimens were caught between September 23rd and October 12th. On the 14th I noticed it in Bellevue, Shrewsbury. Mrs. Fielden, of Condoover Hall, informs me it has been frequent there. Mr. George Potts, of Benthall House, Broseley, has captured many, and the Rev. W. S. Ingrams, of Shrewsbury School, reports it from Kingsland. It will be interesting to see if it will reappear in equal abundance next season.—J. COSMO MELVILL; Meole Brace Hall, Shrewsbury, November 9th, 1917.

PAPILIO MACHAON IN KENT.—On August 25th last I had the fortune to capture a specimen of *Papilio machaon* at Folkestone. It was flying in company with a few *Colias edusa* over an extensive field of mustard. When I first saw it it seemed just fluttering along, and practically it flew into my net. At that time, and for some days previously, there was, and had been, a very high wind from the south, and I have no doubt that France had been his home.—GEO. B. PEARSON; 5, Upper Bedford Place, Russell Square, W.C. 1.

PAPILIO MACHAON in 1917.—The stray specimens of *Papilio machaon* recorded in the 'Entomologist' (*antea*, pp. 231-232) no

doubt first saw the light in a breeding-cage or something equivalent; but, even so, it seems a pity to catch them, as at least three of them were females, and, if impregnated, might have deposited eggs in the neighbourhood. But this, of course, would depend upon whether any of their food-plants were available, a point which none of the captors seem to think worth mentioning. *P. machaon*, by the way, is not so much confined to actual fen in this country as many people imagine, I having taken larvæ in fields round Clayhytte, only a few miles up the river from Cambridge. This, certainly, was some years ago; but larvæ hunters (at Wicken, for instance) invariably do best in the open meadows surrounding the fen rather than in it, as this beautiful butterfly, when egg-laying (like *Apatura iris*) likes to have plenty of space at its disposal. The wonder is that it is so local.—HUGH PERCY JONES; 19, Tenison Avenue, Cambridge.

[*Machaon* affects numerous food-plants. Cp. my note, 'Entomologist,' vol. xlviii, 219.—H. R.-B.]

COLIAS EDUSA IN LONDON.—On September 29th I saw from the train-window an example of *Colias edusa* flying over a little patch of marigold flowers just outside Addison Road Station towards West Brompton.—H. ROWLAND-BROWN.

COLIAS EDUSA AND C. HYALE IN SUSSEX.—At Felpham, in Sussex, in the middle of September, I noticed, altogether, on several fine days, about a dozen specimens of *Colias edusa*, of which I captured six. Of these, only one was a female. On the 18th I also noticed one specimen of *Colias hyale*, but did not succeed in catching it. These were all found within 200 yards of the seashore. To Mr. W. S. Thomson's list of Highgate butterflies I can add *Vanessa io*, *Pyrameis cardui*, and *Cænonympha pamphilus*.—A. D. HOBSON; 16, Parliament Hill Mansions, Highgate Road, London, N.W. 5.

COLIAS EDUSA IN SUSSEX.—I have to record that I caught a very fresh specimen of *Colias edusa* var. *helice* (*pallida*) on September 25th on the Sussex Downs above Steyning. The species did not seem to be at all plentiful in this district, as I only saw three or four specimens of the ordinary form during three days spent on the Downs.—G. L. KEYNES, Capt. R.A.M.C.

COLIAS EDUSA IN SUSSEX.—Although records of the occurrence of *Colias edusa* during the present autumn, reported in the October number of this Journal, cover the majority of the southern counties, there is no mention of the species having occurred in Sussex among them (*ante*, pp. 232, 259). It would appear, however, that it has been at least as common in that county as elsewhere, and perhaps, as an illustration, what came under my notice on September 29th—the only fine day on which I had an opportunity of looking for the species—may not be out of place. The early morning was brilliant and with little wind, and having to go down the town, I returned by way of the parade between nine and ten o'clock, when I met with the first specimen. Having secured a net, I continued my ramble, seeing another flying about a potato-field before getting clear of the town, thence along under the cliff, where I met with two more, of which one was captured. Clouds had now come up and frequently

