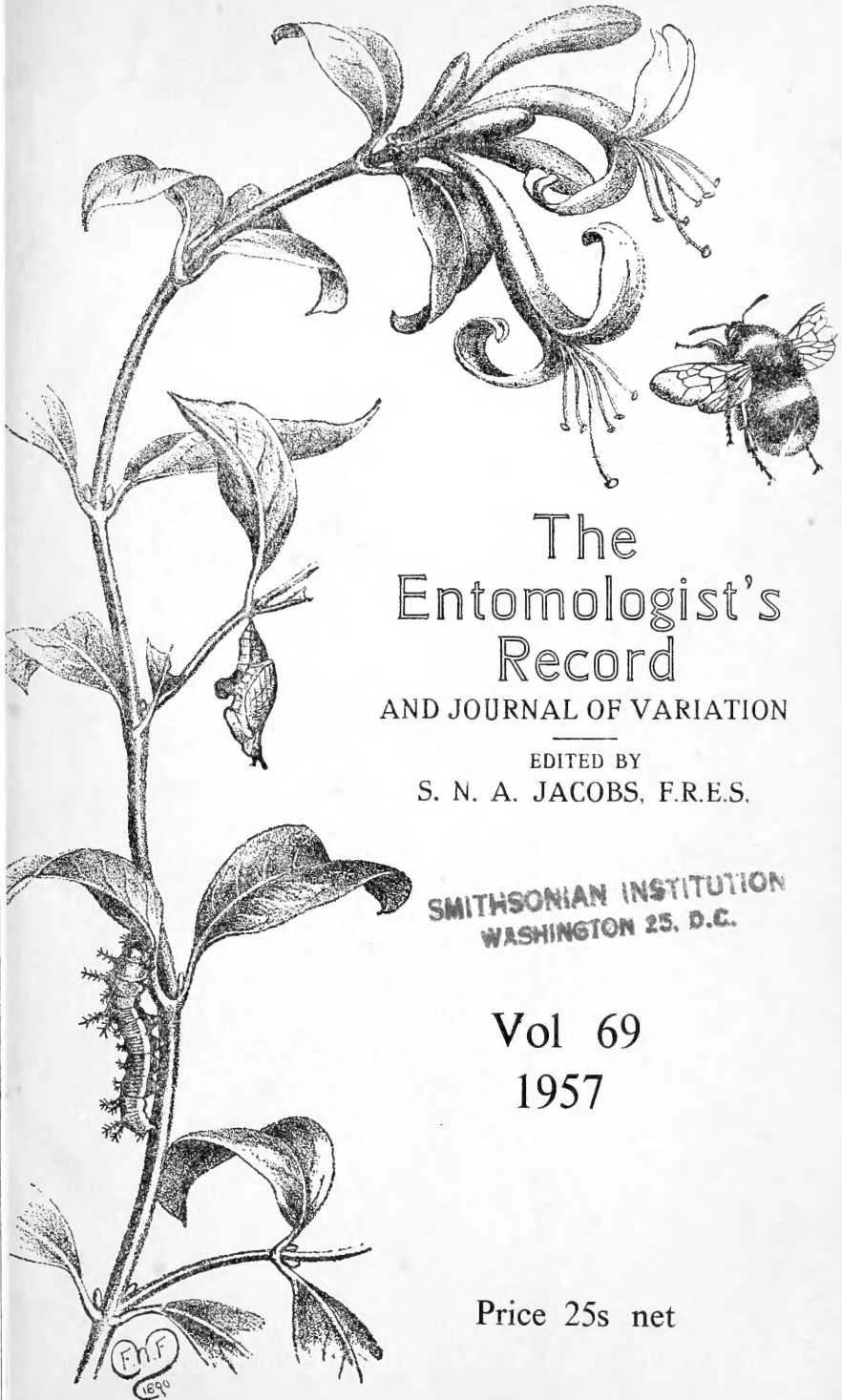

The Entomologist's Record

AND JOURNAL OF VARIATION

EDITED BY

S. N. A. JACOBS, F.R.E.S.

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S. N. A. JACOBS, F.R.E.S.

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THE ENTOMOLOGIST'S RECORD
AND
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VOL. 69. 15TH JANUARY 1957

Notes on the 1956 Season

By Dr. Neville L. Birkett.

While not quite so consistently wet as 1954 the summer just past could scarcely be called memorable for the amount of warmth and sunshine it provided. Though January and February were cold we had remarkably little snow—much less indeed than London and the Home Counties. March and April were generally fine and dry but temperatures were never high and frost was frequent. These cool and dry conditions persisted until nearly the end of June and though there was considerable sunshine there was not any real warmth in it. July and August were much warmer but with the increased temperature came the rain—though again we seemed to have less rain and fewer wet days than those living in the south of the country. Winter stole upon us again in September and we come to the end of the season feeling that we have scarcely had any summer. But this is not a meteorological magazine though I feel that no excuse is needed for going into these details for they provide something of an apologia for what follows.

For the convenience of these notes I propose to divide the paper into two parts, *viz.*:—Field Work and Light-trap Results. The former was prosecuted when suitable weather and free time coincided (a rather rare occurrence) and the trap has been operated most nights when conditions seemed suitable and on many palpably unsuitable. While I have not had the time to keep full statistical results of the trapping I have kept notes of all species taken.

Field Activities. This has consisted mainly of night sorties after moths with the aid of a portable generator and mercury vapour lamp (125 watts.). However, the first outing took me searching for the larvae of *Amathes ashworthii* in the well-known Penmaenmawr district of N. Wales. I joined Mr. Reid there and the results of our week-end's effort at the end of April was six larvae. The species seemed to be much scarcer than usual and the results from these larvae could scarcely be considered rewarding—two moths and four parasitic hymenoptera! Other larvae found were those of *Triphaena comes*, *Lycophotia varia* and *Amathes xanthographa*. The last named were abundant at the top of the Sychnant Pass after dark. A search of the locality for *Nyssia zonaria* did not produce any and we concluded that we were too late for that species. On the moors *Saturnia pavonia* was common and larvae of *Lasiocampa quercus* were plentiful but mostly 'stung'.

A visit to the Witherslack area of Westmorland on 10th May produced about ten larvae of *Polia tincta*. These are readily found just

after dusk crawling up the stems of birch saplings. There were few insects flying on this evening and before midnight the temperature was nearly down to freezing.

On a flying visit to the south in late May I managed to pay my first visit to the famous Ham Street area. It was a crystal clear night with heavy dew and a full moon of great aesthetic beauty—a beauty I hardly appreciated. In spite of such conditions about thirty species were noted and some of these were welcome to a collector from the north. *Cosymbia porata*, *C. pendularia*, *Drepana lacertinaria*, *D. falcataria*, *Harpyia hermelina*, *Notodonta anceps*, *Drymonia dodonea*, *Chaonia ruficornis*, *Lobophora halterata* and *Biston betularia* f. *carbonaria*, etc.

Euphyia luctuata was just emerging in a wood near Folkestone and I was able to get a few specimens. It struck me as being an insect not at all easy to see when flying fairly fast in bright sunshine. My visit to the south was curtailed by family business and I was back in the Witherslack area again on 28th May. It proved a very good night though the temperature dropped to 44° F. by 1.15 a.m. I noted 51 species of macros of which the best were *Hyppa rectilinea* (one only and the first time I have taken the species), *Apatele alni* of a dark form, *Drepana binaria*, *D. falcataria*, *D. lacertinaria*, *Demas coryli* in plenty, *Orthosia incerta* and *O. gracilis* rather passé, *Ligdia adustata*, *Plagodis dolabraria*, etc.

I was not out night collecting again until 10th June when I had some friends visiting from the south. They had not previously collected in the north and we set up our light in Black Tom's Lane at Witherslack and for once weather and locality did not let me down. We logged some 81 species of macros. Many of these were the same as I noted on 28th May but in addition there were *Spilosoma lubricipeda* (a nice variety), *Hadena bombycina*, *Eulype hastata*, *Semiothisa liturata*, *S. alternaria*, *Chiasma clathrata*, etc. At this time *Coenonympha tullia* was just emerging on the local mosses as at Meathop.

I visited the Nature Reserve at Meathop Moss on 21st June when there were many insects about—not all desirables. Of particular annoyance were the attentions given to one by the Tabanids *Chrysops caecutiens*. Normally one sees only one or two at a time when visiting these mosses, but on this afternoon I must have caught and slaughtered about thirty giving me blood-thirsty attention! A few found their target I regret to say. Of the more desirable inhabitants of Meathop *Coenonympha tullia* was plentiful as also were *C. pamphilus*, *Thecla quercus*, *Parasemia plantaginis*, *Perconia strigillaria*, *Ematurga atomaria*, *Bupalus piniaria* (a local pest of the Forestry Commission), *Scopula ternata*, *Lycophotia varia*, *Eulype hastata* and many others. Of the Crambids—*hortuellus*, *pratellus* and *pascuellus* were abundant to the point of being a nuisance.

Another night trip to Witherslack on 23rd June in company with Messrs. Youden and Marsh produced some 67 species in spite of clear skies and a rapid radiation fall of temperature at dusk. *Biston betularia* was frequent and as well as the f. *carbonaria* there were examples of the type and *insularia*. It is in recent times only the type and *insularia* have become at all frequent here. For a time *carbonaria* seemed to be dominant. Apart from *Craniophora ligustri* of dark facies

there was little else of great note in the catch on this night though perhaps I should mention that *Semiothisa alternaria* was frequent.

On 28th June I ascended Langdale Pikes with George Youden of Dover. There was little sunshine but in the few fitful gleams we found *Erebia epiphron* out in fair numbers though many of them getting worn. We had hoped also to see *Xanthorhöe munitata* and *Crambus furcatellus*, two species usually taken at the same time as *epiphron*, but we saw no signs of either.

Another visit to Meathop Moss on 30th June produced *Hydrelia flammeolaria* flying in the late afternoon at the edge of the Reserve and on the moss itself *Hyria muricata* was well out and a single *Semiothisa liturata* f. *nigrofulvata* was taken. Rain put a stop to proceedings at tea-time.

Visiting collectors had reported a fair number of *Asthena blömeri* at Witherslack in early July; accordingly on the 7th I visited the area in company with the Rev. J. Vine Hall and in spite of ideal conditions we found not a specimen of this species. About fifty species were recorded, however, and by far the most plentiful was the green *Tortrix viridana* which simply swarmed all over the sheet and surrounding vegetation. Occasionally a great cloud of the moths would rise up and mill round the light almost obliterating it.

A specimen of *Cucullia absinthii* emerged in my cage on 17th July and this must have passed three winters as a pupa since the only time I have taken larvae was near Rotherham in 1953.

On 22nd July I took a small party of the Kendal Natural History Society to a wood on the outskirts of Kendal and we operated the m.v. lamp and sheet. Although conditions were not ideal we noted some twenty species of moths including *Venusia cambrica*, *Plusia pulchrina*, *P. festucae*, *P. chrysitis* and *P. iota*, *Abraxas sylvata*, *Apeira syringaria*, *Anaplectoides prasina*, etc.

I did no more field work until my holiday when I took my family caravanning to the north of Scotland. I had three nights near Kincraig and operated a small portable moth trap on two of them. (Great gale of wind and rain on the other night nearly washed us all away!) However, the results of this trapping were interesting and I did obtain a few specimens of species I much wanted. *Triphaena sobrina*, *Aporophyla lutulenta* f. *sedi*, *Amathes depuncta*, *Eurois occulta*, *Plusia bractea*, *Stilbia anomala*, *Crocallis elinguaria* of a nice form having the normally dark brown central band unicolorous with the main ground colour of the wings, *Bombycia viminalis*—a species which Harper records in *Ent. Rec.*, **66**: p. 64, as rare in the district of Badenoch. On the 17th we left Kincraig and journeyed very pleasantly via Laggan Bridge to Fort William, thence along the famous Road to the Isles. Taking a caravan along this road was quite an experience and we did it very early in the morning and fortunately met nothing. It is a very narrow single track road with many blind corners and hills where reversing a caravan would be more than a little tricky.

Our main holiday time was spent between Mallaig and Arisaig. This is an area of magnificent scenery and even if the collecting proved disappointing and the road to get there difficult it is an area of infinite worth and interest. I was unlucky perhaps on two counts. The weather for night collecting was poor practically the whole of my stay there

and also I did not discover the best area for collecting until about the day before I was due to return home! It was also a very great pleasure to visit the islands of Rhum, Eigg and Skye though the boat trips to these places gave one little time to do any collecting or exploring. I had hoped to visit Canna and our interesting contributor there—but it is difficult getting out to that island and back again the same day unless one goes in for the expensive private launch. All these islands look fascinating and one can readily appreciate with what interest the Durham University teams must have explored these regions under the indefatigable Heslop Harrison.

Near Arisaig I took a rather indifferent specimen of *Alcis jubata* and this seems to be a new county record for Inverness-shire. Near Loch Morar, on an evening memorable for the fact that I got my car bogged down and had a five and a half mile walk home in the middle of the night, I was pleased to get a fine specimen of the small dark *Hydraecia leucostigma* f. *fibrosa*. This form is smaller and darker than the ones we get in the Kendal district and I was disappointed not to get a good series of the Scottish ones for comparison. The nights at this time were clear and cool and a brilliant full moon did not improve collecting conditions. Of the other *Hydraecias* I took only a few *H. lucens* near Morar. This group seems to have been scarcer than usual this season. (Back in Kendal I got very few of the group in the trap though I may have missed the main emergence by being away from home during the middle fortnight of August.)

The most widespread butterfly noted in Morar was *Erebia aethiops* which was common in many areas. I managed to get a short series mostly females as the males were getting over. It does not seem to differ markedly from the form occurring near my home on Arnside Knott. *Coenonympha pamphilus*, *Maniola jurtina*, *Aglais urticae* and a few "whites" complete the list of resident butterflies. I did get a close-up view of *Pyrameis atalanta* on Eigg on 24th August. About this time I found a diminutive *Zygaena filipendulae* resting on the side of the caravan. It measures only 25 mm. expanse. Tutt in *British Lepidoptera*, **1**: p. 508, gives the range of expanse as 25-39 mm. In contrast Meyrick in his *Revised Handbook* gives 30-39 mm. At any rate my specimen is very small and it is of interest to note that Campbell in *The Scottish Naturalist*, **66**: p. 121, notes that *filipendulae* on Canna are 'large and well-marked'.

In September I was not out collecting very much though I had an interesting night on the 7th on the edge of Holker Moss. I noted some 45 species and *Amathes castanea* f. *neglecta* was the most frequent. There was a good number of second brood species on this occasion—*Pheosia gnoma*, *Notodonta ziczac*, *Drepana falcataria*, *D. binaria*, *Cilix glaucata*, *Diarsia rubi*, *Ochropleura plecta*, *Plusia gamma*, *Selenia bilunaria*, *Mamestra brassicae*.

By the middle of September winter seemed to arrive, and October, though mainly not wet, was cool and not at all conducive to going out at nights.

Moth Trap Results. I operate my trap in my garden in Kendal, using a 125-watt m.v. lamp. During the summer months the trap is on most nights, and a record of species, though not numbers, is kept. Trapping started in the middle of April and the usual common *Orthosias*

were in evidence, but it was not until about the end of May that conditions really became quite good and numbers of insects caught improved. On 29th May 30 species were caught but the only one of interest for this area was *Hadena conspersa*. We have only a few records for this species. Throughout June good numbers of common species were trapped but very few of these found their way to the setting boards. The first *Plusia gamma* put in an appearance on 29th June and it may be of interest to note that I saw a female of this species flying in sunshine and feeding at Michaelmas daisy near Kendal on 9th November. *Amathes c-nigrum* on 30th June was an early date and the species occurred sporadically until its final appearance on 3rd October. There was no well-defined division into two broods and trapping gave the appearance that it was continuously emerging. This period at the end of June and the early weeks of July gave some of the best nights of the year—at least so far as numbers are concerned. On 3rd July I had nearly fifty species in the trap and *Diarsia florida* was one of them. This is the first time I have taken this species—if species it is: at least I have been convinced that there is a *rubi*-like species which is freshly emerged at this time of year. *Triphaena pronuba* put in an appearance now and for the next three months was to be a pest, occurring in larger numbers than I have ever before seen it. On the night of 7th/8th July I took my trap to the village of Stavely, near Kendal, and operated it in a small field by the river through the kindness of Mr. J. Allan. It proved an amazing night for numbers of moths and the trap was crowded full and moths sitting about all over the outside as well. I estimated there must have been two to three thousand moths. It is unfortunate that when so many come to the light many of them are ruined as possible cabinet specimens. The best species were:—*Hadena contigua*, generally very scarce in this area, *Diarsia florida*, *Craniophora ligustri*, *Anaplectoides prasina* and *Habrosyne pyritoides*.

Back at Kendal on the 13th July a very battered but recognisable *Diacrisia sanio* came to the trap. This must have come some distance because I know of no colony very near. *Apamea ophiogramma* is locally established now and I was pleased to see it in the trap on 17th especially as one specimen was of a very black and melanic facies.

In early August I took a nice var. *flava* Aigner of *Arctia caja*. In this form much of the red ground colour of the hindwings is replaced by yellow. Also during the year I took a variety of *Callimorpha jacobaeae* in which much of the bright vermilion of the hindwings is replaced by pale pink. The specimen is not worn but its colouring gives it a washed-out appearance.

By early September many of the 'sallows' were in evidence—*Cirrhia icteritia*, *C. gilvago*, *C. lutea* and *Atethmia xerampelina*. *Hydraecia micacea* was common and variable both as to size and colouring. The first home grown *P. gamma* was taken on 3rd September, but the species never became really common. *Cirrhia gilvago* was much commoner than ever this year and quite varied. Some forms were taken having the forewings almost completely suffused with grey so that little of the salmon-pink ground colour was evident, others were so mottled that they approached the appearance of *Agrochola circellaris*. On 18th September I caught a moderate specimen of *Acherontia atropos*. This

was the second specimen I heard of in the immediate Kendal area (vide *Ent. Rec.*, **68**: 225 and 247).

At the end of September I stopped operating the trap because of poor conditions.

On the whole the season was not a good one and numbers of insects seemed less than usual. The dry and cool first half of the year was followed by the rather wet and cool second half. Perhaps the dearth of sunshine limited the numbers of insects. Butterflies were certainly scarce and also, it seemed to me, were Syrphids. But entomologists and anglers seem to have much in common. On the one hand neither will admit that the season has been a good one and on the other hand there is a great optimism that the next season will be the best on record. So may it be.

Kendal, 11th November 1956.

Fruit as a Bait for Moths

By C. M. R. PITMAN.

A good harvest of fruit in the garden this year provided a plentiful supply of William and Conference pears. When gathered, many of these periodically became overripe and were scattered about the garden to attract the autumnal butterflies. *Vanessa atalanta* and *Polygonia c-album* made full use of the fruit from the end of September until late in October whenever the weather was favourable, regardless of the sunshine. The latest *c-album* was noticed on 24th October and the last *atalanta* on the 26th of that month.

As the number of 'soft' pears increased it was decided to work up an improvised 'sugar beat' in the garden, using the ripe pears instead of the more conventional 'sugar'. The *modus operandi* consisted of rubbing or squashing a pear on to a post or tree-trunk, covering an area similar in size to a normal 'sugar patch'. The beat was made up with about a dozen posts and eight or nine trees. The operation began on 19th September, and up to the present time (4th November) the following 40 species, in order of appearance, have been attracted to the fruit.

SEPTEMBER. *Phlogophora meticulosa* L. (common), *Leucania pallens* L. (11), *Cirrhia gilvago* Schf. (common and variable), *Amathes c-nigrum* L .(very common; one ab. *rosea*), *Omphaloscelis lunosa* Haw.* (3), *Luperina testacea* Schf.* (1), *Epirrhoe galiata* Schf.* (1), *Eupithecia vulgata* Haw.* (2), *Tryphaena pronuba* L.* (5; last seen 12th October), *Agrochola circellaris* Hufn. (Common), *Hypena proboscidalis* L. (2), *Cirrhia icteritia* Hufn. (6), *Tiliacea aurago* Schf. (7), *Citria lutea* Strom. (3), *Disstroma truncata* Hufn. (2), *Catocala nupta* (common), *Amphipyra tragopoginis* Cl.* (1), *Tiliacea citrago* L.* (2), *Leucania impura* Hb.* (5), *Agrochola macilenta* Hub. (frequent), *A. lychnidis* Schf. (common), *Diarsia rubi* View. (1, fresh 28th September).

OCTOBER. *Anchoscelis litura* L. (3), *Rhizedra lutosa* Hub.* (3, one ab. *rufescens*), *Plusia gamma* L. (often seen hovering over the fruit; one seen sitting on the fruit, with wings closed), *Oporinia dilutata* Schf. (2), *Allophyes oxyacanthae* L. (common, with many ab. *capucina*), *Agrochola lota* Cl. (frequent), *Agrotis ipsilon* Hufn.* (1), *Epione repandaria* Hufn. (2), *Colotois pennaria* L. (2 females), *Conistra ligula* Esp. (com-

mon and variable), *Conistra vaccinii* L. (common), *Eupsilia transversa* Hufn. (common, with ab. *albo*, *flavo*, and *rufo*), *Graptolitha ornitopus* Hufn.* (1), *Griposia aprilina* L.* (3), *Operophtera brumata* L.* (1, on 27th October). On 9th October a fine larva of *Dasychira pudibunda* L. was seen feeding ravenously on the fruit.

NOVEMBER. *Leucania unipuncta* Haw.* (1 ♀, 3rd November), *Scoliopteryx libatrix* L. (1), *Brachionycha sphinx* Hufn.* (1).

In view of the success obtained by this economical method of collecting it occurred to me that it might be interesting to compare results with those obtained during the same period and in the same garden, but using the more orthodox method of 'sugaring', in 1938; whereupon reference was made to my diary for that year, and here is a list of the 31 species that were recorded for that time, also listed in order of their appearance.

C. lutea (frequent), *L. pallens* (common), *C. icteritia* (frequent), *C. gilvago* (common), *A. lota* (frequent), *C. ligula* (uncommon), *A. ipsilon* (common), *P. meticulosa* (common), *Agrotis segetum* Schf.* (common), *A. circellaris* (common), *D. truncata* (common and variable), *A. macilenta* (2), *E. transversa* (3), *Peridroma porphyrea* Schf.* (8), *C. vaccinii* (1), *A. litura* (3), *A. lychnidis* (common), *H. proboscidalis* (9), *C. nupta* (2), *D. rubi* (3), *T. aurago* (6), *Hypena rostralis* L.* (2), *A. c-nigrum* (common), *Lithophane semibrunnea* Haw.* (4), *Hydraecia micacea* Esp.* (3), *Deuteronomos alniaria* L.* (2), *P. gamma* (frequent), *A. oxyacanthae* (2), *S. libatrix* (2), *Oporinia dilutata* Schf. (5), *E. repandaria* (3),

It will be noted that in 1956 fifteen species marked with an asterisk were present that did not occur in 1938, whilst *A. oxyacanthae*, *E. transversa*, *C. ligula* and *C. vaccinii* were much more common and variable. On the other hand, during 1938 six species, also marked with an asterisk, appeared that so far have failed to make an appearance in 1956. This disparity between the observations for the two autumns may of course be purely seasonal fluctuation, in fact it most probably is. The weather during 1938 for the first few weeks was very rainy but mainly fine during the latter weeks of October, with no frost. For the present year 1956 the first few weeks of October were mainly fine and mild, and on the whole better conditions prevailed than in 1938. However, there were a few frosts towards the end of October, but there was little variation in the temperatures to influence the appearance of nocturnal insects one way or the other.

Conditions throughout the immediate surroundings and the environment of the collecting area have remained unchanged for the past twenty years or more, so taking it by and large there seems little to choose between the approved Fowler's black treacle and a basket of rotten pears. From my own limited experience the fruit, though it may be an extremely elementary method seems to 'have the edge'; in any case it is much preferable to the treacle if only because it remains attractive for a longer period after application to the various surfaces. Also it leaves no unsightly stain to betray the trail of one's activities; furthermore, it is very attractive to diurnal insects of many orders.

For those who wish to try this method of collecting but have no pear trees in their garden I would say 'Do not despair; it is more than likely that the local fruiterer would be pleased to be relieved of his overripe fruit, which is usually discarded into the waste bin. This applies

especially to the foreign imports, many of which arrive 'soft' and much earlier in the season than our own crops. Therefore operations could begin much earlier in the season with, probably, better results in the way of diversity of species; it would in fact be interesting to see what results could be obtained by making an early start. One could work a few small beats, using a dab of treacle here and there as controls. Perhaps someone has already experimented in this direction; if so, it would be interesting to hear of their experiences and results.

Malvern, Southampton Road, Clarendon, Salisbury.

Butterflies in Norway

By Henry Lee.

Norway is an interesting country to collect in and has many surprises in store for the butterfly hunter. As a hobby, Entomology seems to be almost unknown to Norwegians, and in ten years' collecting in this country I have heard of only three other collectors. Consequently there is still a good deal of field work to be done in this fine country, and it is a pity that more English entomologists do not spend their holidays here.

The number of butterflies to be found in Norway is surprisingly large when one considers the severity of the winter climate. I have done more than twenty years' collecting in southern England, two years in the south of France, and a year in northern Italy; so I have been accustomed to collecting in regions where butterflies are normally plentiful. But I was surprised at the number of species which awaited me in Norway: I have been collecting here now for ten years and during that time I have caught 35 species.

The season is not very long, as we have snow from the beginning of November until the middle of April. The first butterflies appear on the wing at about the end of April, being of course the hibernators—whites, tortoiseshells, peacock, comma and brimstone. The last ones are seen about the beginning of October, when the frosts begin. The winter temperature is seldom above freezing-point for five months and is often −25° C. below! In the district where I do most of my collecting the snow is usually from ten to twelve feet deep for several months. Yet as soon as it starts to thaw in April the hibernators come out to greet one. On 1st May this year (1956) I was chasing, on horseback, commas flying over two feet of snow!

The following are my comments on the incidence of the species which I have taken. I hope they will be of interest to readers of the *Record*.

Parnassius apollo L. This is a very local species, only found in the south. I caught several in the county of Telmark.

Papilio machaon L. This is very local. I have seen it only in the south, and once in the Oslo district.

Aporia crataegi L. This is found in the fruit-growing districts of the south. It causes great damage to the plum trees.

Pieris brassicae L. This is very common indeed.

Pieris rapae L. Surely this must be extinct! I have seen only one in ten years, and I think that it must have arrived on an imported Dutch cabbage!

Pieris napi L. Very common indeed. A large number of the Scotch and Irish forms are to be found here.

Euchloe cardamines L. Very common. A pygmy race occurs in some places.

Leucophasia sinapis L. This is fairly common in some localities. Two broods a year.

Colias palaeno L. This species of pale clouded yellow occurs in swampy places. I have found it at Vang in Valdres.

Gonepteryx rhamni L. This is very common indeed.

Argynnis paphia L. This is fairly common.

Argynnis cydippe L. A local species.

Argynnis aglaia L. Very common indeed.

Argynnis lathonia L. This is very rare indeed.

Argynnis euphrosyne L. Fairly common.

Argynnis selene L. Very common. Three broods in the year.

Argynnis ino Esp. This species, which does not occur in England, is similar to *A. selene* but the underside is different.

Polygonia c-album L. This is a local species.

Aglais urticae L. Very common indeed.

Nymphalis polychloros L. This is very scarce indeed.

Nymphalis io L. This species is very common.

Nymphalis antiopa L. Scarce; I have taken only six specimens, all on the shores of Tyri Fjord.

Limenitis populi L. This fine species of white admiral is as large as a purple emperor and feeds, in the larval stage, on poplar. It is scarce.

Pararge aegeria L. Very common indeed.

Pararge maera L. This species of 'wall brown' is very common in open country.

Erebia aethiops Esp. Very common in the district of Valdres in Central Norway.

Aphantopus hyperanthus L. Common in some districts.

Coenonympha pamphilus L. Very common.

Callophrys rubi L. Very common indeed.

Heodes virgaureae L. This is common in some districts.

Lycaena phlaeas L. I have seen only one in ten years!

Polyommatus icarus Rott. This is very common.

Plebeius argus L. This species is fairly common.

Thymelicus sylvestris Poda. Very common indeed.

Erynnis tages L. Scarce.

I hope this list will be of interest to any lepidopterists who may decide to pay a collecting visit, this coming season, to "The Land of the Midnight Sun". I shall be happy to do what I can to help in the matter of information about travel, accommodation, best districts for species, etc.

Sons Gate 7ii Opg. I. Oslo.

Myrmecophilous Beetles in the Midlands

By C. A. Collingwood.

Little attention has been paid to myrmecophilous beetles since Donisthorpe (1927) and there are few recent records from the Midlands,

Donisthorpe and others (Fowler and Donisthorpe, 1913) worked nests of the Wood ant *Formica rufa* L. at Buddon wood, Leicestershire in the earlier years of the century; Ellis and Martineau (1908) gave lists of captures from parts of the Wyre forest, Worcestershire, and from Haye wood, Warwickshire; Tomlin (1910) collected at Great Doward, Herefordshire. In recent years the writer has visited Wood ants' nests in many Midland localities; several interesting beetles have been taken and many captures are here recorded for the first time. Among the Wood ant localities visited are Ambergate, Derbyshire; Went wood, Monmouthshire; parts of Wyre forest, Shropshire; Moddershall, Staffordshire; Helpstone, Northamptonshire; Buddon wood, Leicestershire; Wigsley wood, Nottinghamshire, and Troy wood, Lincolnshire. Records of captures from the various counties will refer to these localities and authorities for old county records are as named above unless otherwise stated. New county records are marked with an asterisk. The species of Wood ant in Derbyshire was *Formica lugubris* Zett. but in all other counties was *Formica rufa* L.

Claviger testaceus Preyssl. is a local species found with *Lasius flavus* F., *L. alienus* Foerst. and *L. niger* L. It is fairly common on the S. coast of England but elsewhere is sparsely although widely distributed as far north as Peebles in Scotland. In the Midlands the species has only been reported from Notts. (Carr, 1916). The writer found a few examples in nests of *L. flavus* in September 1956 at Collyweston, Northants*. and at North Luffenham, Rutland*.

Lomechusa emarginatus Pk. was found by Donisthorpe as far north as S.W. Yorks. and the Isle of Man. The writer took this beetle with *Myrmica ruginodis* Nyl. in 1954 in the Winster valley, Westmorland*, its most northerly record so far for the mainland. In the Midlands it is abundant in the Wyre forest with *Myrmica* spp. and with *Formica fusca* L. and has occurred in Worcs., Salop and Warwicks. (Collingwood, 1954). In the past year it has been taken with *F. fusca* near Winchcombe, E. Glos.*, at a height of about 800 ft. in April and with *M. sabuleti* Mein. near Holywell, S. Lincs.*, in August and September. It was also captured by Fowler in a wood near Lincoln with *F. fusca* in 1882 and is recorded for Herefords. (Tomlin, 1949). According to Donisthorpe this species has as its summer host *F. fusca* and as its winter host a *Myrmica* species. Adult beetles have been taken by the writer variously with *F. fusca* in April, May and June and with *Myrmica* species in May, June, August and September. It may be noted that all the examples in the writer's collection with the exception of those from Warwickshire, have the thoracic shield dusky as described for the variety *nigricollis* Kr. The coloration is variable, however, and is evidently a normal characteristic of the species.

Amphotis marginata F. was recorded from Glos., Warwicks. and Worcs. (Donisthorpe, 1927) with the ant *L. fuliginosus* Latr., but no recent records are known.

Dinarda markeli Kiess. is very widely distributed and found with *F. rufa* and its allies. Donisthorpe found it scarce in the Scottish Highlands but from Cumberland southward the species is fairly common. In addition to old records for Worcs., Warwicks., Herefords. and Leics. It has been found with *F. rufa* in Salop* and with *F. lugubris* in Derbys.* *Dinarda dentata* Gr. was recorded for Worcs. with

F. sanguinea Latr. its normal host, by Ellis *et al.* (1908), but there appear to be no other records for the Midlands.

A group of Staphylinid beetles habitually live in Wood ants' nests and are usually to be found wherever the latter occur. The beetles concerned include species of the following genera:—*Leptacinus*, *Oxypoda*, *Nototheca*, *Thiasophila* and their Midland occurrences are summarised below:—*Leptacinus formicetorum* Mrk.—Old records, Leics., Worcs., Warwicks., Herefords. New records, Monmouth.*, Northants.*, N. Lincs.* and Notts.* *Oxypoda formiceticola* Mrk.—Old records, Worcs., Warwicks., Staffs., Leics., Herefords. New records, Monmouth.*, Northants.*, Darbys.*, Notts.*, N. Lincs.*, Salop*. *O. haemorrhoa* Mn.—Old records, Warwicks., Herefords. (also N. Lincs. (Thornley *et al.*, 1909), Notts. (Carr, 1916) and Ches. (Bartindale *et al.*, 1948) away from ants). New records, Derbys.*

O. recondita Kr. is considered to be rather rare. Old records, Leics. New records, Monmouth.*, Derbys.*, Notts.* *Nototheca flavipes* Gr.—Old records, Herefords., Warwicks., Worcs. New records, Monmouth.*, Salop*, Staffs.*, Leics.*, Derbys.*, Northants.*, Notts.*, N. Lincs.* *N. anceps* Er.—Old records, Herefords., Warwicks. New records, Salop*, Derbys.* *Thiasophila angulata* Er.—Old records, Herefords., Warwicks., Worcs., Leics. New records, Monmouth.*, Northants.*, Derbys.*, Notts.*, N. Lincs.*

Atheta talpa Heer. is a northern species abundant with wood ants in the Scottish Highlands but not hitherto recorded further south than N.E. Yorks. It was found to be very numerous in nests of the northern wood ant *F. lugubris* in Derbyshire during the past season. It was noticeable that the beetle was most numerous in the damper parts of the nest. It is possible that a high moisture requirement influences the distribution of this species in Britain as nests of *F. lugubris* are habitually moister than those of *F. rufa* even when they occur in the same latitude.

Many of the larger Staphylinids prey on ants both within the nests and outside. Among these are *Zyras* spp. which are not well represented in the Midlands. *Z. humeralis* Grav. is fairly common from the Scottish Highlands to S. England. The species is usually associated with wood ants but frequently occurs away from the nest. The writer observed it for example in numbers in a plantation inhabited by *F. rufa* near Blanchland Northumberland running on the ground; one beetle was seen to be dragging an Elaterid beetle. The havoc among adult ants caused by this beetle can be considerable as was described by Donisthorpe, 1927, at Haye wood, Warwicks. Old Midland records include Herefords., Warwicks. and Worcs. The writer has also taken it in Notts.*, Derbys.* and Salop*. *Z. limbatus* Pyk. is usually taken in the neighbourhood of *L. fuliginosus* Latr. and has been recorded from Bradgate Park, Leics.; Sherwood Forest, Notts., and Market Rasen, N. Lincs., with that ant (Fowler *et al.*, 1913). The writer took this species with *F. rufa* in Wyre Forest, Salop*. Donisthorpe recorded it with several species of ants but not apparently with wood ants.

Drusilla canaliculata F. is a general predator but is often found with ants, chiefly *Myrmica* species. It is a very common and widely distributed beetle and found throughout the Midlands.

Quedius brevis F. is more closely associated with ants and occurs in numbers in wood ants' nests. Donisthorpe considered that the species alternated between *L. fuliginosus* in the summer and *F. rufa* in the winter but to judge by its general abundance in nests of *F. rufa* in the Midlands together with the more localised distribution of *L. fuliginosus* in the area, it is likely that the species will also stay with *F. rufa* throughout the year. The writer moreover has freshly emerged specimens from *F. rufa* nests taken in the autumn which must have come from larvae developing during the summer months in those nests. Despite their size and bright colour the beetles may for a time escape detection by lying motionless on their sides. Old records include Staffs., Herefords., Wors. and Leics. New records include Monmouth.*, Northants.*, Derbys.*, Notts.* and N. Lincs.*

A large number of other Staphylinid beetles occur with ants from time to time without being regular guests. Among the more frequently associated beetles in this family are *Amischa analis* Grv. which the writer has taken recently with *Lasius flavus* and *Myrmica* spp. in Worcs.*, E. Glos.*, Northants.* Leics.* and Derbys.*; *Xantholinus atratus* Hr., a rarer species taken recently with *F. rufa* in Northants.*; *Othius myrmecophilus* Kies., generally distributed and taken recently with wood ants in Derbys.* and Leics.*

There are many interesting myrmecophiles among the Clavicornia. *Coccinella divaricata* Ol., a very local species, is associated with *F. rufa*; larvae and adults feed on aphids tended by the ants while the adults often hibernate in the ants' nests. It was first taken in Britain over a hundred years ago near Leominster in Herefords., but no wood ants have been traced in the neighbourhood. Donisthorpe, however, found it consistently near *F. rufa* nests in the counties of Hants., Surrey and Worcs. In July 1956 several adult beetles were discovered climbing over stumps and trees over-run by *F. rufa* in Wigsley wood, Notts.* Later in the autumn, beetles were found in a nest in the same locality. This is the northernmost record for this beetle to date. *Dendrophilus pygmaeus* L. is a regular guest of *F. rufa* and its allies. Recorded from Warwicks. and Herefords., it has recently been found in Monmouth.*, Notts.*, N. Lincs.* and Derbys.* *Myrmetes piceus* Pk., a local species, was taken in abundance with *F. rufa* in Buddon wood, Leics., by Donisthorpe, also in Warwicks. There appear to be no recent records in the Midlands.

Monotoma conicicollis Aub. and *M. angusticollis* Gyll. occur with *F. rufa*. They exactly resemble small pieces of pine leaf and are almost impossible to detect unless they move. Recorded for Herefords., Warwicks. and Worcs., they have both been found recently in Northants.* and *M. angusticollis* alone in N. Lincs.* Even more obscure owing to their minute size are *Ptenidium* and *Ptilium* spp. *Ptenidium formicetorum* Kr. was recorded for Warwicks. and has been taken recently with *F. rufa* in Northants.* *P. gressneri* Er. was taken by Donisthorpe with *L. fuliginosus* in Sherwood Forest, Notts. Two uncommon species but probably not regular myrmecophiles, *Stenichnus godarti* Latr. and *Euthia plicata* Gyll., were taken with *F. rufa* in Buddon wood, Leics., by Donisthorpe and Fowler respectively.

The Pselaphidae include several species that are frequently taken in ants' nests. *Batrisodes venustus* Rch. has often occurred with *Lasius*

spp. It was taken many times in Sherwood Forest over forty years ago both with *L. fuliginosus* and separately in decaying oak. A single specimen was taken by the writer on an oak stump inhabited by *F. rufa* in Buddon wood, Leics.* It has not previously been recorded with this ant. Other records for the species in the Midlands include Herefords., Hallett (1951), and N. Lincs. Thornley *et al.* (1913). Another Pselaphid taken by the writer with *F. rufa*, this time in N. Lincs., is *Euplectus piceus* Mots. which was also found in a stump inhabited by the ants.

Amauronyx maerkeli Aub. is a local species in S. England found with *L. flavus*; a single specimen was found by the writer under a stone with *L. flavus* at Somerby, Leics.*, in April 1956. The species has not hitherto been recorded further north than Oxon.

An interesting species among the Chrysomelidae is the widely distributed *Clytra quadripunctata* L. whose larvae live in the nests of Wood ants. They construct a protective case in which they live completely ignored by the ants; when removed from this they are at once attacked. Recorded for Worcs. and Warwicks. it has recently been found in Monmouth.* and Derbys.* It is characteristic for this species to occur in some numbers in a few nests while being apparently quite absent from others in the neighbourhood.

This is in contrast to some of the commoner Wood ants' guests which are usually to be found in nest after nest in the same locality. In the table below are given actual numbers of the different beetles collected in debris from double handfuls of nest material from a group of five nests in each locality.

Species.	Derbys.	Notts.	Leics.	Northants.	N. Lincs.	Total
O. formiceticola	20	3	8	1	4	36
O. recondita	2	1	1	—	—	4
O. haemorrhoa	2	—	—	—	—	2
N. flavipes	19	21	2	1	1	44
N. anceps	7	—	—	—	—	7
T. angulata	26	41	17	7	25	116
Q. brevis	5	24	6	3	9	47
Z. humeralis	1	1	—	—	—	2
L. formicetorum	—	1	—	3	3	7
D. pygmaeus	1	1	1	—	6	9
C. divaricata	—	1	—	—	—	1
Monotoma spp..	—	—	—	3	1	4
Ptenidium spp.	—	—	—	10	1	11
A. talpa	102	—	—	—	—	102
Others	16	1	5	2	1	25

It will be seen that disregarding the local *Atheta talpa*, *Thiasophila angulata* is the most numerous, occurring in numbers at all sites and making up over 36 per cent of the beetles captured. Next in order of abundance are *Quedius brevis*, *Nototheeta flavipes* and *Oxypoda formiceticola*. The above table is somewhat artificial in that many of the smaller species may have escaped collection under the conditions in which the observations were made so that the numbers cannot be regarded as absolute. However the table does serve to indicate the order of abundance of most of the species involved. No information is available as to the total numbers present in a nest but field obser-

vations suggested that this might vary considerably from nest to nest from a few score to upwards of a thousand per nest. Certainly there would have been many hundreds of the minute *Atheta talpa* in one or two of the *F. lugubris* colonies seen. Numbers would also vary according to the time of the year. The above counts were made in October 1956 and might be somewhat lower during the summer months. The size of the ant nest did not seem to have any direct bearing on the numbers of beetles to be found and some of the smaller nests appeared to have a higher concentration of beetles than the larger ones.

From the above account it will be seen that many interesting myrmecophilous beetles occur in both the East and West Midland counties including such local spp. as *Coccinella divaricata*, *Amauronyx maerkeli*, *Batrisodes venustus*, *Claviger testaceus* and *Lomechusa emarginatus*. In the East Midlands Buddon wood has been particularly well worked but Wood ants' nests in other areas apparently neglected. Derbyshire with its great abundance of *Formica lugubris* colonies in the Derwent valley should in particular repay further study.

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Some Interesting and Uncommon Diptera from East Kent, including a new species of *Phaonia* (Muscidae)

By E. C. M. d'Assis-Fonseca, B.Sc., F.R.E.S.

The two localities in East Kent concerned are a sandy-bottomed ditch near the seaward margin of the Royal Cinque Ports Golf Links between Deal and Sandwich, and Woolwich Wood, a three hundred-acre hazel wood nine miles north-west of Deal and adjacent to the village of *Woollage Green. Woolwich Wood contains an intricate system of intersecting paths, most of which, although kept reasonably clear, are dark and gloomy in summer even on sunny days, owing to the dense

*The difference in spelling between village and wood is in accordance with the Ordnance Survey Map.

foliage on each side meeting overhead. Collecting was done mainly with a sweep-net at the end of July and beginning of August in 1955 and 1956.

Dolichopus longicornis Stann., *Hydrophorus viridis* Mg., *Medeterus flavipes* Mg. and *Porphyrops laticornis* Fall. These four species of Dolichopodidae occurred in the ditch on the golf links on 7th and 9th August 1956.

D. longicornis was abundant on both dates and a number of both sexes was taken in each sweep. This is the first occasion on which *longicornis* has been found in that locality although the ditch has been "swept" quite frequently during the last seven years.