obscured the sun, so I returned, taking in some rough Down land, beloved by the species, on my way. Here during a spell of perhaps ten minutes' further sunshine, three more specimens were seen, of which two were captured. Of the three taken two were males and one a female, all being in quite good condition, suggesting that they had not been very long on the wing. Odd specimens have also been frequently seen about the parades and adjacent Downs, and reports of not infrequent occurrences have reached me from other places along the coast.—ROBERT ADKIN; Eastbourne, October, 1917.

*COLIAS EDUSA* IN HAMPSHIRE.—*Colias edusa* has appeared in this neighbourhood in fair numbers this autumn. During September on Portsdown I took forty specimens, the great majority being males, and saw about thirty others. I was fortunate, however, in taking two perfect and very fine var. *helice*; a third specimen, though the first actually caught, was so battered that I had to let it go. I have not, however, seen a single *C. hyale*.—Rev. J. E. TARBAT; Fareham, Hants.

*EUVANESSA ANTIOPA* IN ESSEX.—In the 'Field' for September 15th Mr. J. W. Bertram-Jones records the capture of a specimen of *Euwanessa antiopa* in his garden at Brentwood on August 7th. Mr. Bertram-Jones informs me the butterfly was captured by his gardener in the conservatory. Except for a slight rubbing caused by the means of capture it is perfect. This is the fourth example of *E. antiopa* which has come under my notice during last August—viz. two seen in Yorkshire (one of these also on August 7th), and one in Surrey during the first week of the month.—F. W. FROHAWK.

*EUVANESSA ANTIOPA* IN 1917.—*Antiopa* is reported ('Field,' September 29th) at Middleton, near Pickering, N. Yorks, on August 7th, 1917, by Mr. J. W. Stancliffe. Mr. C. F. Johnson, writing to me on October 5th from Stockport, says that he has heard of two specimens of *antiopa* in Lancashire this year—one being seen just outside the outskirts of Manchester, the other near Bolton. I expect that the latter is the one reported in 'Country Life' of October 7th to have been taken near Bolton, and now in the museum of that town.—H. ROWLAND-BROWN.

*POLYGONIA C-ALBUM*, ETC., IN WALES.—I spent the afternoon of September 5th at Rhydymwyn, Wales, where I was struck by the enormous number of *Vanessa io* which were on the wing. I was in a ravine called "The Leet," the sides of which were swarming with them. I noticed two specimens of *Polygonia c-album*, one of which I captured. *Pieris brassicæ* and *Pyrameis atalanta* were to be found in small numbers.—LEICESTER PAYNE; Sheffield.

*SPHINX CONVULVULI* IN YORKSHIRE AND CHESHIRE.—I beg to report the capture of a fine female specimen of *Sphinx convulvuli* by a friend of mine who took it at rest on a wall at Loxley, Sheffield, during the first week of September this year. About the beginning of September a specimen of *S. convulvuli* was taken by a gardener on the estate of the Duke of Westminster at Eaton, near Chester. This specimen was perfect when captured, but damaged itself in the box in which it was confined. I think it was a male. It may be of

interest to note that some time ago I came across two male specimens of *C. virgaureæ*, supposed to have been taken in 1785 in Norfolk. They have been re-set, and one can see that they are very old. One has the antennæ missing and the other has a slit along nervure 2 in the left hind wing.—LEICESTER PAYNE; "Delamere," Silver Hill, Sheffield.

SPHINX CONVULVULI IN KENT.—On September 2nd last I received by post a specimen of *S. convolvuli* from my sister at Margate, with a request for the name of the insect. It was badly worn, and had been found in the garden, she said, in an almost dead condition. A few nights later she visited a bed of tobacco-plants growing in the garden, and found three of the moths flying over it; her cat was also on the spot and had captured one, which she released, and rather suspected that the damage to the previous insect came from the same source. After this she improvised a net, and I have since been indebted to her for nine specimens, taken on various dates during the month, from the 8th to the 20th inclusive, five of which were in good condition. I might mention that her cat developed an extraordinary penchant for catching these moths, capturing four on different occasions, and in describing her *modus operandi* to me by letter my sister said she usually visited the bed at dusk, and kept quite still until the cat "got excited," when she would know a moth was on the way, and prepared to strike. On September 26th I had a specimen of this insect brought to me by a postman, which he had taken locally.—A. F. BOBBY; "St. Margaret's," Summerdown Road, Eastbourne.

SPHINX CONVULVULI AT CHICHESTER.—A specimen of *S. convolvuli* was taken here on August 30th and others were captured during September. All the specimens that I saw were much worn, one almost beyond recognition.—JOSEPH ANDERSON; Chichester.

ACHERONTIA ATROPOS IN HAMPSHIRE.—Two full-fed larvæ of *A. atropos* were brought to me in August which duly pupated. I am now endeavouring to force them.—(Rev.) J. E. TARBAT; Fareham, Hants.

NOTES ON SOME SPHINGIDÆ, ETC., IN 1917.—On July 15th, in one of my rambles after insects, I noticed the frass of large caterpillars on the guelder rose (*Viburnum opulus*). After closer examination I found a beautiful larva of *Sphinx ligustri* in attitude of repose; then I carefully examined all the bushes of the same species in the neighbourhood, and was fortunate enough to find two more nearly fully grown larvæ. All the three were found on very young bushes—indeed, one of the bushes with its single stem was not more than 2 ft. high, and all its leaves with the exception of two had been eaten away by this handsome sphinx larva. Wild privet (*Ligustrum vulgare*) was growing in abundance all round this particular spot; after a couple of hours' search I had obtained two more specimens of *S. ligustri*. The specimens were taken to the laboratory of the South-Eastern Agricultural College and pupated. When the larvæ were fully matured I noticed that those feeding on *V. opulus* were finer, being quite an inch longer than those feeding on privet. The



specimens feeding on privet refused the guelder rose as food for a couple of days and *vice versa*, after which time I gave them privet and guelder rose respectively. On August 20th a fully matured *Manduca atropos* larva was found at Wye by a woman; it was feeding on scarlet runner beans in her allotment. It measured over six inches, and it was by far the most beautiful specimen of a Death's Head larva I had ever seen. The same evening it began to pupate. Three more pupæ of *atropos* were brought to me during the latter part of September by different farm labourers from the College farm. They were picked up during the digging of potatoes, and others have been sent to Mr. Theobald from Gloucestershire. On August 10th six fully matured larvæ of *Smerinthus ocellatus* were found by me in the College orchard, where they had practically stripped most of the branches of the young apple-trees on which they were found. Many others also found on apples have been received at the laboratory from other parts of Kent and Worcestershire. On September 20th I had a most welcome visitor in the shape of *Sphinx convolvuli*—a perfect male specimen and evidently newly emerged—which flew into my room through the window. *Smerinthus populi* and *Charocampa elpenor* have also been obtained plentifully in the larval stage on poplar and the willow-herb respectively. A male specimen of *Metopsilus porcellus* was captured as well.—H. C. EFFLATOUN, F.E.S., M.R.A.C.; Wye, Kent.

VARIETIES OF *ABRAXAS GROSSULARIATA* AT CHICHESTER.—During the month of August many very pretty *Abraxas grossulariata* were taken in the Priory Park here by my brother, Mr. Frederick Anderson. Most of them were darker and more spotted and banded than the type. Amongst them is one closely resembling a specimen in my cabinet, labelled *lacticolor*, or *chalcocozona*, ab. (Raynor), except that all the wings are whiter than these. Another is a remarkably striking insect, unlike any that I have seen, the fore wings having a black, uneven band at the base, and a wide, black band in the middle of the wings, enclosing on each a still darker, circular spot. There is no trace of yellow about them, and the body is black. Another is like it, but the black is more suffused, and there are indications of the yellow band or line. The body of this example is black.—JOSEPH ANDERSON; Chichester.