A few males and a large number of females of *H. viridis* were swept from the bare patches of wet sand at the bottom of the ditch, together with the much commoner *oceanus* Macq. (*bisetus* Lw.) and *praecox* Lehm. All three species have been present at each visit to the ditch since 1949.

A good series of each sex of *M. flavipes* was taken by "pooter" from the vertical face of some brickwork at one end of the ditch. Their larger size and entirely yellow legs made them easy to distinguish from the swarms of smaller *Medeterus* (mainly *petrophiloides* Par. with a few *sexatilis* Coll.) which were also present.

A male and two females of *P. laticornis* were swept from vegetation growing on the sides of the ditch, this being another species not previously found here. *P. laticornis* is one of the smaller species of *Porphyrops* in which the male is recognised by the conspicuously long third antennal segment. It is noted that the above male specimen has the front metatarsus about 1½ times as long as the second segment, thus disagreeing with Parent's Table of males, in which these two segments are described as "sensiblement égaux en longueur".

Argyra grata Lw. In August 1955 it was noticed that females of a small species of *Argyra*, with a considerable amount of yellow on the abdomen were abundant in some of the more deeply shaded paths of Woolwich Wood. The specimens examined at the time appeared somewhat immature, and as this was thought to account for the unusually pale abdomen, only one or two were retained and set. This year (1956), however, six males of the same species were found among the even more abundant females and there was no doubt as to the identity of these. *Argyra grata* is a little known species, which has previously only been found to occur in very small numbers at Bridgend (Glamorgan).

Campsicnemus magius Lw. A long series of males and several females of this uncommon and remarkable little species were swept from the ditch on the golf links on 7th and 9th August 1956. Two males had previously been taken from the same ditch, when it was almost devoid of vegetation, in August 1949, but although the locality has been visited regularly each year since then, *magius* was not again seen until this last August. In spite of their small size, when resting on the damp sand the males are quite conspicuous, being easily spotted by their extraordinarily complicated front legs, even at a distance of several feet.

Nephrocerus flavicornis Zett. Three males of this rare species were captured in open spaces at Woolwich Wood, one on 7th August 1955, and the other two on 31st July and 11th August 1956. *N. flavicornis* has a slow hovering flight very similar to that of a *Pipunculus*, and owing to its size could easily be mistaken in flight for a male of one

of the narrower-bodied species of *Platycheirus*. The short flight-period noted by Dr. B. R. Laurence (1952, *Ent. Rec.*, **64**: 28), namely, "end of June to early July", is considerably extended by the above records, though the "lateness" of the past two seasons may be partly accountable for this. As far as can be ascertained from Dr. Laurence's note and from information kindly supplied by Mr. R. L. Coe, only ten previous British specimens of *flavicornis* have been recorded—a male and four females from the New Forest (Hants), a male each from Ashtead (Surrey), Chippenham Fen (Cambs), Loxley Wood (Som. N.) and Rothamsted (Herts), and a fifth female from Ewhurst (Surrey).

Coenosia dubia Schnb.—an addition to the British List. A pair of this species was swept from the ditch on the golf links on 7th August 1956. Unfortunately they were not at the time recognised as anything unusual, or an effort would certainly have been made to find further specimens. *C. dubia* is one of the smaller species of the genus, and in the male closely resembles *geniculata* in having a sharply defined black apical two-fifths to the four posterior femora, but differs from that species in the absence of a preapical bristle in front of middle femora, and presence of dense long hairs beneath hind femora. The female is similar to the male in the colour of the femora and is consequently readily distinguished from the females of other small species of *Coenosia*.

Phaonia rufiseta Zett. A single slightly damaged male of this little known species was captured in Woolwich Wood on 1st August 1955. An intensive search for more specimens both in 1955 and 1956, however, met with no success. The only other British records of *P. rufiseta* are a male taken by Mr. J. E. Collin at Woodditton Wood (Cambs) on 25th May 1951, and a female by the late Mr. H. Britten at Ardrie, Strontian (Argyllshire) on 18th July 1934 (*v.* Collin, 1953, *J. Soc. Brit. Ent.*, **4** (8): 174). These three records would appear to indicate a fairly long flight-period and the species' apparent rarity is therefore not easy to understand.

Phaonia umbraticola sp. n. In 1955, on 1st and 14th August, respectively, a male and a female of a *Phaonia* with entirely yellow scutellum were taken when sweeping a particularly deeply shaded path in Woolwich Wood. As it was known that Mr. J. E. Collin possessed a *Phaonia* of this description, a male taken by him at Farley Downs (Hants) on 11th June 1933, the male specimen was sent to him for comparison. Mr. Collin confirmed that the two specimens were identical, and stated that they almost certainly belonged to an undescribed species closely allied to the rare *P. humerella* Stein, but distinguished from that species by having entirely or mainly dark humeri and entirely yellow femora. The further capture this year (1956), in the same densely shaded part of Woolwich Wood, of two more females of undoubtedly the same species, on 31st July and 5th August, confirms Mr. Collin's view that it is quite distinct from *humerella*, and at his kind suggestion I describe both sexes herewith.

♂. Eyes somewhat sparsely short-haired, the silvery-white orbits closely touching on upper half of frons, cheeks silvery-white like the orbits, slightly narrower than third antennal segment, mouthedge hardly protruding, antennae black with a somewhat reddish tinge at base, arista plumose, the longest hairs on either side slightly shorter than third antennal segment is wide, palpi black, slender. Thorax rather

thinly grey pruinose with a pair of narrow median and broad lateral stripes, humeri entirely or mainly dark, prothoracal stigma pale yellow, three postsutural dorsocentral bristles, a pair of strong presutural acrostichals and two pairs of prescutellar bristles, no small setulae present near notopleural bristles, prealar bristle about as long as first dorsocentral, scutellum entirely yellow without any darkening at base, and without setulae on lateral margins below level of strong bristles. Abdomen even more thinly grey pruinose than thorax with an indistinct narrow median stripe and, from certain angles, distinct shining black reflections. Legs, including trochanters and greater part of coxae, yellow, femora without trace of darkening even at base, tarsi dark, front tibiae with the hairs behind distinctly longer than elsewhere, usually without median bristle, middle femora with longish fine bristles beneath on slightly more than basal half, middle tibiae with 3-4 posterior bristles in a single row, hind femora with rather short fine posteroventral bristles on basal half, hind tibiae with 2-3 anterodorsal, and a row of about six short anteroventral bristles on apical half, of which the lowermost one is stronger than the rest. Wings yellowish with distinct costal spine, squamae yellowish, halteres yellow.

♀. Very similar to male. Eye-hairs rather shorter, frons at vertex about ¾ eye-width, orbits rather more greyish, cheeks white but less glistening than in male, antennae with less distinct reddish colour at base, palpi broader. Thorax and abdomen even more thinly pruinose than in male, so that the black reflections are more conspicuous and the abdomen practically without visible markings, thorax usually without strong presutural acrostichals and with only one pair of prescutellar bristles. Chaetotaxy of legs as in male, but front tibiae uniformly short-haired all round, bristles beneath middle femora shorter and finer, and posteroventral bristles on hind femora hardly distinguishable from general pubescence.

Length about 8 mm.

Fannia vesparia Mde. and *difficilis* Stein. The males of many species of *Fannia* may, under suitable conditions, be seen wheeling slowly about, usually in groups, *under* trees, but the behaviour of the above two species, as observed at Woolwich Wood, did not follow this normal pattern.

In 1955 it was discovered that males of *vesparia* were in the habit of hovering almost stationary a foot or so *above* a small sapling of Sweet Chestnut, one of a number in a large clearing. Many similar young trees in that area were frequently watched, but no others were found that appeared to attract *vesparia*. This year (1956), the same sapling, now somewhat taller, was again being visited by males of *vesparia*, usually singly but occasionally a pair together, and in the two collecting periods a series of eighteen males was taken at this one spot. This year, moreover, *vesparia* was sometimes joined by a male of *difficilis*, which would hover for a short period near one of the uppermost leaves and then settle, and four males of this latter species were captured in exactly these circumstances. No explanation could be found for the attraction of this particular sapling, as there were apparently no wasps' nests in that part of the wood and extensive sweeping of vegetation in the vicinity produced only one female of *vesparia* and two of *difficilis*, all some little distance from where the males were taken.

Pegomyza schineri Schnb. (*puella* Mg. of Kloet & Hincks). Although this species occurs not uncommonly in various localities in the eastern counties, where it has been taken by Mr. J. E. Collin, yet it would appear not to be well known. A few of each sex were taken at Woolwich Wood in 1955, and a long series of males and several females in 1956. It is closely allied to *P. intermedia* Mg., with yellowish tibiae as in that species, but is a good deal larger. It differs from *intermedia* in having much thinner pruinosity on thorax and abdomen, and consequently appearing more shining black, and the hind tibiae are not clear yellow as in *intermedia* but tend to be more brownish.

Pegohylemyia pseudomaculipes Strobl. A number of females only of this species, which breeds in the flowers of *Solidago virgaurea* L., were taken at Woolwich Wood during the first week in August 1956, this being probably too late for males. It is allied to *P. jacobaeae* Hardy, possessing the same two unusual (for a *Pegohylemyia*) characters as that species, namely, costa hairy along whole length beneath, and hind tibiae with three equally strong dorsal preapical bristles. It is, however, readily distinguished from *jacobaeae* by its extensively yellow legs, especially in the case of the female, a character which, combined with the hairy costa, makes it at first sight easily mistaken in the latter sex for a *Pegomyia*, a mistake soon corrected when the very long-pubescent arista is noted. Although not listed by Kloet & Hincks, Mr. Collin informs me that he has taken this species in several localities in the northern and eastern counties.

In conclusion, it may be noted that during both collecting periods, which are the subject of this note, the weather was by no means at its best, almost continual strong winds (at times at gale force) and frequent rain storms being the order of the day.

For the identification of *Porphyrops laticornis* Stann. and *Coenosia dubia* Schnb., and for useful information on other species included in this note, I am indebted to Mr. J. E. Collin.

Notes and Observations

COSYMBIA PUPPILLARIA HÜB. IN DEVON.—In addition to the migratory species taken at Ashburton, Devon, during the latter half of September, which I reported in the *Record* last November (*Ent. Rec.*, **68**: 270), I am able to record three examples of *Cosymbia puppillaria* Hüb. Mr. Taylor of the Hope Department, University Museum, Oxford, kindly dissected out the genitalia and compared them with the specimens in the Department's collections.

On 23rd September a female specimen arrived at the m.v. lamp at about 9.30 p.m. B.s.t. Two nights later I took a second female at about the same time and this was of the form ab. *gyrata* Hüb. The following night I found a male on the inside of the trap. It was unfortunate that I did not recognize the species straightaway as it would have been an excellent opportunity for breeding it. Owing to its fairly wide diversity of foodplants there seems no reason why the insect, under favourable conditions, should not breed here.

In external appearance the insect closely resembles *C. porata* Fab., but its genitalia are nearer to those of *C. pendularia* Clerck. It has a general pinkish-brown colouration, which tends to darken nearer

the outer margin. There is also a faint trace of an outer line. In ab. *gyrata* the general colouration is slightly browner. The white discal spots are ringed with black, these being hardly visible in normal specimens. Those on the fore wings are about twice the size of those on the hind wings. The discal spot on the hind wings lies on the traces of a median line. Two other lines composed of black dots are found, one on either side. There are also black dots on the margin, particularly where the wing comes to a hooked point. Along the costa are traces of blood red.—Alan Kennard, Torns, Ashburton, Devon. 3.xi.56.

[In France *Cosymbia puppillaria* occurs mostly in the southern half of that country, but has been taken in the department of Aube and in Brittany (Ile et Vilaine). Oberthür recorded it from the north coast of Brittany (Cancale), which is about 130 miles from Dorset. The form ab. *gynata* seems to be confined, in France, to the south. Lhomme gives the foodplants as *Quercus ilex, Cistus, Arbutus, Phyllyrea*, and *Myrtus communis*.—Ed.]

Immigrants in Norfolk.—It may be of interest to record the following possible immigrants taken at m.v. light in the garden here during July and September this year:—*Acherontia atropos*, 18; *Herse convolvuli*, 5. Fourteen *atropos* and the five *convolvuli* appeared on the same night, 2nd September. *Cucullia absinthii*, 1, and *Plusia interrogationis*, 1, on 25th July. *Lithosia quadra*, 1, on 26th July. *Heliothis armigera*, 1, on 26th September. *Leucania albipuncta*, 3, on 21st September. *Margaronia unionalis*, 1, on 22nd September. A specimen of *Celerio galii* was taken in June in a wood near Norwich, in the same place where one was taken in 1955. Two larvae were found there in August, and their captor informed me that one larva was taken while feeding on young birch. This would appear to be a new foodplant for the species.—R. G. Todd, West Runton, Norfolk.

Acherontia atropos L. in Bedfordshire.—A British Legion friend who was painting the roof of our conservatory told me that his wife had called him to see a horned green caterpillar with blue and yellow markings, five inches long and as thick as your thumb—obviously one of the progeny of your invading *atropos* ♀♀. She wanted to send it to me, but a wiseacre said it might bite, and destroyed it! I corrected that idea and said that they were saleable. The locality was Bow Brickhill, Bucks.—S. H. Kershaw, Alderman's Place, Aspley Heath, Bletchley, Bucks. 13.x.56 (*in lit.*).

Acherontia atropos L. in Bradford, Yorks.—On 23rd September 1956 a male measuring 4⅛ inches wing span was found by Mr. A. C. Walker in Barkerend Road almost in the centre of the city. It was very active when caught and in almost perfect condition.

On 30th September another was found on the causeway edge at Charlestown, near Shipley, by a boy, Ian Boardman, alive and in good condition. Both insects were brought to Mr. S. Jackson of the Cartwright Memorial Hall Museum, Bradford.—J. Briggs, 15 Frimley Drive, Little Horton, Bradford. 19.xi.56.

Herse Convolvuli L. in the West Riding of Yorkshire.—The following examples of this species were brought to Mr. S. Jackson of the Cartwright Memorial Hall Museum, Bradford, by various people for

identification: One female from Shipley Market Place, 23.viii.1956 One male found on a house wall in Bingley Road, Shipley, 3.ix.1956 One female found on a wall in Busy Lane, Windhill, Shipley, 5.ix.1956 One female found at the entrance to Northcliffe Woods, Shipley, 8.ix 1956. A male from a garden in Bingley Road, Shipley, 13.ix.1956. All were in fairly good condition.

Another female was brought to me dead and in a battered condition (in a matchbox) which had been found alive on the parapet of Cottingley Bridge near Shipley, 29.ix.1956.

It would appear that these could have been bred locally; the foodplant is common, but it is only on rare occasions that single specimens have been recorded in this area by the Bradford Naturalists' Society.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford. 19.xi.56.

HERSE CONVOLVULI L. NEAR M.V. LIGHT TRAP AT BROCKENHURST, HANTS.—On 10th September, while counting the contents of the moth trap, I noticed, 6 feet away, a much battered, half dead female Convolvulus Hawk Moth, presumably the work of blackbirds, which are always first on the scene after dawn. 877 "macros" were counted and 44 species, including 648 *Amathes c-nigrum* L., one *Catocala sponsa* L. and 3 *Caradrina ambigua* Schif.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford. 19.xi.56.

MELANIC ERANNIS DEFOLIARIA IN SOMERSET.—On the night of 9/10th November 1956, I took a melanic form of *Erannis defoliaria* Cl. in my m.v. trap. There is no mottling on the forewings which are smoky black with the veins also almost black. The hindwings are blackish (not mottled) and the whole appearance is like the form of *Phigalia pedaria* ab. *monacharia* Staud. Last year on 8th December I took another *E. defoliaria* of a very dark russet brown variety mottled with black, and the hind wings also similarly mottled. I have never taken any melanic form of this species before and this all ties up with Mr. H. C. Huggins's article on "Some aspects of melanism" (*Ent.*, **89**: 185).—G. H. W. CRUTTWELL, Old Ford House, Frome, Somerset, 26.xi.56.

ECTROPIS BISTORTATA GÖZE IN NOVEMBER.—Two specimens of *E. bistortata* came to light in my garden at Weston-super-Mare on the evening of 10th November. This seems a very late date and the moths would appear to be representatives of a third brood.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 29.xi.56.

MARGARONIA UNIONALIS HÜBN. IN OCTOBER AT WESTON-SUPER-MARE.—It may be of interest to record a further specimen of *M. unionalis* taken at light in my garden on 2nd October.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 29.xi.56.

ORTHOSIA GRACILIS SCHIFF. IN WALES.—A year or so ago in this magazine (*Ent. Rec.*, **67**: 299) I recorded the taking of larvae of *Orthosia gracilis* Schiff. on the Welsh coast at Borth, Cardiganshire. Moths duly emerged in the spring of 1956, and I exhibited a series of about three dozen at the Annual Exhibition of the 'South London'. I brought them up again to an ordinary meeting of the Society on 8th November to elicit comments from the experts on the range of varia-

tion. Mr. A. H. Sperring said that the forewings agreed very well with the variation to be found in New Forest specimens, but the hindwings seemed generally darker; he would, however, prefer to see much longer series before stating that this was typical of the district. Dr. de Worms said that he had seen only one other series from Wales, taken much farther north by Mr Austin Richardson; those were very much paler in colour than the Borth specimens.—J. O. T. Howard, Wycherley, Deepdene Wood, Dorking, Surrey. 26.xi.56.

Late Emergence of Callimorpha jacobaeae L.—With reference to Mr. C. M. R. Pitman's note in *Ent. Rec.*, **68**: 271, *C. jacobaeae* occurred in my light trap on 10th September and I recorded it as the odd freak of nature in this rather peculiar season we have had, although it now seems probable that Mr. Pitman's suggestions may be nearer the mark. In fact I was quite surprised this year to take a *jacobaeae* on the 9th July which is later than I have ever seen it in this district in the last twenty years—the earliest date, incidentally, being 14th May 1938.—H. A. Buckler, Sutton Bassett, Market Harborough, Leics. 19.xi.56.

Foodplants of Celaena haworthii Curt.—Earlier this year I added a new species of lepidoptera to our local Formby list. The species in question was *C. haworthii* Curt., seven specimens were taken at light on one night. The locality in which they were captured was unlike any other area in which I have met with this moth. They were taken within 200 yards of the coast, an area rich in flora, particularly that associated with marshlands. One point which is worthy of note is that *Eriophorum* does not grow in the area in question. It is not entirely absent but the number of plants in this area are exceedingly limited, definitely not enough to support *haworthii*, which, from our observations on one night, cannot be considered scarce. An alternative foodplant must therefore be present in the district.

On several occasions I have noticed emergence holes in the stems of the Marsh Club Rush, *Scirpus palustris* which before I have associated with dipterous insects. Could this be the alternative to the Cotton grasses? Naturally, further examination is required next season to verify or disprove this suggestion; but I thought it might interest readers of the *Record* and perhaps elicit observations from other districts.—M. J. Leech, The Spinney, Freshfield Road, Formby, Liverpool. 29.xi.56.

Recording the 'Squeak' of Acherontia atropos L.—I was very interested to read Mr. J. L. Campbell's account of the recording of the squeak of *Acherontia atropos* on page 268 of the November *Record* (Vol. 68, No. 11) by Mr. Francis Collinson, and as he wonders if this is the first time that this has been done, I thought that he might be interested to know that I took part in recording the 'voice' of this species in January this year.

I had a male *atropos* emerge on 28th December 1955, and as I knew that my friend Mr. Eric Simms of the B.B.C. was very interested in recording this species for the B.B.C. library, I placed it at his disposal for recording purposes. On 3rd January 1956 B.B.C. Recording Engineer Mr. Bob Wade came with an Outside Recording Van to my home,

and I assisted him in obtaining what turned out to be a very successful recording. The moth behaved very well indeed and squeaked loudly without pause for 1¾ minutes, and I had the pleasure of introducing the recording when it was broadcast in the Light Programme of the B.B.C. in 'The Countryside in January' programme on 29th January 1956.

I should also like to mention that the pupa also squeaked quite loudly and distinctly on 26th December—that is, two days before the moth emerged. One other point of interest—I kept the moth alive until 18th January by feeding it on sugar and water, and one day I startled it while it was feeding. It issued its customary squeak, and I noticed that this was accompanied by a stream of bubbles from its proboscis. This may, or may not, help to throw some light on the way in which the sound is produced.—W. J. AKESTER, 4 Riverdene, Edgware, Middlesex. 4.xii.56.

A NOTE FROM S.E. CORNWALL.—After my note in the *Record* dated 17th May (*Ent. Rec.*, **68**: 157) there was a very dry spell till the end of June, after which the weather broke up, and there were few visitors of interest to the trap in July and August. However, the period 7th-20th September made up for this, yielding a fine female *Acherontia atropos* L., two slightly worn male *Herse convolvuli* L., one *Antitype xanthomista* Hüb., one *Leucania vitellina* Hüb., two *L. albipuncta* Fab., and one *Heliothis peltigera* Schf. (I believe Dr. Smith has sent you an account of his defensive action against formations of *convolvuli* at Perranporth during the same period). *A. xanthomista* was an interesting arrival in view of the failure of Mr. Byers and my efforts to find larvae (*Ent. Rec.*, **68**: 7), while our few other local collectors have obtained none.

Many species of which I had hoped to obtain further specimens for friends were, with the exception of *Apatele alni* L., entirely absent. Singletons or small series of new visitors to the trap were: *Deilephila porcellus* L., *Actebia praecox* L., *Phalaena typica* L.,*Mythimna turca* L., *Amphipyra tragopoginis* Cl., *Cucullia lychnitis* Ramb., *Pyrrhia umbra* Hufn., *Polychrisia moneta* Fab., *Mormo maura* L., *Bomolocha crassalis* Fab. (*fontis* Thun.), and *Cossus cossus* L., while a *Rhodometra sacraria* L. turned up 16th October. My annual *Leucania unipuncta* Haw. came on 16th November and a single *Xylena vetusta* Hüb. on 21st October. I was pleased with *maura*, my other specimens of which I caught in London in 1904. This was still the 'gas era' referred to by the Rev. F. M. B. Carr in *Ent. Rec.*, **68**: 239, and I well remember the 'Old Ladies' scuttling about the floor in a dark toolshed.

As regards butterflies, I found for the first time *Callophrys rubi* L. and *Erynnis tages* L. on our cliff; *rubi* was settling on young apple leaves and was difficult to spot. *Argynnis aglaia* L. is apparently a *Record* reader and (like *xanthomista*) indignant at my surmise that it was absent from this area. During July it appeared in small numbers in restricted localities (including my garden) for the first time, to my knowledge, in ten years. *Argynnis paphia* L., *A. euphrosyne* L., and *A. selene* L. were all common again this year.

I issued a number of watercolour sketches of the stages of *A. atropos* to potato growers in this parish (Lanteglos) and, through Mr. Puckey,

in Polperro, with the promise of a reward; but all that this has produced so far is one female 'Drinker' moth. Presumably my talent for representational art is failing.

This year I have placed my trap, by courtesy of a fellow villager on a more open area of cliff, beyond the small wood which bounds my garden, using 150 yards of flex from my cottage. This has yielded, I think, better results, and I have the promise of an even better (more sheltered) site for next season, though this will entail a rough three-mile walk daily to empty the trap and return. I take the trap in at first light, and rarely find any moths escaping from it. I have never experienced anything like the numbers of moths that others have recorded, though I cannot say that I have ever felt inclined to count them. This season *Amathes c-nigrum* L. has visited me in numbers that almost constitute a persecution.

Mr. Puckey of Polperro and I were able to pay only one visit, with Tilley lamps, to Menabilly Wood, owing to the weather and my own disabilities. This so far unspoilt area of very mixed woodland seems promising but entails a half-mile row across the river and a three-mile walk, plus (for Puckey) a seven-mile cycle ride thereafter. No moths came till after midnight, when we obtained *Tethea duplaris* L., *Bomolocha crassalis* Fab., and *Cosymbia linearia* Hüb. In early June I found *Ectypa glyphica* L. on the grass slopes between the wood and the sea.

I am sorry to read, in Mr. Symes's article (*Ent. Rec.*, **68**: 236), that the "Locality B" of *Maculinea arion* has been burnt out. I have not been there for two years—presuming that I have rightly guessed his reference.—Colonel H. G. Rossel, Bodinnick, Lanteglos by Fowey. 18.x.56.

An Old Collection.—I have in my possession a case of insects taken from the collection of the Reverend Henry Back, vicar of Banbury from 29th March 1860 to 8th February 1881. He died on 30th October 1891. The insects were probably collected between 1840 and 1890.

About ten years ago the owner of the cabinet in which the collection was stored wished to convert it into a cabinet for birds' eggs, and suggested I should take the collection. A very large number of the specimens, however, was infested with beetle, moth, book-mites, etc., and I agreed to take a selection of the best in condition, and the remainder was destroyed. The following is a list of the rarer insects which I took and which I have since immersed in 'Ronsonol'.

Periphanes delphinii L. (2), *Lycaena dispar* Haw. (2), *Cyaniris semiargus* Rott. (5), *Argynnis lathonia* L. (2), *Nymphalis antiopa* L. (2), *Aporia crataegi* L. (11), *Pontia daplidice* L. (1), *Trachea atriplicis* L. (2), *Daphnis nerii* L. (1), *Catocala fraxini* L. (1), *Celerio galii* Schf. (2), *Lymantria dispar* L. (4), *Apatura iris* L. (6), *Maculinea arion* L. (7).

They are all set in the old rounded board fashion on fairly stout white entomological pins. There are no data labels and I could not hear of any diary. The above specimens (with others) were exhibited by me at the South London Society's exhibition on 27th October 1956.

Can any reader of the *Record* give me any information regarding the Rev. Henry Back? Did he ever contribute any articles or notes to the entomological magazines of his time and was he a member of any society?

I would imagine that any collector of his period would have reported

the capture of *delphinii*, *lathonia*, *nerii*, *fraxini*, and *daplidice* even if *dispar*, *semiargus*, *crataegi* and some of the others were not considered to be of any great rarity.

Perhaps when the vicar heard of the capture of any rarities he bought some from the Kentish buccaneers as British, or followed what Stephens spoke of as "the execrable practice of introducing Continental insects into collections".

I have not included any of the Rev. Henry Back's insects in my cabinet but would like to think that the two 'Pease Blossom Moths' were caught in Britain.—CLIFFORD CRAUFURD, Denny, Galloway Road, Bishop's Stortford, Herts. 8th November 1956.

Fifty Years Ago

(From *The Entomologist's Record* of 1906)

ABUNDANCE OF LAPHYGMA EXIGUA HB.—Although comparatively few records have been sent for publication of the abundance of *Laphygma exigua* this autumn, yet one hears of large numbers having been taken in various ways—particularly at sugar—in the southern counties, where, possibly, the Isle of Wight and Devonshire have produced most specimens. We hear of single collectors who have captured almost a hundred examples apiece and others who have several large broods of larvae feeding satisfactorily. As is usually the case with our immigrating species, they appear, on the rare occasions that they visit us, to be even more prolific here than in their own haunts. The absence of the usual parasites that keep them in check in their own districts is probably the greatest factor in their special abundance here in the autumnal brood, the progeny, one supposes, of a comparatively limited number of immigrants that reached us in the early summer.—J. W TUTT.

A GREEN PUPA ON A BLACK SURFACE.—On the afternoon of September 19th, I saw, on the trunk of a lime-tree, black with soot, a bright green spot, of the tint of a fresh lime leaf, that, on examination, proved to be a brilliantly coloured almost emerald-green pupa which I supposed at first was a newly-formed chrysalis of *Pieris rapae*. It had, however, very dark streaks on the wing-cases. These dark markings made me doubt the species, and I thought afterwards it might be *P. napi*. Being in a hurry, however, I took no further notice, until two days after, I saw again the bright green pupa, brilliantly tinted as before, and knew that this was its fixed adult coloration. I fully determined to make a closer examination, but, having no knife with me, and being desirous to have the pupa *in situ*, I thought I might postpone the matter. This I did, with the result that, on the evening of the 30th, the pupa was clean gone, the silken pad alone denoting its recent position. Two points struck me:—(1) The marvellously bright colour of the pupa on such a dismally tinted background. (2) Whether the pupa was conspicuous to a bird and was stolen by one. Certainly, not one in a hundred humans would have supposed it anything but a leaf, yet it disappeared in little more than a week.—E. M. DADD.

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Notes on the Proboscis in Lepidoptera

By J. Sneyd Taylor

Among the problems which have concerned the writer for some years has been that of certain species of fruit-piercing moths belonging to the family *Noctuidae*, the proboscides of which are adapted for piercing the skin of fruits. These moths at times cause serious damage to both soft fruits and citrus. The examination of their proboscides led to further researches with other species, not hitherto recorded as fruit-piercing in South Africa, and a number, belonging to a wide range of families of both Heterocera and Rhopalocera, has now been investigated. The study proved to be an interesting one, revealing considerable variation among the various families, and sometimes between fairly closely related species.

The probiscis in Lepidoptera is sometimes described as resembling a small watch-spring in appearance, but there is much more to it than that. Unfortunately, literature on the subject is sparse, and what exists is difficult to obtain. Little work appears to have been done, in recent years at any rate.

The best general account found is that given by Imms (1925), and, although the facts are well known, a brief summary may not be out of place here. The maxillae in the majority of adult Lepidoptera have been modified to form the proboscis, a suctorial process consisting of two greatly elongated galeae, grooved on their inner surfaces, and held together by hooks and interlocking spines. Liquid food is imbibed through this tube. Scattered over the surface, particularly towards the apex, are small circular plates each bearing a minute central papilla, possibly tactile or gustatory in function. In many cases these have become denticulate spines for the purpose of lacerating fruit tissues.

In some families, such as the *Saturniidae** and *Lasiocampidae*, the proboscis is absent, while in the *Lymantriidae* it has aborted, and in the *Hepialidae* the mouth-parts are vestigial. The great variation in form in those families in which it is present will become apparent later.

Imms (*op. cit.*) also mentions that the maxillae of *Pronuba* are exceptional in showing sexual dimorphism. They are normal in the male but the galeae are separate, while in the female there is an inner lobe, the maxillary tentacle. Sexual dimorphism, to a lesser degree, has been found in the mouth-parts of *Cactoblastis cactorum*, and Janse (1932) refers to it in *Omphacodes* (*Geometridae*).

The data concerning the proboscides of the 39 species of Rhopalocera and 114 Heterocera which have been examined are given below. In this account modified papillae are described as setae or teeth.

Danaidae

Danaus chrysippus L. The proboscis is of moderate length, smooth, stout and bluntly pointed.

*Since these notes were compiled, the writer has been in correspondence with Mons. P. C. Rougeot, who recently found several species of *Epiphora* (Saturniidae) drinking at roadside pools in French Equatorial Africa, a most important and interesting discovery. Mons. Rougeot has very generously sent the writer specimens of the species concerned, and all were found to have definite and characteristic proboscides. It is hoped to give an account of these in a later paper.

Acraeidae

Little variation was found in the proboscides of this family. Three species were examined as follows.

Acrea horta L. Long and stout, with substantial setae of moderate length near and at the sharp tip.

A. terpsichore L. Long and stout, with saw-like setae towards the sharp tip, but shorter and more hair-like near the base of the proboscis.

A. rahira Boisd. Long and stout; strongly and densely serrated towards the stout and sharp tip.

Nymphalidae

Some variation was found in this family, as will be seen.

Charaxes jahlusa Trim. Moderate length and stout, with short and substantial setae towards blunted tip, but not densely situated.

C. varanes Cr. Long and stout, with dense flanges of short papillae towards the blunted tip.

Crenis boisduvali Wallgr. Long, with dense, short and thick papillae towards the relatively sharp tip.

Precis natalica Feld. Long and stout, with long papillae towards the blunt and papilla-like tip.

P. oenone L. Long and somewhat ribbon-like, with stout papillae at and near the sharp tip.

Vanessa cardui L. Long and stout, with dense, stout and relatively sharp papillae or setae towards and at the pointed tip.

Antanartia schaeneia Trim. Long and stout, with short papillae (longer proximally or towards base) at bluntly pointed tip.

Satyridae

Some variation was also found in the *Satyridae*, and in all species examined papillae or setae in varying degree of stoutness were noted. In at least some cases, these would appear to lie flat against the proboscis when not in use. It is interesting to record that in Nigeria a species of this family, *Melanitis leda ismine* Cram., has been observed piercing grape-fruit (Golding, 1945).

Mycalesis safitza Hew. Long and somewhat ribbon-like, with lateral flanges of hair-like papillae apparently flattened against proboscis when not in use; all situated towards the sharp tip.

Paralethe dendrophilus Trim. Similar to *M. safitza*.

Dira clytus L. Long, with stout and sharp papillae or setae towards the pointed tip.

Mintha mintha magna van Son. Moderate length, with dense and saw-like setae towards the sharp tip.

Cassus cassina Butl. Long, with stout setae towards sharp tip.

Pseudonympha magus F. Long, smooth and bluntly pointed, with scattered papillae.

Stygionympha vigilans Trim. Long, with a few short but relatively stout setae towards the sharp tip.

S. dicksoni Riley. Long, with short papillae towards the sharp tip, and which apparently lie flat when not in use.

Lycaenidae

In this family there appears to be some variation in the sharpness

of the tip as well as in the nature of the papillae, but otherwise the proboscis seems less varied than in some other families.

Deudorix antalus Hpffr. Long, with short, sharp and saw-like setae or papillae towards and at the sharp tip.

Myrina ficedula Trim. Moderate length, broad and ribbon-like, with stout papillae towards and at the blunted tip.

Lycaena moriqua Wallgr. Long, with a few small papillae near the blunted tip.

L. caffrarae Trim. Long, with a few short papillae near and at the blunted tip.

Lycaenesthes amarah Guen. Long, with short, sharp and widely separated papillae or denticulations towards the pointed tip.

Pieridae

In the following species the proboscis was long and smooth, with a sharp tip:—*Mylothris chloris* F., *agathina* Cr., *Belenois creona* Cr., *severina* Stodl., *B. aurota* F., *Dixeia charina* Boisd., *Colotis antevippe* Bsd., *Pieris helice* L., *Colias electo* L. In *Colotis evippe* L., *omphale* Godt., it was long, slender and smooth, with an obliquely pointed, sharp and papilla-like tip, while the galeae were easily separable. In *Eronia cleodora* Hbn., the proboscis was long and stout, smooth for the most part, but with some short papillae towards the bluntly pointed tip.

Papilionidae

In the two species examined, namely *Papilio nireus lyaeus* Dbl., and *P. demodocus* Esp., the proboscis was long and smooth, with a bluntly pointed tip.

Hesperidae

In the four species examined, viz. *Spialia spio* L., *Zophopetes dysmephila* Trim., *Gegenes hottentota* Latr., and *Carcharoeus* (*Pyrgus*) *elma* Trim., the proboscis was long, stout and smooth, with a sharp tip.

Amatidae

In this family the proboscis varies greatly. Thus in *Amata polydamon* Cram., it is long and slender, with a few short papillae on and near the tip, while in *Thyretes hippotes* Cram., it is short, while the galeae are separate, broad at the tips, resembling blades, and not pointed. In *Metarctia meteus* Stoll., it is very small, being little more than a papilla.

Arctiidae

There is considerable variation in the *Arctiidae*, as will be seen below. In some species the galeae are separate in mounted specimens.

Ilema bipunctata Hbn. Long and slender, with papillae towards and at sharp tip.

I. similipuncta Hmpsn. The same as in *I. bipunctata*.

Maenas vocula Stoll. Short and ribbon-like, with a few papillae on the finely pointed tip; galeae separate.

Diacrisia eugraphica Wlk. Short, with a few papillae towards and at the fine tip.

Dionychopus similis Mschl. Moderate length, with a few short papillae near the sharp tip.

Teracotona submacula Wlk. Short, with a few short papillae near and at the finely pointed tip.

Rhodogastria vitrea Plotz. Moderate length and stout, with sub-

stantial and somewhat long papillae towards the sharp tip, but becoming shorter near the latter. Longer and finer papillae situated proximally.

NOCTUIDAE

It is in this family that the greatest variation in the proboscis is found. It may be long, smooth and pointed as in the *Phytometrinae*, or stout, denticulated and generally adapted for fruit-piercing as in the *Catocalinae*, while there are many gradations between. Again, in the *Hadeninae*, it is short and ribbon-like, resembling that of some of the *Arctiidae*, while in the *Acronyctinae* and *Noctuinae* a similar type may also occur. In the *Noctuinae* alone, almost all variations are found, from the soft and ribbon-like type to the fruit-piercing form.

Agrotinae

Heliothis scuteligera Guen. Long, with dense papillae above and extending to stout and sharp tip.

H. armigera Hbn. Long, with substantial and dense papillae towards and at sharp tip, becoming shorter at latter.

Euxoa longidentifera Hmpsn. Long and stout, with sharp and saw-like setae towards and at the fine tip.

E. segetis Schiff. Long and stout, with long saw-like setae towards and at the fine tip, becoming further apart and stouter proximally.

E. spinifera Hbn. Long and stout, densely covered with comb-like setae towards the sharp tip.

Lycophotia muscosa Geyer. Long and stout, with long, substantial and sharp setae towards slender and sharp tip, but not densely situated. (This species has been seen feeding on ripe plums.)

L. oliveata Hmpsn. The same as in *L. muscosa*.

Hadeninae

Brithys pancratii Cyr. Short, thick and ribbon-like, with a soft appearance and yellow in colour. Short papillae towards and at the blunt tip.

Diaphone eumela Stoll. Short and easily separable; yellow; short and thick papillae towards and near the sharp tip.

Cuculliinae

Cucullia terrensis Feld. Long, stout and smooth, with short and hair-like setae at the sharp tip, but to be seen only under strong magnification.

C. nigrilinea Janse. Long and smooth, with sharp tip.

Acronyctinae

Iambia inferalis Wlk. Long and slender, with short and dense setae situated above the fine tip, and stout and long setae nearer the latter.

Matopa typica Dist. Moderate length and stout, with short and stout dentate papillae towards and near the sharp tip.

Prodenia litura F. Long and stout, with dense dentate papillae towards and at the sharp tip.

Spodoptera abysinnia Guen. Moderate length, with stout papillae towards and at the sharp tip.

Laphygma exempta Wlk. Long and stout; strongly and densely toothed towards and at the sharp tip, the setae becoming less dense distally and proximally.

L. exigua Hbn. Long and stout; strongly and sharply dentated towards and at the sharp tip.

Proxenus pigra Guen. Long and stout, with dense dentate papillae towards and at the sharp tip.

Calamistis fusca Hmpsn. Moderate length, ribbon-like, easily separable and with a generally soft appearance. Some papillae at and above the sharp tip.

(*To be continued.*)

The Life History of *Nymphula stagnata* Donovan

By The Rev. Desmond P. Murray.

This small moth, known to the old writers as the beautiful china mark, is common on the banks of rivers, canals and pools throughout England and Ireland during the summer months.

The genus *Nymphula* of the subfamily Pyraustinae is of special interest as the three species occurring with us all have aquatic larvae, a very unusual habit with Lepidoptera. The larvae feed on water-plants that are not generally wholly submerged, so are really semi-aquatic. Although with *stagnata* the tracheae are present in its early stages, it must have some special process of respiration or perhaps takes air from the cells of the plant. Larvae of other species are furnished with special tracheal gilis, shown as white tapering filaments along the side of the body.

The early stages of *stagnata* have not so far been figured.

1. *The Eggs*, ½ mm., are laid on the underside of the leaf, in a string of twenty or more. They are round, greenish-yellow in colour, with a dark ring round the middle, and hatch in about two weeks.

2. *The Larva.* First instar: it measures 1 mm., on emergence; yellowish-green in colour. At first the larvae are miners in the leaf, but later they attack the stem and devour the pith, near the surface of the water. From September onwards the larva hibernates until the spring, when it recommences feeding, joining together pieces of leaf into a small case, from which it does not depart, becoming full-fed at the end of June or the beginning of July.

3. *The Full-grown larva.* Measures 10 mm.; yellowish-white in colour, head brown. It pupates in a white silken cocoon between two cut leaves attached to the foodplant. The floating case is generally only partly submerged, but in some instances it is wholly submerged, according to the plant used.

4. *The Pupa* is brown, measuring 8 to 9 mm., without apparently any special process for respiration. The cases vary in shape.

5. *The Imago*, 21 to 23 mm., is pearly-white with brown markings which vary to some extent in different examples. The sexes do not show any difference. The moth emerges within two to three weeks of pupation.

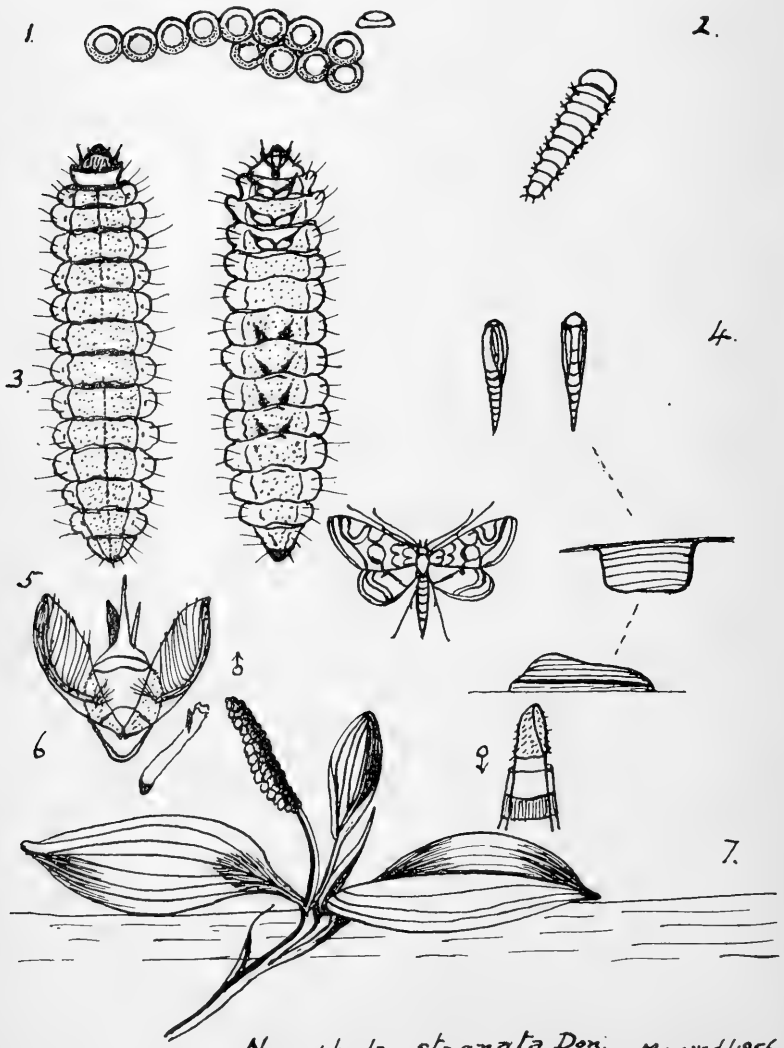
6. *The Genitalia*, ♂ and ♀. The female has an extensible hairy pad, by which the eggs are attached to the leaf-surface with an adherent substance. The males seem to predominate considerably in numbers over the females.

7. *Foodplants.* Various species of pondweed are generally used,

but *Sparganium*, Bur-reed, and *Eleocharis*, Club-rush, and other water-plants are also used.