*POLIA CHI* AB. *OLIVACEA* IN DERBYSHIRE.—At Baslow in Derbyshire *P. chi* was very abundant; ab. *olivacea*, Steph., was common; and I noted one specimen of ab. *suffusa*, Tutt.—LEICESTER PAYNE; Delamere, Silver Hill, Sheffield.

BUTTERFLIES IN THE STROUD DISTRICT.—Following my note on p. 208 I may say that I was down in the same district the first week of October and found *Aglais urticae* in profusion as I expected; Michaelmas daisies and single asters were alive with them in the gardens. Of *V. io* I saw none but there were a few *P. atalanta* about. I also saw a perfect *Polygonia c-album* on some ivy-flower. Mr. Grant (p. 256) does not say exactly when he saw the worn specimens of the latter species, but those I saw on my previous visit (last week in July) were in perfect condition.—C. NICHOLSON; 35, The Avenue, Hale End, Chingford, E. 4.

THE 1917 BUTTERFLY SEASON IN BUCKS.—As some species of butterflies have been more numerous than usual during the past summer a few remarks on some of the Lepidoptera met with in this district may prove of interest. I came to this town at the fall of last autumn, and when time and weather permitted during the winter and early spring I scoured the country for miles around in search of likely-looking collecting grounds. The first insect of note to attract attention was *Sesia andræniiformis*—or rather, the external signs of its presence. A remarkable coincidence about this Clearwing in Bucks, so far as my experience goes, is that it does not get stung. This applies to pupæ gathered near Wycombe and also to pupæ found a considerable way to the north-east. *P. egeria* var. *egerides* was seen during the middle of May in greater numbers than I have ever met with it before. They even flew in the town itself, and were frequently observed over my allotment. A single specimen of the spring brood of *P. megæra* was noted on the Chilterns. *Nemeobius lucina* was another butterfly to show up plentifully in one wooded hollow. *Polyommatus astrarche* did not appear in any great quantity in the spring, while specimens of the autumn brood appeared to be positively scarce whenever I tried to find them. On June 13th amongst a crowd of *P. icarus* I was surprised to take a fresh male of *A. bellargus*. Although I searched this ground (on which the food-plant grew) on subsequent fine days and again in September I did not meet with the species again. *Cupido minimus*, in one sheltered hollow, was always to be found during its season. On one dull day I am certain that fully fifty specimens started up at once from some long grasses covering only three or four square yards. A few examples of the August brood were seen. *Adscita geryon* and *Parasemia plantaginis* were also much in evidence. Larvæ of *Vanessa io* and *A. urticæ* were common enough about the allotments of Wycombe. I reared several broods of both species under ordinary outdoor conditions and was fortunate in getting out a few aberrations, both of ground colour and markings; the most striking, perhaps, being a male of *io* with deep black all along the costa of fore wings, and quite without the eyes to under wings; ab. *belisaria*, I believe, it is named. Of *Brenthis euphrosyne* I saw but three. After nearly a month's field inactivity, I got out to some of the remote parts of the Chilterns on July 11th, and observed great changes in the species on the wing. *Melanargia galatea* and *Argynnis aglaia* were about in fair numbers; also *Agriades corydon*, both sexes. This date seems particularly early for the last named, but doubtless it was due to the scorching weather we experienced during the latter part of May and early June which must have forced larvæ along at a great rate and probably accounts for the under side varieties met with amongst the earlier emergences of this interesting Blue. Striated and obsolete forms were taken, and I netted two males bearing a mixture of both forms. On one slope, which during the spring was rather devoid of butterflies I was pleased, after a deal of hard work, to take a nice little series of the var. *syngrapha*. So far as I can see, this variety is extremely local. I took *corydon* from five distinct localities but found *syngrapha* on this one ground only, and yet, on this ground the species, for *corydon* was far from

abundant. Another, ground about a couple of miles away, harboured *corydon* in four times the numbers, yet the var. was not there. *Syngrapha* formed an extremely small percentage of the females seen, and is likely to become scarcer, even if not extinct, as I noted a local farmer had started to turn a large flock of sheep out on the ground: a war-time measure, perhaps, but nevertheless disastrous from the collector's point of view. I met two or three other collectors, private and professional, on this ground at the time the *corydon* emergence was at its height. On September 21st in a field of lucerne I netted two males of *Colias edusa* and saw another on the 25th. Throughout the season I have only seen one *Pyrameis cardui* and very few *P. atalanta*; and the only skipper to turn up in any quantity was *Nisoniades tages*. *Augiades comma* I did not see at all. So against the abundance of some species must be set the scarcity of others.—G. B. OLIVER; High Wycombe.


CEROSTOMA SEQUELLA.—In reference to the notes on this species by Mr. A. Sich (*antea*, p. 256), I may say that the specimens of this pretty Tineid taken by me have in almost every case been taken off sycamore tree trunks. In 1912 I took about two dozen specimens between the middle of July and early August, and I should say, with possibly two exceptions—one on oak and the other on beech trees adjoining the sycamores—the whole of them were taken off sycamores, mostly off two or three trees in a restricted locality in this district. Odd specimens that I have taken in other localities in North Yorks. have been where sycamore was prevalent, and I remember clearly in two cases the insects were taken off sycamores. In Merrin's Calendar it states under July, "taken off trunks of sycamore and maple," and under May that the larvæ are taken off sycamore, but I have no experience of this. I have certainly never seen it on or about willow or lime.—T. ASHTON LOFTHOUSE; Linthorpe, Middlesbrough, November 10th, 1917.

SALE OF MR. THOMAS H. BRIGGS' COLLECTION.—The brothers Briggs, Charles A. and Thomas H., were active collectors of British Lepidoptera more than half a century ago, and both amassed very considerable collections, that of the former being the more extensive of the two. On their change of residence from Leatherhead, where they had resided for many years, to Lynmouth in 1896, Charles, fearful of the effect of the humid atmosphere of his new home, decided to part with his collection, and it was brought under the hammer at Stevens' Rooms in October and November of that year, the sale occupying four days and realising practically £1000. Thomas, however, decided to take the risk of retaining his collection, but does not appear to have added very materially to it in the meantime; consequently some of the series were somewhat aged, but in other respects it did not appear to have deteriorated for the extra twenty-one years' keeping, and it was this collection that was sold at Stevens' Auction Rooms on October 16th last. Among the butterflies were many interesting forms, and some of these brought remarkably high prices; indeed, the good things went well throughout the sale, but the more ordinary lots found buyers with difficulty. For instance, three lots of Noctuæ containing some 260 specimens, including one