EXPLANATION OF PLATE

1. Egg.
2. Larva, first instar × 25.
3. Larva, final instar × 7. Upper and underside.
4. Pupa × 2 and pupa-cases, natural size.
5. Imago, slightly enlarged.
6. Genitalia, ♂ and ♀.
7. Foodplant, *Potamogeton natans* L., pondweed.



Inverness-shire in 1956

By Commander G. W. Harper, R.N. (Retd.), F.R.E.S.

The extreme climatic peaks of 1955—coldest winter, late cold spring, and hot late summer—were followed by a very average 1956 in Inverness-shire. The winter was the first since I came to live here in 1951 in which no sub-zero Fahrenheit temperatures were recorded, and the amount of snow was less than usual, though cold periods in December, January and February were long drawn out.

Between 7th and 9th February a short mild spell produced the first *Phigalia pedaria* Fab. flying to the village street lamps, after which the cold weather closed in again until early March. The first immigrant plover appeared on the 4th, so that I started up my m.v. trap on 5th March.

Between 5th and 10th March large numbers of *P. pedaria* came to the trap, including two melanic examples, one extreme, which are first records for North Scotland (*Ent. Rec.*, **68**, 136) and the first hibernators, *Conistra vaccinii* L., synchronizing with the beginning of the dawn chorus of blackbirds. Nor until 24th did the first *Orthosia incerta* Hufn. appear, by which time frogs were spawning in my marsh.

By the end of the month of March the usual early spring moths were coming out well, including *Erannis marginaria* Fab., which was unusually common this year amongst the bog myrtle on the moors, whilst ♂♂ *Poecilopsis lapponaria* Bdv. were emerging on 31st in the same localities. On the same day *Aglais urticae* L. were flying in the gardens in some numbers, indicating a recovery from the severe mortality in early 1955.

On 1st April, Easter Day, at 3.30 p.m., I found the first *Brachionycha nubeculosa* Esp. just emerged from the pupa; half an hour later it was fully expanded on the large birch tree, with wings reversed. By a coincidence, this was the same date as last year for this species. *Lycia hirtaria* Cl. appeared the same day, and *O. incerta* continued to emerge in larger numbers than usual and in great variety.

April as a whole was typically showery, snow, sleet and rain, with warm sunny intervals, ending with the usual "lambing" snowstorm. It was, however, very remarkable for the superb display of catkins on the sallows, alders, birches and aspens, resulting from the hot, fine summer of the previous year. The usual spring moths appeared about normal dates, with the exception of *Endromis versicolora* L., which I did not see at all this year. The first *Odontosia carmelita* Esp. came to my trap on the 30th.

The hibernated spring larvae were in good numbers, *Polia hepatica* Cl. (*tincta* Hb.) and *Lasiocampa quercus* L. var. *callunae* being especially common. In this connection I think it is worth recording that at Arisaig on the West Coast of this county, but in the same latitude, my son and I found on 7th April two very large *quercus* larvae among many *callunae*; these two larvae duly pupated and produced moths in August, clearly *quercus*, the first we have ever found in Northern Scotland.

May began with good emergences of the usual common species,

Anarta cordigera Thun. on 2nd, *Lampropteryx suffumata* Schiff. on 3rd, and *Hadena bombycina* Hufn. (*glauca* Hb.) on 5th. The middle of the month until the middle of June I spent in Southern England, from Gloucestershire to Kent, and found that here many species were a week or two later than I had expected, and I suspect this was a reflection of the colder winter experienced there than in the far North! Numbers of both butterflies and moths also were small until well into June, but some very enjoyable collecting was done in spite of rather changeable weather conditions.

En route for home, I spent 15th June on the Formby sandhills, my first visit to this delightful collecting ground. Mr. Michael Fraser kindly showed me the local geography, but I found my quarry, the larvae of *Lasiocampa trifolii* Schf. and *Actebia praecox* L., were not very plentiful; furthermore all the former were small and every one parasitized, as also were most of the latter; but *Leucoma salicis* L. were abundant on the balsam poplars, and a fine series was bred.

On 16th June I stopped for half an hour at a small piece of boggy heathland near Airdrie in Lanarkshire, and here I found a thriving colony of *Chiasmia clathrata* L. flying; this is the furthest north that I have ever taken this species. Home the same day, and the rest of the month was cloudy and cool, the numbers of early summer species being rather below average and a little late. I had the pleasure of recording one new species for my Badenoch list, a ♂ *Phalera bucephala* L. in my m.v. trap on 20th June. On 28th I found *Aricia agestis* Schf. ssp. *artaxerxes* Fab. emerging only a few days later than usual, and this delightful butterfly had a very good year, being more numerous than I have previously known it; a fine ab. *obsoleta*, a very rare form of this species, was taken. The only other June species to be commoner than usual was *Biston betularia* L., all typical, no melanic forms having appeared yet in this rural area.

July was a very curious month. Very little sunshine, with low temperatures by day and around nightfall, yet quite large m.v. trap catches occurred, due to a pronounced rise in temperature after midnight and before dawn. This was so pronounced on 27th that I recorded the highest catch in five years, 606 moths and 52 species. Two days later the worst summer gale that I remember occurred, and it was reported to have been even worse on the South Coast of England. Throughout the whole month the species/individuals ratio of my trap catches remained high for the time of year, clearly showing the prolonged emergence periods of many species, owing to the cold weather. Notable laggards from the May-June period were *Colocasia coryli* L., *Hadena thalassina* Hufn. and *Ceramica pisi* L., all present in good condition on 24th July at the same time as *Amathes depuncta* L. and other August moths were appearing.

In August the atrociously cold, wet and windy weather continued, so that it was surprising in the rare gleams of sunshine to find *Erebia aethiops* Esp. unusually abundant and that *A. urticae* had recovered to fair numbers. Equally surprising, the m.v. trap catches continued to be greatly above the average, though largely accounted for by immense numbers of *Apamea monoglypha* Hufn. and *Triphaena pronuba* L., equally apparent at sugar, but little else! A few immigrant *Eurois occulta* L. of the pale grey form occurred in the trap early in the

month, but only one *Vanessa atalanta* L., and no other immigrants at all.

September was as stormy, wet and unpropitious as the summer months. Common species continued to be well in evidence, however, and two scarce local species occurred, *Actebia praecox* L. and *Zenobia subtusa* Schf. The great invasion of the country by *Acherontia atropos* L. passed us by in Badenoch, but many reports came from Scotland, including Mr. J. L. Campbell's two moths in Canna (*Ent. Rec.*, **68**, 268). Mr. Campbell and his friend Mr. F. Collinson had succeeded in recording the sound of the moth's stridulation, and they most kindly lent me the record, so that I was able to broadcast this via the B.B.C. in November. Larvae of *Macrothylacia rubi* L., *Phragmatobia fuliginosa* L. and *Apatele menyanthidis* View. were all exceedingly abundant in September and October, so much so that in many areas of moorland one could only with difficulty avoid treading on them.

Early in October the season virtually ended with snow on the 4th; however, the usual late autumn moths appeared in their customary numbers during the month, ending with the last *Poecilocampa populi* L. and the first *Operophtera fagata* Scharf. during the last week. So ended a rather disappointing year of sustained bad weather.

Neadaich, Newtonmore, Inverness-shire. 11.xii.56.

Notes on the 1956 Season in Cambridgeshire

By Brian O. C. Gardiner.

Owing to the fact that it has not been possible to operate a light-trap regularly this year, a comparison with the last two years cannot be made. Indications are, however, that in spite of the bad summer this year, Lepidoptera have been plentiful on the few occasions when the weather has been really suitable. This would indicate that even in a 'bad' year the insects are about but are very difficult to come by.

A number of field expeditions were carried out during the year in company with Mr. C. F. Rivers to various localities and a number of interesting and rare species were encountered, some in considerable numbers, and also three new county records for Cambridgeshire have been turned up.

Rhopalocera. Very few seen at any time; *Pieris brassicae* L. not seen at all and *P. rapae* L. much scarcer than usual. The autumn Vanessids were very few and also late. A freshly-emerged *Aglais urticae* L. was found on 17th November. Others had already taken up hiberation quarters in August.

Acherontia atropos L. Although reports to hand indicate that there was a considerable migration into the country this year none has been seen or reported to me, although five were recorded last year (1955) in Cambridgeshire.

Stauropus fagi L. This moth appears to be more widely distributed than is given in the Victoria County History of Cambridgeshire and has now been taken in the city, as well as in its usual haunts.

Notodonta dromedarius L. Taken in the city not uncommonly, and also elsewhere. Appears to be more widely distributed and commoner than the Victoria County History indicates.

Philudoria potatoria L. Not uncommon this year after two bad

years. For the first time a pale yellow fenland ♂ form was taken.

Earias clorana L. Taken at Chippenham and also one specimen within the Cambridge city boundary where it has not previously been recorded.

Hylophila prasinana L. Common in Cambridge this year, previously encountered only as odd specimens in some years.

Acronycta leporina L. One larva found in the city, so there is no doubt that this species is established in Cambridge. Previous records are old and scattered, chiefly from the Fens.

Nonagria dissoluta Treit. Several taken at Chippenham Fen, where it has not previously been recorded though occurring in many other parts of the county.

Arenostola fluxa Hbn. This moth is very common in various localities in Cambridgeshire, including Whittlesford, where it has not been previously recorded. It also occurs in Monks Wood, Hunts.

Jaspidia fasciana L. Very common at Chippenham. The Victoria County History gives scarce and *South* does not mention Cambridgeshire.

Eustrotia olivana Schf. (=*argentula* Hbn.). We are pleased to be able to say that this pretty little species was very common this year at Chippenham.

Eustrotia uncula Clerck. In contrast to the above, no specimen of this species, which we have always before found in company with *olivana*, was seen.

Rivula sericealis Scop. Very common at Whittlesford, a locality not given in the Victoria County History.

Abrostola triplasia L. Several turned up this year for the first time.

Catocala fraxini L. One larva taken off poplar. There is no doubt that this represents the offspring of an accidental introduction. In 1955 a friend of mine, near where the larva was taken, had about 6 pairs of *fraxini* in a cage and just starting to lay eggs. This cage was knocked over by a cat and the moths escaped. There is a fair scattering of poplar trees in and around Cambridge and it does seem possible that the moth may establish itself.

Herminia barbalis Clerck. A specimen was seen at Whittlesford, the only recorded locality for the county. There are no recent records, the last being prior to 1878.

Lampropteryx suffumata Schf. One worn specimen of the form ab. *piceata* was taken at Chippenham Fen, a new locality in the county for this species.

Xanthorhoe quadrifasciata Clerck. One specimen of this very local species was taken this year in the city, the first I have come across.

Abraxas sylvata Scop. This species is a new record for Cambridgeshire. Adults were taken at light in Chippenham Fen. Subsequent beating produced three larvae off elm, of which only four trees could be located. It is probable that more elm does exist as it was not possible to explore the whole area. This moth is not uncommon Northwards in Suffolk.

Deuteronomos fuscantaria Haw. This species is not uncommon at Chippenham Fen, where it has not been previously recorded. I have also taken it at this locality in previous years.

Deuteronomos erosaria Schf. This species is a new county record.

One was taken at Cambridge; I also have two specimens taken here in 1953 which had not been identified with certainty at the time and were consequently not recorded previously.

Erannis leucophaearia Schf. The Victoria County History gives only one recorder and locality, Cambridge, for this species. I have found it occasionally both at Cambridge and also Balsham wood, and previously at Girton. It is probably widespread but uncommon throughout the county.

Cleora repandata L. Several at Cambridge, previous records consisting of one larva only and an old record from Wicken. I have also taken it here in previous years. It is probably a Cambridge resident which has previously been overlooked owing to its resemblance to more common species.

Boarmia punctinalis Scop. One specimen taken on Chippenham Fen. Another new county record and rather a surprising one in view of the distribution of this species.

Chiasma clathrata L. One ab. *nocturnata* was taken on Chippenham Fen. Previously I took one there in 1949 and I have heard of others from there, so this form is of regular occurrence on the Fen.

Phragmatoecia castaneae Hbn. This typical fenland species can only be described as abundant this year in its fenland haunt. As regards this species it is interesting to record that a Tilley lamp attracted as many specimens as a m.v.; but in any case more specimens than a collector could possibly require could easily be taken with torch and net. All specimens seen, including those sitting on reed heads and caught flying, were, however, males.

Schoenobius gigantellus Schf. One was taken at Chippenham Fen. Not previously recorded from here and known only from one other locality in the county.

Phlyctaenia cilialis Hbn. Not uncommon at Chippenham Fen and one was also seen at Whittlesford. Both these observations confirm old records and show this species is still in its old haunts. I have also discovered it previously at Quy Fen, which is a new locality in the county.

Light at Studland

By B. R. Baker.

The note by Mr. Redgrave (*Ent. Rec.*, **68**: 10) was read with considerable interest, for not only did it refer to a particular section of Dorset coast dear to the heart of many an entomologist, but it also cleared up some identities about which I've often wondered.

I too visited the area for a fortnight, arriving on 2nd September, and as we were stopping near Swanage it was decided to leave the generator over at Studland and avoid transporting the gear after every operation. Accordingly we contacted the car park attendant and told him of the plan to stow the generator somewhere near the dunes for the next two weeks, wondering whether he would raise any objections, such as that we would be infringing local byelaws. However, his only comment was that all should be well hidden from the gaze of visitors who would descend in swarms upon this favoured stretch of Dorset coast during daylight hours.

Having received the 'go-ahead', a home was made for the m.v. equipment beneath a silver birch, well surrounded by blackberry bushes. A stout plank from the beach made an ideal bed-plate for the generator whilst bits of tin and a half section of an oil drum gave cover from rain and protected the bracken from stray sparks during operations. A groundsheet strapped around the gear and bedecked with fern fronds completed the camouflage. It was found practicable to run the generator in position below the silver birch—thereby making operations much easier and all that was needed was a long cable to take the lamp near the dunes.

On several occasions visitors were to be seen perilously near the hideout, but they were after the blackberries, and blackberries only did they find!

After these preliminaries it was very frustrating to experience weather conditions which made light operations impossible until the end of our first week's stay—the wind remained in the east, and the caravan site at Swanage became a mudpond.

However, the first tryout on 7th September was worth waiting for, and moths abounded at m.v. *Agrotis vestigialis* Hufn. appeared in numbers, the majority of them in good condition. They didn't approach the lamp as noticed by Messrs. Redgrave, Goater and Symes, but flew up directly to the sheets, circled these and then settled. During this particular night's operation a party of visitors from the large hotel behind the car park descended on me, and it was then that I learnt of other entomologists (now identified) who had been shining a blue lamp in this locality just previous to my visit.

An indication of the very late season was given by the capture of single specimens of *Leucania litoralis* Curt. and *Lasiocampa trifolii* Schiff. Other captures of interest on this night were *Euxoa tritici* Linn. (a very black form), *Actebia praecox* Linn., and *Amathes glareosa* Esp. The *praecox* were certainly going over as might be expected—of the 3 specimens attracted only one was in good condition—but the *glareosa* were just out and very fine.

The next night conditions in Swanage seemed good, but over at Studland the heather was swaying violently in the easterlies and I never attempted to uncover the generator. Even searching the heather by the light of a pressure lamp revealed not a single moth. The following night, however, was very good, and the light was in operation by 9 p.m. Very soon after lighting up *vestigialis*, *glareosa* and *praecox* were again attracted to the sheets, and soon there was a throng of insects circling the bulb. Towards the edge of this cloud a micro, dazzling white in the m.v. rays and of slower flight than its companion insects, showed up plainly. This was the only *Margaronia unionalis* Hubn. seen during our stay, and it proved to be in fine condition.

Activity slackened off just before midnight—sea mist was drifting in blotting out the nearby dunes, and it was decided to switch off the petrol. However, with the engine still operating on what small amount of petrol remained in the carburettor, a large number of *Plusia gamma* Linn. came to the light, and hoping for a single *ni* amongst this swarm I hurriedly switched on the petrol tap and refilled the tank.

P. gamma was everywhere—50 were counted on the choke box, and an estimated 500 covered the sheets; many others had settled on the surrounding heather. For all the Plusias that I examined there was no sign of *ni*, but the sight of an *Acherontia atropos* Linn. steadily circling the lamp was equally rewarding. Shortly afterwards, what at first appeared to be a mouse with large eyes was seen steadily walking across a sandy patch towards the sheets. The "mouse" turned out to be *Herse convolvuli* Linn.

To end this memorable night, a small bird of the proportions of a whitethroat, and presumably on return migration, swooped down to the tripod and remained hanging on the lamp flex for several minutes before flying on into the night.

For the remainder of our stay in Dorset the weather was not kind to those engaged upon nightly mothing operations, and it was found easier to take *Amathes agathina* Dup. by searching heather with a pressure lamp than to wait for the moths to be attracted to m.v.

Daylight work in the area produced larvae of *Agrotis ripae* Hübn. and *Cosmybia orbicularia* Hübn.; the latter, however, were very scarce.

Apart from Lepidoptera, Trichoptera were next in numbers—particularly *Limnephilus marmoratus* Curt., *Limnephilus affinis* Curt., and *Limnephilus lunatus* Curt.

Coleoptera were represented by *Necrodes littoralis* L., of which several examples were taken both on the 7th and 9th of September.

Only two good nights out of fourteen! Working light on the coast in September would appear to be a matter very much in the lap of the gods.

Coleoptera in North-West Scotland

By C. A. Collingwood.

Further series of beetles have been taken in North-west Scotland during September 1955 and June 1956 and the following records are supplementary to those listed earlier (Collingwood, 1954, *Ent. Rec.*, **66**: 5: 155-156).

Carabidae:—*Cychrus rostratus* L., *Badister bipustulatus* F. and *Clivina fossor* L. occurred at Strome, W. Ross. The latter was also found at Rieff, W. Ross, in peat, possibly an unusual habitat for this common pasture inhabiting species.

Cantharidae:—These were numerous on Birch and Sallow and included *Cantharis obscura* L., *C. nigricans* Muell. and *C. pallida* Goez. at Coigach, W. Ross. *Malthodes marginatus* Latr. was swept both at Coigach, W. Ross, and at Inchbae, E. Ross. *Cyphon padi* L., *Rhagonycha limbata* Thoms. occurred at Inverpolly, W. Ross, and *R. lignosa* Muel. at Inchbae, E. Ross. *Helodes marginata* F. was found on Ash at Melvich, W. Sutherland.

Elateridae:—*Hypnoidus dermestoides* Herbst. was abundant under stones along the rivers Oykell, E. Sutherland, Garve, E. Ross, and Kishorn, W. Ross. *H. riparius* F., previously recorded for W. Ross at Rieff was also found near Torridon in the same vice-county. *Athous haemorrhoidalis* F., *Dalopius marginatus* L. and *Corymbites incanus* Gyll. were all abundant on Birch and Sallow at Assynt, W. Sutherland, Coigach, W. Ross, and Inchbae, E. Ross. *C. sjaelandicus*

Muell. was also swept at the same localities and the less common *C. impressus* F. was taken at Coigach, W. Ross. *C. cupreus* F. occurred in variety—a metallic green female was taken at Coigach, males of the var. *aeruginosus* were flying on to herbage above 1500′ on Applecross hill and the more usual yellowish banded form occurred at Melvich, W. Sutherland. *Athous vittatus* F. and *Agriotes pallidulus* Ill. were common at Plockton, a single specimen of *Sericus brunneus* L. was taken at Coigach and *Agriotes obscurus* L. was found under stones at Strome, all in W. Ross. In this vice-county alone the writer has taken no less than 15 species of Elateridae.

RHIZOPHAGIDAE:—*Rhizophagus dispar* Payk. and *R. depressus* F. occurred on conifer stumps at Plockton, W. Ross.

COCCINELLIDAE:—These were scarce in the area but specimens of *Coccinella undecempunctata* L. were taken at Strome, W. Ross.

MORDELLIDAE:—*Anaspis rufilabris* Gyll. was numerous on Sallow at Coigach, W. Ross, and Assynt, W. Sutherland.

SCARABAEDAE:—*Geotrupes stercorarius* L. was found at Elphin, W. Sutherland; several larvae of *Potosia cuprea* F. were found in a nest of the wood-ant *Formica aquilonia* Yarrow in Amat woods, E. Ross, probably the northernmost record for this beetle in Britain

CERAMBYCIDAE:—Larvae in completely rotten Birch at Coigach, W. Ross, were found on emergence during the autumn of 1955 to be *Rhagium bifasciatum* F. This species is more commonly associated with Pine, which does not occur in the locality.

CHRYSOMELIDAE:—These were mostly beaten from Birch and Sallow and included *Cryptocephalus parvulus* Muell. at Plockton and the common *C. labiatus* L. at Torridon, W. Ross, *Luperus longicornis* F. at Assynt, W. Sutherland, Inverpolly, W. Ross, and Inchbae, E. Ross. and the less common *L. flavipes* L. at Strome, W. Ross. *Phyllodecta laticollis* Suffr. occurred on Aspen at Coigach and *Phaedon tumidulus* Ger. on *Heracleum* at Strome, W. Ross, and also at Beauly, E. Ross. *Galeruca tanaceti* L. was taken in herbage at Einig, E. Ross. *Lochmea suturalis* Thoms. was abundant everywhere and *L. capreae* L. was taken at Coigach, W. Ross. The flea-beetle *Aphthona coerulea* Geoff. was actively feeding on *Iris pseudacorus* at Strome and *Haltica britteni* Sharp was taken at Rieff, W. Ross.

CURCULIONIDAE:—*Deporaeus betulae* L., *Strophosomus melanogrammus* For., *Otiorrhynchus singularis* L., *Phyllobius argentatus* L. and *P. maculicornis* Germ. were all abundant on Birch at Plockton and Coigach, W. Ross, Inchbae, E. Ross, and Assynt, W. Sutherland. *Phyllobius pyri* L. was beaten from Hazel at Inverpolly, W. Ross, and one specimen only of the common *P. pomaceus* Gyll. was found on *Urtica dioecia* at Braemore, W. Ross, evidently much less common in this area than further south, where it is usually present in abundance in every clump of Stinging Nettle. *Polydrusus tereticollis* Deg. and *P. pterygomalis* Bohe. were swept at Coigach, W. Ross, and Inchbae, E. Ross, respectively. *Otiorrhynchus arcticus* occurred at Oykell, E. Sutherland, and Einig, E. Ross, and evidently occurs in abundance throughout N. Scotland. *O. atro-apterus* Deg., already recorded for W. Ross by Kevan, 1949 (*Ent. Mon. Mag.*, **85**: 263) was found at Strome, where *O. rugostriatus* was also taken.

Sitona striatellus Gyll. was taken among herbage at Oykell, E.

Sutherland, and Einig, E. Ross. Other weevils beaten from Birch in W. Ross included *Anoplus plantaris* Naez., *Ceuthorrhynchus punctiger* Gyll. and *Micrelus ericae* Gyll. *Cidnorhinus quadrimaculatus* L. was swept from Nettle at Braemore, W. Ross, and the large Pine weevil *Hylobius abietis* L. was present in a Pine plantation at Torridon, W. Ross. *Rhynchaenus quercus* L. was beaten from Oak at Coigach, W. Ross, and *R. foliorum* Muel. from Sallow at Einig, E. Ross.

Shardlow Hall, Shardlow, Derby. August 1956.

Clorinda Querci

By Orazio Querci.

On 15th May 1892 I was driving away the butterflies in a meadow at a place called Monte Sacro, near Rome. The words "driving away" are right, as I have a gift for putting my net over the spot where the insect was but is not. It departs in peace, and I look into an empty net, and get ready for further failures. Happily, my family more than make up for what I miss.

A pretty girl, accompanied by a woman, was watching me. The girl came up to me, gracefully took the net out of my hand, and showed me how butterflies ought to be caught, though before that day she had never done any collecting. After a little she went away. I was studying very hard at that time and tried to put the pretty girl out of my head, and how lithe and graceful she had looked with the net . . . .

One day, when I was working in the laboratory of the University at Rome, a flask, which another student had left over a Bunsen burner, broke. I was poisoned by cyanogen gas, and was ill for some time. This obliged me to give up my hopes of becoming a doctor of chemistry. Later I became a State official in a laboratory for testing precious metals.

In 1895 the girl who had taught me how to catch butterflies came to live with her family in a house opposite my home in Rome. One winter's day, when I was looking out of my window, she scored a direct hit with a snowball from her balcony. I thought that if she could aim as well with a snowball as she could with a butterfly-net she was worth netting, so in due course Signorina Clorinda Di Nino became Signore Querci. Later our only child, our daughter Erilda, was born.

Being continually employed and having little time and less money to devote to field work it was not until 1908 I was able to send my first rather poor captures to Dr. Otto Staudinger at Dresden. The following year we moved to Formia, not far from Rome. By that time our daughter was old enough to accompany her mother whenever she went into the country to collect, and they caught some very good insects. I sent these to Charles Oberthür at Rennes, and for a few years he generously supported our collecting activities. In order to collect on the high massif of the Arunci mountains above Formia my wife and daughter lived in a hut; but they made little of the discomfort as the insect fauna was most interesting.

In 1910 Clorinda and Erilda went to collect in a valley on Mount Meta in the Appenines. There they came upon a fine and very variable race of *Zygaena transalpina* which looked so different from the other known forms of this species that Lord Rothschild and Mr. Bethune-

Baker at first thought it might be specifically different. In 1911 Charles Oberthür, who was anxious to make my wife's acquaintance, as I had often told him about her remarkable powers of observation in the field, invited us to meet him at an Exhiibtion of Lepidoptera which was to be held in Geneva. During the two following years Clorinda and Erilda collected on the Sibyllini Mountains in the Marches and took a large number of insects. In 1914 we went to live in Florence. There I got to know Dr. Ruggero Verity and learned much from him.

Every day my wife and daughter went collecting at Pian di Mugnone, near Florence. They were surprised to find *Lycaena coridon* there at a low elevation and in the spring. Their surprise increased when they came across the same species on Mount Fanna, above Florence, in the summer, but flying with a similar *Lycaena* that looked more like the true *coridon*, of which they had already taken many specimens both on Mt. Meta and the Sibyllini Mountains. Verity inferred that the double-brooded *Lycaena* must be a different species, namely *hispana*, which he had figured from a Spanish specimen. Recently this has been confirmed by a study of the chromosomes.

In spite of the dangers of the war, and the unsettled state of the country after the war, the two women continued their collecting in several places in Peninsular Italy, from Tuscany to Sicily. Every day they sent me their catches by post, and after my office work was done I sat down to set the specimens they had sent. On one occasion they sent me so many that I did not get to bed for four days, spending the whole night setting their captures. Sometimes I did not have enough money to buy food, as I sent almost the whole of my earnings to my family. At last I was forced to give in and become a pensioner of the State.

In 1920 Erilda married Dr. Enzo Romei, and they had a daughter whom we named Lycaena. In 1924 I recovered my health. The museum of Barcelona then asked me to explore the entomological fauna of Spain. The agreement was ready for signature when the Dictator, General Primo de Rivera, annulled all contracts entered into by the Catalan people. This, however, did not deter Clorinda, and she decided we must go. She and Erilda pawned the few jewels that had been bequeathed to them by my mother, and she and I set off for Spain. Unhappily, I had no idea that the cost of living was so high in that country and when at last we arrived in Aragon it was plain that we had not enough money to proceed. The only thing to do was to return home at once. Clorinda wouldn't hear of this. "Let's go ahead and trust to luck", she said. So we went ahead. At Albarracin I wrote to all the entomologists I knew, asking them to make me advances on material to be sent. The replies (chiefly from England) were splendid and encouraged us greatly. I wrote to my son-in-law Dr. Romei and told him to come at once and to bring his wife and baby with him. Together we collected a vast number of insects. On the road from Noguera to Orihuela del Tremedal there were so many butterflies and burnets that, selecting only the most perfect specimens, often taking them with our fingers, we caught at least a thousand every day.

At the end of August Dr. Romei thought it was time that he returned to Italy, to earn some money by lecturing. A friendly engineer who was going north offered to take him and his family by car, an offer which was gladly accepted. My wife, however, decided to stay with me and

continue our collecting. One night she found a new species of *Coscinia* which, later, Sagarra named *romeii*, dedicating it to our granddaughter. A few days later we received a letter from Erilda to say that having spent so much on dinners and theatres with their friendly engineer they were stranded and unable to get home. So off Clorinda and I went to Barcelona, where we handed the marooned couple, with baby, all the cash we had except 90 pesetas. Happily, when our good friends at the museum in Barcelona saw all our material, now set and classified, they paid a visit to Senor Bofil, a rich Catalan, who promptly gave me a considerable sum of money on condition that I helped Sagarra to describe the new species and aberrations we had taken. This I did, and our collections proved to be so interesting that I was able to repay my debt to all those who had helped us.

The following year, 1925, the museum at Barcelona very generously opened a subscription in that city to enable Clorinda and me to return to Spain and continue our collecting. Quite a large sum was given by the kind and hospitable Catalan people, and Lord Rothschild sent us a most useful sum. He was anxious that we should go to Andalusia in search of a splendid *Parnassius apollo*, known to occur high up in the Sierra Nevada mountains, in which the usual red spots are replaced by yellow ones. It is one of the rarest of European butterflies. So we summoned Dr. Romei to our aid again and off we went.

Above the village of Aldeire in the Sierra Nevada there is a hamlet known as the Fuente del Castano, and here at last Dr. Romei found a small room in which he could live while exploring the mountainsides and peaks above; for we had discovered that it was in this neighbourhood that the yellow-spotted *apollos* had been seen. Meanwhile Clorinda, Erilda, the baby and myself stayed at the hotel at Sante Fé de Montseny, an alpine resort near Barcelona. Every day we (except the baby) went collecting, and every day we took more and more interesting species.

After a week or two I moved north to the foothills of the Pyrenees. One day, having done some exceptionally good collecting, I thought I would give myself a treat, so instead of dining in a cookshop (as I always do when by myself) I went to dinner at a first class hotel in Ribas. Sitting at the next table to mine were a Frenchman and two Germans, and, of all things in the world, they were talking about the yellow-spotted *apollo*! The Frenchman, who had his back to me, was writing, and as I involuntarily turned in my chair I caught a glimpse of his handwriting. It was another shock, for I recognised it as that of René Oberthür, brother of the more famous Charles. Unfortunately, René did not like me as I had sent all my best material to his brother and only the more common species to him. Later, however, when he heard of Romei's remarkable success with the apollos in Andalusia and I was able to give him some, he became a very good friend to me and helped me generously for many years.

When Dr. Romei returned from the Sierra Nevada with his magnificent collection of the much-desired apollos I wrote to Oberthür, who was staying at his villa in the French Pyrenees. He came at once and bought a large number of specimens, then went on to visit Clorinda and Erilda, to see what rarities they had found. After lunching together they went out collecting and Clorinda astonished him by her

acuteness in spotting species and aberrations which escaped his notice. Presently there was a cry from Clorinda, who was a little distance away, and they saw her coming towards them chasing a fast-flying white butterfly. It was a white *Vanessa cardui*! Unfortunately, all three of them got in each other's way and tumbled to the ground, and in the confusion the precious butterfly escaped . . . Luckily Oberthür was not hurt, which was fortunate as he was a very old man.

After this Romei went back to Italy with his wife and daughter. Clorinda and I took a small house near Barcelona and continued our collecting. But, unhappily, it rained and rained and rained. On 1st October 1925 we decided to go to the theatre in Barcelona, and paying a visit to the Museum on our way we met a man who had been collecting plants on some flat ground at a place called Llobregat. While talking to him my wife noticed a small *Zygaena* on one of his shoulders and drew my attention to it. It was entirely unknown to me. Clorinda was dressed for the theatre and wearing thin-soled shoes with high heels; but the theatre was out of the question now. "We must go at once to Llobregat", she said. So back we went, just as we were. Arrived at Llobregat there was not a moth to be seen and Clorinda soon found that it was impossible to progress in the wet sandy soil with high-heeled shoes. She took off her shoes and slung them round her neck. But the short thistles with which the ground was carpeted tore her feet and ankles. After a little while she came up to me in tears. Meanwhile I had taken nothing at all; but she was determined to go on. Some time later she came prancing towards me with something strange on her feet; she had met a man who was on his way to Barcelona with a bundle of those hemp sandals which the Catalans call *alpargatas*, and with these on her feet she was soon searching for the strange *Zygaena* more industriously than ever. It was not long before she found it. It proved to be 'new to science' and Bethune-Baker named it *clorinda* in compliment to its captor. For ten days Clorinda went to Llobregat and took a fine series.

We soon sold all the apollos which Romei had taken, sending specimens to England and Germany. The demand for them continued, so Clorinda suggested that she and I should go to the Sierra Nevada and get some more. Accordingly in May 1926 we went to Jerez del Marquesado in Andalusia. It was a clean little village, but the food was so bad that we were never in good health all the time we were there. Luckily we found that the apollo, which in 1925 had emerged in August and flew very fast, was out this year in May and, moreover, was quite easy to catch. Our health was so bad that after we had toiled up to the peaks above Fuente del Castano we were unable to stand. Here, again, fortune favoured us. Sitting on the ground, and occasionally doing a little scrambling, we were able to take the apollos with our fingers. They were much more widely spotted with yellow than those which Romei had taken the preceding year. Both these seasonal forms are now represented in the Tring Museum. We managed to stay on until the emergence was over, when we came down to the lower ground and finally made our way to Madrid.

At Madrid I found a letter awaiting me from Lord Rothschild asking us to go to Cuenca and get *Zygaena ignifera* for him. Only twelve specimens of this species were known, all of them taken by Korb many

years previously, and all of them were in Germany. Since then nobody had ever taken *ignifera*. We went at once to Cuenca. On a label in the hotel my wife read "Una". "Where is Una?" she asked the hotel porter. "It's a nice village", he replied, "not very far away". So instead of going to Huelamo, where Korb found his *ignifera*, we took a car and went to Una. It proved to be an entomological paradise. However, we found it impossible at first to obtain accommodation at any house in the place. After being turned away from house after house my wife at last crossed the road and went up to a cripple who had been watching us. "I'm tired out", she said, "and I want to sit down and rest. Can't you take us in? We won't eat you—you're too big". The fellow laughed and said "Very well; come in". This man later became a very dear friend of ours. His house was spotlessly clean and his family could not do enough for us. In a few days Clorinda had won over everybody in the place by her tact and kindness. The women of the village invited her to their houses; she taught them how to cook, how to make dresses, how to knit and how to embroider. We spent a happy time at Una and took some good insects but saw no trace of *ignifera*.

For two months we stayed there, collecting, both morning and afternoon, on the low ground below a hill opposite the village, across a small river, at a spot called Rincon del Juez. The hill was covered with dark green thorny bushes. Clorinda used to toil up the hill, and I soon noticed that she was rather overdoing it. One day, it was 2nd August 1926, she told me that she felt tired out and was going to stay in bed. I went off collecting as usual, and when I returned late in the afternoon I found the village in confusion. It appeared that not long after I had set out Clorinda had got up, taken her net, and had left the village. The men and women in the place had organised a search for her, but had been unable to find her. I thought she might be collecting on another hill not far away and to my great relief I soon saw her. She was netting something, apparently one specimen after another. I made my way to her as fast as I could and found that she was taking *ignifera*. She had found one of the very few places in the world where this magnificent insect survives.

In 1927 we went to Portugal. At the University at Lisbon I was received rather coldly. In the spring we collected at Alcacer do Sal where Clorinda took the little *Scolidantides amelia*, which Mr. Hemming, at my wife's wish, dedicated to the Portuguese naturalist Amelia Frade. In June we went to the town of Covilha, on the slopes of the Serra da Estrela, and here we had some very good collecting, taking many scarce and interesting species. The best insects we took here are now in the museum at Tring.

The news of our success in collecting had reached the University and when we arrived at the station at Lisbon we found Prof. Frade and his wife waiting for us. The British Museum had supplied me with locality labels so that we had with us some thousands of specimens already set, named and labelled. Prof. Frade asked us if he might see our collections, and when he had seen the insides of our boxes he went straight to the Museu Bocage and asked its Director, Prof. Jorge, to come at once to our hotel. On the following day I was told that I was going to be appointed entomologist of the museum, with a high

salary. Thus I was now free to go and collect wherever I wished, sending to the museum whatever I thought fit to send. Thanks to this new source of income I was able to invite Erilda and Lycaena to join us once more.

In January and February we were at Paco d'Arcos, near Belem, and here we took many specimens of the earliest butterflies to emerge, with some topo-types of the species discovered there many years ago by Count Hoffmannsegg. These are now in England. In May we went again to Una, where the local inhabitants honoured us with a banquet. On our former visit (1926) the weather had been dry, but now, two years later, it was wet and stormy. Several species had changed their seasonal forms, as one may see by the interesting series from Una now at Tring.

(To be continued.)

Current Notes

The Report of the Nature Conservancy for the year ending 30th September 1956 (House of Commons Paper No. 1) is now ready and is to be had from the Stationery Office, price 4s 6d. It is of considerable interest and contains a number of illustrations.

Much varied scientific work by the Conservancy is described. Rabbits died out between 1953 and 1956 on only 28 out of 95 scientific sites under investigation. Among the interesting results of this are the reappearance of the Soldier Orchid which had been believed actually to be extinct in Britain, and the profuse flowering of such uncommon plants as the Pasque Flower. At Dungeness lifting of rabbit pressure has enabled plants to cover a considerably larger area of bare shingle. Buzzards still manage to find and kill rabbits, even where these have become extremely rare, but they have been so badly hit that the total buzzard population is about one-third lower than two years ago. Now that myxomatosis has spent its force, the Conservancy emphasise the value of buzzards, stoats and other predators in getting rid of the surviving rabbits and deplore the misguided warfare which continues against these natural allies.

On use of chemicals and poisons, research shows that selective weed-killers directed against tall roadside plants such as Cow Parsley and Hogweed have been quite ineffective in getting rid of them, although they proved temporarily successful against nettles, docks and thistles. Progress is reported on the prevention of harm to wild life where chemicals have to be employed against weeds or pests. The Conservancy declined to support a proposal to legalise the use of strychnine against foxes in Scotland, as it is a persistent and unselective poison and the damage done by Foxes appears to be exaggerated. Agreed steps were taken with the Central Electricity Authority to prevent their works (under the North Wales Hydro-Electric Power Act, 1955) resulting in a renewal of the zinc and lead poisoning of the river Rheidol, which has only recently become fit for salmon again after they were wiped out in this way through mining operations.

Some experiments are also reported on moor burning, which is held

to favour the spread of bracken and deer-hair sedge at the expense of heather and to lead in some circumstances to serious loss of soil fertility and to soil and peat erosion. At Moor House on the Pennines weirs have been set up to measure run-off of rainfall from two catchment areas, one of which is drained and the other regularly burned, to compare the results of these two treatments. Here also successful experiments are being undertaken on growing trees at nearly 2,000 feet altitude and on the performance of different moorland plants in using and fixing nutrients. Conservancy scientists are also investigating why natural regeneration, for instance of oaks from acorns, is so poor in Britain, and illustrations show the work in progress on finding the best conditions for growth of native trees.

Notes and Observations

A Postscript from S.E. Cornwall.—Since my Note of 18th October (*Ent. Rec.*, **69**: 22) Mr. Tams has kindly identified two more *Hadena barrettii* Dbld., taken here in June. This moth seems not altogether uncommon here, but its markings vary greatly, and none of them are in the least like South's plate.

On 21st November a fellow villager who keeps bees brought me a dried up *Acherontia atropos* L., found in one of his hives. As one knows, this habit of entering hives is in all the books, but this is my first personal experience of it. *Plusia gamma* L. was still flying (at night) here on 12th December.

I am sorry to say that extensive felling has started in Menabilly Wood, mentioned in my last note, and I cannot find out how much is to be cleared. It seems as if we are to be deprived of yet one more of our scanty Cornish woodlands.—Colonel H. G. Rossel, Bodinnick, Lanteglos by Fowey, Cornwall. 27.xii.56.

The 1956 Season in N.E. Hampshire.—Though immigrants were scarce—I saw only 7 *Vanessa cardui* L. and 47 *V. atalanta* L.—it was a good year for collecting. I doubt whether my change of domicile from now urbanised Hawley to Fleet was responsible, for the flora and general conditions are very similar; the most likely explanation lies in the good summer of 1955, followed by a cold dry winter.

For the first time I used a mercury vapour lamp trap, a capacious pattern of my own, in which the container consists of a zinc wash-tub. No asphyxiating agent was used and the trap was turned off at the latest at 1 a.m.

Early spring was very prolific; on several occasions literally hundreds, chiefly Orthosias, entered the trap; but even this was bettered in early September when hordes of *Amathes c-nigrum* L. appeared on several nights. They were uncountable, resembling an enormous swarm of bees, and all that could be done was to cover the trap and shake them out the following morning. I had hopes of *Plusia chryson* Esp., once recorded from Fleet, and though disappointed found other Plusias abundant, especially *P. pulchrina* Haw. Seventy-seven *Hyloicus pinastri* L. appeared between 14th May and 9th September, whilst 315 *Biston betularia* L. entered the trap, the first (ab. *carbon-*

aria) on 8th May, the last (*betularia*) on 10th September. In all there were 149 typical *betularia*, 145 ab. *carbonaria* and 21 intermediates—I can scarcely call them all ab. *insularia* for, at Fleet, the three forms appear to grade into one another nicely.

Species seen by me for the first time were *Polia nitens* Haw., *Apamea sublustris* Esp., *Tethea or* Schf., *Pyrrhia umbra* Hufn., and *Pyrausta nubilalis* Hub. A first-timer is most welcome; it brings back memories of one's days as a beginner, surely the best days of all.

Unusually abundant were *Polyploca ridens* Fab., *Drymonia ruficornis* Hufn., *Hydrelia flammeolaria* Hufn., *Habrosyne pyritoides* Hufn., *Agrotis clavis* Hufn., *Zeuzera pyrina* L., *Parastichtis suspecta* Hub., *Gastropacha quercifolia* L., *Triphaena janthina* Schf., *Agrochola circellaris* Hufn., *Anchoscelis helvola* L., *Agrochola macilenta* Hub., and *Deilephila elpenor* L. The last-named was in profusion to the extent of becoming a nuisance in the trap, whilst the lawn around was strewn with them in June, when I had to tread on them on approaching the trap.

On the other hand, not a few 'old friends' were absent, including *Cosmia pyralina* Schf., *C. diffinis* L., *Apamea ophiogramma* Esp. (in spite of abundant ribbon grass), *Atethemia xerampelina* Esp., *Lithophane semibrunnea* Haw, and *Apamea ypsillon* Schf. *A. clavis* was even more variable than usual; it is remarkable that *Agrotis exclamationis* L. should scarcely vary at all, except in 1926 when, at one sugaring pitch at Aldershot, I secured all the varieties I have seen in collections.

Weather conditions were adverse for butterflies, *Aglais urticae* L. and *Aphantopus hyperanthus* L. alone appearing in their usual abundance, whilst for the second year in succession I came upon but one each of *Thecla quercus* L. and *Celastrina argiolus* L.

By the end of August I had met with 370 species of macrolepidoptera, to be increased to 397 by the end of the year. The conditions in autumn were deplorable, and do not augur well for next season. There is not doubt in my mind that the butterfly population is on the decline; the numbers are greatly diminished as compared with the inter-wars period.—A. W. RICHARDS, Oriel, Court Moor Avenue, Fleet.

AUTUMN MOTHS AT ELDER BERRIES.—During the mild weather in late September and early October this year Messrs. W. E. Minnion, J. M. K. Saunders, D. V. Alford and I spent some evenings collecting together in Whippendell Woods, Watford, Herts. The autumn Noctuids were abundant, and our sugar, spread on the foliage of lime and wych elm, was quite well patronised. Many more insects were found, however, feeding at over-ripe elder berries, an attraction which none of us had noticed before. Nor do we recollect having seen any written reference to the attractiveness of this particular fruit. Often there were three or four moths on a single umbel. It was noticed that only the over-ripe fruits were attractive—ripe berries which had been squashed were not visited. The commonest species was *Agrochola circellaris* which was exceedingly abundant, with *Orrhodia vaccinii* and *Phlogophora meticulosa* runners-up. *Tiliacea citrago*, which had been abundant at sugar a week before, was still quite numerous and so was our special quarry, *Cirrhia gilvago*. Other species observed were *Agro-*

chola macilenta, *A. lychnidis*, *Anchoscelis helvola*, *Citria lutea*, *Cirrhia icteritia*, *Eupsilia transversa* and *Hypena proboscidalis*.—B. Goater, 71 Grants Close, London, N.W.7. 31.xii.56.

Coleophora salicorniae in Surrey.—I am writing to record the capture in my garden moth-trap on 18th August 1955 of a specimen of *Coleophora salicorniae* Wocke. This is a most surprising record: the known foodplant does not, so far as I am aware, occur within 25 miles. The identification has been confirmed by Mr. John Bradley of the British Museum, Natural History. While it seems likely that the insect was artifically introduced in some way, I am unable to suggest how.—Robin Mere, Mill House, Chiddingfold, Surrey. 20.xii.56.

Hypena obsitalis Hubn. in Jersey, Channel Isles.—During the first week of September, I spent a week in Jersey on holiday and at the same time paid quite a lot of attention to the island's insect fauna. Lepidoptera were on the whole scarce, butterflies particularly so, but I was able to add a few species to my collection which I had not previously met with. Sugar and light worked on most nights when the weather permitted. On the last night of my entomological activities I took at light a rather worn specimen of *Hypena obsitalis* Hübn. which I feel is worth recording. I know that strictly speaking the Channel Isles are not within the British Isles from an entomological standpoint but am reporting this insect on the offchance of others being reported, in which case there are grounds for anticipating a migration from the Continent. The Museum authorities in Jersey have been approached for information regarding records of this insect. From reprints extracted from the *Bulletin* of the Société Jersiaise it is a new record for the island as it has not been recorded in the past.

In addition to this species, I took on the same night (7th September 1956) a specimen of *Leucania albipuncta* Schf. together with *Eilema griseola* Hübn., a late date, possibly double-brooded.

Sugar was not very productive although a short series of *Mormo maura* Linn. was obtained; from one specimen a batch of eggs was obtained which have hatched, and the larvae have commenced feeding prior to the winter diapause. Daytime collecting was hampered considerably by high winds but a series of *Mesotype virgata* Hufn. (*lineolata* Schf.) was obtained from the coastal areas visited.—M. J. Leech, The Spinney, Freshfield Road, Formby, Lancashire. 7.xi.56.

A Note from Formby, Lancashire.—The entomological year has nearly passed and does not call for much comment. For business reasons I am only able to run an m.v. lamp at home at the week-ends but have not had the good fortune to record either *Celerio galii* Schf. or *Acherontia atropos* Lin., records for which have been quite numerous according to the pages of past numbers of this Journal.

Early in April *Selenia bilunaria* Esp. was plentiful on our local mossland and I took two examples of ab. *eblanaria* Baynes which I had not met with before in the district. In the same locality a month later *Orthosia advena* Schf. were in evidence on what was left of the sallow catkins. Eggs were obtained and although the resulting larvae were sleeved out on sallow they all eventually died, most of them when only half grown. Later in the month the *Polyommatus icarus* Rott. were

examined for 'vars.' As in previous years this species was exceedingly plentiful and, at the height of their emergence, due to their gregarious habit it was possible to examine up to six hundred specimens in an evening before the light failed. The second brood of this species was by no means as plentiful this year as in preceding ones, no doubt due to the bad summer. Larvae of *Lasiocampa trifolii* Schf. and *Actebia praecox* Lin. were plentiful again this year as were specimens of *Eustrotia uncula* Cl.

In June and July the light trap was well tenanted mainly with common insects out of which it was possible to pick a few *Harpyia hermelina* Göze and *Pyrrhia umbra* Hufn. *Axylia putris* Lin. has been very common this year in the district and later in the year *Triphaena pronuba* Lin. outnumbered other species by approximately three to one. *Biston betularia* Lin. have also been very numerous; on the night of 30th June twenty-eight specimens entered the trap, four of which were type and the remainder ab. *carbonaria*. On the 13th July *Leucania litoralis* Curt. was quite plentiful at Formy Point. A fortnight later I observed the only *Vanessa cardui* Lin. seen in the district this season on a thistle-head near the shore. No *V. atalanta* have been seen in Formby this year. A new record for the district was made on 28th July, when we captured seven specimens of *Celaena haworthii* Curt. *Eriophorum* spp. are very scarce in the district; they must have been feeding, as larvae, in an alternative foodplant which requires further investigation next year. In addition we took a few specimens of *C. leucostigma* Hübn. all of which were the dark form. A specimen of *Nonagria typhae* Thun. was also taken—an early date. On inspecting the trap the following morning I was pleased to find a specimen of *Plusia bractea* Schf. a very scarce insect in the district, together with a specimen of *Arctia caja* Lin. ab. *nigrociliata*.

August produced the veritable plague of *T. pronuba* referred to above and very little else of interest apart from a few *Euxoa cursoria* Hufn. and *Apamea ophiogramma* Esp. Larvae of *H. hermelina* and *H. furcula* Cl. were not uncommon on their respective foodplants.

The autumn produced the usual species and, as usual, *Agrochola lychnidis* Schf. were plentiful and varied. A late example of *A. praecox* was found in the trap on 23rd September; this insect usually has a long emergence period in the district. The first specimens were noted on the 13th July.—M. J. Leech, The Spinney, Freshfield Road, Formby, Lancashire. 7.xi.56.

The Foodplants of Abraxas grossulariata Linn.—Mr. Allan, in his *Larval Foodplants*, gives a long list of plants upon which the larvae of the Currant Moth, *Abraxas grossulariata*, feed. In the Hebrides, Outer and Inner alike, the favoured plant is the common heather, *Calluna vulgaris*, although I have found them on hazel, the grey sallow, *Salix atrocinerea*, the rose-root, *Sedum roseum*, and the fine-leaved heath, *Erica cinerea*, in various islands. On the Isles of Rhum, Raasay, Harris and Lewis, both currant and gooseberry are within easy reach of ovipositing females; nevertheless, careful search has failed to reveal a single larva of *A. grossulariata* on either of them.

Early in June 1956 I collected a number of *grossulariata* larvae from *Calluna* near Loch Geiraha, Isle of Lewis, which I removed to Kyles

Lodge, Isle of Harris, where the heather was exceedingly backward. On the other hand, *Erica cinerea* was in good order. An attempt was made, therefore, to transfer the larvae from *Calluna* to *Erica*. To my astonishment I discovered that this plant, so nearly related botanically to *Calluna*, was completely neglected. This is the more remarkable when one remembers that *grossulariata* colonies exist, as in the neighbourhood of Loch Langavat, which are restricted to *Erica cinerea*.

In view of these facts, when I reached home in July I made a series of experiments with the species, larvae of Durham and Hebridean origin being involved.

Newly hatched Durham examples from a gooseberry-feeding colony were offered *Calluna* for food; this was uniformly refused. On the other hand, larvae from South Harris, whose parents were collected from heather, were placed on currant and gooseberry. Both of these plants were accepted immediately as were also *Ribes alpinum*, *R. sanguineum*, *Salix caprea* and *S. nigricans* × *viminalis*. Furthermore, larvae of Durham origin, from gooseberry, fed satisfactorily on the same series of plants. In the case of one batch of Hebridean larvae, after having been started on gooseberry, a successful transference was made to *Salix viminalis*.

In North Durham, although the species is, for the most part, restricted to gardens, I have observed colonies of the larvae on blackthorn and hazel. Much more rarely I have collected them from alder and *Weigelia*.—J. W. Heslop-Harrison, King's College, Newcastle upon Tyne. 14.i.57.

Lepidoptera in the Isle of Longay.—Longay is a small heather-clad Inner Hebridean island situated to the east of Raasay and Scalpay. It has suffered greatly from the attacks of rabbits, and, in consequence, its vegetation forms a very curious complex. Nevertheless, its lepidoperous inhabitants are of some interest, and a few have been listed in my 'Lepidoptera of the Lesser Skye Isles' (*Ent. Rec.*, **67**: pp. 1-15). Now additions are being made to that list. Despite the depredations of rabbits, aspen is not rare and on it we found larvae of *Laothoe populi* and the ubiquitous *Tethea or*. On *Salix aurita* larvae of *Clostera pigra* and *Hydriomena ruberata* were not infrequent. On birch *Notodonta dromedarius* occurred sparingly as did its congener *N. ziczac* on *Salix*. From heather we collected larvae of *Ceramica pisi*, *Apatele menyanthidis*, *A. euphorbiae* ssp. *myricae*, *Macrothylacia rubi* and *Phragmatobia fuliginosa* with odd imagines of *Abraxas grossulariata* and *Eupithecia castigata*. Most of the rock faces yielded clouds of *Dysstroma citrata*. Amongst the butterflies only *Pieris napi* and *Aglais urticae* were netted whilst the 'micros' were sparsely represented by *Simaethis fabriciana* and *Peronea hastiana*.—J. W. Heslop-Harrison, King's College, Newcastle upon Tyne. 14.i.57.

Eulype hastata Linn. in Northumberland.—In spite of repeated searches this insect has only been seen once in Northumberland during the past hundred years. The single specimen recorded was captured by Maling at Hexham over sixty years ago. Much the same is the position in Co. Durham. However, on 22nd September 1956, when

the Northern Naturalists' Union held a field meeting in Dipton Woods near Hexham, I beat a single larva from birch. In all probability Maling's example was procured in the same woods.—J. W. HESLOP-HARRISON, King's College, Newcastle upon Tyne. 14.i.57.

A FEW NOTES FROM HEATHERY CLEUGH, UPPER WEARDALE, CO. DURHAM.—Heathery Cleugh is situated about 1,350 ft. above sea level, and the small number of lepidoptera caught there is not without interest. Of the butterflies *Polyommatus icarus, Pieris napi, Aglais urticae* and *Coenonympha pamphilus* have not been rare whilst *Nymphalis io* has been taken casually. At sallows (chiefly *Salix phylicifolia*), *Orthosia gothica* and *Cerastis rubricosa* were the only noctuids seen, but *Nothopteryx carpinata* was quite common. At this elevation the latter species must depend upon *S. phylicifolia* when it is in the larval state, for that shrub abounds along the Kilhope and Heathery Cleugh Burns.

In July and August, when our efforts were directed in the main to the Alpine flora of the area, no special rarities were seen except *Zygaena lonicerae*, a newcomer in the lowland areas of Durham. Our other captures, made in certain cases as larvae, included *Nudaria mundana, Notodonta ziczac, Saturnia pavonia, Apamea monoglypha, Procus literosa, Cerapteryx graminis, Lygris populata, L. testata, Colostygia didymata, C. pectinataria, Xanthorhoe montanata* and *Chloroclysta miata*.—J. W. HESLOP-HARRISON, King's College, Newcastle upon Tyne. 14.i.57.

LARVAL COLORATION IN CERTAIN WAVE MOTHS.—In the *Proceedings of the Royal Society*, B.111, pp. 180-200, 1932, I published a paper under the title "The Recent Development of Melanism in the Larvae of Certain Species of Lepidoptera, with an Account of its Inheritance in *Selenia Bilunaria* Esp.". This supplied the first account of the phenomenon of larval melanism. Since that work appeared I have discovered other species of Lepidoptera in which black larvae occur. Amongst these is *Sterrha aversata*. Now, as Mr. R. Harris has already announced (*Vasculum*, **41**, p. 21), the Wave Moths were very abundant in Co. Durham during July and August 1956. I therefore took advantage of the fact to pursue my investigations in larval melanism by boxing several females of *Sterrha aversata* and *S. biselata* for ova. Eggs were duly obtained, and a large number of larvae of both species reared in the hope of discovering a melanic form of the larva of *biselata* and of securing a further stock of *aversata*. However, no melanic larvae of either species were obtained. Still, amongst my *biselata* lots, although most were typical, several larvae were reared which laterally were blackish, but dorsally bore a broad almost white band. This carried the faintest of frecklings, and such larvae presented a very strange appearance amongst their more typical relatives. The larvae of both species were reared throughout on withered dandelion leaves and are now, 12th January 1957, almost fullgrown.—J. W. HESLOP-HARRISON, King's College, Newcastle upon Tyne. 14.i.57.

DEPRESSARIA HEPATARIELLA ZELL. IN INVERNESS-SHIRE.—Mr. S. N. A. Jacobs, while visiting Scotland recently, kindly determined a speci-

men of the genus *Depressaria* in my collection as *D. hepatariella* Zell. It was taken in my father's m.v. light trap at Newtonmore in August 1952, and another was taken a few nights later, but was unfortunately spoiled in setting and was discarded as I was then unaware of its rarity.

There are few records of this species from British localities and all seem to be from Inverness-shire. Abroad, I understand, it is an alpine species occurring in Switzerland, the Carpathian Alps, West Russia, and Lapland.

The life history of the species is so far unknown, and records of examples bred from odd lots of collected larvae should be carefully preserved with whatever data are available.—M. W. Harper, Newtonmore, Inverness-shire. 30.xii.1956.

Diptera of Dead Dogs and Donkeys, Thyreophoridae.—There is only one species of Thyreophoridae listed in Kloet and Hincks, 1945, for this country, *Centrophlebomyia furcata* (Fab.), a dark blue fly with a yellow head. In Europe, it is recorded as chiefly occurring in January and February, immediately after the melting of snow, and the larvae have been found in dead dogs, horses, mules and donkeys. There do not appear to be any recent records of this species for Britain. It is not included in the lists of Carr for Nottinghamshire, Audcent's for Gloucestershire or Somerset, Hamm's for Oxfordshire, nor Morley and Atmore's for Suffolk and Norfolk. Wingate included it as British in 1906 but had no record for county Durham. Fordham, 1945, *Trans. N.H. Soc. Northumberland, Durham and Newcastle upon Tyne*, n.s. **8**: 241, says " . . . has been found on dead horses. It has been taken in the Cambridge fens and at Porthcawl, but is apparently absent from the northern counties". Whilst Thornley, 1936, in his Cornish list could add nothing to Col. J. W. Yerbury's comment in the latter's 1919 list in *Report of Devon Association for the Advancement of Science*, **51**: 244, "Mount Edgcumbe Park, near Maker Church, where some half-dozen specimens were taken on a dead donkey. These specimens have been in the British Museum Collection for many years past".

Can any reader add to our knowledge of the distribution and habits of this insect?—L. Parmenter, 94 Fairlands Avenue, Thornton Heath, Surrey. 30.xii.56.

Current Literature

"The Mouth-parts of the Yellow Dung-fly, *Scopeuma* (=*Scatophaga*) *stercoraria* (L.) (Diptera, Cordyluridae)".

"The Mouth-parts of the Dance Fly, *Empis livida* L. (Diptera, Empididae)".

"The Mouth-parts of the Down-looker Fly, *Rhagio* (=*Leptis*) *scolopacea* (L.) (Diptera, Rhagionidae)".

By J. D. Bletchly, *Proc. zoo. Soc. Lond.*, **123**: 143-166 (1953), **124**: 317-334 (1954), **125**: 779-794 (1955).

In these three papers, which are of interest to many entomologists as well as to all dipterists, the author relates his studies to previous

work of others on the mouth-parts of flies. He describes both rejected and recommended techniques. There are many line drawings to assist in the understanding of the accounts of the various mouth-parts, head muscles and innervation. The constant comparison with the earlier studies of workers on other species of flies is very helpful. To the field dipterist, the portions devoted to 'conclusions and discussion' must be most attractive for the author relates function to habit and describes his studies of insects kept in captivity. Many useful suggestions for field observational work are made.

These papers may be regarded as models and similar studies in the other seventy-odd families are needed. Also comparative work within certain of these families, *e.g.* Rhagionidae would be worthwhile for often feeding habits of adults vary within the family.

L. P.

The Macrolepidoptera of Inverness-shire—Newtonmore District

By Commander G. W. Harper, R.N. (Retd.), F.R.E.S.

(See *Ent. Rec.*, **66**: 58, 90, 124; **67**, 39; and **68**, 91.)

SUPPLEMENT No. 3.

I am able to record the finding of three more species new to the Badenoch district as defined in the main list. Two of them are Eupitheciids, probably overlooked in the past, and the third a common English species which is probably here on the edge of its range.

The additions are as follows:—

Notodontidae.

Phalera bucephala L. A rather dark grey ♂ came to my m.v. trap on 21st June 1956. This is the only record I have of this species, so it is probably rare in this district.

GEOMETRIDAE

Larentiinae.

Eupithecia absinthiata Cl. In 1955 I obtained a considerable number of larvae of this species on common ragwort, and imagines were bred, which on an average are browner than those of *E. goossensiata* Mab.; these two species are difficult to differentiate. Probably widespread.

Eupithecia assimilata Dbld. A specimen captured at light on 19th June 1956 was kindly determined as this species by Mr. D. S. Fletcher of the British Museum. A further specimen was taken this year, both in Newtonmore, where currant-feeding Lepidoptera are all rather scarce. Probably to be found wherever currants are cultivated.

This supplement increases the total number of Badenoch Macrolepidoptera at the present date, December 1956, to 352 species.

Neadaich, Newtonmore, Inverness-shire. 11.xii.56.

An Army routed

In the sun-soaked lands of the Rhodesias, maize is a staple food. It is also a favourite target of the voracious army worm—caterpillar of the moth *Laphygma exempta*. The army worm, so called because of its vast numbers, appears suddenly, unexpectedly and devastatingly. It comes like a thief in the night and in a few short hours can destroy every young and promising plant in its path .... pasture, forage grass or cereal. For generations, when the army worm struck, hunger came close. Today, however, the army worm has been routed—and the livelihood of millions protected. Tests have conclusively proved that even when followed by heavy and continuous rain, a complete kill of the army worm can be obtained by a dilution of endrin 19.5% emulsifiable concentrate applied by knapsack sprayer.

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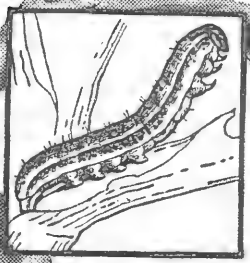

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WANTED URGENTLY FOR RESEARCH: *Achorontia atropos* (Death's Head Hawk Moth), live specimens, any stage, British or Foreign. Will exchange or is willing to pay cash.—F. G. SMITH, Esq., Entomology Department, Rothamsted Experimental Station, Harpenden, Herts.

Urgently Wanted for Permanent Record.—Figures (not percentages) of the typical and melanic forms of the following species:—

O. cruda and other *Orthosia* melanics.
C. multistrigaria
P. pedaria
A. hispidaria
B. strataria
E. marginaria
E. leucophaeria (*marmorinaria* and *merularia* forms)
A. aescularia

If intermediates occur, please list separately. Record forms sent on request.—*H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

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AND JOURNAL OF VARIATION

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To Our Subscribers

The governing body of this magazine has been somewhat troubled by the difficulty of knowing how to deal with the problem of overdue subscriptions. Many forms of sanctions have been discussed and rejected, and before going further I would like to address this letter to all our subscribers.

The *Record* is a non-profit-making venture and every penny of the subscriptions is used in making, printing, and distributing the magazine. The treasurer informs me, however, that last year it was necessary for him to spend a sum amounting to more than two subscriptions in postages for the purpose of collecting outstanding subscriptions. Besides this unnecessary call on the time of a busy honorary official, the money could have been put to the much better purpose of enlarging the magazine to the benefit of all our readers

May I ask every subscriber who is in a position to do so, to make arrangements to pay by banker's order (the treasurer will supply the necessary form) and thus relieve himself of the necessity for remembering to send his subscription? To those who prefer to subscribe direct I would say: "If you have not already done so, please post your subscription to the treasurer forthwith".

Drastic measures can only mar the friendly spirit of the circle of *Record* readers, so please make them unnecessary by resolving to pay subscriptions promptly each year.

Finally, although we naturally hope that this will not occur, if you decide that you wish to end your subscription to the *Record*, please advise the treasurer, and let us know why: this may help us to remedy some shortcoming.

S. N. A. J.

Notes on the Proboscis in Lepidoptera

By J. Sneyd Taylor

(*Continued from page 29.*)

Eutelinae

Eutelia discristriga Wlk. Moderate length and stout; somewhat dense and long, fine and hair-like setae on approximately upper (proximal) half of proboscis; below are dense and short setae, becoming longer, and then shorter again, at the bluntly pointed tip. The most covered with setae of all proboscides examined.

Sarrothripinae

Blenina squamifera Wllgrn. Long; strongly dentated near and at fine tip, with fine hair-like papillae above.

Acontiinae

Earias citrina Saalm. Long, smooth for the most part, but with somewhat fine papillae near and at the slender and sharp tip.

E. biplaga Wlk. The same as in *E. citrina*.

Acontia (*Xanthodes*) *graellsi* Feisth. Long and stout, with dense and sharp comb-like setae well above and extending to the sharp tip.

Catocalinae

Many of the well-known fruit-piercing species belong to this sub-family, and it is possible that most, if not all, members of it are at least potentially, if not actually, fruit-piercing.

Cycligramma latona Cram. Long and stout, with somewhat dense and strong setae towards the sharp tip. Two species of

Cycligramma, viz. *limacina* Guen., and *simplex* Grünb., have been recorded as feeding on fruit in Nigeria (Golding, 1945).

Anua tirhaca Cram. Moderate length and stout; substantial and dense bristle-like setae, with stouter serrations or papillae among them, becoming shorter at the bluntly pointed tip. The setae cover about one-sixth of the total length of the proboscis. Recorded as fruit-piercing.

A. dianaris Guen. Long and stout; dense comb-like setae extending to the sharp and strong tip, with short and scattered teeth and papillae among them.

Hypanua roseitincta Hmpsn. Long and stout, with dense bristle-like setae which become shorter at the bluntly pointed tip.

Achaea mormoides Wlk. Long and stout, with dense bristle-like setae becoming shorter at the strong and bluntly pointed tip. Stouter teeth or papillae occur among the setae. Recorded as attacking fruit in Nigeria (Golding, 1945).

A. indeterminata Wlk. The same as in *A. mormoides*, but with sharper tip.

A. lienardi Boisd. Long and stout; long and bristle-like setae with stouter serrations among them, but not so densely situated as in *Anua tirhaca*, although more substantial. Fine and hair-like setae occur proximally, and the tip is strong and sharp. One of the most prevalent fruit-piercing species in South Africa.

A. catella Guen. Long and stout, with long and hair-like setae towards and at the thick and bluntly pointed tip, but becoming shorter proximally and distally. Setae not so dense as in

A. lienardi. Recorded as fruit-piercing in South Africa and elsewhere.

Grammodes stolida Fabr. Long, with somewhat short, dense and comb-like setae towards and at the sharp tip, becoming shorter at the latter. A common species in South Africa, and apparently fruit-feeding.

Heteropalpia cortytoides Berio. (Formerly thought to be

Pericyma scandulata Feld., but now renamed by Dr. E. Berio). Long and stout, with dense sharp and comb-like setae towards the strong and pointed tip, with stouter teeth among them. Fine and long hair-like setae above.

Phytometriinae

This sub-family appears to be characterised by long and smooth proboscides with sharp tips, and there was no variation in the following four species examined. *Phytometra limbirena* Guen., *P. transfixa* Wlk., *P. orichalcea* Fabr., *P. clarei* Hmpsn.

Noctuinae

This sub-family also contains several fruit-piercing species.

Antiophlebia bracteata Feld. Comparatively short and thick, but becoming slender towards the blunted tip on which thick papillae are

situated. Soft in general appearance and papilla-like. Palps long.

Serrodes inara Cram. Long and stout, with a dense comb of bristle-like setae, and some stouter teeth among them, towards the strong and pointed tip. A common fruit-piercing species.

Sphingomorpha chlorea Cram. Long and stout, with thick and saw-like serrations for some distance from the strong and somewhat sharp tip. Bristle-like setae are also present, but much less densely situated than in *Achaea* and *Serrodes*. Another common fruit-piercing species.

Polydesma quenavadi Guen. Moderate length, stout and ribbon-like, with dense, long and sharp setae towards and at the blunted tip. The setae vary in thickness, and become shorter distally and proximally.

Rhanidophora aurantiaca Hmpsn. Long, somewhat ribbon-like and tending to separate; yellow in colour and not stout, with short and thick papillae towards and at the blunt tip.

Hypocala rostrata Fabr. Long and stout, with long and strong teeth or papillae towards and at the sharp tip, but becoming shorter proximally. Recorded as fruit-piercing in Sierra Leone, as well as two other species of the same genus, and similarly recorded in India (Hargreaves, 1936).

Exophila multistriata Hmpsn. Long; stoutly toothed towards the strong and blunt tip, the setae becoming fine and dense, or comb-like, proximally.

Tathorynchus vinctalis Wlk. Long, smooth for the most part, but with a few setae towards the blunted tip.

Anomis leona Schauss. Long and stout; the distal third with dense, comb-like and long setae extending to strong and slightly blunted tip. Recorded as fruit-piercing in Nigeria (Golding, 1945).

Erastriinae

Eublemma decraria Wlk. Long; smooth for most part, except for some fine and sharp setae near and at the sharp tip.

E. scitula Rmbr. Very short, thick and sharp, resembling a curved thorn.

Ozarba varia Wlk. Long and smooth, with sharp tip.

Hypeninae

Nodaria extinctalis Zell. Long, with somewhat large and stout papillae towards the blunted tip.

HYPSIDAE

In *Alytarchia bellatrix* Dalm., the only species examined, the proboscis is moderate in length and ribbon-like, resembling that of some *Arctiidae*. The galeae are apparently separate and are incompletely rounded or grooved. Stout papillae or teeth are situated towards and at the somewhat sharp tip.

SPHINGIDAE

This family is largely characterised by long, stout and smooth proboscides with the tip varying in sharpness, while it is also noted for their great length, containing the longest of any species of Lepidoptera. There is considerable variation, however, and as Imms (1925) points out, the opposite extreme is found in *Polyptychus*, in which it is repre-

sented by a pair of tubercles. In the following seven species the proboscis was normal, i.e. long, stout, smooth, and more or less pointed. *Herse convolvuli* L., *Oligographa juniperi* Boisd., *Cephonodes hylas* L., *Celerio lineata livornica* Esp., *Basiothia laticornis* Butl., *Theretra capensis* L., *Macroglossum trochilus* Hbn., subsp. *trochiloides* Butl. In *Acherontia atropos* L., it is much modified, being adapted for piercing honeycomb, and is short, stout and thick, with a sharply pointed and open tip. In *Polyptychus grayi* Wlk., it has been reduced to a pair of short tubercles.

Geometridae

In the *Geometridae*, Janse (1932) states that the proboscis is well developed, although never very long, but is sometimes obsolete. In the species examined there was little variation, the length being moderate to long, and the tip varying in stoutness and sharpness, while in the majority there were papillae, also varying in stoutness and sharpness, towards and at the tip. The following species were examined, and their proboscides conformed to the description above. *Prasinocyma scissaria* Feld., *Comostolopsis germana* Prout., *Eupithecia inconclusaria* Wlk., *Axiodes bifasciata* Dew., *Xylopteryx prasinaria* Hmpsn., *Ascotis selenaria* Schiff., *Boarmia octomaculata* Wllgrn., *Tephrina decraria* Wlk., *Semiothisa brongusaria* Wlk., *S. streniata* Guen., *S. umbrata* Warr., *S. observata* Wlk., *S. procidata* Guen., *Petrodava leucicolor* Butl., *Zamarada pulverosa* Warr., *Cabera strigata* Warr. A notable exception was *Omphaluca maturnaria* Mschl., in which the proboscis was short, smooth and ribbon-like, with a sharp tip. The galeae are easily separable, and the whole organ appears to be weak. *Janse* (*op. cit.*) mentions several genera in which the proboscis is rudimentary or undeveloped, and one—*Omphacodes*—in which it is absent in the male and rudimentary in the female.

Zygaenidae

Oona nebulosa Guen., was the only species examined. The proboscis had a generally soft appearance, and was long, smooth, bluntly pointed and somewhat ribbon-like.

Pyralidae

In the *Pyralidae* there is some variation in the *Phycitinae*, namely in *Cactoblastis* and *Ephestia*, also in *Pyralis* (*Pyralinae*), but otherwise the proboscis is long, smooth and with a sharp tip. In the *Epipaschinae*, *Pyralinae* and *Pyraustinae* it is densely covered with scales proximally. In the following species the proboscis adhered to the above description:—

Dysphylia viridella Rag., *Eurhodope basiferella* Wlk., *Ancylosis atrisperella* Hmpsn., *Oedilepia capensis* Hmpsn. (a few papillae were noted near the tip in this species); *Macalla* sp., *Crocidolomia binotalis* Zell., *Terastia meticulosalis* Guen., *Mecyna gilvata* F., *Loxostege frustalis* Zell., *Sceloides laisalis* Wlk.

In the following species the proboscis differed in form.

Ephestia cautella Wlk. Moderate length and ribbon-like, with papillae towards and at the blunted and papilla-like tip.

Cactoblastis cactorum Berg. In the male, the proboscis is short, relatively stout and pointed, while the palps are also short. In the case of the female, it is soft and weak in appearance, of moderate length,

with a fine tip; ribbon-like and separable; the whole organ resembling a papilla. The palps are long.

Pyralis farinalis L. Long and smooth, with a papilla-like tip. Covered with scales proximally.

Pterophoridae

Some variation was found in the three species examined.

Platyptilia africae Wlshm. Long and somewhat stout, with long and comb-like setae towards the stout and pointed tip, but becoming shorter at the latter.

P. picta Meyr. Very long and smooth, with a bluntly pointed tip; soft in appearance.

Agdistis pustulalis Wlk. Long, smooth and slender, with a pointed tip.

Aegeridae

The only species examined was *Synanthedon tipuliforme* Clerck, the Currant Clearwing of Europe, which was discovered at George, C.P., some years ago, but has not been recorded since. The proboscis in this case is long, smooth and bluntly pointed.

Tortricidae

In *Epichorista ionephela* Meyr., the only species examined, the proboscis was long, with short and fringe-like, but not dense, papillae towards the sharp tip; soft in appearance.

Eucosmidae

Little variation was found in the two species examined.

Argyroploce leucotreta Meyr. Moderate length, broad and ribbon-like, with stout and sharp papillae towards the thick and blunted tip which is somewhat papilla-like.

Cydia pomonella L. Moderate length, ribbon-like and separable, with sharp papillae especially towards and at the papilla-like and blunted tip.

Hyponomeutidae

In *Hyponomeuta subplumbellus* Wlshm., the only species examined, the proboscis was long and smooth, with papillae near and at the delicate tip.

Ethmiidae

Ethmia sabiella Feld. Moderate length, with numerous lengthy papillae extending well up the proboscis, but shorter towards and at the blunt tip Scale-covered proximally. The only species examined

Summary

An attempt has been made to demonstrate the great variety in form of the proboscis in Lepidoptera, and an examination of the proboscides of a comparatively small number of species belonging to a fairly representative range of families illustrates this, while it also indicates that there is considerable variation in the feeding habits of the adults.

The various types of proboscis have been mentioned under the different families; also the fact that nearly all can be found in the *Noctuidae*. Although in some families the proboscis is vestigial or absent, it seems even more interesting to note that in others in which a well-developed proboscis is usual, such as in the *Sphingidae* and

Noctuidae, for example, there occur genera and species in which it is weak or rudimentary.

As far as the feeding habits of adult Lepidoptera are concerned, present knowledge does not appear to be very extensive. We know that many species are nectar-feeding, and it seems obvious that the long and smooth type of proboscis is designed for this purpose, while the toothed or serrated forms, a development from papillae probably tactile and gustatory in function, are adapted for cutting and piercing the tissues of fruit. Other species are known to feed upon decaying organic matter.

That there are more fruit-piercing species than is generally supposed seems likely, but, on the other hand, over-ripe and cracked or injured fruit attracts many species, all of which may not necessarily be fruit-piercing. Even such a well-known fruit-piercer as *Achaea lienardi* will concentrate on cracked citrus fruit if available.

Generally speaking, however, data are meagre, but although difficult to obtain, especially with nocturnal species, much more should become available by patient observation. It is perhaps idle to speculate, but it would be interesting to learn how the heavily armoured proboscis of *Eutelia dicistriga* is used, to quote but one example.

It seems remarkable that in an order so well worked as the Lepidoptera, so little should be known about the form and functions of the proboscis, as well as of the feeding habits of the adult. It is hoped that this brief account may serve to stimulate others to embark upon further investigation.

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Collecting Notes 1956

By W. REID.

The weather has not been kind to collectors this year, but when suitable conditions have occurred moths seem to have been about in the usual numbers—some of these in much greater numbers than I have previously known. For example, *Enargia paleacea* Esp. and *Diarsia dahlii* Hb. have only been taken in my garden previously in small numbers, but of these two species at least 70 of the former have been found in the trap, the first on the 21st July, and the last seen was on the 10th October—a long period of emergence of the latter. The numbers of the latter may be imagined from the fact that I had over 40 females boxed up for eggs from a single night's catch, and throughout the season

males of the species have been much more numerous than the females. Several species which I have not seen before in Sheffield turned up in the trap in the garden—*Celerio galii* Schf. on 21st July, *Plusia bractea* Schf. on 13th July, *Acherontia atropos* L. on 5th September, *Epirrhoe galiata* Schf. on 16th August, *Hada nana* Hufn. on 23rd June, *Amphipyra pyramidea* L., a very worn specimen, on 4th September, *Anaplectoides prasina* Schf. on 3rd July, *Amathes triangulum* Schf. on 21st July. In addition to these, I found a larva of *Dasychira fascelina* L. on the moor in one of my favourite collecting spots proving that this insect does occur in Sheffield. I hope to take the *imago* next year. One is often apt to miss some of the more desirable species in the home district, mainly because it is quite impossible to collect every day and attend to more mundane duties, such as earning a living as well, and of course absence on collecting trips also cuts down the time which can be spared for collecting in the immediate vicinity of home.

I was pleased to see the dark form of *Apamea characterea* Hb. (*hepatica* L.) in the trap again in July, as well as *Cirrhia gilvago* Schf. and *Tiliacea aurago* Schf. in September and early October. Both of these latter insects look so much better in the cabinet when bred, and I was glad to get eggs from females of both species. But I found it very difficult to persuade *gilvago* to lay, and the last female had decided that virgin cork was a suitable place. She had been fed with sugar syrup laced with sherry and she was probably too tippled to know the difference between virgin cork and wych elm bark, where I suppose they deposit their eggs when wild.

I made my first collecting trip to North Wales in April where I met Mr. Austin Richardson at one of his collecting grounds. The red and pink forms of *Orthosia gracilis* Schf. associated with bog myrtle were very fresh and in some quantity. In one place we found a number of males assembling to a freshly emerged female, and we had no difficulty in collecting all we required. Most of the insects were picked up on the grass stems in the bog, and although we both had our lamps going about four hundred yards away, little was taken on the sheets. *Polyploca ridens* Fab. put in an appearance with *Xylena vetusta* Hb. and *Nothopteryx carpinata* Bork. but it was so cold that we were somewhat surprised to find so many *gracilis* about. Several *Cleora cinctaria* Schf. were taken on tree trunks during the day and two of the species came to the lights.

On 25th April, I again visited North Wales to meet Dr. Birkett, our object being *Amathes ashworthii* Dbld. larvae. Again we had bitterly cold weather with bright sun and no night collecting was done, other than searching for larvae near the top of the Sychnant Pass. Our search for *ashworthii* was not very successful, only six larvae being found during the two days we were there, and of these, four produced large parasites. This experience differed considerably from my previous visit for the same larvae in 1950, when they proved to be exceedingly plentiful, and none of the 26 which I took then had been stung. The only other entomological interest was the finding of a freshly emerged *Saturnia pavonia* L. ♀ (*carpini* Schf.) to which males were commencing to assemble. One passed her in the high wind which was blowing, but we were both surprised to see how quickly she paired with the second male which arrived.

I made three evening trips to Sherwood Forest during the second week in May after *Odontosia carmelita* Esp., without success, but another collector paid two visits on other nights in the same week, and succeeded in taking four, under what seemed to be the same weather conditions—cold, clear, with an easterly wind. Little turned up at my sheet except *Drymonia ruficornis* Hufn. (*chaonia* Hb.) (which was the commonest) with two *P. ridens* (Fab.), the first I have taken in Sherwood, and a few of the *Orthosias—incerta, gothica* and *stabilis*, also came in.

Early in June, I went up to Aviemore as my house was uninhabitable owing to some structural alterations we were having made, and during the 16 days we were there we had ground frosts nearly every night. I particularly wanted to take *Hyppa rectilinea* Esp. and *Apatele euphorbiae* Schf. ssp. *myricae* Guen., and managed to take a few of the former at light on one of the two warmer nights. No *myricae* came to the lamp which, on two nights, was used close to some boulders on which I took a female *myricae* and a cocoon which produced a male a few days later. The female was obviously freshly emerged, yet in spite of this, and the cold weather, she had been fertilised and laid a large batch of coral pink eggs, clear when laid, but soon acquiring a mottled pattern all over them. Those duly hatched, the resulting larvae being fed on bilberry, and all duly pupated during July. Two produced the hard oval cocoons of a parasite, the eggs of which must have been introduced by me with the food plant. Some of the larvae made their cocoons amongst the leaves of the food plant, but most did so along the top inside edges of the top of the box. A visit to the top of the road over the Kinrara Estate produced six pupae of *Amathes alpicola* Zett., all of which duly emerged. A few *Isturgia carbonaria* Cl. were about with many *Anarta melanopa* Thun., in very worn condition, flying freely in the sunshine.

The lamp was used with the portable trap in the hotel garden, but on several of the nights nothing at all was caught, and nothing of interest on the remainder. The lamp, with sheet, was used on seven nights, only one of which was productive, and in addition to the *rectilinea* a few of the following were noted—*Apatele leporina* L. (very pale form), *H. nana*, *Pheosia tremula* Cl. (*dictaea* L.), *Lobophora halterata* Hufn., *Eumichtis adusta* Esp. (plentiful), *Xanthorhoe munitata* Hb., *Xanthorhoe montanata* Schf., *Ortholitha mucronata* Scop. (*plumbaria* Fab., *palumbaria* Schf.), *Notodonta dromedarius* L., *Apatele megacephala* Schf.

No more "away" trips were made until 24th July, when I went to Boston to stay with Mr. Pilcher. That night we visited a place on the Lincolnshire coast, where we had a very successful time on the sand hills. *Euxoa cursoria* Hufn., *Agrotis ripae* Hb. and *Apamea oblonga* Haw. (*abjecta* Hb., *nigricans* View.) were common on the marram grass heads, the latter in beautiful condition. None of these species came to the m.v. lamp about 50 yards from the shore, all of them being taken from the grass heads. But other visitors to the sheet were plentiful, including some nice forms of *Euxoa nigricans* L., *Euxoa tritici* L. (*aquilina* Hb.), and one *Spaelotis ravida* Schf. (*obscura* Brahm.) put in an appearance. A few *Leucania litoralis* Curt., also came in, with *L. pallens* L., *Leucania comma* L. and two *Apamea ophiogramma* Esp.

On my return to Sheffield, I took a couple of the red form of *Amathes castanea* Esp. (*neglecta* Hb.) on the moor on a warm muggy night, and on the next night a very similar one. I decided to put up the portable trap in the same place and leave the generator running all night, whilst I went home to spend the night in bed—the real lazy way of collecting. I put a spare larger tank on the generator engine with sufficient petrol to keep the machine going until well into daylight. Soon after starting the light, moths were arriving in hundreds and did not settle down in the trap as they usually do—probably because the combination of a very warm night with an opaque cone in the trap kept them lively. Before I left, I noticed a haze rising around and above the lamp, and this consisted of a dust of wing scales from the insects inside the trap, which were evidently colliding with each other in their efforts to get out. When I examined the contents in the morning, there were thousands of insects inside, completely unrecognisable except by size, nearly all being completely denuded of wing and body scales. I have never experienced this before, and next year, when I repeat the experiment, a clear cone will be used. But I have previously used the opaque cone without any injury to the insects, so I am inclined to think that the very warm night made the insects very restless, in spite of there being the usual cartons in the trap. And funnily enough, the trap in the garden, with a perspex cone, also took thousands on the same night, none of which showed signs of having injured or spoiled themselves in the trap. So now I feel that a warm night in conjunction with an opaque cone induces a "free for all" inside the trap, and my latest addition to equipment is a folding square cone of perspex!

On the 28th July, I visited Sandburn Common in company with Mr. Richards of York. We found *Epione vespertaria* Fab. (*parallelaria* Schf.), amongst the scrub birch, but getting somewhat worn. One female was taken, almost on its last legs (or wings) which provided a few eggs which appear to be fertile. This insect seems to be extremely local on the common, appearing in one place, yet being absent from exactly similar places on other parts of the common, where the food plant also occurs in abundance. This may be a misjudgment, as, although we must have traversed some miles (with gum-boots on owing to the wet and soggy ground due to recent torrential rain) we only found it in one small area. Little else was noticed except larvae of *Clostera pigra* Hufn. (*reclusa* Fab.) spun up in the leaves of dwarf sallow.

I was in the Holyhead area again with my family the second week in August, but a good night in this area is exceptional. I think I struck the wettest week there this year. But in spite of the rain and the wind, moths were about, and *Triphaena interjecta* Hb., *tritici*, *nigricans*, were plentiful, although mostly battered. *Aporophyla nigra* Haw. appeared on the 1st September, and at that date *Stilbia anomala* Haw. was really common.

On 21st September, I met Mr. Pilcher in Weymouth, our object being to work on Portland Island to take *Aporophyla australis* Bdv. and *Leucochlaena hispida* Geyer. (*oditis* Hb.). Two nights near the lighthouse on the East Side, produced all the *australis* we wanted. *Leucochlaena hispida* was evidently just coming out, some twenty fresh specimens being taken on the second night. A strong easterly wind was blowing in off the bay, which did not make for good conditions, and

although the moon was at its full period, it was obscured for most of the time by cloud or mist. We were eventually rained off, with thick fog as well, about 9.30 p.m. on the first night, on which only a few *australis* were taken. Mr. Pilcher also took *Leucania l-album* L. and *Antitype flavicincta* Schf. We accompanied Mr. and Mrs. Pilcher part of the way home, and spent a couple of hours near Stockbridge to collect a few *Plusia chryson* Esp. (*orichalcea* Hb.) larvae. They were not common this year in the place we worked, or perhaps some other collector had been there in advance of us. We succeeded in beating a few, some of which produced parasites similar to those which Mr. Pilcher has bred from *irregularis* larvae taken in the Brick Sands district. Fortunately they seem to appear from the larvae before hibernation.