*Caradrina exigua*, seven red forms of *Taniocampa gracilis*, and a grey variety of *T. munda* had to be lumped together to bring 3s.; two lots containing 172, among them five *Lithophane semibrunnea* and one *Orrhodia rubiginea*, 4s.; and no less than six lots of Geometers, running to some 400 specimens, among which were a pair of unicolorous dark brown *Ennomos quercinaria* and two pairs of hybrid *E. autumnaria* × *E. quercinaria*, made only 5s., and so on. But the feature of the sale was lot 68, a remarkable variety of *Brenthis euphrosyne* of a tawny colour with metallic markings, taken by Mr. Briggs at Barnwell Wold on May 21st, 1864, for which two bidders appeared to have a particular fancy, and it was eventually secured by one of them for the remarkable figure of £17 17s. Among the other more important lots were a specimen of *Colias edusa* with left fore wing var. *helice*, £8; eleven *C. edusa*, including one with twin central spots on hind wings, 24s.; three authenticated specimens of *Pontia daplidice*, 18s., 17s. and 17s. each; a male and a female *Chrysophanus dispar*, both from the Standish Collection, fine perfect specimens, set to show their undersides, £7 10s. apiece; four other specimens of this species made from £3 3s. to 22s. each, and a pupa case 6s. An "hermaphrodite" *Polyommatus icarus* brought £1; a good rayed underside *Agriades corydon*, £4 5s.; a lot containing five *Nomiades semiargus (acis)* and eleven *L. arion*, £4 4s.; and four of the former from the Standish Collection, £3. It was probably the question of locality that sent the three lots containing respectively six, eight, and four specimens of *Apatura iris* up to £2 and over; the species is fast becoming extinct in many of its old haunts, or has already disappeared from them, as in the case of Chattenden. Five examples of *Euanassa antiopa* with good data, sold separately, brought from 20s. to 28s. each; a specimen of *Brenthis dia* taken at Worcester Park in 1872, 65s.; an *I. lathonia* taken by Mr. Briggs at Folkestone in 1865, 60s., and several Dover specimens of the same species by various captors, sold in lots of two or three, at from 42s. 6d. down to about 7s. per specimen, according to condition and data. A lot of two *Epinephele jurtina (ianira)*, one with the disc of fore wings and the other with all the wings bleached, made 60s.; and a somewhat unusual variety of *Carterocephalus palæmon* with unicolorous dark fore wings, slightly rayed submarginally, 85s. The only specimen of *Hippotion celerio* in the collection sold for 24s.; two *Phryxus livornica* at 32s. 6d. and 37s. 6d. each; *Leucodonta bicoloria*, labelled as taken by Bouchard at Killarney, 50s.; *Lalía cenosa*, sold in lots of two or three, realised from 15s. to 6s. per specimen; two *Epicnaptera ilicifolia*, 20s. and 28s. each respectively; and *Deiopeia pulchella*, from 50s. to 14s. apiece. A specimen of *Calophasia platyptera*, labelled as taken by J. T. Carrington near Brighton in 1896, was run up to £7 7s.; and one of *Acontia solaris*, "near Dover by Mr. Hamer," brought 32s. 6d.; while the two lots, in each of which one *Catocala frazini* was included, realised 21s. each lot. Two specimens of *Venilia macularia* var. *quadrinaculata* in one lot sold for 24s., and three in another for 32s. 6d. per lot; a fine pair of *Cleora angularia (viduaria)* for 30s.; and the only example of *Sterrha sacraria* in the collection, recorded as taken near Folkestone in 1865, for 40s. The total realised for the collection fell somewhat short of £250.—ROBERT ADKIN.

## EXCHANGE

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 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.*—Machaon (and Pupæ); Edusa, Corydon, Bellargus, chiefly Chiltern, and Isle of Wight forms, including one or two Syngnapha; Geryon, Plantaginis, Moneta. *Desiderata.*—Irish and Scots forms of Icarus; Scandinavian Lycænids, and European Hesperiidæ with full data.—*H. Rowland-Brown, Harrow Weald, Middlesex.*

*Duplicates.*—Pupæ of Polycommata, with which are mixed Viretata.—*Desiderata.*—Pupæ, also Imagines. Cardamines ♂, Sinapis, Artemis Cardui, and many others.—*A. Ford, 36, Irving Road, Bournemouth.*

*Duplicates.*—Napia, Menthastri,\* Suffusa, Glareosa, Chi. Vetusta, Dilutata, Suffumata. *Desiderata.*—Numerous.—*L. G. Esson, Rosevale, 6, Esslemont Avenue, Aberdeen, N.B.*

*Duplicates.*—Blandina, Velleda and vars., Fuliginosa,\* Flavicornis, Fascelina, Duplaris (dark), Ptilosaria and vars., Lobulata, Atomaria and vars., Albulata, Campanulata, Multistragata, Bidentata and vars., Salicata, Advenaria, Impluviata (dark), Fumata, Plumbaria, Atrata, Cambrica, Cæsiata, Populata, Vespertina (few), Haworthii, Absinthii, Menyanthidis, Megacephala Pulchra, Upsilon,\* and Chi and vars.—*W. G. Clutton, 137, Coal Clough Lane, Burnley, Lancs.*