Early October in Sheffield was remarkable for some warm nights coinciding with a "no moon" period and hundreds of *Eupsilia transversa* Hufn. (*satellitia* L.), *Agrochola circellaris* Hufn. (*ferruginea* Esp.) and *Agrochola macilenta* Hb. appeared in the trap. I have not seen so many of the first species before, and at least 70% of them were of the dark form. An absentee this year was *Oporinia filigrammaria* H.S. —usually a common insect. *Triphaena pronuba* L. was still appearing on 18th October, with numbers of *Phlogophora meticulosa* L., *Oporinia dilutata* Sch. (*nebulata* Thun.) and *Oporinia autumnata* Bork. By this time, cold nights with full moon made it advisable to close the trap down for the year, a year which, on the whole, has not been unproductive in spite of the bad weather.

In October, Mr. Austin Richardson sent me some half grown larvae of *Herse convolvuli* L., all of which duly went down about the end of the month. All produced perfect imagines in December.

The Lepidoptera of Canford, South Dorset, 1953-1956

By Alan Kennard.

In my last four years at school, 1953-56, I collected fairly seriously —although I had been collecting before that—and in the summer of 1952 had put together a box-type trap with an ordinary lamp; but in any case my identifications were unreliable and I think the mercury vapour trap in the following years secured everything which came to the ordinary light. Opportunities for field work were unfortunately limited as I could not stay up late enough to do any sugaring; in fact, night collecting was almost entirely dominated by the m.v., although in my last year I did manage to get about a bit at night.

Field work chiefly lay in Sunday afternoons, when I could cycle out to outlying districts; but all too often this tended to involve a cycle ride to a well-known locality to secure some local species instead of just dropping in on some place and seeing what occurred there. And then, of course, the weather did not always oblige me by being fine every Sunday. If I did not have too much work to do I could generally get out for an hour or so on a Friday afternoon, when I would often visit the nearby heaths.

In 1954 even moth-trapping ceased, as I had agreed with my housemaster, much to his delight, to keep moth-hunting to the week-ends in view of forthcoming examinations (my father played some part in this

as well!) However, on the unlucky day of 13th June a violent thunderstorm caused my m.v. bulb to explode, and reluctantly I decided not to get another one until the end of the term.

As a result of my collecting I found some 340 species of macrolepidoptera within a two-mile radius of the School during the months of the school term. In the case of one or two of these it was not exactly to my credit that I learnt that the species was to be found there. One day a junior boy came up to me and said excitedly that someone had caught a long-tailed blue, which turned out to be *Thecla quercus*, the only record I have for the School. Another young collector showed that I had overlooked a species right on my doorstep when he found a colony of *Panemeria tenebrata*, not 300 yards from my study, while I was attracted by the glories of well-known localities farther afield.

In 1956 I began to take an interest in the Pyralidae and identified many of the species coming to the light. Until recently I have not seen W. Parkinson Curtis's list of Dorset Lepidoptera, and since there was nothing in the School collection (much of it had apparently been caught abroad) to give me a guide, I did not know what to expect apart from what I could judge might arrive from the surrounding countryside.

Until last year the main School buildings had their own electricity before going over to the mains, so this made it difficult to find a suitable place for running the m.v. On one occasion I ran the trap from an outlying house, but this was not a satisfactory arrangement; however, the cricket pavilion proved to be just the place. It offered two contrasting positions: firstly, with forty yards of wire I could have the lamp on the edge of the main playing field of about 3 acres, which was some 200 yards from the River Stour. The second position was in the small car park behind the pavilion, which offered an enclosed situation, being blocked on one side by the pavilion and being surrounded by trees and shrubs.

The surrounding countryside consisted of, to the south for about a mile, open playing fields with a slight rise in the ground about fifty yards from the trap. After this the ground rose to a large expanse of heath which lies between the School and Poole and is heavily bordered by woods consisting chiefly of pine and birch interspersed with beech, oak and sallow. Two hundred yards to the east lies some rough ground with a few trees, chiefly hawthorn, elm, and horse- and sweet-chestnut. To the north lie the School buildings and the River Stour, the latter providing the flora with poplar, willow, sallow and wych elm. The river is fairly sluggish in some places and this afforded an abundant growth of reeds of various kinds. Also near the river to the north-west is an avenue of lime trees. To the west is the village of Canford Magna, and a dense layer of shrubs with open fields beyond. The School grounds themselves afford at least a single specimen of every native tree and many others.

For some of the summer of 1956 two m.v. traps were operated. Unfortunately, the second lamp had to be run in a not very favourable position, actually on the river bank itself. This position had two notable disadvantages besides being rather hemmed in, and the bushes tended to absorb the moths. The first was that if there was the slightest opportunity of there being a wind it would be there. Very often there would be a stiff breeze blowing there while 200 yards away at the other

lamp it would be perfectly still. The second disadvantage was the flies and gnats of various kinds which came in myriads, causing a dense column above the lamp and a seething mass in and out of the trap. I had hoped that this position would show up some of the wainscots, but this was not to be. Also, I had hoped that *Spilosoma urticae* might turn up since there are old records for Wimborne (about two miles up river), but this was not to be either.

One of the most noticeable points that occurred to me was the contrast in numbers at light here and in Devon during the holidays. Only on two occasions did the numbers exceed 700 individuals for a night. In Devon, however, on several occasions more than a thousand were taken and sometimes more than two thousand. I think the probable cause for this may have been in the absence of flowers in the Canford locality. In Devon the trap is operated in a fairly isolated garden and the flowers may act as an additional attraction, drawing moths from farther afield. It was evident that a number of the species taken had wandered. The reasons for this are not entirely apparent but some of the species are known to have migratory habits and others may wander some distance from their breeding ground. Another factor which may play some part is heath fires. To some degree this may be the cause why *Saturnia pavonia* is now more frequently found on the edges of the heath, where its usual foodplant is the meadow-sweet.

Another heath insect that was taken was *Coscinia cribraria*, which is known to have migratory habits. This specimen was exactly similar to specimens from a locality two miles away, which is the nearest locality that I know of and so had probably wandered from there. The insect's normal habit of flying only short distances makes it amazing that it should have crossed a wide belt of trees before reaching my m.v. lamp. However, the species was fairly plentiful, in the locality mentioned, last year, but the disastrous fires of this spring have burnt this section of the heath almost bare and I failed to find a specimen this year. Another interesting point with this species is that at night it does not apparently fly before 11.45 p.m., when there is a short flight. This is a habit of the 'footmen' family; in a number of cases they fly either very early or very late. Very late is the general rule for *Lithosia quadra*. I have observed this species coming to the lamp at 2.30 a.m. and have taken it at dawn but never before midnight. The family also have a general tendency to sit on the outside of a trap and then either fly away or are eaten by birds at dawn. I think this may be one of the reasons why *quadra* is considered a rare insect by some collectors.

An insect which survived the heath fires remarkably well was *Plebejus argus*. Each year this insect moved its headquarters and in doing so performed a remarkable feat. Dr. Ford in his book *Moths* mentioned that butterflies have natural barriers over which they are either unable or loth to fly. In the area concerned, dividing two open stretches of heathland, there is a general track flanked by large rhododendron bushes on either side. But one year the insect made the jump and I have not seen it on the original side since. Wherever I have found the insect in the district, however, I have always found *Chlorissa viridata* there as well.

In W. Parkinson Curtis's List there are a few insects recorded for Break-Hill Wood, which lies about a mile to the south of the School.

Most of these I found to occur either at the School or in the wood, but half a dozen escaped me. First of all two species which would probably be missed in the holidays; in any case I did not come across them: *Archiearis parthenias* and *Asphalia diluta*. I did not find any *Eulype hastata* either, which no doubt I overlooked owing to the vast expanse of birch scrub on some parts of the heathland. Two species which might have been expected at the m.v. were *Tethea duplaris* and *Erannis leucophaeria*. I never saw any sign of them although they were two species which I had hoped would come; but apparently they do not wander away from the woods. In March 1953 when I ran the m.v. from an outlying house about half a mile from Break-Hill Wood several *Achlya flavicornis* came, but since running the lamp a further half-mile away from the wood I have not seen it. The remaining species I searched diligently for was *Hemaris fuciformis*. Break-Hill Wood appeared to me to be an ideal place for the insect and the records state that it is common in that locality, but although I searched almost every corner of the wood I never saw a single one.

In July 1956 I did a fair amount of dusking on the opposite side of the river bank and here I met with a phenomenon for which I can find no adequate explanation. Just about half an hour after dusk I netted a moth of noctua size whose flight was unfamiliar to me. It was almost hovering about three feet up from the foot of a willow bush and appeared as if it were looking for flowers. On boxing it I saw that it was a fresh example of *Apamea ophiogramma*, a species which I had not recorded for Canford before. About five minutes later I netted another specimen which appeared to be coming out of the bush. Each night in the next week I netted a specimen flying about this willow bush and sometimes two or three. All their habits were the same and they flew very slowly, almost hovering. Most of them I netted about three feet above the ground and the highest was seven feet up. All the specimens except one appeared fresh although several had a chip out of a wing. Although I worked the whole river bank around this tree and all other neighbouring willows I never caught a specimen anywhere else. The species did not appear at the m.v. until about a fortnight later, when a worn specimen arrived. The second m.v. light was run on the opposite bank of the river not thirty yards from this particular willow where the insects were flying, yet it did not take a specimen. The reason may possibly be that the river acted as a natural barrier to the moth, but why should the moth fly only round this particular willow? One thing I noticed was that this willow bush was of a different species (or variety) from those surrounding it, as its leaves were longer and more slender. At the foot of the bush the only plants growing were nettle and willow-herb, much of the ground being bare with a sandy soil which had recently been thrown up as a result of dredging the river. I could find none of the required foodplant in the immediate vicinity.

Two other insects which appeared to be affected by a natural barrier such as a river are *Apamea ypsilon* and *Parastichtis suspecta*. Both species were found in some numbers on the river bank while dusking, yet only very few specimens came to the m.v. The former insect seems to be limited in that it does not venture far from willow trees, but the latter was distributed over a wide area on the opposite side of the river. *A. ypsilon* could be obtained in some numbers by stripping away loose

bark from a willow tree at the end of June. A lone tree would often produce as many as thirty pupae and also some fully grown larvae of *Catocala nupta*.

On 18th July 1956 an example of *Panaxia dominula* made an appearance in the m.v. trap. Where this species had come from I am not sure, but here are two possible places. A local collector told me that he had released a few insects on the river bank about a quarter of a mile higher up from the School, and I assumed that this colony must have survived; however, in the Dorset List Break-Hill Wood is mentioned, but although it is a likely spot I have never found the insect there. However, the river bank colony would almost certainly have died out by now since the River Board, after dredging the river, have thrown up the silt and covered the bank on that side and re-sown it.

One curious habit was noted at about this time, when there were three nights of almost continuous heavy rain. It appeared that *Lampra fimbriata* thoroughly enjoyed this rain, for instead of coming in the normal ones and twos, on a night of heavy rain it would shoot up to about thirty individuals. This was the only species that apparently preferred a downpour.

Throughout the four years there were fluctuations in numbers of species, and in some cases the species tended to increase year by year. For instance, 1953 was notable particularly for the abundance of*Agrotis exclamationis* and in that year a single example of a second brood was taken. Why this lone individual can have taken upon itself to emerge in late September I cannot imagine and I have noticed a similar occurrence with *Spilosoma lubricipeda**. The year 1955 was particularly notable for *Lycophotia varia*; but in all four years *Triphaena pronuba* and *Apamea monoglypha* were abundant, the former flying over a remarkably long period in 1955, from the first week of June until the first week of November. Of the former group I have taken *fimbriata* and *comes* as late as mid-October.

One of the hawkmoths which I had expected to be fairly common was *Mimas tiliae*, but I found it very scarce although it seemed to increase in numbers while I was there and in 1956 it came fairly frequently to the m.v.; but it nearly always got battered about though not as badly as *Hyloicus pinastri*, which becomes devoid of scales at the slightest opportunity. Several larvae also were found in 1956 and one which I came across half grown had just been stung by a wasp, beneath the horn. It died after about three hours.

Another hawkmoth to show a slight but steady and welcome increase was *Deilephila porcellus* which I took fairly frequently in 1956. Although there is little Lady's bedstraw in the district there seems to be an increase of several other species of *Galium*. The increase of this insect may be due to the increase of its foodplant and possibly, to some extent, the fine summer of 1955. Another welcome increase was noted in the case of *Clostera curtula*, which became a regular visitor in 1956, and most of the specimens taken were in good condition. This surprised me, as before I had always found them slightly damaged owing to their activity in the trap. I kept a number of females, hoping to obtain eggs, but I was unsuccessful. *Thyatira batis* had a good year in 1955;

[*Perhaps these were immigrants. See *Ent. Rec.*, **67**: 97-98. P.B.M.A.]

before that, I had recorded only one specimen, but in that year more than a dozen came to the m.v. 1956 proved to be a good year for *Tethea ocularis*, but again I was unable to get a female to lay. A fair number of *Apatele aceris* were taken in 1953, but it has been scarce since. I expect this is probably due to parasitism.

(*To be continued.*)

Some Records of Coleoptera taken in 1956

By K. C. Side.

From my 1956 records of Coleoptera I select the following as being of special interest. Names are as in Kloet and Hincks (1945: *A Check List of British Insects*).

Harpalus servus (Duftschmid). A single specimen, running on the sand-dunes in bright sunshine. Sandwich Bay, Kent. 5.v.56.

Coryphium angusticolle Stephens. One was found by stripping the bark off dead branches which had been cut and left in a heap on the ground. Farningham Wood, Kent. 2.iv.56.

Oxyporus rufus (L.). Seven of these were found in the gills of a toad-stool (species not determined) on Stone Marshes, Kent. 19.vi.56.

Paederus riparius (L.). One was taken at a damp patch on the cliffs at Milford-on-Sea, Hants. 22.v.56. Another one was taken in the marshes between Pulborough and Amberley, Sussex. 22.vii.56.

Paederus caligatus Erichson. One taken in boggy ground at Minstead in the New Forest, Hants. 23.v.56.

Rugilus fragilis (Gravenhorst). A single one of these was found in a straw-stack at Luddesdowne, Kent. 13.x.56.

Malachius marginellus Olivier. These were plentiful at Dungeness, Kent, in company with the common species *M. bipustulatus* (L.). Both species were visiting flowers of various yellow Compositae.

Psilothrix cyaneus (Olivier). Plentiful on flowers on Hordle Cliffs, Milford-on-Sea, Hants. 22.v.56.

Corymbites siaelandicus (Mueller, O. F.). Brockenhurst, Hants. 21.v.56.

Scirtes hemisphaericus (L.). Plentiful on aquatic vegetation. Higham Marshes, Kent. 21.vii.56.

Laria dulcamarae Scopoli. Several were taken with the previous species when sweeping aquatic vegetation, which included the normal host-plant, *Solanum dulcamara* L.

Atomaria linearis Stephens. One was found walking on the pages of the 'Flora' when I was botanizing at Birling, Kent. 14.vii.56.

Ptilinus pectinicornis (L.). One walking on a hop-pole at Benenden, Kent. 2.vi.56.

Ischnomera sanguinicollis (Fab.). Several on blossoms of *Crataegus monogyna* Jacq. at Minstead in the New Forest, Hants. 23.v.56.

Anthicus instabilis Schmidt. Several in a heap of cut grass and weeds lying on the landward side of the sea-wall at Higham Marshes, Kent. 25.viii.56.

Mordellistena pumila (Gyllenhal). One, by beating scrub vegetation in a chalk-pit at Grays, Essex. 13.vi.56.

Trichius fasciatus (L.). One on flowers of *Heracleum sphondylium* L. growing at roadside, Abergynolwyn, Merioneth. 7.viii.56.

Stenocorus meridianus (L.). One on flowers of *Heracleum sphondylium* L. at Magpie Bottom, Kent. 15.vii.56.

Gastrophysa viridula (Degeer). One was taken when sweeping aquatic vegetation at Bryncrug, Merioneth. 7.viii.56.

Cryptocephalus sexpunctatus (L.). One specimen obtained by beating hazel and birch at Swanscombe, Kent. 3.vi.56.

Chrysolina fastuosa (Scopoli). Plentiful on waterside vegetation in the marshes between Pulborough and Amberley, Sussex. *Stachys palustris* L. is the plant with which this species is associated. It was present in the locality but most of the beetles which I took were resting on nettles (*Urtica dioica* L.). 22.vii.56.

Another specimen was taken when sweeping aquatic vegetation including *S. palustris* at Bryncrug, Merioneth. 7.viii.56.

Chrysolina menthastri (Suffrian). One was taken at Darenth, Kent, where it was walking on the leaf of *Petasites hybridus* (L.). 4.vii.56.

Eubrychius velatus (Beck). Three specimens were taken from waterweed, chiefly *Myriophyllum spicatum* L., which was growing in a flooded gravel-pit at Horton Kirby, Kent. 7.x.56.

Gymnetron antirrhini (Paykull). Several on flowers of *Linaria vulgaris* Mill. on the marshes between Pulborough and Amberley, Sussex. 22.vii.56.

107 London Road, Stone, Dartford, Kent.

Clorinda Querci

By ORAZIO QUERCI.

(*Continued from page 44*)

In 1929 the museum at Barcelona asked me to go to that city and write a book about the diurnal insects of the Iberian Peninsula, which I did. Romei joined us again and we all made large collections on the Taga mountains in the Catalonian Pyrenees. In the autumn of this year Mr. Levi W. Mengel, the director of the Public Museum at Reading in Pennsylvania, visited us and purchased a large collection. Shortly afterwards the Academy of Natural Sciences of Philadelphia invited us to go and collect for the Academy in South America. Accordingly Clorinda and I went to Philadelphia and soon afterwards sailed for Cuba, where we rented a bungalow in the village of El Cristo, near Santiago. I received a large salary from both Philadelphia and Lisbon; Lord Rothschild also added to the quota. On the slopes of the Sierra Maestra there were so many Lepidoptera that my wife was unable to take enough and I to set them. Erilda and Lycaena came out to help us, but soon after they arrived a severe drought set in and most of the insects disappeared.

In July my daughter and I went to Mount Turquino, the highest peak on the island. Here, too, the insects were very scarce, and the heat was overpowering. One night there was a terrific storm and on the following morning some natives came up to our tents calling out "Muchas mariposas!" We were very soon out with our nets, and it was quite true. It seems that in the tropics the Lepidoptera go over the dry season in both the pupal and adult stages, emerging when the humid earth absorbs the solar rays. They were in immense profusion, both freshly emerged and very old worn specimens. When twenty days

later we returned to our bungalow we found that Clorinda and Lycaena too had made large collections immediately after the storm. In August a cyclone was announced to be heading straight for Santiago, but happily for us the high mountains of Haiti changed its direction, though it destroyed the city of Santo Domingo and killed most of the inhabitants. We were preparing to sail for Trinidad when the Academy of Philadelphia notified me that owing to the troubled financial situation in the States it would not be possible for them to continue their subsidy.

At the beginning of October 1930 we were back in Philadelphia. Mr. Frank Haimbach, the curator of the insect collections there, had died. I had been named as his successor, but the financial situation prevented the appointment from being made. Mr. R. C. Williams, jun., of Philadelphia and Mr. A. Gray Weeks of Boston gave me a large number of the butterflies which I had collected in Cuba and with these I was able to pay my debts to Lisbon and Tring. Dr. Romei also sent me a large number of insects which he had taken in the Pyrenees of Aragon. These were purchased by the National Museum of Washington.

Business was so bad that everybody advised us to leave the States as soon as we could. However, Mr. Williams had given me a key of the room containing the Library and entomological collections of the American Entomological Society and for nineteen months I remained there engaged in bibliographical research, happy to have at my hand some of the rarest entomological books in the world. In order to leave me free to study, my wife and daughter went out to work and earned enough not only to pay for our living expenses but to defray the cost of our granddaughter's education at the excellent, though expensive, Friends' Select School. The situation became worse. Many factories closed down; the city was filled with unemployed. Erilda and Lycaena sailed for Europe. Happily, I still had money so I remained with my wife, amassing data for ecological research. For five months Clorinda collected daily and reared the larvae of some species of butterflies, though these were of no commercial value. I made many temperature experiments both in the University of Pennsylvania and at Supplee & Co.'s large ice-cream factory.

When in 1931 a number of banks went into liquidation I changed all my money into gold and was able to take it with me when we sailed for Europe, just three days before the export of gold was forbidden.

Back in Lisbon, my friends at the University were unable to continue to help me as the Portuguese Government had prohibited any salaries being paid to foreigners. However, having sufficient funds in hand I wrote to Erilda to come to us and bring Lycaena with her, so that we could all enjoy the mildness of a Portuguese winter. By the help of my friends I was able to obtain permission to collect in the vicinity of the Naval Arsenal, in the Mata do Alfeite, where Count Hoffmannsegg had discovered certain hitherto unknown species. Some of the insects which I took there are now at Tring.

In May 1933 we went to Madrid, and here my services were rejected by the local museum because I had supplied many specimens to the museum at Barcelona and none to the museum of Spain's capital. I wrote to Charles Oberthür and in spite of his extreme age he came all the way from his home at Rennes in Brittany to help me. He was

indeed a noble friend! Taking some boxes filled with the specimens we had caught he went straight to the director of the museum, Sr. Ignatio Bolivar, who was an old friend of his, exclaiming "Vous avez chassé Querci! Regardez ces boites!" Matters were soon arranged and a large sum was assigned to me in order that I might work in the Madrid museum.

Oberthür, my wife and I made several interesting trips to Montarco, the Sierra de Guadarrama, and to Una. Clorinda made her usual surprising captures. Oberthür was so delighted that he dubbed her "Madame la Comtesse de Quercy". For the third time we stayed at Una. The fruits of our collecting were purchased by Oberthür and the Madrid museum; but the most striking specimens were sent to Lord Rothschild.

In 1934 we went to Tangier and stayed there for more than a year. My wife soon made friends with some Arab women who spoke Spanish and they formed a guard for her whenever she went collecting at night some distance from the town. On these nocturnal expeditions she caught so many noctuids and micros that I was kept hard at work all day long setting them. The best insects taken on these occasions are also at Tring, including some *Zygaena staudingeri*, which had not previously been recorded from Spanish Morocco.

The following year we sailed for Salonika, where my son-in-law Dr. Romei held a professorial chair at the Italian Lyceum. Sailing up the Gulf my wife gazed at the majestic Mount Olympus, now covered with snow, and wondered what Lepidoptera we should find there if we made the ascent. In early spring a stroke of luck showed us, by a temperature experiment, that the frail larvae of some of the *Pierinae* can withstand a temperature of 110° F. and possibly more, when the solar radiations are absorbed by a cloudy sky and a moist soil.

In the spring Dr. Romei made an exploratory trip to Mt. Olympus. On his return he reported that it was impossible to live up there. There was an alpine refuge hut at 6,600 feet, but it was a very stiff climb to reach it. He also reported that the monastery on the mountain was well stocked with bugs, rats and bats. However, these things never deterred Clorinda from searching places where interesting Lepidoptera might be found, so we packed our bags and set sail for Olympus. At Lithocoron (on the coast between Mt. Olympus and the sea) we met a man who spoke English, and he agreed to transport ourselves and our baggage on mules as far as the monastery.

Arrived at the monastery we prepared to eat our dinner on the bare planks which was the best the monks could do for us in the way of beds, as proper beds and bedding are forbidden by the rules of their Order. Happening to look up, we saw that phalanxes of hungry Macedonian bugs were steadily advancing upon us. Hastily cramming everything back into our bags we escaped through a back door and, as good luck would have it, just as a man with some mules was passing. He agreed to let us put our baggage on the mules, and so we set off climbing up the side of the mountain, catching butterffies as we went. Late in the afternoon we caught sight of something that looked like a building, high up on the mountain. With sign language we tried to ask the man if that was the alpine refuge hut. He shook his head, which we understood to mean "No", whereas in Greece a shake of the head means "Yes". Un-

aware of this, we considered the matter and came to the conclusion that it would be wiser to return to the monastery, bugs or no bugs. So back we went and reached that sanctuary just as the door was being shut for the night.

When we had arrived at the monastery some hours previously I had given a small sum of money to the three poor old priests who inhabited it. So now, after we had politely indicated our dislike of *Cimex lectularius* Linn., they put us into a small but clean cell on the upper floor. The cell was so clean that we spread our blankets on the floor and slept undisturbed. The following morning we contrived two chairs by piling up some stones, and the old priests gave us some wood out of which we made a table, rickety but serviceable. Happily we had brought a "Primus" stove with us, and on this Clorinda cooked our meals. Finding that another clean cell next to ours was vacant we sent for our granddaughter Lycaena and she joined us presently. The good fathers did everything they could to help us and make us comfortable. But theirs was a Spartan way of life.

According to the Rules of this monastery of Saint Dionysius no stranger might stay there for more than one day. We had already been there for ten when we received a letter in French asking us to go away at once. One of the priests offered to accompany me to another monastery at the foot of the mountain and interpret for me while I interviewed the Oecumen or chief priest there; for the collecting was good and we had no wish to leave Olympus yet awhile.

Arrived at the head monastery I was duly shown into the presence of the Oecumen and presented my letter of credence to the University of Salonika. The Oecumen read it slowly, raised his eyes to the heavens (which in Greece indicates "no") and turning to me said in English "No value!" I then handed him a similar letter from the British Museum and one from the Academy at Philadelphia. These produced a much better effect and presently we were chatting away in English like two old friends. He gave me a first class dinner and told me we could stay at St. Dionysius as long as we liked. So back we went up the mountain and stayed with the old priests until the autumn. Our daughter Erilda and her husband paid us frequent visits and never forgot to bring us plenty of food. The priests gave Lycaena lessons in Greek. And so, sleeping rolled up in blankets on the bare floor of the old monastery, we passed what were perhaps the happiest days of our life; for Mt. Olympus is a wonderland of flora and fauna.

In the following year the excellent Oecumen arranged well furnished rooms for us in a building close to the monastery of Skala, at the foot of the mountain. We were very happy and our collecting was as good as one could wish, when suddenly some brute denounced me to the police as a spy. We were arrested; the police not only turned us out of our rooms but said that we must be deported at once from Greece, and they forced me to surrender to the Bank of Greece all the money in my possession, the Bank offering to give me in exchange a cheque in French or Swiss francs, whichever I preferred. Both these currencies were devalued a day or two later, so no wonder the Bank of Greece was anxious to get rid of them! Happily, a Greek gentleman whom we knew managed to get the proceedings against us delayed.

When we had lived in Florence we often went collecting in a field

in front of our house. Two gentlemen living in a house nearby used to watch Clorinda netting insects, and one day the younger of the two asked if he might get a net and help her to catch butterflies. They were King George of Greece and his brother Prince Paul, who were at that time living in exile. So while the police were awaiting the authorities' decision to deport us I wrote to King George at Athens, reminded him of our field expeditions at Florence, and told him the plight we were in. He at once replied most kindly, authorizing us to stay in Greece as long as we wished and to keep the money which I had duly declared on our arrival and to take it out of the country when we left.

Shortly after this I received a letter from Bulgaria, from Dr. Ivan Buresh, head of the King of Bulgaria's museum, asking me to go and collect for his museum in that country; but as the signs of the coming war were so plainly writ I preferred to return to Italy.

At home again, we collected on the Sibyllini, Aurunci, Meta, Sirente, Velino, Gran Sasso and Majella mountains as well as in the neighbourhood of Rome. Above the village of Casteldelmonte on the Gran Sasso massif Clorinda noticed that some specimens of a *Lycaena* seemed to be different from both *L. coridon* and *L. bellargus* though very similar to those species. Later she took specimens of the same insect above the village of Settefrati on the Meta massif. Dr. Verity has since identified these butterflies as *Lycaena* (now *Lisandra*) *syriaca*, named by Tutt.

A few days before the end of the war in Italy our house in Rome was damaged by bombs. We were homeless, so I bought a half ruined building at Formia and restored it. As soon as it was ready my wife and I moved into it, and here we have lived ever since. The Lepidoptera, Diptera and Hymenoptera in the neighbourhood were then so plentiful that we could take hundreds in a day.

At last there came a sad day when Clorinda, walking close to the wall in a street of the town was crushed by an unruly horse which mounted the pavement and dashed her head against the wall. She was knocked unconscious and has never recovered. In the *Record* of 1952 (Vol. 64, p. 8) our granddaughter, Dr. Lycaena Romei, has spoken of a collecting trip which she made with her grandmother on the slopes of the Aurunci mountains. Clorinda, seeing no insects in places where formerly she had seen them in thousands, was much distressed, and saying "I have always caught butterflies here and I am going to catch some now; let's go up higher and higher", she started to climb the steep slopes of the mountainside. She was 78 years old and Lycaena was frightened; it was with difficulty that she persuaded her grandmother to return home with her.

A year or two ago Mr. K. H. Wilson of Moscue in Idaho, U.S.A., sent me more than 25,000 Lepidoptera in papers to set. It took me about thirty months to complete this task. The insects were some of the most beautiful and rarest species in the world. My dear wife sat by my side as I worked, almost in tears at the exquisite beauty of some of the best ones. Next day I found her packing her bag as she said she intended to go to Formosa in order to take *Papilio elwesi*; a day or two later she said she was going to collect in Peru and Bolivia. After her wonderful years of collecting it is to me a tragedy indeed. We are obliged to have two nurses to look after her; but she will obey only me, her constant companion in so many countries, in so many expeditions,

on so many happy field days. At night I have to be constantly on the watch lest she go out into the garden in her night clothes to collect as in former days.

Last season there was a remarkable scarcity of insects in Italy in spite of good weather; only ants, dragon-flies, some species of *Musca* and honey-bees were in anything approaching their former numbers. Being unable to leave the house to collect I took up my studies of life-histories again, making graphs upon graphs, but deducing little. So last June in despair I gathered up my papers and carried them out into the garden to make a bonfire of them. Clorinda, seeing me there, came out to me. "My love", she said, "do not burn those papers. You have always succeeded, and you will be successful again. Look at those ants carrying those big larvae. *They are a great example*".

Those were the last considered words which I heard from her. Since then she has rambled in several languages and her words are indistinct. It is a sad finale to so useful a life, a life devoted to the advancement of Entomology.

Current Notes

Continuing the comments in our last issue on the Annual Report of the Nature Conservancy for 1956, we note that during the year 12 new Reserves were established, bringing the total of National Nature Reserves to 47, covering 82,662 acres. Some disappointment is expressed with the rate of progress, and it is pointed out that Nature Reserves cover less than one-thousandth of England and Wales, most of this being uninhabitable and uncultivable. Three of the new Nature Reserves are inaccessible Scottish islands and three more are fens or bogs. Slightly more than a third of the area is actually owned by the Conservancy, the remainder being leased or held under Nature Reserve Agreements.

Negotiations with the Service Departments made progress towards limiting the damage which must result from the Hebridean Guided Missiles Range, particularly on St. Kilda where opportunities for scientific work may actually be increased by the project. Serious difficulties were met over geological sites, particularly the famous Parallel Roads of Glen Roy, Inverness-shire, which are the result of damming up during the Ice-Age of lakes which would dwarf our largest modern hydro-electric schemes. The problem here is to reconcile the planting of trees for timber and employment with the keeping open of this internationally important site for geological studies and teaching. Difficulties are also reported over the ploughing up of small areas of chalk downland forming the last surviving stations for rare plants in certain areas. A welcome is extended to new local Naturalists' Trusts, one of which was formed in Leicestershire during the year. The Conservancy works closely with such Trusts which supplement its own activities. In evidence to the Royal Commission on Common Land the Conservancy have stressed the importance of these lands as surviving reservoirs of fauna and flora which may have been locally exterminated by land reclamation. The Conservancy oppose alienation of these lands to any one permanent economic use, but suggest they can become pro-

ductive by combining such uses as raising livestock, growing trees, public recreation, nature conservation and military training.

Much damage continues to be done to Nature Reserves, partly by public thoughtlessness and partly by a violently destructive minority. Incidents described include a run-away car which damaged the vegetation as well as itself through being driven off the road in violation of notices; the discharge of a shot-gun at two yards range against a map put up to assist the public; the malicious breaking off of the cross from the crown of Scotland on a Cairngorms Reserve sign; the gathering in bunches of so many lilies of the valley that not one flower remained in another Reserve; the deliberate stamping on nests and eggs of common terns and oystercatchers, and of course the lighting of fires at times of severe fire risk and the throwing down of litter.

One of the most serious aspects of this problem for the Conservancy is the deliberate interference with scientific experiments by destroying marks and apparatus which have to be left in the ground. Such interference conflicts with the main purpose for which the Nature Reserves are held to serve as open-air laboratories for science. The Conservancy welcome the National Trusts' announcement that they will prosecute people leaving litter on National Trust land and also the North Riding County Council's successful prosecution of offenders taking daffodils from the Farndale Local Nature Reserve, which has had to be created in order to prevent the wild daffodils from being destroyed.

The Conservancy's activities continue to be limited by lack of resources, and this has become so severe that the Report has to announce that no new applications for scientific grants can be considered to take effect before 1958.

Notes and Observations

VANESSA HUNTERA FAB. AND NOTODONTA PHOEBE SIEB. IN THE ISLE OF WIGHT.—On 19th August 1956 I was informed by Dr. Knill Jones of Freshwater by telephone that in company of his sons they had taken what they thought at first was a specimen of *Vanessa cardui* L. but were surprised later to notice that it was something quite different and thought it might possibly be *V. huntera*. From the detailed description given me I was practically certain it was indeed *huntera*. The following week-end Dr. Knill Jones and his son motored over from Freshwater, bringing the specimen with them for me to examine, and I was able to certify its identity. The only record I know of is one at Withybush, Haverford West, South Wales, in July or August 1828 taken by Captain Bloomer. This record is in the Rev. F. O. Morris's book on British butterflies.

The same evening at m.v. light Dr. Knill Jones and his sons took a specimen of *Notodonta phoebe* (the 'Three-Humped'). This specimen I also certified for them. We were all thrilled at the capture of these two fine and rare insects in one day.—JOHN LOBB, Fernbank. Wroxall, Isle of Wight. 23.xii.56.

[In addition to the specimen taken by Captain Blomer (not

Above and Middle : Upper and under sides of *Vanessa huntera* Fabricius. Caught at Freshwater, Isle of Wight, 19th August 1956.

Below : *Notodonta phoebe* Siebert. Taken in m.v. lamp-trap at Freshwater, 19th August 1956.

(*See page 74*)

Bloomer) in Pembrokeshire, G. C. Bignell recorded one taken by Miss C. L. Pole-Carew near Torpoint, Cornwall on 20th September 1876; another is stated to have been taken in a railway carriage near Wokingham, Berks, by T. D. Gibson-Carmichael in August 1871. See Barrett, *Lep. Br. Is.*, I, 155 and 9, 449.—Ed.]

An Early Alsophila aescularia Schiff.—On 4th February 1957 I observed a male specimen of the march moth, *Alsophila aescularia* Schf. at rest on a fence here, and can only assume that this very early date is due to the unusually mild weather we are experiencing.—E. E. Johnson, Highfield House, Portsmouth Road, Guildford, Surrey. 5.ii.1957.

Early Emergences.—On 12th January 1957, apart from several small tortoiseshells (*Aglais urticae* L.), which I saw flying, I was surprised to see one freshly emerged large white butterfly, *Pieris brassicae* L., on the wing in a field at Hemyock, Devon. It would be interesting to know whether other early "whites" have been seen by readers.—W. Morris, 66 Wells Road, Penn, Wolverhampton. 4.ii.1957.

——.On 3rd February I observed an hibernated *Nymphalis io* L. flying in my garden at Bromley, Kent, in the afternoon sunshine. Hibernated *Depressaria* species, *D. heracliana* Deg., *D. arenella* Schiff. and *D. applana* Fabr. have been appearing on my windows at night throughout the winter, whenever the weather was not actually frosty.—S. N. A. Jacobs.

Sparganothis pilleriana Schiff. in Dorset.—While collecting at Studland, Dorset, on 14th August 1956, I netted a specimen of *Sparganothis pilleriana* Schiff. flying at dusk low down over the heather. Mr. S. Wakely kindly identified the specimen recently in a box of insects I had asked him to check for me.—L. Price, "Springdale", Rodborough Avenue, Stroud, Glos. 10.ii.1957.

Rowan Berries Attracting Moths.—I was much interested in the note by Mr. Goater in the February *Record* (antea p. 46) concerning moths taken at the berries of elder. It reminded me that some years ago I had been similarly surprised to find a number of moths on the berries of the rowan—a common tree in this part of the country. It was on 16.x.1953 while collecting at night in a wood on the outskirts of Kendal that I accidentally noticed a *Eupsilia transversa* Hufn. on a clump of rowan berries. I gave the tree a gentle tap with my stick and a shower of moths descended upon me. The moths were of two species only, *viz.*:—*E. transversa* and *Conistra vaccinii* L. I beat further rowans in the vicinity with similar results. Unfortunately I did not note the state of the berries—a point noted with reference to the elder by Mr. Goater.—Dr. Neville L. Birkett, 3 Thorny Hills, Kendal. 14.ii.1957.

Phytobia cerasiferae Kangas (Dipt., Agromyzidae)—A British Species.—The latest list of British Agromyzidae was published, as an interim list, by Mr. K. A. Spencer in 1956, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 104-107, as a result of his intensive study of British collections. The list totalled 247 names excluding synonyms but including 4 doubtful records, 4 others requiring confirmation and 18 identified

from mines but not verified from bred specimens. This replaced the list given in Kloet, G. S., and Hincks, W. D., 1945, *A Check List of British Insects* when only 90 species were known.

Omitted from Mr. Spencer's list is *Phytobia cerasiferae* described as a new species by Esko Kangas in 1955, *Ann. ent. fenn.*, **21**: 165-170, from specimens from East Malling, Kent, under the generic name of *Dendromyza* Hendel, 1931, now recognised as a synonym of *Phytobia* Lioy, 1864.

I am indebted to Mr. C. E. Dyte for drawing my attention to the paper by Kangas which compares both the larva and imago with that of other species in the genus living on trees of Rosaceae and has illustrations of larvae and abdomen of a female. Considering the very large number of publications that accept matter concerning British insects, it is no wonder that the species was omitted from the new list which was prepared before the Zoological Record covering publications of 1955 has been published.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey.

Fifty Years Ago

(From *The Entomologist's Record* of 1907.)

BURNETS IN THE NEW FOREST.—Next morning . . . . I went to the *Anthrocera meliloti* ground, and found them quite common, but hard to find . . . . In spite of a bright sun I only saw one fly, and then for only about a yard. This sluggishness is a safeguard, but in spite of it the species could scarcely hold its own were not its headquarters in private ground. . . . I found one professional on the ground and was informed by a labourer that he had 'lived' there for a week and had taken some 600 specimens . . .—R. E. JAMES.

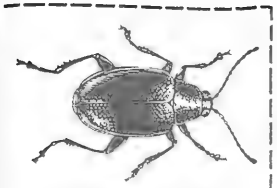
GOOSEBERRIES AT STEVENS'.—We never saw such a jam of 'gooseberries' as at Stevens' room on October 22nd . . . . when Mr. Raynor's collection was sold. Nor were there wanting samples of the gooseberry fool, mellowed though they were by some of that cream, which regards these fine aberrations as matters of scientific interest, and not as so many say, postage stamps. Besides long series of *A. grossulariata* in store-boxes there were especially two drawers containing some 170 specimens, which sold for nearly £200 . . .—J. W. TUTT.

INTRODUCING ANOSIA PLEXIPPUS.—I want to introduce this butterfly here, and I should be much obliged if any readers of the *Entomologist's Record* could assist me in obtaining a quantity of ova or pupa. Perhaps American readers would be able to assist. Failing the above species, any other North American species, having a foodplant which is well distributed here, would answer my purpose.—E. E. BENTALL.

ERRATA

It is regretted that the following references were omitted from the List of Contributors on page vi of vol. 68:—

Baynes, E. S. A., 230
Timms, C., 78



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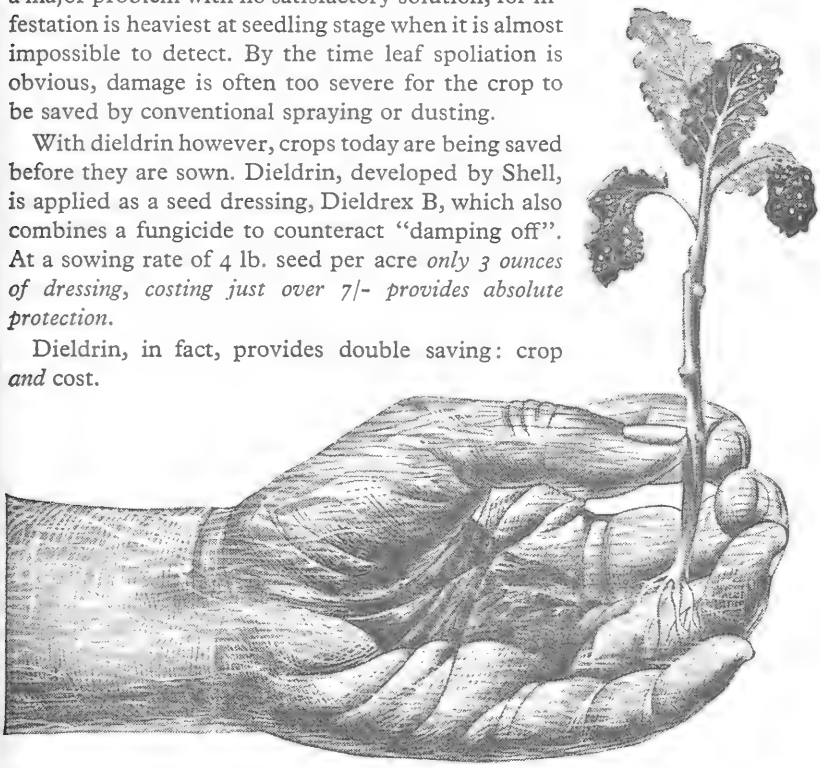

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AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890).

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TO OUR CONTRIBUTORS

All material for the magazine should be sent to the Editor.

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CHANGES of ADDRESS should be sent to the *Hon. Treasurer*.

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BRITISH TRUST FOR ENTOMOLOGY LTD.

At the Verrall Supper held on January 16th, 1955, authority was given to the Honorary Secretary to draw on the Association's balance in hand up to £100 to meet the cost of forming a British Trust for Entomology. This Trust was duly registered at the Board of Trade on June 24th, 1956, as a Company limited by Guarantee and not having a Share Capital.

Some of the main objects for which the Trust is established, as set out in its Memorandum and Articles of Association, are the following :—

(*a*) To promote, organise, carry on and encourage study and research, including field work, for the advancement of knowledge in all branches of the Science of Entomology (both pure and applied) including the investigation of and publication of reports on the relations of insects to agriculture, horticulture, forestry, fisheries and medicine ;

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(*c*) To appeal for subscriptions and donations, and to apply the same either generally for the purposes of the Trust or for some specific purpose connected therewith ; to accept gifts on loan and to make loans of property ;

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(*e*) To promote and encourage the objects of the Trust by means of the circulation of all forms of printed matter, and to print, publish and sell books, papers, circulars and periodicals requisite for that purpose ;

(*f*) To promote meetings, debates and lectures and by those means and by means of photography, wireless and related techniques, to make known and further the objects of the Trust ;

(*g*) To act as concessionaries and agents for other societies, persons and national or international organisations and governments for the furtherance of the objects of the Trust ;

(*h*) To promote, or assist in the promotion of any private or public, local or general Act of Parliament and to apply for Provisional Orders which may seem to be conducive to the furtherance of any objects of the Trust.

Membership of the Trust is open to anyone interested in Entomology and the annual subscription—an unfortunate necessity—has been fixed at one guinea. The Council of Management of the Trust, composed at present of the eight members of the Entomological Club* are convinced, however, that the initial requirement of the Trust is the building up of a Capital Fund.

Towards the formation of this fund upwards of £900 has already been received or promised ; but it is evident that much more is required before the Trust can commence to operate with any sense of financial security, hence this Appeal. It is clear that, to begin with, the Trust will only be able to operate in a small way. That being so it is the Council of Management's intention that at first they should attempt to further especially those kinds of research that appeal to the amateur, in particular observational field work, or indoor work requiring relatively simple apparatus. No doubt many such desirable projects will at once spring to mind. Suggestions and details would be welcomed.

In forming this Trust the members of the Entomological Club believe they have created a machine capable of much benefit to entomological science in Britain. The prospect is indeed a wide one, and opportunities are great.

If, as I am sure will be the case, you find yourself in sympathy with the objects of the Trust and wish to further them, please give practical support in one of the ways indicated on the attached slip which, on completion, should be detached and forwarded to me.

N. D. RILEY.
Hon. Secretary,
British Trust for Entomology Ltd.

(*Originally circulated in slightly different form at the Verrall Supper on January 15th,* 1957).

* J. E. Collin ; Dr. B. M. Hobby ; R. W. Lloyd ; Dr. S. A. Neave ; C. Mackworth Praed ; N. D. Riley ; Dr. T. H. C. Taylor ; Prof. G. C. Varley.

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.....

Date.....

Ennomos autumnaria Wernb. ab. *brunneata* Cockayne

By W. E. Minnion

The strain on which the following notes are based originated in 1951 when Mr. L. Hugh Newman was breeding *autumnaria* in connection with his exhibit at the South Bank Exhibition. Two dark moths, which seemed to be of a form not previously described, appeared among the typical insects and these two were referred to Dr. Cockayne at Tring. The story of these two moths is recorded in *Butterfly Farmer* by L. Hugh Newman, published by Phoenix House Limited in 1953, page 141.

These insects were described by Dr. Cockayne in *The Entomlogist's Record*, Volume 64, No. 9, September 1952, page 239, as follows:—

"The head, thorax, abdomen and wings are brown with no trace of the normal orange, the brown becoming darker toward the apex of the forewing and the margin of the hindwing; the antemedian and post-median are plainly visible on the forewing and the discoidal spot is present. The underside is entirely brown". He named the variety ab. *brunneata*. Type and paratype are in the Rothschild-Cockayne-Kettlewell collection in the British Museum labelled Sussex, ix, 1951.

It may be added that extensive breeding indicates that the markings vary as in typical *autumnaria* while apart from a slight variation in depth the brown ground colour of the variety remains constant.

The following year, 1952, Mr. Newman bred two more *brunneata* and ova from pairings between one of these and two typical *autumnaria* were obtained by Dr. H. B. Williams, and it was due to his efforts that the work described in this note has been possible.

From the two batches of ova Dr. Williams bred 6 ♂♂ and 5 ♀♀ and 17 ♂♂ and 16♀♀ respectively, all of which were typical *autumnaria* but he thought that many of them were darker than normal on the underside.

From these insects Dr. Williams obtained some ten pairings, but owing to various causes, such as infertility and losses due to virus, the offspring from two only of these pairings survived to continue the story.

The ova resulting from the first of these two were sent to Mr. E. S. A. Baynes who bred both typical *autumnaria* and *brunneata* and, while it has not been possible to ascertain precise numbers, it appears that the proportion of *brunneata* was approximately 25%. Mr. Baynes obtained a pairing between two *brunneata* but the resulting ova were not fertile.

The other batch of ova were sent to Dr. E. A. Cockayne and he passed one half of them to Mr. B. S. Goodban and myself. The ova retained by Dr. Cockayne produced only typical insects but those which he handed on to Mr. Goodban and myself produced 36 typical *autumnaria* and 9 *brunneata*, i.e. 20% of the variety.

Mr. Goodban's insects, approximately one half of our batch, emerged about a month before mine and showed obvious signs of intensive inbreeding (the stock had been inbred for some years before *brunneata* appeared) with a marked tendency to crippling and imperfect wing

development (ballooning). *Brunneata* refused to pair with *brunneata* as did *brunneata* with type. By rare good fortune another brood of *autumnaria* from wild stock, in possession of a friend and originating from Kent, was emerging at the same time as mine and one female *brunneata* paired with a male from this other source and a good number of fertile ova were obtained.

The following year, 1955, these ova resulted in a virile brood of typical *autumnaria* and numerous pairings were obtained. Ova were distributed to a number of entomologists in the hope that having a series of figures from broods reared under varying conditions and on a variety of foodplants the status of the variety could be established.

From some of these broods, for varying reasons such as heavy losses or lack of detailed records, the results cannot be regarded as significant but in two cases where the ova were known to be from a definite pairing between two heterozygotes in each case the numbers bred were satisfactory and full details were kept. These produced the following figures:—

1. 33 typical *autumnaria*. 12 *brunneata*.
2. 42 typical *autumnaria*. 18 *brunneata*.

It is unfortunate that full details of the other separate broods did not materialise.

After the ova laid in good batches and of known parentage were distributed quantities of small batches of ova remained which could not be said with certainty to have resulted from pairings between heterozygotes as other *autumnaria* may have been introduced. The results from these suggest that they were not as in total the percentage of varieties bred was only a little more than ten.

In 1952 Dr. Cockayne described the variety as recessive but the failure of the ova which he retained from the 1953 pairings to produce *brunneata* while those reared by Mr. Goodban and myself did so led him to doubt his original statement and to incline to the view that the form might be dominant but with a strong environmental factor. The results now obtained are extremely close to the expected proportions of type and variety if the variety is recessive and it is suggested that *brunneata* definitely should be regarded as a simple recessive form. This assessment is supported by the fact that in the remaining broods which have not been quoted in detail *brunneata* appeared in some numbers.

When the whole of the data available was discussed with him a few months before his death Dr. Cockayne fully supported this view but he was still mystified by the behaviour of the 1953 brood and he said of this brood, which had failed to produce the variety as expected, that "the larvae got stuck coming out of a lot of eggs". From experience of breeding the species the impression is formed that *brunneata* is less virile than typical *autumnaria* and possibly Dr. Cockayne's remark quoted above may be the key to the mystery if the less hardy varieties were those which failed to get out of the eggs.

It has been suggested that it might be possible to distinguish between the homozygous type and the heterozygote but although the 1955 imagines were all heterozygous they were variable in marking and did not appear to be distinct. Until further work has been carried out it seems advisable to regard the heterozygote as indisguishable.

A Story of Disappointment

By G. E. Hyde

At the end of June last year I spent a week-end in the Breck area in the company of Dr. A. M. R. Heron and his wife. We left Yorkshire at noon on Friday, 29th June, and returned on the Sunday evening. This gave us the best part of three days and two nights away. After a wet start the weather improved, and although it remained a little unsettled the evening proved a good one for moths. We used sugar, Tilley lamps and the headlights of the car, and an assortment of species, chiefly common ones, responded. I do not propose to give a full list of these, but they included a single *Heliophobus albicolon* Hb., which came to one of the patches, and was boxed by Dr. Heron. The insect might have been mistaken for a rather worn *Mamestra brassicae* Linn., but proved to be a female of the more desirable species, and she was retained in the hope that she would lay. There were no eggs in the box the following morning, but she subsequently deposited about 70 on the sides. These started to hatch within twelve days, and about half the young larvae were kindly given to me. They were feeding on knotgrass, and as they appeared to relish this further supplies were provided.

In the days that followed fresh dock leaves were also introduced, but although these were nibbled, the young larvae displayed a marked preference for a diet of knotgrass. My own larvae were housed in perspex food-containers of about 4 inches square, and during the daytime they rested underneath the layer of paper in the bottom, and amongst the foodplant. For a time all seemed well, and some of the larvae made good progress, being about half grown after three weeks from hatching. I went to Sussex at the end of July, so had to take these larvae, and many more, with me. We travelled by car, and there seemed no reason to suppose that the journey had any ill effect on the precious passengers. But alas, trouble started a little later, and although every effort was made to keep the larvae healthy, only two survived at the end of another ten days. These had reached the last instar, and were of a dull green, unrelieved by little other colour. I thought that they might be spared, but the hope was in vain, and neither reached the pupal stage.

The larvae retained by Dr. Heron suffered a similar fate, but he was successful in obtaining a single pupa. We are hoping that this will duly produce a moth to remind us of the series we might have raised. With regard to the normal habits of the larvae of this species, we were unable to find much information of a convincing character. South, quoting Barrett, mentions plantain, dandelion and other low plants growing in sand as foodplants, and adds, "probably also on *Atriplex*, *Chenopodium* and *Cruciferae*; but it is a larva of secret habits and is very little known". It seems likely that in nature the larvae burrow into sand or light soil, and they may even feed to some extent on roots. We certainly hope to have another chance to rear the species in the future, and if this is granted, sand will be provided. If any readers of this note have had experience in rearing *H. albicolon*, either from eggs laid by a caught female or from collected wild larvae, we would appreciate observations and advice.

And now a word about *Heliothis dipsacea* Linn. Saturday, 30th

June was better as regards weather than many Saturdays in the summer of 1956. The breeze was not too strong for most day-fliers, and we had several welcome hours of sunshine in the Breck. Shortly after we had started operations in the morning we met Messrs. R. M. Mere and D. More, who, like us, were looking for local species of the area. In the course of the morning I netted a male *H. dipsacea*, which had evaded Mr. More after a hard run. I handed it over. A little later, when talking to Mr. Mere, I caught a female of the same species as she flew from a plant of viper's bugloss. She was rather worn, and in the course of the following week laid about one hundred eggs. These were deposited in ones and twos amongst the flowers and stems of valerian and rest-harrow, they were not easy to detect.

The hatching of the eggs started about ten days later (from the time the first eggs were noticed), and I soon had a large brood of lively young larvae. They were offered rest-harrow, including the flowers, and also the leaves and flowers of toadflax. They seemed to prefer the former, and fed voraciously. I divided the brood into four equal portions, of which Dr. Heron, Mr. Mere and myself each had one. The fourth share I sent to Mr. A. J. Wightman. As in the instance of the larvae of *H. albicolon*, all seemed well at first, and we were hopeful of success, but trouble came, and I believe I am correct in stating that not one larvae became more than half grown. None certainly reached maturity. It is worth adding that the larvae had a marked resemblance to those of *Pyrrhia umbra* Hufn., which also feed largely on rest-harrow.

None of the books I was able to consult in regard to *H. dipsacea* was very helpful as regards foodplants and treatment of the larvae. South includes the names of several plants, amongst them rest-harrow, adding that the larvae prefer flowers and seeds. On two occasions in the past I have found a single larva by day in the flower head of hawkweed, and on both occasions I reared moths—these emerged in the summer following the finding of the larvae. In a subsequent talk with Mr. Wightman regarding this species, he expressed the opinion that it is a very difficult one to rear in captivity, either from eggs laid by a caught female, or from wild larvae. It is possible that the larvae might respond better to very warm conditions, including liberal sunshine, but again the remarks of others on the subject would be appreciated. I still hope to fill some of the empty spaces in my cabinet with a few examples of *H. albicolon* and *H. dipsacea*.

20 Woodhouse Road, Doncaster.

Unst Revisited

By Edgar J. Hare

My first visit to Unst, the northernmost island of Shetland, was in July, 1932, in the days of the old Nord Hotel at Baltasound, when R. C. Edwards and I had a marvellous catch of *Crymodes exulis* Lef. on the one night suitable for sugaring. Other visits, in July 1938 and June 1946, were less rewarding; but in 1955 I yielded to the temptation to have a go at the August moths. And so on 3rd August, accompanied by Mr. George Law, I set out once more on the long journey.

Perhaps it may be helpful to other collectors who think of trying

their luck on Unst if I give a brief account of that journey. The "Aberdonian" from King's Cross decanted us at Aberdeen early in the morning of the 4th; and as our boat was not due to leave for Lerwick until five o'clock that afternoon, we had plenty of time to see the sights of Aberdeen. However, we were allowed on board at three, and beguiled the remaining two hours by watching the descent through the hatches of vast quantities of custard powder and other commodities, as well as a few motor cars. The four-berth cabins in the ship are by no means spacious, and a bit of contrivance is required for the safe bestowal of one's baggage, a far more important matter for a bug-hunter than the insinuation of his person into a bunk made up apple-pie fashion. As in so many of life's contingencies, the first to arrive fares best.

Whereas on previous occasions I had travelled from Lerwick to Baltasound by the island-hopping route, this time we boarded the new *Earl of Zetland*, a motor vessel of some 850 tons and a great improvement on the old *Earl*, a little steamer of great antiquity which had a reputation for dirt and smell by no means attractive to a queasy stomach. The present *Earl*, as did its odorous predecessor, sails from Lerwick at an unspecified time in the morning, and, after calling at various lonely little landing-places along the east coast of Mainland and Yell to put ashore cargo and mail, arrives at Baltasound in the late afternoon; and from the quay it is but a few hundred yards to Springfield House, a well-run establishment enjoying a virtual monopoly of the now considerable tourist trade of the island of Unst.

As an alternative to the *Earl* there is the overland route by 'bus or car with a ferry-boat to take you from Mainland to Yell and another from Yell to Unst. This is much quicker, for, leaving Lerwick at 8 a.m., you arrive at your destination in time for lunch, after a journey of some sixty miles. It is preferable, if you have much baggage, though considerably more expensive, to arrange for private cars rather than to go by the regular 'bus; and this I did when I made the trip once again in 1956. Had I been so minded, I could have accomplished that part of the journey free of charge, for there is an important radar station on Unst, with much coming and going; and at each stage the driver or ferryman asked me:—"Admiralty?" Not wishing to travel at the expense of my fellow collectors in their capacity of taxpayers, I denied the soft impeachment. That 1956 venture, by the way, was a complete failure, for there were hardly any moths about, not only because the weather was bad at the time, but also because the whole season had been wet and cold.

Unst is now a busy and prosperous island compared with pre-war days. This is mainly due to the radar station on Saxa Vord and the near-by camp which provide a lot of work, and there is also a soap-stone quarry the stone from which is shipped south, and one of the old chromate mines is now being worked; so that what with all this, to say nothing of the new tourist traffic, there is far more money about, and depopulation, which until recently was very serious, appears to have been checked.

On our first night, 5th August, we went with our paraffin vapour lamps to a large heather-covered enclosure about a mile away, known, for some obscure reason, as the deer park; I do not believe there have

ever been any deer on the island. There we made our first acquaintance with *Lygris populata* var. *musauaria*; the only other species on view was *Entephria caesiata* of which some nice forms were obtained. The next night was devoted to collecting larvae of *Hadena conspersa* from sea campion along the shore at Haroldswick; we had spent part of the day digging up larvae of *Dasypolia templi* in the garden of Robbie Mouat, formerly the Baltasound postman and very knowledgeable about the moths of the island. I was not destined to see him again, for on my 1956 visit I learned that he had recently died. He was well known to all collectors who had visited Unst since the beginning of this century.

The 7th was a brilliantly sunny day, and the sky remained clear until the next day, with the result that moth hunting was useless and there was frost that night. It was usual, after dinner, for the younger visitors to play a primitive form of cricket on a stretch of rather rough grass in front of the veranda, and George Law was in great demand as a fast bowler until the time came to set off on the serious business of the evening; but on this occasion the pitch was deserted, for everyone was held entranced by the wonderful effects of light, shade and colour as the sun, nearing the horizon, cast reflections of the low hills in the opaline water of the voe.

One of the insects we were particularly anxious to take was *Amathes glareosa* var. *edda*, so on the following evening we tried a stretch of low heathy ground on the opposite side of the voe which had been recommended to me by Mr. R. P. Demuth. Though the weather conditions were not bad, no *edda* turned up, and our subsequent experiences showed that we were a little too early. More *populata* were taken that night, with a few *L. testata* var. *insularia*, and it was rather surprising to find *Diarsia festiva* var. *thulei* still in reasonably good condition, for it is usually taken along with *Crymodes exulis* in mid-July.

The next night, in the deer park, we found that *edda* was just starting, for we had a few perfect specimens at our lamps. We did our collecting to a musical accompaniment coming from the village hall where wedding festivities were in full swing. Most of the inhabitants of Unst were present, and were joined by a party of sixty supporters of the bridegroom from Yell. The reception lasted officially from six o'clock that evening until six o'clock the following morning, though a number of enthusiasts carried on until a much later hour; it was hardly surprising, therefore, that for the rest of the day the atmosphere appeared to be heavy with hang-over.

George Law was hoping against hope that it might still be not too late for *exulis*, and so, on the evening of the 10th, the weather seeming to be suitable, we made for the well-known fence beyond Burrafirth. But, alas! not a moth came to the sugar, and indeed we fell badly between two stools, for by the time we reached the shore at Burrafirth, where we hoped to get *Euxoa cursoria*, no moths were to be seen save the usual geometers. Nor did our disappointments end there, for the car which was to have picked us up at Burrafirth at 2 a.m. did not turn up at the appointed time, and we were faced with the possibility of a six-mile tramp. On we went, doing a little desultory collecting by the wayside and hoping that the car would appear at any moment; but it was not until 3.30, when we were within two miles of home, that we

saw its headlights in the distance. Fortunately weddings are not of daily occurrence!

We paid a second visit to the aforesaid heath on the 11th, and it proved to be a bumper night for *edda*, of which we took a number of splendid specimens, and also a few of the grey form. *L. populata* also came to the sheet in quantities; some were very black, but it was becoming difficult to pick out any in good condition. I ought also to mention the vast numbers of *Charaeas graminis*, not only on that occasion but throughout our stay; they swarmed both by day and night, and I had never seen so many in my life before.

For our last night we went to Haroldswick and took a few more *edda*; other captures included *E. cursoria*, *Celaena haworthii*, and *Amathes xanthographa*. After a brief rest, we boarded the *Earl* at 6 a.m. and arrived at Aberdeen about 7 o'clock on the following morning. After breakfasting at an hotel, we adjourned to the station waiting-room with ten hours to go before our train was due to leave. Possibly there may be livelier and more entertaining places than the Aberdeen waiting-room on a Sunday, but it afforded us a splendid opportunity to make up some arrears of setting on the solid table so thoughtfully provided. Although I am rather a slow setter, I remember I set 48 moths, and Law must have got through nearly as many, moreover, the day being what it was, we were free from any interruptions from curious spectators, save for two policemen who came to ban and stayed to bless. And so ended a brief but not unprofitable trip.

A Holiday in Austria—July 1956

By Major W. A. C. Carter, R.A.

One of the few compensations of serving in Germany is the comparative ease with which one can take holidays on the Continent. For years I had wanted to collect in the more mountainous parts of Europe and so, with the grant of three weeks' leave in my pocket, my wife and I set out by car for Austria on the 17th July.

The weather during the previous few weeks had been atrocious and before we had gone a hundred miles we found the Weser at Nienburg in flood and long stretches of the main road were under water to a depth of several inches. Further south, conditions got steadily worse; we were making for the Kassel autobahn but found the main road blocked and were forced to make a wide detour on the other side of the Leine Valley. It was tragic to see the devastation in the valley itself; bundles of hay were floating on a swirling brown torrent and acres of ripening corn were standing in water two feet deep. We saw a football pitch on which only the top third of the goal-posts was visible. We learnt later that there had been a tremendous storm two days before during which there had been fifty-six hours of continuous torrential rain. Late that same afternoon, in the neighbourhood of Fulda, we ran into the tail of the storm and for about two hours the rain was heavier than I have seen it anywhere in the world. We crept along with our lights on only to find ourselves once more diverted and forced to drive some twenty miles through the hills along a road which was no better than an inferior cart-track.

In spite of these delays, we achieved 350 miles on the first day

and stopped for the night at Rotenburg ob der Tauber in Bavaria. This, like many others in this part of Germany, is a most picturesque mediaeval town and we wished that we could have spent longer exploring its ancient cobbled streets and courtyards.

So far we had seen nothing except Pieridae flying along the roadside, but this in itself was encouraging by comparison with the complete absence of all butterflies in Delmenhorst. The following morning, shortly after crossing the Danube, we had another long and tedious detour over unmetalled roads before we finally reached Augsburg and could see the mountains in the distance. And here we started to see butterflies; we did not stop but noticed Blues and Erebias flying amongst the flowers and, in one patch of waste ground near Augsburg, there was an abundance of *Agapetes galathea* L.

We had intended to stay at Warth in the Hochtannberg but, after one night, decided to move. We finally settled on the village of Lech, a few miles up the same valley. Lech is a charming village about 4500 ft. above sea-level and about ten miles North of Stuben on the main Feldkirch-Innsbruck road. It is surrounded by mountains rising to about 8000 ft. and we found a fair amount of snow still lying in the sheltered hollows. The main drawback is the difficulty of getting about; the only exit from the valley is an extremely bad road over the Flexenpass to the South and there is only one seilbahn which leads to Oberlech about 700 ft. above the valley. We therefore had no opportunity of exploring higher ground.

The first afternoon, 19th July, we climbed to the open fields to the West of the valley. We found a lot of *Aricia agestis* Schiff. and a single very fresh *Clossiana titania* Hbn. In the same area, on a flowery patch beside the river, a male *Anthocharis cardamines* L. was seen. We moved up through scattered pinetrees and reached the open meadows at about 5000 ft. On the way up, a worn *Maculinea arion* L. was taken and a fresh *Cupido sebrus* Hbn. Settling on the path were many *Erebia aethiops* Esp. and in the meadows we found *E. oeme* Hbn. and *E. pharte* Hbn. We had only a bare one hour's sunshine before the clouds came down bringing rain and thunder. The latter caused a curious effect which I had not encountered before. I was without a hat and, suddenly, felt a tingling sensation on the crown of my head—much as though a fly was entangled in my hair. A moment later there was a loud peal of thunder and I have no doubt that I really had been 'struck by lightning'!

The following day we went to the higher meadows above Zürs, a tiny village just below the top of the Flexenpass. At about 6000 ft. we came to a wide, open valley carpeted with every kind of wild flower. There were *Lotus*, *Helianthemum*, and *Hippocrepis*, masses of Gentian and diminutive *Primula*, *Auricula*, Cyclamen and many others; a particular joy was the discovery of minute white crocusses, *Crocus albiflorus* Kit., growing a few inches from the edge of a large patch of melting snow. We were well above the tree-line but there were large patches of scrubby bushes—some species of *Salix*, I think—and some alders. On the mountainside itself there were patches of bilberry.

Unfortunately the weather again let us down. About mid-morning there was more rain and thunder and it got very cold indeed. We spent an hour huddled in a cow-byre before we gave it up and walked home wet

and chilled. Perhaps the cold accounted for the almost complete absence of butterflies; there were a few common Pieridae and one *Pieris bryoniae* O. which had clearly had an argument with a spider's web. *Cupido minimus* Fuessl. was seen (indeed, I do not think there was anywhere where we did not find it) and a few scattered Erebias. Of the latter, the only ones taken turned out to be *E. eriphyle* Frr. and *manto* ssp. *pyrrhula* Frey.

The following day, we decided to try lower ground in the Klostertal. We drove towards Feldkirch and, leaving the car in the station-yard at Dalaas, we started to climb the northern side of the valley following the path to the Freiburger Hütte. Most of the paths are sponsored by the Alpenverein and are extremely well marked with signposts and splashes of red or blue paint prominently displayed on rocks every few hundred yards.

Shortly after leaving Dalaas, in an open space, we found *Lysandra coridon* Poda and other common Blues. Further on, on an impossibly steep slope, were *Mesoacidalia charlotta* Haw. (hereinafter referred to as *aglaia* L.) and numbers of *Erebia aethiops* Esp. At a height of about 3000 ft. we found an ideal spot—a steep grassy slope lying amongst scattered pine-trees and facing due South. There were masses of flowers including *Aquilegia* and *Anchusa* and there was also plenty of butterflies. The grass here was very short, and it was noticeable how many more insects there were than in the still uncut hayfields nearby. On the way up we had fallen in with a party of German hikers and were told that the year is considered to be a very late one due to the prolonged severe weather in the winter.

The Blues were disappointing. *Agestis* was common as were females of *Polyommatus icarus* Rott., but the few males of the latter were worn to shreds. Several ragged *Cyaniris semiargus* Rott. were seen and some very worn *Palaeochysophanus hippothoe* ssp. *eurybia* O. *L. coridon* was common and fresh but only males were seen. There were numbers of male *bellargus* but they were nearly all badly worn. The only *Erebia* seen was *aethiops* of which the males were abundant. *Vanessa cardui* L. and *Aporia crataegi* L. were seen—both very faded and dilapidated.

The chief interest was provided by the fritillaries. *A. aglaia* was common and very fresh and several specimens of *Fabriciana niobe* L. were taken. Of the Melitaeids, *britomartis* Assm. was common and worn and a single female of *diamina* Lang was also taken.

Other insects seen were *Colias phicomene* Esp. and one very worn *C. australis* Vrty. *A. galathea* was abundant as was also *Coenonympha iphis* Schiff. A few worn females of *Dira maera* L. were taken.

As on the two previous days, we were overtaken by the weather and we got back to the car at about 2.30 p.m. thoroughly drenched and shivering with cold.

There was a sharp frost during the night and there was ice on the puddles the following morning. However, the weather showed a definite improvement and we were abroad by 9.0 a.m. We spent the day locally on the Gstüt Alp and Hornplätze on the skirts of the Omershorn. Coming onto an open space just above the tree-line at about 5200 ft., we found a number of butterflies flitting over the short turf. Here we found *Agriades glandon* Prun. and a female *Maculinea arion* L. oviposit-

ing on wild thyme. Further on we found a narrow gully facing the sun and surrounded by trees in which *glandon* and *Coenonympha satyrion* Esp. were plentiful. The former were rather worn but the *satyrion* were in excellent condition. Amongst the latter was a rather nice female form; the hindwings were very pale grey with a still lighter pearly marginal band showing through from beneath.

The Gstüt Alp is a wide valley running E.-W. It is a paradise of wild flowers and there was an abundance of Alpine Rose (*Rhododendron* sp.) in full bloom. I followed the northern edge of the valley where it is bordered by trees and took several fritillaries which we had not met before. One very worn *Clossiana euphrosyne* L. was seen; *C. titania* Hbn. was common and in good condition; single specimens of *Boloria pales* and *B. napaea* Hffmgg. were also taken. There were also a few *aglaia* flying wildly along the edge of the trees. *Erebia pandrose* Borkh. was present but uncommon, the males very noticeable with their slate-grey undersides. The females were also out but they were, unfortunately, passed over as being worn-out examples of *aethiops*. Both sexes appeared to be well past their best. Other Erebias seen were *oeme* Hbn., *pharte* Hbn. and *aethiops* Esp. There were numbers of *Pieris bryoniae* O. but they were in very poor condition. One fresh *C. phicomene* Esp. was taken.

We pressed on up to a level of 5,600 ft. but the hillside became so rocky and steep that collecting became difficult and dangerous. There was little to be seen except *Aglais urticae* L. and the ubiquitous *C. minimus*. I did, however, take *Pyrgus alveus* Hbn.

By midday it had begun to cloud over. During the afternoon I walked up to the Tali Alp on the other side of the Lech valley but the sun had gone in and there was nothing to be seen. The valley was, anyway, quite unsuitable containing little but rank weed with no wild flowers.

On 23rd July the weather at Lech looked most unpromising so we decided to go down to the Reschen Scheideck and over the frontier into Italy. Earlier in the year Mr. R. F. Bretherton had suggested this as a promising area, and although we spent only about one and a half hours there we proved that, as might have been expected, it was excellent advice.

The drive down the valley was quite lovely. From the Arlberg Pass down to St. Anton is hair-raising but the road is excellent. From there to Landeck along the valley of the River Rosanna is typically beautiful mountain scenery as is the Inn Valley leading up to the Reschen Scheideck.

The frontier-post lies in a wide valley and there should be good collecting on any of the slopes. We halted for a moment just short of the pass and, by the road-side, found *Heodes virgaureae* L. and a single male *Jolana jolas* O.

We turned up a side-road on the far side of the village of Rescia and at a height of about 5,000 ft. started up a very rocky valley with a shallow stream tumbling down it. There were wild flowers in profusion including thyme, clover, *Lotus* and *Hippocrepis*, *Helianthemum*, etc., much like the flora of the Chilterns or the Cotswolds. It was noticeably different from the lush green grass of the Lechtal.

As soon as we started we found ourselves amongst a host of *Plebeius*

argus L., both sexes being out and, mainly, very fresh. On damp patches beside the stream they were crowded together in countless numbers; there were so many of them flying about that they made collecting difficult by continually distracting attention from other things. They appear to belong to ssp. *alpina* Courv. or, possibly, *cleomenes* Fruhst. At this point, too, we found two males of *Agrodiaetus damon* Schiff. They were very fresh and, as we saw no more, they were probably not yet fully out. Along the edge of the stream there were a great many *Maculinea* sp. which appear to be *alcon* Schiff. or very darkly suffused *arion* L. *Cupido sebrus* was frequent and in good condition. The Coppers were represented sparingly by *Heodes virgaureae* L. (males only), *tityrus* ssp. *subalpina* Speyer, *alciphron* ssp. *gordius* Sulz. and *P. hippothoe* ssp. *eurybia* O. Males of *Lysandra coridon* were freshly out and one male *L. bellargus* was also taken. I did not notice any females of either species.

Erebias were curiously scarce and only one was taken; this turned out to be *alberganus* Prun., the only one we saw all the time we were in Austria. There were great numbers of Skippers which were, I think, mostly *Pyrgus alveus*, *P. malvae* with a few *Erynnis tages* L. Also seen were *Adopaea silvester* Poda and *Ochlodes venata* B. & G. My wife saw *Parnassius apollo* L. go tearing down the valley but it was miles out of reach. This was a great pity as it has long been my ambition to take this insect.

The fritillaries were disappointing. *M. aglaia* was as plentiful as ever; one male of *Issoria lathonia* L. was taken together with one each of *Clossiana titania*, *C. dia* L., *C. euphrosyne* L., *Boloria pales* Schiff. and *Melitaea britomartis* Assm.

At 3.30 p.m. we regretfully had to leave as we had some shopping to do in Landeck on the way back.

The next day we returned to the Gstüt Alp in very uncertain weather. Little new was seen except an exceptionally large female *Papilio machaon* L. It was very worn and so faded that it appeared to be nearly white.

(To be continued.)

Collecting in Berwickshire July-December 1956

By A. G. Long, M.Sc.

During the first week of July a pupil from Paxton brought me specimens of *Zanclognatha grisealis* Schiff. and *Bena fagana* Fab. The latter was found by day sitting on a leaf of woodrush. The same pupil also showed me a moth he had found dead in a spider's web on 30th June at the old Nab Dean curling pond. I felt sure this was *Apamea unanimis* Hb., a species I was looking for, so on 7th July I set out for Paxton and with my schoolboy assistant I worked the m.v. lamps all night close to the Nab Dean pond, which is now much overgrown with Reed Mace and Reed Grass. We switched on at 10.45 p.m. and finished about 3.15 a.m., the night being fine, calm and warm (53° F.). Sixty species came to light of which the most interesting were *Thyatira batis* L., *Plusia festucae* L., *Cucullia umbratica* L., *Hadena cucubali* Schf., *Selenia lunaria* Schf., *Eupithecia centaureata* Schf., *Cleorodes lichenaria* Hufn., and one *Apamea unanimis* Hb. *Graphiphora augur* Fab.

was very abundant. During the early part of the night we had the interested assistance of the farmer on whose land we were collecting.

The weather at this time was very broken and I was much troubled with swarming among my bees. On two evenings when working among my bees at Kyles Hill I saw two moths flying over the heather and although I was unable to catch them I felt sure they were *Parasemia plantaginis* L. A single specimen of *Ortholitha mucronata* Scop. came to my m.v. trap at Gavinton on 7th July, the first time I had taken it in the village.

On 9th July I worked the m.v. lamps at Kyles Hill, but conditions were poor—a clear sky, cold north wind and temperature of 45° F., so I packed up before 2 a.m. Only 20 species came to light including *Dasychira fascelina* L. and *Dyscia fagaria* Thun. In my garden trap at Gavinton I took *Agrotis clavis* Hufn. This was my first record of this species and on 14th July I took two more at my home trap.

On the afternoon of 10th July my son found a larva of *Trichiura crataegi* L. at Kyles Hill. It was crawling up a beech tree trunk and must have been full grown as it soon spun up and produced a female moth in September. At night I visited the Bell Wood over Cranshaws and put my m.v. traps on the steep hillside. A Snipe was drumming at dusk and six Oystercatchers flew down the valley, following the course of the Whitadder. One of my lamps attracted a single specimen of *Semiothisa liturata* Cl., which had probably flown across the valley from a plantation of Scots pines known as Berrybank Wood. Other species were: one *Pheosia tremula* Cl., several *P. gnoma* Fab., two *Triphaena orbona* Hufn., *Apamea furva* Schf. and a small specimen of *Abraxas grossulariata* L. in a total catch of 41 species. In my home trap I took one *C. umbratica* L.

On 12th July I set out with my young daughter for Dogden Moss, approaching via Hallyburton Farm. It was a lovely sunny day with a clear blue sky and a slight easterly breeze. Arriving about noon we set foot on the Moss at its western limit and soon put up considerable numbers of *Coenonympha tullia* Müll. from among the Cotton-grass and Cross-leaved Heath. *C. pamphilus* L. was also present in more grassy places and in a rushy spot near the Bedshiel Kaimes we took a good series of *Epirrhoe tristata* L. and one far-travelled *Bupalus piniaria* L. Later (on 13th and 16th) I searched for *C. tullia* on Hule Moss and Penmanshiel Moss but failed to find it at either locality.

On 14th July, 3 *Deilephila elpenor* L. appeared in my home trap at Gavinton; altogether this season I recorded 16 between 30th May and 22nd July.

On 15th July I visited St. Abbs and walked up the coast to Coldingham Loch. Near here the cliffs rise to a height of 500 feet—the highest point on the eastern seaboard of Scotland. It was a very hot afternoon and I was hoping to see *Aricia agestis* var. *artaxerxes*, but in this I was disappointed. However, on the steep braes half a mile W.N.W. of Pettico Wick I netted three specimens of a small brown moth flying over Bell Heather (*Erica cinerea*). I immediately realized it was something new, and when I arrived home I was pleasantly surprised to find that it was *Itame brunneata* Thun.—a new Berwickshire record although it has been recorded from Muckle Moss near Haydon Bridge in Northumberland.

On the evening of the same day I took my m.v. lamps to Old Cambus Quarry further up the coast. On approaching the dean I saw a bird sitting in the roadway and as it rose I recognized it as a Little Owl. The night was calm and cloudy, with the temperature steady at 59° F. I recorded 52 species among which were two more *I. brunneata*, several *A. clavis*, a few *Eupithecia pulchellata* Steph. and *E. centaureata* Schf., many *Nudaria mundana* L., *Gnophos obscurata* Schf., *P. tremula* and *Plusia bractea* Schf. In my home trap I took another *C. umbratica* and *Sterrha seriata* Schr.

On 16th July I visited the coast again with my young daughter and on the way we stopped on Coldingham Moor. Here we caught one more *I. brunneata* (after stupidly failing to net another). This time the moths were flying near *Erica tetralix*. We also took two nice *Xanthorhoe munitata* Hb., several *Epirrhoe tristata* L., and a few *Aphantopus hyperantus* L. Afterwards we visited Dowlaw Dean and the steep cliffs near the Brander Cove but failed to see any sign of *A. agestis* which was our main quarry.

On 18th July I was at Gordon Moss and worked the m.v. lamps from 10.30 p.m. to 3.00 a.m. It was a fine night with a temperature of 51° F. and I was pleasantly surprised to find that moths were coming well to treacle—30 to 40 at each patch. At the m.v. lamps I was amazed to find another specimen of *I. brunneata*, though badly worn. This was a seventh specimen within four days from four different localities, suggesting that the species is probably indigenous to the county. Gordon Moss is a locality with plenty of *Erica tetralix* but I do not know of any *Vaccinium myrtillus*. My total catch was 68 species including *Geometra papilionaria* L., *Hadena cucubali* Schf., *Chiasma clathrata* L., *N. mundana*, and *A. furva*.

On 20th July, I took another black *Biston betularia* L. at Gavinton —the third this season. The following day I went to the Aiky Wood near Whitegates and beat the junipers and oaks, but the only interesting find was one larva of *Chaonia ruficornis* Hufn.

On the evening of 21st July I set out with high hopes to work my lamps again at Linkum Bay near Coldingham. The night turned clear and cool, with moonlight, and before dawn I switched off in despair and spent the rest of the night asleep in the van. My total catch was only 32 species, and I only boxed a single moth—a fresh *A. furva*.

Although the weather continued very broken and nearly all my stocks of bees were at sixes and sevens with trying to swarm I persevered with collecting whenever possible. On 23rd July I visited Burnmouth during the day but was rained off. Several fresh *Satyrus semele* L. were seen and a pair of *Zygaena filipendulae* L.

On 24th July I took my lamps to the Hirsel and worked them from 10.15 p.m. to 3.40 a.m. in Kincham Wood. The temperature was high (62° F.) owing to a very soft westerly wind which dropped in the middle of the night and caused a plague of midges. I recorded 73 species, the most interesting being *Ourapteryx sambucaria* L. (8 specimens, all males); this was a new county record. In addition I took *G. papilionaria*, *Zanclognatha tarsipennalis* Tr., *S. liturata*, *Lampra fimbriata* Schreb. and *Procus furuncula* Schf. In my home trap I found another *S. liturata*.

On 27th July I visited Eyemouth and walked down the coast to

Fancove Head where I saw several empty cocoons of *Z. filipendulae* and one female *Setina irrorella* L. At Scout Point, house martins were nesting on a steep rock face. I was pleased to find Scotch lovage, vernal squills (in fruit), and lesser meadow rue.

On 1st August I visited Dunglass Dean and Tower Dean with Dr. Macnicol from Edinburgh. We gathered capsules of *Silene maritima* and *S. cucubalus* and I was pleased to find in these some larvae of *Eupithecia venosata* Fab. We also took several *Sterrha biselata* Hufn. by beating blackthorn bushes in Dunglass Dean.

On 2nd August I took my m.v. lamps to Burnmouth. It was a most unpromising evening with very heavy rain. I took the van down the steep road which leads to the harbour and parked at the foot where the fishermen hang their nets. Here I put down my traps close to the path to Partanhall and operated them from 10.15 p.m. to 3.45 a.m. About 2 a.m. the fishermen began to arrive for putting out their boats while the tide was in, but there were no objections to my lights. I recorded 55 species including *C. clathrata* and two new county records, *Polychrisia moneta* Fab. and *Lygephila pastinum* Tr. The latter was a complete surprise in such a locality. Anyone who has travelled by rail from Edinburgh to Berwick will know that the coast at Burnmouth is like a little bit of Cornwall. S. R. Crockett, writing in the Cambridge County Geography, says that it is "almost a replica of a Cornish village and it figures on many an artist's canvas". Furthermore the wood vetch, *Vicia sylvatica* L., grows abundantly on the steep sea braes so that I wondered if my specimen could possibly be *L. craccae* Schiff. especially as it was somewhat worn. To set my mind at rest I resolved on a return visit to see if I could find more.

On 5th August I visited Coldingham. It was a bright sunny afternoon and *Z. filipendulae* was very common both flying and sitting on knapweed and other flowers. At the foot of the Milldown Burn I followed a moth up a steep bank to discover that it was only *Euphyia bilineata* L. My young daughter then shouted to me that there was a small brown butterfly near the burn, so I threw down a glass-topped box and told her to catch it. However, she was afraid of missing it, so I clambered down and found it to be *A. agestis* var. *artaxerxes*; but although we looked for more, no more were to be found.

On 6th August I visited Sligh Houses Farm where Dr. James Hutton, the geologist, lived in the eighteenth century. Afterwards I searched Lintlaw Wood and Bonkyl Wood in a vain hope that *Erebia aethiops* Esp. might be lurking there unknown to the outside world. My only discovery was some fresh borings of *Sphecia bembeciformis* Hb. in a *Salix caprea* in Lintlaw Wood. At night I made a return visit to Burnmouth and used the m.v. lamps from 10 p.m. to 4 a.m. The night was mild, the temperature 50° F. and there was some rain. Shortly after switching on I took another *L. pastinum* which, though somewhat worn, confirmed the identification. A single *Sterrha dimidiata* Hufn. was also taken (a species new to me) and the total catch was 50 species.

On 8th August I visited Dogden Moss in the evening hoping for *Carsia paludata* Thun. but it was not to be found. The following night I went to Aiky Wood near Whitegates and treacled at the roadside, also working the lamps in the gully between the junipers and oak trees.

Results at treacle were encouraging, the highest number at one patch being 65. I took four *Triphaena orbona* Hufn., a few *Stilbia anomala* Haw. (very late) and *Agrotis ipsilon* Hufn. At first the wind was easterly and blew down the gully most unpleasantly, but later it dropped and hill fog developed. My total catch was 38 species.

(*To be continued.*)

The Lepidoptera of Canford, South Dorset 1953-1956

By Alan Kennard

(*Continued from page 67*)

In the following list certain terms relating to an insect's rarity and commonness need explaining. Where an insect is a wanderer or extremely local within the area some inaccuracy may occur, but the significance of the terms used is as follows. 'Rare' means that less than five specimens have been taken or seen. 'Frequent' denotes that generally over the period of its flight a specimen is taken every night or that at least five to ten specimens are taken each year. 'Not uncommon' indicates that the species is taken almost every night when it is flying though only in small numbers. 'Not common' means similar numbers to the previous term but where the insect would have been expected to be more common. 'Abundant' denotes that the insect appears in numbers every night, generally over 40 specimens a night, while 'Common' indicates that between 10 and 40 specimens a night have been taken during its peak period.

In this list there tends to be a gap amongst the Geometers. This is partly due, I think, to the absence of a great deal of rough grass in the vicinity of the m.v. lamp and partly to the lack of beating around in any existing rough ground. Of course the fact that many Geometers will fly towards the light and then away again is an additional reason. The list of butterflies also is not very bright, but a large number are to be found within twenty miles of the School at places which can be reached on a Sunday afternoon cycle ride.

RHOPALOCERA

The following have been taken within a 2-mile radius of the School:

Satyridae

Pararge aegeria L.: Fairly common in shaded lanes and tracks.

P. megera L.: Surprisingly few seen.

Satyrus semele L.: Common on the heath but rarely seen off it.

Maniola tithonus L.: Common.

M. jurtina L.: Abundant.

Coenonympha pamphilus L.: Common on the heath and often found in bordering meadows but I have never seen the insect by the river.

Aphantopus hyperantus L.: Only a few individuals seen.

Nymphalidae

Argynnis selene Schf.: Abundant in one rough meadow about a mile from the School; also found in Break-Hill Wood though sparingly.

A. euphrosyne L.: The same distribution as the previous species but less common.

A. aglaia L.: Found in the School grounds but never more than a pair in any one place. However, it was fairly common in the rough meadow where the previous two species are found.

A. cydippe L.: A few found in the rough meadow a mile from the School but also found in Break-Hill Wood.

A. paphia L.: Not found in the same places as the previous species but chiefly in lanes bordering the heath.

Vanessa atalanta L.: Occasional immigrants seen: it was fairly common in the district during the autumn of 1955.