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*Duplicates.*—Pair of Atropos.\* *Desiderata.*—Iris, Pinastris, Euphorbiæ, Galii, Bicuspis, Fluctuosa, etc.—*Robt. S. Smith, jun., The Laurels, Downham Market, Norfolk.*

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*Duplicates.*—Lunaria var. Deluna\* (summer form). *Desiderata.*—Rare species, varieties, and local form.—*J. P. Robson, 10, Vane Road, Barnard Castle.*

*Duplicates*.—*Cardamines* ♀ ♀, *Brassicæ*, *Rhamni*, *Euphrosyne*, *Selene*, *Aglaia*, *Adippe*, *Io*,\* *Galatea*, *Egeria*, *Hyperanthus*, *Ianira*, *Semele*, *Megara*, *Icarus*, *Bellargus*, *Argiolus*, *Lucina*, *Quercus*, *Rubi*, *Malvæ*, *Tages*, *Sylvanus*, *Comma*, *Filipendulæ*, *Trifolii*, *Jacobææ*,\* *Mendica*,\* *Russula* ♂ ♂, *Caia*,\* *Auriflua*,\* *Falcula*,\* *Neustria*,\* *Pavonia*,\* *Flavicornis*, *Duplaris*, *Pallens*, *Arcuosa*, *Rumicis*, *Graminis*, *Gemina*, *Comes*,\* *Xanthographa*,\* *Secalis*, *Pisi*,\* *Pinipera*, *Gothica*, *Cruda*, *Baia*, *Meticulosa*, *Rufina*, *Brassicæ*,\* *Litura*, *Satellitica*, *Oxyacanthæ* var. *Capucina*, *Vaccinii*, *Lithargyria*,\* *Incerta*, *Pistacina*, *Fulvago*, *Triangulum*, *Trapezina*, *Mi*, *Glyphica*, *Myrtilli*, *Parthenias*, *Maura*,\* *Maculata*, *Advenaria* (very fair), *Autumnaria*,\* *Abruptaria*, *Pilosaria*,\* *Hirtaria*,\* *Obscurata*, *Buindularia*, *Consortaria*, *Consonaria*,\* *Punctulata*, *Pendularia*,\* *Belgiaria*, *Gilvaria*, *Adustata*,\* *Clathrata*, *Pulveraria*,\* *Pusaria*,\* *Pictaria*, *Albulata*, *Multistrigaria*, *Fluctuata*, *Ocellata*, *Montanata*, *Procellata*, *Albicillata*, *Bicolorata*, *Badiata*, *Aurantaria*, *Marginata*, *Boreata*, *Dilutata*, *Leucophearia*, *Carpinata*, *Impluviata*, *Juniperata*, *Rufata*,\* *Mensuaria*, *Firmata*,\* *Obeliscata*, *Pyrallata*. Black pins and full data. Pupæ of *Jacobææ*, *Hispidaria*, and *Rufata*. *Desiderata*.—Local species and local forms of British Macro-Lepidoptera, particularly northern.—*Mrs. A. A. W. Buckstone*, 307a, *Kingston Road, Merton Park, London, S.W. 19*.

*Duplicates*.—*Corydon* var. *Syngrapha* (few only, fine condition, 1917), leaden-grey male *Adonis* (1 only, 1916), *Galii*,\* *Melanice consortaria*,\* *Desiderata*.—Aberration, rarity, or series of the more local Butterflies, such as *Athalia*, *Iris*,\* *Helice*, *Hyale*, *Pruni*,\* etc. Also a few very fair *Syngrapha* offered for less rare butterflies in series: *Davus*, *Sinapis*, *Edusa*, *Machaon* (pupæ), *w-album*,\* *Paniscus*, etc.—*G. B. Oliver*, 11, *Oxford Street, High Wycombe*.

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