V. cardui L.: Abundant in 1952 in any field containing thistles but only seen sparingly since.

Aglais urticae L.: Any bunch of nettles will produce a nest of larvae. Common.

Nymphalis io L.: Common though less so than the previous species.

Polygonia c-album L.: Common on one piece of rough ground near the School buildings but rarely seen elsewhere.

Limenitis camilla L.: Increasing in the district, though still scarce. A number were seen in 1956 on the borders of the heath and in 1955 one was captured in the School grounds. While out on a trip to obtain *Thymelicus acteon* L. on 26th July 1956 I saw a specimen flying along the sand dunes at Studland which surprised me since the nearest locality I know of its some five miles away.

LYCAENIDAE

Plebeius argus L.: A fairly strong colony on the heath just over a mile away.

Polyommatus icarus Rott.: Common: found in the School grounds on some of the playing fields.

Celastrina argiolus L.: Occasionally an odd specimen is taken.

Lycaena phlaeas L.: Frequent on any rough ground.

Thecla quercus L.: 3rd July 1953: a fresh male, the only record.

Strymonidia w-album Kn.: A strong colony existed on the river bank half a mile from the School. It flourished in 1952 but during the following winter a large copse of elm was cut down and I saw only four insects in 1953. I have not seen the insect there since although there are a large number of wych elm trees. In 1952 it first appeared on 6th July.

PIERIDAE

Pieris brassicae L.: Fairly common though never seen in great numbers.

P. rapae L.: Common.

P. napi L.: Common.

Anthocharis cardamines L.: Common. This year (1956) I took one as late as 26th June in fair condition.

Colias croceus Fourc.: Generally seen in most years either in July or late September.

Gonepteryx rhamni L.: A number seen in most years scattered about the neighbourhood.

HESPERIIDAE

Erynnis tages L.: Common on the edges of lanes and some playing fields.

Pyrgus malvae L.: Similar distribution to the previous species though less common. Also found in Break-Hill Wood.
Thymelicus sylvestris Poda: Common.
Ochlodes venata Br. & G.: Frequent in some rough pasture.

HETEROCERA

Sphingidae

Acherontia atropos L. A male came to m.v. light on 6th June 1953.
Sphinx ligustri L.: In 1953 this was the commonest hawkmoth but only five specimens appeared in 1955 and not a great number in 1956. A general scarcity of its foodplants seems to suggest that the species travels some distance.
Hyloicus pinastri L.: Fairly common. Nineteen specimens appeared in 1953, ten in 1955, and a similar number in 1956.
Mimas tiliae L.: Unexpectedly scarce though several were taken in 1956.
Smerinthus ocellata L.: Common.
Laothoe populi L.: The commonest hawkmoth; abundant in 1955 and there was an example of a second brood in 1956.
Macroglossum stellatarum L.: A few specimens were netted in 1955 early in June, but the lack of flowers in the district probably caused the species to be overlooked.
Deilephila elpenor L.: Common.
D. porcellus L.: Rare, though less so in 1956.

Notodontidae

Harpyia hermelina Göze: Uncommon; taken 9.vi.1953, 11.vi.1953 and 26.vi.1955.
H. furcula Cl.: Rare. Two larvae found in 1954. A ♀ came to m.v. light on 19th June 1956, which subsequently laid a hundred eggs.
Cerura vinula L.: Larvae common on young poplars and occasionally found on white poplar. A few imagines to m.v. light each year in late May
Stauropus fagi L.: Uncommon. 1955 was a good year when six specimens came to m.v. light.
Drymonia dodonaea Schf.: Frequent in all years.
D. ruficornis Hufn.: Uncommon generally though abundant in 1956.
Pheosia tremula Cl.: Fairly common at m.v. light.
P. gnoma Fab.: Slightly commoner than the previous species.
Notodonta ziczac L.: Common.
N. dromedarius L.: Common, but slightly less so than the last species.
N. anceps Göze: Common; always gets battered about in the trap. No larvae found.
Lophopteryx capucina L.: Surprisingly uncommon. A fine melanic specimen came in early June 1956.
Odontosia carmelita Esp.: A ♂ on the edge of the heath came to m.v. light on 13th May 1956.
Pterostoma palpina Cl.: Common.
Clostera curtula L.; Uncommon, though a number were taken in 1956.

Thyatiriae

Habrosyne pyritoides Hufn.: Common, but unusually scarce in 1956.

Thyatira batis L.: Uncommon, though 1955 was a good year for the species.

Tethea ocularis L.: Slightly more taken than of the previous species and there were more about in 1956. All attempts to induce females to lay eggs failed.

Achlya flavicornis L.: Three specimens on 21st March 1953 but not taken since.

Polyploca ridens Fab.: A single worn specimen on 14th May 1955. This species was missed during the Easter holidays.

LYMANTRIIDAE

Orgyia antiqua L.: A few larvae found on poplars but only occasional imagines to light in October.

O. recens Hub.: A larva of this species was found in July 1956 but unfortunately it proved to be 'stung'.

Dasychira fascelina L.: Taken 16.vii.1953, 22.vii.1953, 18.vii.1955, and 24.vii.1956.

D. pudibunda L.: Common, though only a few females at m.v. light.

Euproctis similis Fues.: Common, though not very often seen at m.v. light. The larvae feed chiefly on lime in the district.

Leucoma salicis L.: A single ♂ at m.v. light on 12th July 1955.

Lymantria monacha L.: Common in July and sometimes even taken in early October. Only once have I had a ♀ at m.v. light.

LASIOCAMPIDAE

Malacosoma neustria L.: Common.

Trichiura crataegi L.: One taken 22.ix.1954. This species is probably missed during the holidays.

Poecilocampa populi L.: Very common.

Lasiocampa quercus L.: A few larvae and imagines seen but never common.

Macrothylacia rubi L.: Very common on Canford Heath. Larvae especially abundant in the autumn of 1954. Occasionally females come to the m.v. light.

Philudoria potatoria L.: Common though rather scarce in 1956.

Gastropacha quercifolia L.: Not uncommon, generally appearing in the first week of July for a short time only. Always taken when the trap was on the open side.

SATURNIIDAE

Saturnia pavonia L.: Quite a number seen in 1956, being fairly frequent even round the School buildings.

DREPANIDAE

Drepana falcataria L.: Common, though scarce in 1956. Often obtained when beating birch.

D. binaria Hufn.: Not uncommon, though scarce in 1956.

D. cultraria Fab.: Rare. A ♂ on 11th June 1953 and a ♀ on 13th May 1956. The latter laid eggs, and imagines were subsequently bred.

D. lacertinaria L.: Only a few at light, but I have noted that this species generally sits on the outside of the trap and flies away at dawn.

Cilix glaucata Scop.: Surprisingly rare. Taken 20.v.1953, 17.v.1956, and 27.vii.1956.

ARCTIIDAE

Nola cucullatella L.: Fairly frequent on Canford Heath.

Nudaria mundana L.: A single specimen, 16th July 1955.

Comacla senex Hub.: A single specimen, 11th July 1953.

Miltochrista miniata Forst.: Fairly frequent, sometimes common, but completely absent in 1956.

Cybosia mesomella L.: Fairly frequent, especially so on the heath.

(*To be continued.*)

Some Predators of Aphides with a key to the genera and some species of the family Chamaemyiidae found in Britain

By L. PARMENTER, F.R.E.S.

Recently Professor N. R. Brown kindly sent me a copy of his paper written in co-operation with Mr. R. C. Clark entitled "Studies of Predators of the Balsam Woolly Aphid *Adelges piceae* (Ratz) (Homoptera: Adelgidae). I. Field Identification of *Neoleucopis obscura* (Hal.), *Leucopina americana* (Mall.) and *Cremifania nigrocellulata* Cz. (Diptera, Chamaemyiidae)". 1956, *Canad. Ent.*, **88**: 272-9. This article reminded me of captures of *griseola* Fln. of the same genus as *obscura*, I have made during the months of April, May and June on the bombed area about Cripplegate, City of London, and of a lovely hot day, first of July 1951, when Mr. J. E. Collin guided Messrs. C. N. Colyer, C. O. Hammond and myself around Chippenham Fen, Cambs. *Parochthiphila spectabilis* (Lw.) was found that day, new to the visitors. It also gives me an excuse to present a key for the British species of the family. I have not included a key to the genus *Chamaemyia* as it is better to consult Mr. R. Coe's illustrated article (and its correction) in 1942, 1943, *Ent. mon. Mag.*, **78**: 173-180; **79**: 128-9.

In the article of Professor Brown and Mr. Clark the photographs of the egg, larva, pupa and imago of *Leucopsis obscura*, as it is known here, are compared with those of the other two Canadian flies, coupled with a detailed comparative table of all stages and drawings of the buccopharyngeal armature. These should assist the field workers in Canada and help students of the family in this country.

The larvae of this family are predatory on aphides and coccids. *Chamaemyia juncorum* Fln. (=*polystigma* Mg.) was reared by Mr. J. E. Collin from a larva found as a predator of *Pseudococcus phalaridis* Green on *Phalaris arundinacea* L. at Frimley, Surrey, in September 1922. The larva has also been found in the galls of *Lipara lucens* Mg. (Dipt., Chloropidae) on *Phragmites communis* Trin. Of the genus *Leucopis*, the species *annulipes* Zett. has been found attacking Coccidae, *Eriopeltis festucae* (Fons.) (=*lichtensteinii* Sign.) and *Pulvinaria vitis* (L.) (=*betulae* (L.)); *puncticornis* Mg. has attacked the aphid *Tetraneura ulmi* Deg.; *griseola* (Fln.) has preyed on the Phylloxerid, *Anisophleba strobi* (Hartig) (=*corticalis* (Kalt.)) and the aphid *Eriosoma lanigerum* (Hausm.) whilst *obscura* Hal. is a predator of the Phyllo-

xeridae, *Anisophleba strobi* (Hartig) and *Dreíusia piceae* (Ratz.) (=*Adelges piceae* (Ratz.).

KEY TO GENERA OF CHAMAEMYIIDAE IN BRITAIN

1 (2) Presutural dorsocentral bristles absent. No orbital or ocellar bristle. Mesopleura and pteropleura bare. Second antennal joint bare. *Leucopis*

2 (1) Both presutural and post-sutural bristles present. Post vertical bristles converging. Third antennal joint longer than deep, sometimes angled and pointed at dorsal tip.

3 (4) Two post-sutural dorsocentral bristles. No mesopleural bristles. Anterior orbital bristle before middle of frons. *Chamaemyia*

4 (3) Three or four post-sutural dorsocentral bristles. Mesopleura sometimes setulose. Anterior orbital bristle placed at middle of frons. *Parochthiphila*

KEY TO GENUS LEUCOPIS IN BRITAIN

1 (4) Tarsi of front leg entirely black.

2 (3) Presutural acrostichal bristles absent. Mesonotum with four longitudinal stripes. *griseola* (Fallen)

3 (2) Presutural acrostichal bristles distinct though reduced. *obscura* Hal.

4 (1) Tarsi of front leg at least mostly yellow.

5 (6) Presutural acrostichal bristles absent. *puncticornis* Mg.

6 (5) Presutural acrostichal bristles quite distinct.

7 (8) Antennal first joint yellow or yellowish. First segment of abdomen black and two black dots on third segment. *annulipes* Zett.

8 (7) Antennae dark brown, wings milky white. *argentata* Egg.

KEY TO GENUS PAROCHTHIPHILA IN BRITAIN

1 (2) Antennae and palpi yellow. *spectabilis* (Loew)

2 (1) Antennae and palpi black. *coronata* (Loew)

Notes and Observations

JAYS AND MAGPIES AS PREDATORS OF EMPIDIDAE AND OTHER DIPTERA. —The Empididae are themselves well known as predators of flies but their own enemies are not recorded so often. Mr. D. F. Owen has been studying the food of the nestlings of Jays and Magpies by means of placing rings of plastic covered wire, for short periods, around their necks and removing the food after the nestlings have been fed. The bulk of this food, recorded in his paper, "The Food of Nestling Jays and Magpies", 1956, *Bird Study*, **3**: 257-265, consisted of lepidoptera larvae and pupae; in the case of Jays chiefly *Tortrix* spp., *Erannis defoliaria* Clerk and *Operophtera brumata* L. A number of flies were also included. Of these, the most abundant for both Jays and Magpies was *Empis tessellata* F. In addition *Helophilus pendulus* Lw. was identified among those fed to Jays. The Magpie diet included *Nephrotoma maculata* Mg., *Rhagio scolopacea* L., *Empis stercorea* L., *Rhingia campestris* Mg., *Syrphus venustus* Mg., *Otites guttata* Mg., *Echinomyia* (*Larvaevora*) *fera* L., *Calliphora erythrocephala* Mg. and *Polietes*

lardaria F.—L. Parmenter, 94 Fairlands Avenue, Thornton Heath, Surrey.

Apatura iris Linn. ab. semi-iole.—Since records of the aberrations *iole* and *semi-iole* of the Purple Emperor butterfly have been very rare in the present century the following observations may be of interest. On 17th July 1955, between 12.0 and 12.30 p.m. (B.s.t.) among seven males of this species together frequenting one glade in a wood in Wiltshire I noticed one *semi-iole*, on which my attention was concentrated. It was flying about and repeatedly settling on one or other of a group of three oaks, but keeping always just out of reach of my very high net. I took one typical male with the high net, but the *semi-iole* did not come much below forty feet from the ground. It seemed to be freshly emerged and as it rested for protracted periods on exposed sprays it showed itself to me in all its aspects. When it ceased to appear I went away, but returned at 5.30 p.m., when I again saw it in company with three other males. It repeated its movements of earlier in the day, with the same caution. I had now brought with me a pair of powerful field glasses, and, as the butterfly fanned and hung from the leaves I could see both upper and under sides with clarity. I could now perceive that the under side was indistinguishable from that of full *iole* but that on the upper side there was just the faintest trace of white on the hindwings; so I suppose that it would have to be called *semi-iole*. I returned the next day and other days, but never saw it again, though typical specimens of *iris* were common enough.—I. R. P. Heslop, Belfield, Burnham-on-Sea, Somerset. 28.ii.57.

Collecting at Studland.—I was glad to read that *Lasiocampa trifolii* was still thriving at Studland. Normally the larvae are abundant there in late May and it is no trouble to take twenty or thirty in an hour's searching. Last year, however, I went down at the normal time at the end of May and failed to find one. I was not unduly alarmed as I thought that probably the very severe winter had held them back considerably and this was borne out when a friend of mine brought me a single larva which was about an inch long and had been found there the same day. I went down three weeks later and again failed to find any and the following week there was not one at the usual place though I found two fully grown about a hundred yards away. I was left with the horrible thought that someone had been there before me and made a clean sweep of the headquarters and left just a few on the edge of the area for the Ichneumons, which are fairly plentiful there, to finish off.

On the 20th June whilst looking for the *trifolii* I disturbed a considerable number of *Eustrotia uncula*, which were in perfect condition. They were extremely plentiful in the various damp hollows though there were not so many where there was actually a pond. The dragonflies were also having a good day bagging a large number for food. They appear to prefer these to the lighter coloured *Nymphula stagnata* which literally swarmed on the banks of the various ponds and ditches. I was also surprised at the large quantity of adders which abounded in all the damp hollows

I was down there again on 24th July, when it was too hot for collecting and so I spent the day lounging in the sun and taking the occasional dip. For the next four days I regretted this as my back was

as raw as if someone had skinned me. However, I had the pleasure of seeing an example of *Limenitis camilla* flying across the sand-dunes in a southerly direction. This is a most unexpected place to run across the insect and the nearest locality that I know of is some five miles distant. I wonder if it is making another bid to increase its range still further.

I did no night collecting there last year but in 1955 I managed one night at the end of August. Unfortunately having no generator at the time, I operated the m.v. at a house on the cliff nearer the village. Despite the distance from the marshes a single example of *Nonagria sparganii* wandered up to the light. The night was extremely prolific for some of the commoner species particularly *Agrotis ipsilon*. I took the Tilley lamp down on to the dunes and also had the headlights of the car on for sometime but I failed to attract any examples of *Actebia praecox* or *Agrotis vestigialis*.—ALAN KENNARD, Torns, Ashburton, Devon. 25.ii.57.

NEMADUS COLONOIDES KRAATZ.—This tiny and delicate Cholevid used to be considered a great rarity before it was known to inhabit birds' nests, usually in old, hollow, decayed tree trunks—a fact not realised when Fowler wrote his *magnum opus* (1889, *Col. Brit. Isl.*, **3**: 65). Even now, however, the records are not particularly numerous, for, though more or less gregarious and often present in fair numbers when it does occur, and certainly of wide distribution, it is rather seldom encountered and may be very local. Donisthorpe (1939, *Prel. List Col. Winds. For.*, 53) recorded it as 'abundant in birds' nests' in Windsor Forest, but one may examine all the nests and nest-remnants found in the course of ordinary collecting in the area and yet meet with it only twice over a score of years. Judging from some of the situations in which the beetle is taken, it may persist long after the nest has been abandoned and disintegrated. Mr. R. W. Lloyd and I obtained a fair series by sifting wood-mould and debris from the remains of a large and very rotten elm trunk, where there appeared to have been an owl's nest at some previous time, in Faringdon Park, Oxon., in April 1954; the only other nidicole that occurred with it was, I think, an odd *Hister merdarius* Hoff., but this species is of course by no means confined to nests. In the collection of the late H. Dinnage, which has come into my possession, are three examples of *N. colonoides* (doing duty for *Nargus velox* Spence!) labelled as from Lower Beeding—near Horsham in West Sussex—vi.28. I have no other records for either of these counties, though I do not suggest there are none; by far the highest concentration of records is for Surrey and Berks.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 13.iii.57.

LUCANUS CERVUS L. IN SEPTEMBER.—My young nephew, a keen coleopterist of six, found a female stag-beetle in his garden near here on 6.ix.56. It was on bare soil, in which it was apparently trying to bury itself, and when shown to me bore evidence of its efforts in the shape of a missing fore tarsus and head and limbs caked with earth. This seems an extraordinarily late date for *L. cervus* to be about; typically a June and July species, it is only exceptionally seen either as early as mid-May (at large) or as late as mid-August. The beetle was abnormally scarce hereabouts last season, perhaps not surprisingly

in view of the miserable summer, though it had been in average numbers the previous year.—A. A. Allen, 63 Blackheath Park, S.E.3. 13.iii.57.

Apion minimum Hbst. in East Kent.—Of this weevil, almost the smallest of a very large genus, I took some half-dozen specimens by sweeping the foliage of a sallow bush (*Salix caprea*) in a hedge on the outskirts of Blean Woods, near Canterbury, on 28th May last. As this is the first time that I have met with the species, and as it was not to be found on other apparently quite similar sallows in the same hedge, it would seem to be highly localised—perhaps more so now than in former times. Fowler (1908, *Victoria County History of Kent*, 169) has the following entry under *A. minimum*: 'On various species of *Salix*; very local, and as a rule rare. Maidstone, Dover'. Most of the localities he gives for the species in *Col. Brit. Isl.*, 1891, **5**: 154, are in Surrey; it used to be taken a good many years ago on Wimbledon Common, and may possibly still occur there.—A. A. Allen, 63 Blackheath Park, S.E.3. 13.iii.57.

A letter from the Hungarian Natural History Museum, Budapest, which has been passed to us, mentions that the greater part of the collections were destroyed during the recent fighting in that town. The Lepidoptera and Coleoptera escaped damage in the bombardment, but were unfortunately ruined by the fire-fighting afterwards. The library of about 200,000 books and separates, and also tens of thousands of insect types, are lost. Dr. L. A. Gozmany, the Keeper of Lepidoptera, would be most grateful to all who can offer material which will help to rebuild the collections, and it would be advisable to write him, care of the Museum, to find out whether material would be of use, before sending it.—S.N.A.J.

Current Literature

Lambillionea: **56**, 3-4; 25.iv.56, commences with a notice of the death of F. G. Overlaet, a specialist in the Nymphalidae. S. G. Kiriakoff writes on new African moths from the Belgian Congo. This series starts with the family *Metarctia* of the Thyretidae, and describes two new species, *M. hypomela* and *M. pinheyi* with six figures of genitalia dissections. C. Herbulot writes on *Gnophos unicoloraria* Staud. Two new Carabid beetles of the family *Paraleleupidia*, *P. prominens* and *P. nakagerana* with text figures of the edeagus of each is contributed by P. Basilewsky. Cdt. M. Ruwet writes on a brood of *Eriogaster lanestris* L., from which 77% emerged after the first winter with a proportion of 1 ♂ to 4 ♀♀. L. Scarlet continues his paper on lepidopterous ova, and a specimen of *Cosymbia linearia* Hb. showing a strong loop in the transverse line on the right forewing is illustrated by a half-tone photograph.

56; 5-6, 25.vi.56. S. G. Kiriakoff concludes his paper on *Metarctia*, describing *M. subpallens*, *M. atrivenata*, *M. jacksoni*, and *M. xanthippa* as new species, with *M. benitensis orientalis* as a new subspecies, and L. Scarlet continues his paper on lepidopterous ova.

56; 7-8, 25.viii.56, starts with a note on the defoliation of gooseberries by *Pteronidea ribesii* Scop., the gooseberry sawfly. C. Herbulot

writes on the Geometrid family *Hypocoela* from Madagascar with a key to species. Seven species are described: *H. saturnia*, *H. lurida*, *H. abstrusa*, *H. infracta*, *H. fasciata*, *H. magica* and *H. angularis* with figures of the r.h. valve of the ♂ genitalia of each species, and a photographic plate of typical specimens. Two moths, both found in this country, are recorded by E. Janmoulle as new to Belgium; *Homoeosoma cretacella* Hb. and *Bactra scirpicolana* Pierce. P. Viette writes on rare and new Sphingids from Madagascar, describing *Polyptychus paulianii* and *P. integer* as new, with text figures of the inner side of the apex of the valve of these species with that of *P. meander* Bdv. for comparison. He also describes a new subspecies, *Theretra orpheus megalesia*. E. Janmoulle continues his notes on the Belgian fauna, dealing with the Pyralid family *Hypochalcia*. He also records *Atemelia torquetella* Z., a rare Hyponomeutid, being bred from larvae found on birch viii.55 which emerged 20-28.v.56, and he also mentions *Nothris marginella* F.

56; 9-10, 25.x.56, mentions *Trachea illyrica* Frey. as a moth new to Belgium, with notes on the capture by E. de Laever and Dr. P. Honyez of Liege. There is a further instalment on Lep. ova by L. Scarlet with a nine figure plate. There is a note by the late F. G. Overlaet on new African Nymphalidae in which he deals with *Neptis roberti* Eltringham with a half-tone text illustration of the allotype ♂. In a further section of "Remarks on the Belgian Fauna" E. Janmoulle mentions *Crambus mytiellus* Hb., *Euzophera fuliginosella* Hein., *Nyctegretis achatinella* Hb., *Pyrausta albofascialis* Tr. and *Psecadia sexpunctella* Hb. as insects with few Belgian records. Dr. F. Nordstrom is mentioned as having noted large numbers of *Acherontia atropos* L. in Sweden, Norway, Finland, Germany, and the Low Countries (so we were not alone last season). Mme. L. A. Berger records noteworthy lepidoptera taken during July 1956.

Eos, xxxi, 3-4, July/Decr. 1955, has an important paper by Dr. R. Ajengo on three noctuid moths which had been passed as single species; *Atethemia xerampelina* and *A. algerica*, and *Apatele auricoma* and *A. euphorbiae*; forms of *Luperina testacea* are also discussed. There is a photographic plate of series of all three species, and another with male genitalia of *xerampelina* and *algerica* for comparison, and two examples of *auricoma* and one of *euphorbiae*. The same author describes a new *Evergestis* species separated from *E. desertalis* Hb. which he calls *E. dusmeti*. Unfortunately the ♂ is now known, but a plate shows wing pattern of both species, together with ♀ genitalia of each. Juan Gomez-Menon Ortega writes on new species of Piesmid and Tingid bugs from the Canaries with good text figures. Francisco Espanol Coll writes on some insects of note of the province of Lerida and Luis Baguena writes on new Scarabaeid beetles from the Ibero-Balearic and Pyrenaic zones. Pseudoscorpions of Spanish Morocco are discussed by Max Meier and Gonzalo Caballos writes on a new Spanish ichneumon, *Nemeritis robustus*, infesting *Dioryctria splendidella* (Lep. Pyr.) with a text figure of the ♀ and anatomic details.

Keeping livelihoods in bloom

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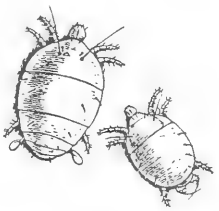

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Ants as a Control against Other Insects

By Orazio Querci.

For many years I have tried to explain, by means of charts, the development of *Pieris rapae* L. and other insects, but with little result. Only when I have made other charts taking ants into consideration as one of the most efficient destruction factors did the results seem satisfactory, and I then made some experiments in the field.

Our country house had been invaded both by ants and by cockroaches. I set some food near the ant-hill, and the number of ants increased considerably, with a corresponding decrease in the number of cockroaches, but when a night passed without my having seen any of the latter insects, I watered the ant-hills with an insecticide solution, and the floors of the rooms became black with dead ants. I then placed food in other parts of the garden, and other ants arrived, and with the help of Domenico Capponi and his wife (who acts as nurse for my wife) we traced the nests from which they came, and poisoned them. On the following day we noted the presence of other ants coming down the trunk of the bougainvillea which grows from the ground up to the terrace. These ants fed on the dung of the birds nesting in the laundry roof, and we eliminated these ants also. For the next four months, although the weather was very fine, we saw no more insects in either the house or the garden.

In March of this year we noted an ant-hill in the garden near to a lemon tree: we took an old pot and put in it a mixture of pebbles and garden mould together with a little food and sugar, but only very few ants went inside, preferring to continue feeding on the cochineal insects which were on the tree. The infected branches were cut off and the tree was cleaned, after which they transferred their nest into the pot. We then introduced some portions of cabbage leaf on which were some eggs of *Pieris brassicae* L.; the ants ignored the eggs, but as soon as the larvae hatched out they were devoured by the ants. Late at night, when most of the ants were inside the pot, we covered it with a sheet of glass and transferred it to a field in which the larvae of *P. brassicae* were causing damage to the cabbages. After a day or so in that site the larvae disappeared.

I infer that by the use of artificial ant-hills of this description the damage done to crops and trees by other insects could also be reduced. To obtain good results it would be necessary to have exceedingly large numbers of ants so that they would overcome the increase in numbers of the other insects. Such a condition has arisen in the Formia area in which the entomological fauna, once very rich, has been almost exterminated after the invasion of the district by Argentine ants. This was three years ago, and we have not seen one insect since then worthy of being collected.

In order to obtain a large number of ants in the artificial ant-hills one must ensure that the moisture is not sufficient to drown the ants or cause moulds, which seem to be injurious to ants in all stages, and once they have done their work it is easy to kill off the ants as related above.

Formia, 31st March 1957.

Collecting in Berwickshire July-December 1956

By A. G. Long, M.Sc.

(*Continued from page 91*)

On the evening of 10th August I set out, with some misgivings, for Gordon Moss. Heavy dark clouds threatened a thunderstorm, but it failed to materialise. The night was warm and close, and what a night for moths! I could have done with sheets the size of a large dining-room carpet. I arrived at the Moss about 8.45 p.m. but it was dark so soon that I had no time to put out treacle. The temperature stood at 58° F. and I worked most of the night but had to finish before dawn as there were so many moths on the herbage; I felt I must give them a chance to seek cover before daybreak. I noted 77 species (my highest record so far) but it was not possible to check all that came. I was pleased to take a fine female *O. sambucaria* showing that its distribution in the county is not confined to the Hirsel. *Mormo maura* L. and *Phalaena typica* L. came along with numbers of *Parastichtis suspecta* Hb. and I was interested to record *Lygris mellinata* Fab.

On 19th August I visited Cove Harbour and East Castle; at Cove I took *P. furuncula* flying by day. The following night I went to Old Cambus Quarry and worked the lamps for seven hours, 9 p.m. to 4 a.m., and treacled fence-posts up the steep south side of the dean. It was a calm night, temperature 53° F. and the full moon was well obscured by cloud. When treacling I paused to admire the view northwards beyond the ruins of St. Helen's Church to the Firth of Forth where lights flashed from the lighthouses on the Bass Rock and Isle of May. I took 33 species which included several *Euxoa tritici* L., *Amathes glareosa* Esp., *Tholera popularis* Fab., *A. furva* and *Gnophos obscurata* Schf. (carrying small red mites) *Arctia caja* L. again came very late in the night as I had noticed on several previous occasions.

On 22nd August I visited Burnmouth again by day, the weather being ideal. I spent some time netting *G. obscurata*, specimens of which were readily disturbed from the rocks and rough herbage. We walked along the cliff tops northwards past the Breeches Rock and Gull Rock to Fancove Head where I netted a variety of *Aglais urticae* L. in which half of the right forewing has a white ground colour.

The following night, 23rd August, I visited the Hirsel and recorded 30 species at m.v. lamps. *Tholera popularis* Fab. was very common soon after dark. I also took *Diarsia dahlii* Hb. and one *Cilix glaucata* Scop., the latter being evidently a second brood specimen. Many second brood specimens of *Ecliptopera silaceata* Schf. were also seen.

On 24th August I was at Kyles Hill from 9 p.m. to 3.30 a.m. Everything was sodden with the recent heavy rain. The first two hours were the most productive and at 1 a.m. I switched off one lamp intending to finish, but as I discovered two *Amathes agathina* Dup. in my second trap which was in the quarry, I decided to continue. Altogether I took 32 species including *Oporinia filigrammaria* H.-S., *T. crataegi*, *Thera firmata* Hb., *Aporophyla lutulenta* Schf., *Bombycia viminalis* Fab., and *Lithomoia solidaginis* Hb. Most specimens were fresh but numbers were small.

On 26th August I went to Burnmouth again and found that a slight landslip had occurred owing to the heavy rain. I treacled fence-posts

alongside the steep road and for my reward got hundreds of earwigs but no moths. Before dusk I talked with two elderly inhabitants who remembered the visits of Simpson Buglass from Ayton over 50 years ago. Results at the m.v. lamps were also disappointing as a half moon arose and made the night very light. Only 30 species were recorded, the most interesting being *S. anomala*. Many *A. grossulariata* appeared, probably coming from blackthorn bushes. I blamed the wet weather for the paucity of moths. However, more rain was still to come, and on 28th August we experienced serious flooding. Between Penmanshiel and Grantshouse the main Edinburgh to Berwick railway was inundated and had to be closed. All over the county burns and rivers burst their banks, reviving memories of the 1948 floods.

On 1st September I visited Old Cambus again. What is normally a dry dean was now in part a long narrow lake. Again the night was quite good but the number of moths was poor. Only 18 species came to both light and treacle, the most interesting being *A. furva*, *A. lutulenta*, *Antitype chi* L., and *Omphaloscelis lunosa* Haw.

After these rather disheartening conditions things took a surprising turn for the better despite the weather. Thus on 6th September I took *Hadena trifolii* Hufn. on a lamp standard in Duns. This was only the second record for the county. The following day brought another surprise as a pupil reported a specimen of *Acherontia atropos* L. sitting out of reach on the Duns Town Hall. We were able to get it with the aid of a borrowed ladder. On the evening of the same day (7th September) I went to the Hirsel and after hurriedly visiting the gamekeepers and treacling a few trees, I set up my light traps alongside the Hirsel Loch. It was a grand night, dull, warm and fine until dawn. I worked the lamps for nine hours, and to good purpose, the only misfortune being the unnecessary visit of a policeman in the early hours of the morning. The total catch was 40 species including two which were new to me, viz. *Tholera cespitis* Schf. and *Zenobia subtusa* Schf. I also took twenty lovely fresh *Cirrhia gilvago* Schf., some of which were very dark specimens. Some fresh *O. lunosa* appeared after midnight and two *Deuteronomos erosaria* Schf., both new locality records. About 3.50 a.m. a female *Herse convolvuli* L. dropped into the grass alongside my 80-watt lamp; it was in good condition although the scales underneath the abdomen had been rubbed off.

Having taken *atropos* and *convolvuli* within 24 hours I realized that an immigration must have occurred. After snatching a few hours' sleep on returning home I took my young daughter into Duns and we went round the town searching street lamp standards. Our search was rewarded when high up on a lamp standard outside the Horn Inn we spotted a large dark moth which could not be identified with certainty. I therefore went to a nearby garage and borrowed a twenty-foot ladder and was able to box the moth, which proved to be a most handsome male *convolvuli* in perfect condition.

At night I resolved to try for more and I took my lamps to Kyles Hill, but no more were forthcoming. Two *A. ipsilon* appeared and also *E. tritici*, *Aporophyla nigra* Haw., and *Celaena haworthii* Curt. However, on the following day another *atropos* was brought to me from Grantshouse. The boy who had caught it had killed it with ether and I noticed that it had ejected a pink fluid (meconium) suggesting recent

emergence. It had been caught on the 7th. Later, on 10th September, a little girl brought a third *atropos* to my home; it had been found dead—squashed flat—on the roadside in Gavinton and was dry and brittle as if it had been dead some days. A fourth *atropos* came into my possession during the same week; it was taken on 12th September in the British Legion hut in Duns. No more were seen until October when I received a fifth, taken in Ayton on 7th October. It had been found in a potato field and was slightly rubbed. I set it for the gentleman who found it and when I returned it he told me that he had seen two others which were badly worn and were flying and crawling among the potatoes. He also reported one dead larva on the ground, but as this was not kept I was unable to confirm it. Another imago, he said, was found nearby in a shop on the main road through Ayton. Later, the same gentleman reported that another *atropos* was found on Eyemouth railway station about the end of September. Another gentleman, from Coldstream, told me that a specimen was taken in that area in the month of June. Summing up, I myself saw five specimens and received reports of at least five others. I also received one other *convolvuli* (from Coldstream) and had a reliable report of one taken at Old Cambus Quarry on 22nd September. This made a total of 4 *convolvuli* and 10 *atropos*, mainly in the period 7th September to 10th October.

On 20th September I worked my lamps by the Hirsel Loch again hoping for *Rhizedra lutosa* Hb. but it failed to appear. However, the following night I visited Burnmouth and to my surprise one of the first arrivals at the light was a single specimen of *R. lutosa*. I was also surprised to see *C. gilvago*, showing how widespread this species is in the county.

During October I twice visited the Aiky Wood near Whitegates with the m.v. lamps. My first visit on 12th October was a failure owing to the strong westerly wind, but on 16th October conditions were much better. I placed the lamps near the junipers and treacled roadside fence-posts and oak trees. The lamps were on from 6 p.m. to 9 p.m. but I saw nothing of *Thera juniperata* L. which I was hoping to find. *Poecilocampa populi* L. came soon after dusk. These were my last excursions with the portable m.v. lamps this season, and with the advent of petrol rationing it looks as though they will not be used again for some time.

On 20th October I treacled trees and telegraph poles between Penmanshiel and Grantshouse, by the side of the A1 Berwick to Edinburgh road. The patches were all well patronized and I recorded 13 species including several *Phlogophora meticulosa* L. and *Xylena exsoleta* L., and single specimens of *A. nigra*, *Agrochola lota* Cl., and *Agrotis segetum* Schf. The most abundant species was *Agrochola circellaris* Hufn. During my round I was accosted by the Cockburnspath policeman who stopped his motor cycle to find out what was going on.

Nothing worthy of note was taken during November. One surprising omission from my 1956 records is *Eurois occulta* L. of which I failed to see a single specimen, whereas in 1955 I recorded 39. This raises the question as to whether it is mainly an immigrant.

Recently I have brought the county list up to date and find that it now stands at 400 species of "macros" of which I have collected 322 species.

CORRECTION: In a previous article (*Ent. Rec.*, **67**: 257) I recorded *Triphosa dubitata* L. at Oxendean Pond on 4.vi.55. Later I showed this specimen to a friend who corrected the identification to *Triphosa cervinalis* Scop. (*certata* Hb.). This agrees better with the date of capture and is the second county record known to me.

The Green, Gavinton, Duns.

A Holiday in Austria: July 1956

By Major W. A. C. CARTER, R.A.

(*Continued from page 87.*)

July 25th was the first really fine day that we had. We drove down to the Rhine Valley at Feldkirch and turned northwards towards Bregenz. Walking up a track towards Übersaxen, we found ourselves in deep woodland with a corresponding dearth of insects. In a small clearing we found immense numbers of the common Pieridae and a few *Inachis io* L. *Aphantopus hyperantus* L. was also common, flying with *Argynnis paphia* L. and a few tired-looking *Fabriciana adippe* Rott., *Ochlodes venata* and *Adopaea silvester*. We decided to try our luck elsewhere and, on the way back to the road, we saw several *Limenitis camilla* L. and two *Erebia ligea* L.

We then drove up the Laternstal to Laterns. The Laternstal proved to be a most impressive gorge with an agonisingly narrow road which was no more than a shelf cut into the cliffs. We stopped at Laterns and I scrambled up the meadows on the north side of the valley. Much of the hay had been cut but there were still large patches of tall grass with a host of wild flowers. The slopes were excessively steep and clambering up, sometimes on hands and knees, was an exhausting business. The sun beat down unmercifully and the general discomfort was not improved by the attentions of a particularly voracious breed of horse-fly. In the end, it got so steep that I was able to get no higher than about 3000 ft.

In spite of the situation and the wealth of wild flowers, the butterflies were rather disappointing. *A. galathea* was swarming and seemed to be more yellow than usual—so much so that more than once I mistook them for *P. machaon*. No Coppers were seen and the Blues were not conspicuous. There were fair numbers of *coridon* and a few wasted *icarus*. Two very fresh *Lysandra icarius* Esp. were taken.

There were numbers of tattered *C. iphis*. Other Satyridae seen were *Dira maera* L., *Lopinga achine* Scop., *hyperantus*, *aethiops* and, of course, *M. jurtina* L. There were several very fresh male *Gonepteryx rhamni* L. and a few *A. urticae*. The fritillaries were represented by *Melitaea britomartis*, which was common and worn, *aglaia* and two specimens of *Brenthis ino* Rott.—the only time we saw this insect.

The next day, the 26th, was another fine hot day and we paid a second visit to the high pastures above Zürs. The sun blazed from a cloudless sky and we both got very sunburnt. The main valley is about 6000 ft. above sea-level but there was little to be seen except a lot of *C. iphis* and two very worn examples of *Lycaeides idas* ssp. *häfelfingeri* Beuret which were found flying round Alpine Rose on the brink of a ravine.

Later, I scrambled up to the skirts of the Rüfispitze. It was an arduous and perilous climb but well worth the effort. I reached about 7000 ft. before coming down again and it was interesting to see how the number and variety of insects increased the further one got from the floor of the valley.

On the higher slopes, *Albulina orbitulus* Prun. was common but very local; both sexes could be found flying over an area of no more than a few square yards but they would not appear again for another two hundred yards or so. High up, where the turf gave place to scree, I was thrilled to find *Euphydryas cynthia* Hbn. Five were taken but they were long past their best. Even amongst this small number, there was considerable variation; one of them was heavily suffused with black and was without the white patches on the hindwings. The only other fritillary seen was *Boloria pales* Hemming—very difficult to catch with its restless gliding flight, fast and close to the ground. One was, however, a 'sitter' and was found to have only three wings, the hindwing on the left side being missing. It did not appear to be due to accident and I suspect that it hatched that way.

A. urticae was common and was careering up and down the steepest and most rocky parts of the slope. *Brassicae* and *rapae* were swarming—all apparently in mint condition. Without exception, they were moving purposefully down towards the valley against a light breeze blowing from the south. It was impossible to determine where they came from; it appeared to be from the bare cliffs of the Rüfispitze. Nor could I tell where they were making for. One might have expected to find them swarming in the valley below, but there were no more than usual in spite of the fact that not many were seen leaving the valley over the low pass which we had to cross in order to get down into Zürs.

Erebia tyndarus Esp. was found in small numbers on the higher slopes; they were at first mistaken for *pandrose* on account of the pale undersides. All those taken had two clearly-defined eye-spots at the apex of the forewings—these are not shown in the examples on Taf. 8 of '*Die Schmetterlinge Mitteleuropas*'.

The following day, another hot and sunny one, my wife stayed at home whilst I paid another visit to Dalaas. I took the same path as before and spent a couple of hours on the same slopes. I was greeted by a fine fresh male of *Erebia ligea* L. and had high hopes of taking others but they proved to be rather scarce. They were, possibly, not yet fully out and were, anyway, not easy to distinguish from *aethiops* which was abundant. Females of the latter were just out—brilliantly coloured and with very variable undersides. Several *A. crataegi* were seen and great numbers of *brassicae*, *rapae* and *napi*. *Colias phicomone* females were about and also a few hopelessly ragged *C. australis*. In the distance, I saw something white which looked like *Parnassius apollo* but it was too far off to be sure.

M. aglaia was as common as ever and I took one *niobe*. There were a great many *britomartis* but they were, by now, long past their best. Also present were many *Melitaea diamina* Lang (*dictynna* Esp.) —variable but worn. A few *titania* were seen but they, too, were going over.

Both sexes of *coridon* were flying and I took one presentable *bell-*

argus. Curiously, I did not see any females of the latter species. The few *hippothoe* that I saw were in rags.

Later, I continued up the path. Mostly, it ran amongst trees but now and then it crossed a hundred yards or so of open meadow. These meadows were really incredibly steep gullies across which the path formed a narrow ledge. They were bright with flowers and there were masses of butterflies but they were almost impossible to catch because it would have been suicidal to step off the path. All that one could do was to stay on the path and hope to intercept the insects as they flew across. Several species of *Erebia* were met with; *ligea* occurred sparingly at the edges of the woods and, in the open spaces, were found *oeme* Hbn., *eriphyle* Frr., *pharte* Frr., and *adyte* Hbn. The only Blue of any interest was a single specimen of *Lysandra icarius* Esp.

July 28th was our last day. The short spell of fine weather had broken with a violent thunderstorm the previous night, but the day started bright and clear and we walked up the western side of the valley through Oberlech towards the Korbersee. For the first 700 ft. of the climb we took the seilbahn—it was rather like sitting in an empty cocoa-tin suspended from a piece of string. The path ran through open pasture where there was a wealth of wild flowers but very few butterflies. There was, however, a steady stream of Pieridae flying in a generally south-westerly direction against the wind. The majority of them were *brassicae* and very fresh. I tried to count them as they crossed the path and estimated that they were doing so at a rate of about twenty per minute across a stretch of about 100 yards. I must have stayed there for nearly half an hour and there was no slackening of the stream.

Crossing the head of a ravine, we found several fresh *Heodes tityrus* ssp. *subalpina* Speyer; they seemed to be exceptionally dark and there was no trace of orange markings on the uppersides of the females. On the rocky slopes of the Karhorn I found several examples of *Euphydryas* which were so worn and rubbed that they were all but unrecognisable. These were too large and too dark for *aurinia* Rott, and were, I think, *ichnea* B. Unfortunately, I did not take any. In the same place, *Boloria napaea* was seen.

On the way down we passed through the Berger Wald at the edge of which was an open space where there were numbers of butterflies. We were unable to do justice to them because, just as we arrived, the weather closed in and there was no more sunshine. We saw *aglaia*, *titania* and some more *tityrus*. Also seen were *sebrus* males and one very fresh male *Maculinea alcon*. A few scattered individuals of *orbitulus* were in better condition than those that we had previously seen but I found no females.

Early next morning we set out for home. During the night there was further prolonged and torrential rain. We woke to find the river in spate and the entire valley shrouded in thick fog, which made driving over the Flexenpass a difficult business. We were lucky to find the Arlberg Pass reasonably clear but we struck places where the previous night's rain had washed the mountainside across the road. At one such place we had to wait in a queue of vehicles while the road was cleared with a bulldozer. It was an altogether slow and cheerless journey and for the first six hours our average was barely twenty miles

in the hour. As we crossed into Germany at Vils all that we could see of the mountains was a depressing blanket of swirling grey cloud.

And so back along endless miles of autobahn through Frankfurt and Düsseldorf to the dreary plains of NW Germany. The weather had not been kind but it might have been much worse. We had seen some gorgeous country, had been amongst friendly folk and had taken a lot of, to us, new and exciting butterflies. And now all we do is count the days until we can go again.

Below is a list of all the butterflies seen or captured in Austria between 19th and 28th July, 1956. It is an interim list in the sense that identification has been taken from the plates in *Die Schmetterlinge Mitteleuropas* by Dr. W. Forster and Prof. Th. A. Wohlfahrt. Some of the identifications are by no means certain (particularly amongst the following genera: *Erebia*, *Melitaea*, *Cupido*, *Maculinea*, *Lysandra*) and will have to be checked on return to England. Species which are known to be doubtful are marked with a query.

To save space, the following list shows the approximate heights above MSL of the various places visited:

	Feet	*Metres*
Dalaas	2600-4000	850-1300
Gstüt Alp	5300-6100	1750-2000
Reschen	4000	1500
Lech and Oberlech	4500-5700	1475-1870
Laterns	3500	1100
Zürs	6000-6800	1950-2200

Papilio machaon L. — Lech, Feldkirch
Parnassius apollo L. — Reschen
Aporia crataegi L. — Dalaas—very worn
Pieris brassicae L.
rapae L.
napi L. — Common everywhere
bryoniae O. — Lech, Zürs—mostly worn
Anthocharis cardamines L. — One male seen at Lech
Gonepteryx rhamni L. — Laterns
Colias phicomone Esp. — Lech, Dalaas
australis Vrty. — Dalaas—very worn
Erebia ligea L. — Laternstal, Dalaas—males only
euryale ssp. *adyte* Hbn. — Dalaas
eriphyle Frr. — Dalaas, Zürs
manto ssp. *pyrrhula* Frey. — Zürs
epiphron Knoch. (?) Dalaas
pharte Hbn. — Dalaas, Lech, Zürs
melampus Fuessl. — Lech, Zürs
aethiops Esp. — Common everywhere
alberganus Prun. — One at Reschen
tyndarus Esp. — Zürs
oeme Hbn. — Dalaas, Lech
pandrose Bkh. (*lappona* Esp.) — Gstüt Alp

Agapetes galathea L.		Rarely seen in Lechtal; common at Dalaas and swarming at Laterns
Aphantopus hyperantus L.		Common
Pararge aegeria L.		Seen only once near Übersaxen
Dira maera L.		Dalaas, Laterns
Lopinga achine Scop.		One only at Laterns
Maniola jurtina L.		Common
Coenonympha iphis Schiff.		Dalaas, Laterns—locally common
satyrion Esp.		Lech—locally common
pamphilus L.		Common at Reschen—not seen elsewhere
Limenitis camilla L.		Near Übersaxen
Vanessa cardui L.		Odd examples seen here and there—all very worn
Aglais urticae L.		Generally common—especially so on the stony slopes above Zürs
Inachis io L.		Übersaxen.
Euphydryas ichnea B.		Three worn examples near Oberlec
cynthia Hbn.		Scree above Zürs—6800 ft.
Melitaea diamina Lang (*dictynna* Esp.)		Dalaas
britomartis Assm.	(?)	Dalaas, Laterns, Lech. These may have been confused with *athalia* and/or *cinxia*
Mesoacidalia charlotta Haw.		Common everywhere except on the high meadows above Zürs
Fabriciana niobe L.		Dalaas
adippe Rott.		Near Übersaxen—very worn
Argynnis paphia L.		Common near Übersaxen
Brenthis ino Rott.		Two at Laterns
Clossiana euphrosyne L.		Gstüt Alp, Dalaas
titania Hbn.		Lech Dalaas
dia L.		Reschen
Boloria pales Schiff.		Reschen, Gstüt Alp
napaea Hffmgg. (*isis* Hbn.)		Oberlech, Gstüt Alp
alethea Hemming		Zürs, Gstüt Alp
Issoria lathonia L.		Reschen
Heodes virgaureae L.		Reschen
tityrus Poda (*dorilis* Hufn.) ssp. *subalpina* Speyer		Oberlech, Reschen
alciphron Rott.		Reschen
Palaeochrysophanus hippothoe L.		Reschen, Dalaas
Cupido minimus Fuessl.		Common everywhere up to 7000 ft.
sebrus Hbn.	(?)	Found everywhere, but may be confused with *Cyaniris semiargus*

Jolana jolas O.	(?)	Reschen
Maculinea alcon Schiff.	(?)	Oberlech
arion L.	(?)	Lech, Gstüt Alp, Reschen. May be confused with another species. Those from Reschen were very large, heavily suffused and rather worn.
Lycaeides idas L. (*argyrognomon* Bergst.) ssp. *häfelfingeri* Beuret.		Two worn examples from Zürs
Plebeius argus L.		Abundant at Reschen. Ssp. *alpina* Courv. or *cleomenes* Fruhst.
Aricia agestis Schiff.		Found everywhere.
Agriades glandon Prun. (*orbitulus* Esp.)		Zürs, Gstüt Alp, Dalaas. Common and very variable.
Albulina orbitulus Prun. (*pheretes*)		Zürs, Gstüt Alp, Oberlech
Cyaniris semiargus Rott.	(?)	Lech, Oberlech, Dalaas, Reschen. May be confused with *C. sebrus*
Polyommatus icarus Rott.		Dalaas, Laterns—very worn
Lysandra argester Bergst. (*hylas* Esp.)	(?)	Dalaas, Laterns. May be confused with *icarius* Esp.
bellargus Rott.		Dalaas, Reschen—males only
coridon Poda.		Dalaas, Reschen—common
Agrodiaetus damon Schiff.		Reschen—two males
Erynnis tages L.		Reschen
Pyrgus malvae L.		Reschen
alveus Hbn.		Reschen, Gstüt Alp
Adopaea silvester Poda.		Common everywhere below about 5000 ft.
Ochlodes venata B. & G.		Dalaas.

Lepidoptera of Some Hill-Top Forts

By H. Symes.

Among the localities where I have spent many delightful and not unprofitable days a high place must be assigned to four pre-Roman hill-top forts. Their ramparts and fosses are not exposed to the ravages of plough and bulldozer nor are they liable to outbreaks of fire, which are apt to destroy colonies of local insects on heathland and railway embankments. As a result of this immunity they continue to support a number of interesting species, even if no great rarities are to be sought there.

Of my four localities two are in Berkshire, *A*, Letcombe Castle, on the downs above Wantage, and *B*, Uffington Castle, on White Horse Hill. The other two are in Dorset, *C*, Hod Hill, near Blandford, and *D*, Badbury Rings, near Wimborne.

Although these places have much in common, each of them has distinctive features of its own. The two Berkshire forts are much more elevated than those in Dorset: *A* is 700 feet above sea-level and *B* nearly 900, whereas *C* is 471 and *D* only 327. Yet there is a great similarity in the species occurring in all four localities. Another

difference is in the amount of vegetation growing on the ramparts. *B* is far and away the bleakest of the four and is exposed to every blast of the North wind: it is almost entirely devoid of bushes and has not such a rich growth of flowering plants as *A* and *C*. The ramparts of *D* are heavily overgrown in places with a variety of bushes and small trees, and the central area of the fort is a tangled wood. *A* and *C* support a wealth of wild flowers conspicuous among which are masses of bird's-foot trefoil (*Lotus corniculatus* L.), horseshoe vetch (*Hippocrepis comosa* L.), Lady's fingers (*Anthyllis vulneraria* L.) and rock-rose (*Helianthemum chamaecistus* Mill.).

Of our native butterflies (excluding even the commoner immigrants such as *Vanessa cardui* L. and *Colias croceus* Fourc.) the following twenty-two are found in all four localities: *Pararge megera* L., *Melanargia galathea* L., *Maniola tithonus* L., *M. jurtina* L., *Coenonympha pamphilus* L., *Aphantopus hyperantus* L., *Vanessa atalanta* L., *Aglais urticae* L., *Nymphalis io* L., *Aricia agestis* Schiff., *Polyommatus icarus* Rott., *Lysandra coridon* Poda, *Lycaena phlaeas* L., *Pieris brassicae* L., *P. rapae* L., *P. napi* L., *Anthocharis cardamines* L., *Gonepteryx rhamni* L. (there are one or two buckthorns (*Rhamnus catharticus* L.) on which the larva may be found at *C*), *Erynnis tages* L., *Pyrgus malvae* L., *Thymelicus sylvestris* Poda, *Ochlodes venata* Br. & Grey. *Hamearis lucina* L. and *Cupido minimus* Fuessl. occur at *A*, *B* and *C*; *Callophrys rubi* L. at *A*, *C*, and *D*; and *Argynnis aglaia* L. at *B*, *C*, and *D*. *Euphydryas aurinia* Rott. and *Lysandra bellargus* flourish at *A* and *C*, while *Pararge aegeria* L., *Satyrus semele* L. and *Hesperia comma* L. have been found at *C* and *D*. *Strymonidia w-album* Knoch occurs at *D* only, and I have seen several *Argynnis paphia* L. at *C*, but I suspect that they were wanderers. Two species which I should expect to occur in at least one of the localities are *Polygonia c-album* L. and *Celastrina argiolus* L., but I have no record of either.

Some of these species are much more plentiful in one or two of the localities than in the others. I have found more *H. lucina* and *C. minimus* at *A* than at *B* and *C*, while *E. aurinia* and *L. bellargus* are much more abundant at *C* than at *A*, but the specimens of *bellargus* that I have taken at *A* are of large size. In view of the fact that *E. aurinia* is often found in low-lying marshy land that may be inundated in winter it is interesting to find two flourishing colonies at the top of chalk hills. Reports of the dwindling numbers of *bellargus* in various localities have been published lately, but at Hod Hill it staged a remarkable come-back last year (1956). In 1949 it was abundant and there were a large number of aberrations of several kinds, of which *caeca* was the most numerous. A considerable proportion of these aberrations were partly deformed. Next year the numbers declined and the downward trend reached its nadir in 1953. This decline supports the view of those authorities who associate the appearance of an unusually large number of aberrations with some racial weakness. In 1954 and 1955 *bellargus* was on the upgrade and last year both first and second broods were very numerous, almost if not quite up to the 1949 level, but aberrations were very scarce. I examined scores of specimens and found none among the first brood and only one in the second.

On the other hand *H. comma* seems to have disappeared recently

from *C* and *D*. I first saw this species at Hod Hill in 1915. I was taken there by the late G. B. Coney who had found it plentiful there in previous years. We saw a good number of specimens and I took sixteen. I did not look for it again until 1930. Both in that year and in 1933 I saw *comma*, but they were few and far between. I noticed that the males had a fondness for settling on rabbits' droppings and when they closed their wings they were almost invisible. They also visited the golden-brown flowers of the carline thistle (*Carlina vulgaris* L.). I last saw *H. comma* on Hod Hill on 19th August 1949. Since then I have paid many visits to the locality at the right time of year without seeing a single specimen. At Badbury Rings *H. comma* was abundant in a restricted area in 1935. In previous years I had seen only one or two odd specimens. I did not visit the locality again until after the war, during which period the species seems to have disappeared, for I have not seen one since.

As I have done no night work in any of these localities my knowledge of the moths is largely confined to the day-flying species. An exception is *Deilephila porcellus* L., which occurs at *A*, *C* and *D*, and doubtless at *B*, since it is found all along the Ridgeway. At *A* I once saw a newly-emerged imago beginning to expand its wings, and I also found a few very small larvae on Lady's bedstraw (*Galium verum* L.): searching this low-growing plant is not exactly pure joy and they were extremely well concealed. At *A* and *C* I have more than once found the imago sitting on the ground, and as they have always been in perfect condition I assume that they were freshly emerged. *Macrothylacia rubi* L. occurs at *A*, *B* and *C*, and most probably also at *B*, but I never went there in the late summer when the larva is so conspicuous. *Zygaena filipendulae* L. is abundant at *A*, *B*, *C* and *D*. *Parasemia plantaginis* L. occurs at *A*, *B* and *C*. At *B* I found larvae feeding on a species of wild forget-me-not (*Myosotis collina* Hoffm.). According to Mr. W. Parkinson Curtis's Dorset list it occurs also at *D*, but I have not seen it there. In this list, published in the *Transactions of the Society for British Entomology*, 1934, W.P.C. says it "was formerly abundant at Hod Hill, but since the ramparts were fenced and cattle and horses grazed in the camp is being rapidly stamped out". But fortunately it still survives, twenty-two years later. Indeed, in 1955 I saw more than in any previous year and on 7th June Brigadier Warry and I took ten specimens, all males, in a very restricted area. In 1956 I did not see so many, but took one female which laid about two dozen eggs. I hoped to obtain a second brood of moths, which I had done without difficulty in the hot summer of 1921, but the larvae would not feed up quickly enough and eventually all died. *Procris geryon* Hüb. is found at *A* and *C* but is much more plentiful at *A*, where on 28th and 31st March 1936 I found a few larvae on rock-rose and took the imago in 1929, '30, '31, '32 and '35.

A few species I have recorded only from one of the four localities. At *A* I took a female *Cycnia mendica* Clerck and saw an *Acontia luctuosa* Schiff. (W.P.C. (*loc. cit.*) records this at *C* and *D*). *B* is the only one of these localities where there is a colony of *Odezia atrata* L. I found the imago in some numbers and also a few larvae on pignut (*Conopodium majus* Lovet) growing in the fosse. They took some finding. For a full account of this interesting species see the article

by the Rev. Desmond Murray (*Ent. Rec.*, **67**: 188). At *C* I have taken *Euclidimera mi* Cl. and *Ectypa glyphica* L. W.P.C. (*loc. cit.*) says *E. mi* is common at *C*, but omits *E. glyphica*. I have found it the more plentiful of the two. At *C*, too, I have twice taken *Hemaris tityus* L., two specimens on 5th June 1920, one of which was resting on the ground, where I nearly trod on it, and one on 28th May 1956 at the flowers of yellow rattle (*Rhinanthus crista-galli* L.). Although there is enough of the foodplant, devil's-bit scabious (*Scabiosa succisa* L.) to support a large population of *E. aurinia* I doubt if *tityus* breeds on Hod Hill as I have never seen a sign of the larva. Probably there is a colony somewhere in one of the meadows on the banks of the Stour which flows past the base of the hill. True, I have taken *tityus*, attracted in this case to the flowers of bugle (*Ajuga reptans* L.) at the much higher altitude of 800 feet near King Alfred's Tower on Kingsettle Hill, a conspicuous landmark on the borders of Somerset and Wiltshire where it used to occur in small numbers regularly and for all I know still does, but larvae of this species are generally found in damp localities. On 20th June 1919 the late W. W. Macmillan of Castle Cary and I found 75 eggs and young larvae on the turf moor at Ashcott near Glastonbury. I believe the larva is extremely difficult to rear. At any rate, although I kept some of mine on a growing plant of scabious we did not succeed in bringing any through to the moth stage: most of them died young and only one of mine reached its final instar. An entomologist I used to know who had repeatedly failed with this larva once devised an ingenious though complicated scheme of establishing some scabious plants in peat soil in large flowerpots and keeping them on a raft floating on a pool of water, so as to reproduce as far as possible the natural paludal environment of the larvae. I never heard whether he carried it out, but it would be interesting to know if any of our readers has succeeded in rearing this species from the egg. The only success I have had was with three larvae in their last instar that Macmillan and I found some years later at Shapwick near Ashcott, which all pupated and eventually produced moths. Since then the peat has been cut to a depth of several feet over a wide area in this neighbourhood, but in 1920 the imago was very plentiful and I took 18 in two days. It was exciting work netting these bee-hawks ("bombies" we called them in those days) as they appeared in a flash at their favourite flower, lousewort (*Pedicularis palustris* L.). A sideways stroke with the net often resulted in a miss, and it was safer to strike downwards, but in this case there was sometimes a risk of the net landing in an inch or so of water. But I seem to be wandering some way from my hill-top forts.

At Badbury Rings the wealth of bushes growing on the ramparts offers scope for larva beating that does not exist at *A*, *B* or *C*. The most interesting larvae I have beaten at *D* are *Gastropacha quercifolia* L., *Trichiura crataegi* L., *Lophopteryx capucina* L., *Cilix glaucata* Scop., *Nola cucullatella* L., *Apatele tridens* Schiff., *A. psi* L., *Craniophora ligustri* Schiff., *Episema caeruleocephala* L. and *Allophyes oxyacanthae* L. One day I beat out an imago of *Deuteronomos fuscantaria* Haw. It was a female and laid a number of eggs from which I bred a small series of moths. Of these larvae, *C. ligustri* is scarce and occurs in much greater numbers on privet on the lower slopes of

C, while I have found the larva of *G. quercifolia* close to locality *B*. Larvae of *Drepana cultraria* Fab., *Bena fagana* Fab. and *Colocasia coryli* L. are found on beech near *A* and *D*.

These notes do not pretend in any way to be exhaustive but only to give an idea of the characteristic Lepidoptera that I have met with in the somewhat limited time that I have spent in four favoured localities on our chalk downs.

The Lepidoptera of the Aldershot District of N.E. Hampshire

By A. W. Richards

It is not without diffidence that I venture to add yet another area-list of records to those which have appeared during recent years; but more than thirty years have sped since the publication of the *List of the macrolepidoptera of Hampshire and the Isle of Wight* by W. Fassnidge (*Ent. Rec.*, **1923-25**). Moreover, in that list the N.E. of the county received scant attention save for a few records by Mr. G. Stanton for Aldershot and those of Mr. E. A. C. Stowell for Alton, which is the extreme south of the area under consideration. Fassnidge subsequently added some records of mine in a supplementary list which appeared in the *Transactions of the Entomological Society of the South of England*; but, on the whole, the area has received little attention from collectors.

I have resided in the Aldershot District for more than thirty-three years, during which I have devoted the majority of my spare time to collecting there, especially to that part which may be comfortably reached by cycle for a day's hunting, and to which the following records are practically restricted. Some reference is made to the Surrey side of the border, for the Blackwater river forms not only the parish boundary of Aldershot and Farnborough but also the county boundary.

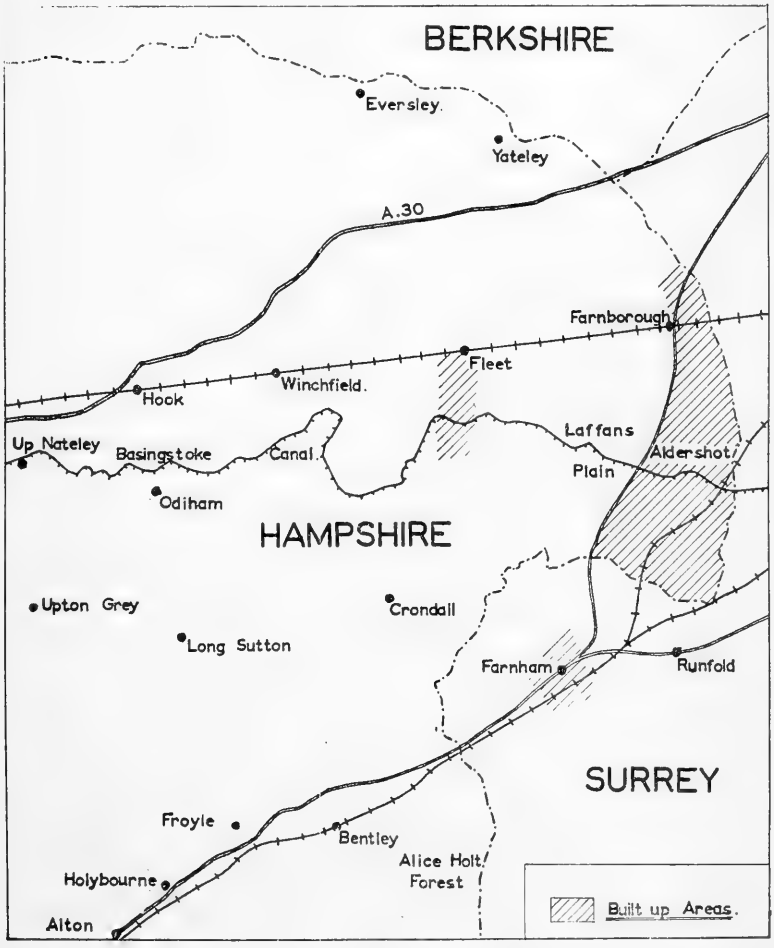
The region north of Aldershot is in process of rapid urbanisation; factories spring up like mushrooms, and from a collector's point of view there is progressive deterioration. This is undoubtedly true of many parts of Britain, and the process is nothing new. I learned much concerning the district in earlier times from the late S. G. Castle Russell, and it must have been something of a collectors' paradise in the 90's. C.R.'s father was the engineer appointed to survey the area prior to the establishment of the military camp, and I was shown a letter conveying the Queen's thanks for the good work done by his father and his assistant, Lieut. Kitchener. The family occupied a corrugated iron bungalow which still stands at Ewshott on the edge of a miniature Switzerland with hills, valley ponds, runnels with marshy margins, oak woods, pine and heath, beyond which stretches the man-made desert of Laffan's Plain.

Let this, then, be my excuse for submitting another bald list, that things are not what they were and may deteriorate further.

The geology is quite varied; north of a line through Aldershot the stratigraphy consists mainly of tertiary sands and gravels, but to the south, except for a 1½ mile belt of London clay, the formations are of cretaceous age, with extensive areas of greensand, and, between Alton and Odiham, chalk. The most extensive oakwoods occur on gault as

at Alice Holt, and there are broad belts of alluvium in the valleys of the Blackwater and its tributaries. Except for the areas of gravel and leached sand where peat prevails, the district is quite sylvan; on clays and loams the pedunculate oak is dominant, on the less porous sands pines, whilst in chalky valleys the wych elm may be found; the common elm is nowhere numerous and ash is rare.

During my more energetic years in the 20's and 30's I relied on



working street lamps, sugaring in lanes and the garden, and lamping with an acetylene hand-lamp. Since the war the m.v. lamp has saved much wear and tear, but it certainly lacks the romance of the earlier methods. Clearly m.v. affords a surer means of ascertaining the incidence of species, but the hand-lamp possessed the virtue of allowing the collector to cover a wider area in a night. When time permits, I intend to employ a portable generator and m.v. lamp throughout the area. I doubt whether I shall go outside; I am prepared to accept the

evidence for the occurrence of *Catocala fraxini* at Ham Street, and cannot see that a journey to that delectable spot would contribute to our knowledge of distribution. *Catocala fraxini* will, I hope, one day come to me.

In the ensuing list abbreviations are used as follows:—

abdt. abundant; occurs in hundreds or even thousands each season.
v.c. very common; met with in scores annually.
c. common; met with in dozens.
f.c. fairly common; up to ten specimens each year.
n.c. not common; a few most years.
s. scarce; one or two occasionally.
w. widespread.
sp. specimen.

PAPILIONOIDEA

Pararge aegeria L. w. and c. Before 1930 was confined to Alice Holt and Wolmer Forests.

P. megera L. w., usually abdt.

Agapetes galathea L. c. S. of Alton; also occurs at Odiham, Bentley, Holybourne and Up Nateley.

Eumenis semele L. abdt. on our heaths before 1945, now more local.

Maniola tithonus L. w. becoming less abdt.

M. iurtina L. Generally abdt., fresh specimens in Aug. or even Sept.

Coenonympha pamphilus L. w. and abdt.

Aphantopus hyperantus L. abdt. in suitable localities, var. *lanceolata* occasional at Ewshott according to S. G. Castle Russell.

Argynnis selene Schiff. v.c. in woods and some marshy commons. 2nd brood occasional.

A. euphrosyne L. v.c. in woods.

A. cydippe L. n.c., the least common of the genus.

A. paphia L. c. in nearly all woods; sometimes v.c.; var. *valezina* occasional.

A. aglaia L. Farnborough Common, Alice Holt, Pamber and Wolmer Forests, n.c.

Euphydryas aurinia von. Rott. w. and locally c.; scarce in 1956.

Melitaea cinxia L. Survived three years, 1930-32, after S. G. Castle Russell put it down on Laffan's Plain.

M. athalia von Rott. Still to be found in some woods in the north.

Vanessa atalanta L. Every year: good years outnumber bad ones for this species.

V. cardui L. Rarely as abundant as the preceding. Most plentiful in 1928, 1945, 1949 and 1951, absent in 1929, 1930 and 1944.

Aglais urticae L. Always abundant: larvae usually found in Oct., sometimes Nov., and once in Dec.

Nymphalis polychloros L. Two specimens only, 15.iii.24 and 1.v.46, both in Alice Holt.

N. io L. v.c. On five occasions I have found larvae in late Aug., Sept., and Oct.

Polygonia c-album L. Became c. 1926-7, has persisted but n.c.

Apatura iris L. In all large oakwoods; became w. and abdt. in 1940, but has declined.

Limenitis camilla L. In most oakwoods; became abdt. in the 20's, since declined.

Hamearis lucina L. f.c. in Alice Holt and other woods.
Cupido minimus Fuess. In chalk pits on Hog's Back, n.c.
Plebeius argus L. abdt. on heaths in 20's and 30's, now local.
Aricia agestis Schiff. w., n.c.
Polyommatus icarus von Rott. w. usually c., scarce in 1955.
Lysandra coridon Poda. Hog's Back n.c.; was c. before 1940.
L. bellargus von Rott. R. W. Parfitt was shown specimens taken at Hawley, but I cannot find it anywhere W. of Guildford.
Celastrina argiolus L. w., varies in abundance.
Lycaena phlaeas L. w. but has declined in abundance during the last decade.
Callophrys rubi L. w. and f.c.
Thecla betulae L. Near Alton, sc.
T. quercus L. abdt. before 1945 especially in Alice Holt, now very scarce.
Strymon w-album Knoch. A strong colony in the Alton area.
Leptidia sinapis L. One sp. Pamber 1930, not seen since. Alice Holt c. 1926-31, but has disappeared.
Pieris brassicae L., *P. rapae* L., and *P. napi* L. Generally c.
Euchloe cardamines L. Generally c.
Colias hyale L. One sp. near Aldershot taken by C. J. Moys.
C. croceus Fourc. Usually occurs. Good years, 1924, 28, 43, 47, 49 and 1951. Absent 1934, 36, 39, 48, 53, 54 and 1956.
Gonepteryx rhamni L. Generally c.
Erynnis tages L. c. in woods and rough ground.
Pyrgus malvae L. c. in woods and wet pastures.
Thymelicus sylvestris Poda. abdt.
Hesperia comma L. Not found nearer than Guildford
Ochlodes venata B. & G. abdt. May-Aug.

HETEROCERA

Sphingidae

Hemaris fuciformis L. c. in woods, scarcer since 1950.
H. tityus L. f.c., becoming scarcer.
Macroglossum stellatarum L. Always rather scarce.
Deilephila porcellus L. f.c. at Fleet and Hawley.
D. elpenor L. abdt.
Sphinx ligustri L. Not really common.
Acherontia atropos L. Two larvae at Aldershot about 1930.
Smerinthus ocellata L. abdt. until 1940, less so now.
Dilina tiliae L. f.c.
Hyloicus pinastri L. c. since 1945.
Herse convolvuli L. One sp. Hawley, two sp. at Farnborough.
Laothoe populi L. c.

Notodontidae

Clostera pigra Hufn. c.
C. curtula L. f.c.
Notodonta ziczac L., *N. dromedarius* L. and *N. anceps* Göze. c.
Drymonia dodonea Schiff. and *D. ruficornis* Hufn. v.c.

(To be continued.)

Notes and Observations

HEODES PHLAEAS LINN. LARVAE IN DERBYSHIRE.—The remarkable mild weather during January and early February of this year caused many plants to grow at an unseasonable time, and the sight of an abundance of fresh leaves of common sorrel (*Rumex acetosa*) pushing their way through the dead grass near the hedgerows induced me to start searching for *phlaeas* larvae. Searching on plants of the small species of sorrel (*R. acetosella*) in several suitable looking spots near home during the last week in January and in early February gave me a total of 115 small larvae. Many of them had already started feeding and when brought indoors they all progressed rapidly. The caterpillars were fed entirely on *R. acetosa*, but no larvae were found wild on this plant. Fortunately mild weather continued and when heavy snow arrived on 19th February followed by severe frost my need for fresh sorrel leaves was over. From the 115 larvae only 23 pupae were obtained, all the others having proved to contain parasites.—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield. 28.ii.57.

NOTODONTA PHOEBE SIEB. IN HAMPSHIRE.—Your contributor's note (*Ent. Rec.*, **69**: 74) on the capture of *N. phoebe* reminds me that I captured a female of this species at Cow Plain, Waterlooville, Hants., in July 1920. It is a female and chipped on the right forewing, but its condition suggests that it bred here. Dr. Cockayne told me later that it was then unrepresented in the British collection at Tring and I promised him that it should ultimately go there. My specimen was exhibited at one of the meetings of the South London Entomological and Natural History Society a few years ago.—A. H. SPERRING, Slindon, Fifth Avenue, Warblington, Hants. 13.iii.57.

EARLY EMERGENCE OF ANTHOCHARIS CARDAMINES LINN.—On the 1st April I saw in a lane here a male Orange-tip (*A. cardamines*). This is the earliest date I have ever seen this butterfly.—E. E. JOHNSON, Highfield House, Portsmouth Road, Guildford, Surrey. 2.iv.57.

EARLY IMMIGRANTS AT KENDAL, WESTMORLAND. — Last night, 3.iv.1957, I had the good fortune to capture a fine female *Heliothis peltigera* Schf. in my light trap here in the middle of Kendal. It is in quite good condition and is of very pale facies. So far as I know this is only the second occasion on which this species has been taken in Westmorland. The first occasion was when Mr. T. Smith of Kendal found a specimen at flowers of *Erica* in a garden at Windermere in September 1943. There are more numerous, though still few, records from the neighbouring areas of north Lancashire as at Grange over Sands and Ulverston.

It may also be of interest to record here that on 3.iii.1957, also in my garden trap, I took a specimen of *Agrotis ipsilon* Hufn. Whether this constitutes an immigrant or a hibernated example I do not know. It was in perfectly fresh condition.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 4.iv.1957.

APAMEA OPHIOGRAMMA ESP. IN DORSET.—I was much interested in

Mr. Alan Kennard's observations on this species in his notes in the March *Record* (antea, p. 65). It may be of interest to add that I too have found larvae in plenty along the banks of most rivers in this part of Dorset, and in Hampshire, too.

The moth is not nearly so plentiful as this suggests, perhaps because of its somewhat secretive habits. After the short dusk flight, which lasts little more than an hour, even when weather conditions are favourable, they may be found settled on grass stems or quietly feeding on various flowers, ragwort in particular. Honeydew attracts them more than anything else, especially where this occurs on nettles, and also on the foliage of sallows and willows, particularly where the stems are infested with colonies of the large willow aphid (*Tuberolachnus viminalis*), the honeydew from which is an irresistible attraction to insects of all kinds.

In some seasons when honeydew is more or less absent I have had good results by spraying foliage, etc., with a thin sugaring mixture at dusk.

On the merits of light as an attraction for this species I can give few details. I do not possess a modern m.v. outfit, and have no desire to; I much prefer to hunt or breed the insects I really want than have them give themselves up in masses of broken and useless specimens.—A. T. Postans, Broadmayne, 13 Stanfield Road, Winton, Bournemouth. 16.iii.1957.

A Note from Cornwall.—As I expect has been the case in most places this year, there are several early arrivals to report. On 31st January the first *Cerastis rubricosa* Fab. arrived and on 2nd February *Orthosia gothica* L. and *Calostigia multistrigaria* Haw. *Biston strataria* Hufn. appeared on 28th February and *Vanessa atalanta* L. was flying in the sunshine on 3rd March, followed by *Nymphalis io* L. on the 12th. The only *Opisthograptis luteolata* L. so far this year was in the trap on the same date, and the first *Plusia gamma* L. on 19th March. The surprise of the year, so far, is *Heliothis peltigera* Schif. of which a specimen was in the trap on the 5th, 13th and 20th March. I have never seen one previously before 25th June. Does *peltigera* hibernate?

This winter and spring have been excessively wet here, with frequent high winds. We have had only three nights of mild frost throughout the winter. I have not differentiated between my two m.v. traps, one of which now operates at sea level at the head of Pont Creek, a mile from Bodinnick (where my old trap still functions at 150 feet elevation) as conditions are the same, except that the Pont Valley is much more wooded and sheltered than my exposed cliff here. I am hoping for good results at Pont, considering the unexpected number of species which have shown up at Bodinnick in the last three years.—Colonel H. G. Rossel, Bodinnick, Lanteglos-by-Fowey, Cornwall. 20.iii.57.

A Cornish Postscript.—I've had nothing striking lately except *Plusia ni* Hüb. (the first I have taken) on 28th March and *Colocasia coryli* L. on the 29th. Two more *peltigera*, making five for the month, arrived on the 27th and 30th. I am having a little difficulty in initiat-

ing my friend at Pont Creek Farm into the identification of species. He kindly runs my m.v. trap there, but rang up yesterday to say (*horresco referens*) that he "had fed a bucket of grey and brown moths to the chickens" . . . Anyway, to-morrow I am sending him the following to pin up in the shed where he opens the trap in the morning:

Remember not to throw away
Moths because they're brown or grey;
Girls come in different tints and sizes—
The plainer ones may be the prizes!

—Colonel H. G. ROSSEL, Bodinnick, Lanteglos-by-Fowey, Cornwall. 31.iii.57. (*in lit.*)

EGG LAYING BY ERISTALIS PERTINAX (SCOP.) AND E. TENAX (L.) (DIPT. SYRPHIDAE).—My experience of these two species, using the colour of the fore tarsi to distinguish them, is that they do not usually seem to occur together in the field. I have several times watched *E. tenax* lay batches of up to 80 eggs. I believe *E. pertinax* lays very few eggs at a time, because she keeps her ovipositor in the fissure for about 5-15 seconds as compared with two to three minutes for *E. tenax*, but I have never seen the eggs. Corroboration is needed.—R. R. BÜRK, Great Hayesden Farm, Tonbridge, Kent. 7.ii.1957 (*in litt.*).

EGG LAYING OF ERISTALIS TENAX (L.).—I can verify R. R. Bürk's remarks on *E. tenax* taking up to 2-3 minutes to deposit eggs. I have often noticed this taking place around earth closets of country houses. —K. C. DURRANT, 31 Sandy Lane, Dereham, Norfolk. 28.ii.57 (*in litt.*).

Obituary

DR. E. A. COCKAYNE

After a long period of ill health, dating from a fall on the steps of Great Ormond Street Children's Hospital shortly before 1939, Doctor Cockayne died on 28th November 1956, in harness to the last.

His many papers on entomological subjects, mostly concerning the Lepidoptera, have been fully described elsewhere. They started to appear at the beginning of this century and have appeared continuously since then. They concerned teratology and genetics mainly, but other aspects were by no means neglected, and they are invaluable to students of these specialized subjects, and of the Lepidoptera in general.

Our personal contact with the doctor dates from 1923, when the writer joined the South London Entomological and Natural History Society, and this contact has inspired many pleasant memories, especially of his helpfulness to young collectors, and many of his protégés now hold important positions in the entomological world.

Doctor Cockayne was possessed of a strong, if somewhat mischievous, sense of humour, usually directed against what he considered to be unnecessary pompousness, and we well remember one occasion at the South London when the cumbersome routine of the election of a member was taking place by means of a bag of marbles and the ballot box, which was carried round the members at meetings by the secretary in those days. I noticed an embarrassed look on the secretary's face as he examined the contents of the box and somewhat hesitatingly

declared the member elected *nem. con.* At this, the doctor asked whether there were no marbles in the "no" drawer, and with a look of surprise, the secretary then found a marble in that receptacle, and asked the doctor whether he had placed it there; he promptly admitted this and was asked for his objections, to which request he replied: "Oh none, I merely wanted to see what would happen if someone put a 'no' in the box". Very shortly after this, the process of election was greatly simplified and has remained so to this day.

On another occasion, two pocket boxes were exhibited, one containing a half dozen *Apatele psi* L. and the other a similar series of *A. tridens* Schf. Unfortunately they had been rather carelessly labelled and while the boxes were being passed round the meeting, both labels fell off. When this was noticed, a great argument broke out as to which was *psi* and which was *tridens* and what were the best distinguishing features to ascertain which was which. After a while, Cockayne quietly said: "This is *psi* and that is *tridens*" and he was then asked how he knew. "Oh that is simple", he replied, "the *psi* were on black pins and the *tridens* on gilt!"

In May 1951, following on the death of Fleet Paymaster T. Bainbrigge Fletcher, Dr. Cockayne became editor of this journal; but unfortunately after only a few months he was stricken by the illness from which he never fully recovered. In spite of this he continued to contribute a valuable series of papers on the aberrations of Lepidoptera almost until his resignation four years later.

The famous Rothschild-Cockayne-Kettlewell collection of Lepidoptera came from the common interest in genetics shared by the two last named, and when the futility of amassing large private collections to be broken up and sold on the death of the collectors was put to the doctor by Dr. Kettlewell, these two men then and there decided to amalgamate their collections and arrange them so as to illustrate their studies for the Natural History Museum. The offer was gladly accepted, and it was eventually decided to work the collection in with the new accession of the Rothschild collection. Dr. Cockayne purchased the Castle-Russell butterfly collections and also many choice items from sales to enrich this collection, and he also invited donations from private collectors with very good results.

Dr. Cockayne spent his last years, in company with others, in the rearrangement and amalgamation of these collections, his activities being hampered more and more by his illness, until he was confined to his room, relying on his amanuensis, Mr. Goodson, to carry out his instructions.

Born in Sheffield on 3rd October 1880, he was educated at Charterhouse and at Balliol College, Oxford, entering the medical profession and serving 1914-1919 as a surgeon in the Royal Navy, taking part in the Archangel expedition, of which he published an interesting entomological account. He served in various capacities in St. Bartholomew's, Great Ormond Street, and the Middlesex Hospitals, as also in the Hospital for Sick Children, teaching eventually in the Medical School.

His retirement from Medicine took place in 1945, when he moved to Aylesbury, and then to Tring.

In various years he occupied the chair of the Royal Entomological

Society, The City of London Natural History Society and the South London Entomological and Natural History Society, being elected a Special Life Member of the Royal Ent. Soc. and of the South London. He was appointed in 1954 to the Order of the British Empire for his services to entomology. S. N. A. J.

The Lepidoptera of Canford, South Dorset 1953-1956

By Alan Kennard

(*Continued from page 95*)

Lithosia quadra L.: Taken 11th and 18th July 1953 and 24th July 1956 All males.

Eilema deplana Esp.: Two or three specimens to light each year.

E. griseola Hub.: Not uncommon, and once taken in mid-October.

E. lurideola Zk.: Fairly frequent.

E. complana L.: Fairly common.

E. sororcula Hufn.: Common over a short period, generally the first week of June although in 1955 it appeared in mid-July. In June 1956 a fine specimen with a dark central patch on the forewing was beaten out of a pine tree.

Spilosoma lubricipeda L.: Very common. Occasional slight variation noticed.

S. lutea Hufn.: Very common, but little variation.

Cycnia mendica Cl.: Common, but I have never taken a female at m.v. light.

Phragmatobia fuliginosa L.: Frequent, but by no means common. Rarely can I get a female of this species to lay.

Diacrisia sannio L.: Common in localised spots on Canford Heath and it has twice appeared at the m.v. light; in both cases males.

Parasemia plantaginis L.: Two specimens were taken in June 1956 on the edge of Canford Heath, near Break-Hill Wood.

Arctia caja L.: Common.

A. villica L.: Rare. Taken 8th, 14th and 21st June 1953 and 19th June 1956. I am told that this used to be a common insect in the area, but it has recently been attacked by a similar parasite to that which attacked *Apatele aceris* L. and consequently the insect has decreased in numbers.

Coscinia cribraria L.: Very rare. Taken on 13th July 1955. Local on Canford Heath, however.

Callimorpha jacobaeae L.: Very common as larvae on ragwort, especially so in 1955, which caused the imago to be common in 1956.

Panaxia dominula L.: A single specimen on 18th July 1955.

Agrotidae

Euxoa nigricans L.: A specimen taken on 20th July 1955. No doubt more could have been taken in the summer holidays.

Agrotis clavis Hufn.: Frequent, but the best year for it was 1953.

A. cinerea Schf.: A single specimen on 20th May 1953.

A. puta Hub.: Common and variable, often appearing at odd times of the year.

Agrotis trux Hub.: A single specimen on 13th July 1955.
A. exclamationis L.: Abundant, particularly so in 1953 when 300-400 a night was of common occurrence in June.
A. ypsilon Hufn.: Common, appearing at various times of the year.
Lycophotia varia Vill.: Very common and abundant in 1955 when after being out for about a month in small numbers it suddenly soared to the 300 mark.
Peridroma porphyrea Schf.: Frequent, particularly so in the autumn of 1955.
Diarsia festiva Schf.: Common and extremely variable.
D. rubi View.: Common; often small specimens turned up.
Ochropleura plecta L.: Common.
Amathes c-nigrum L.: Abundant in the autumn but also taken at other times of the year.
A. triangulum Schf.: Common.
A. xanthographa Schf.: Common.
Axylia putris L.: Frequent, especially so in 1955.
Anaplectoides prasina Schf.: A single specimen on 17th July 1955.
Triphaena comes Hub.: Common, sometimes taken in October. In 1952 this species appeared all over the School buildings; on shaking curtains several were sure to fall out.
T. pronuba L.: Abundant.
T. ianthina Schf.: Common.
Lampra fimbriata Schreb.: Fairly common and variable in its ground colouring, some specimens being very green.
Cerastis rubricosa Schf.: Frequent in March and May.
Phalaena typica L.: A single specimen on 28th July 1953.
Anarta myrtilli L.: Common on Canford Heath.
Mamestra brassicae L.: Frequent, once taken in early May.
Melanchra persicariae L.: Fairly common.
Polia nebulosa Hufn.: Common, though little variation occurred.
Diataraxia oleracea L.: Common, in 1956 one came as early as 5th May
Ceramica pisi L.: Common.
Hadena trifolii Hufn.: Fairly frequent.
H. w-latinum Hufn.: Common, though rather erratic in appearance.
H. thalassina Hufn.: Fairly frequent, particularly so in 1956.
H. suasa Schif.: A number were taken in 1956 though none in previous years.
H. serena Schif.: Rare. One on 1st June 1953 and one on 20th July 1955.
H. bicruris Hufn.: Frequent.
H. cucubali Schf.: Frequent.
Orthosia gothica L.: Common, being sometimes three months on the wing.
O. miniosa L.: Rare. 21st March 1953 and 28th March 1954.
O. cruda Schif.: Very common.
O. stabilis Schf.: Very common.
O. incerta Hufn.: Common and very variable.
O. munda Schf.: Frequent.
O. gracilis Schf.: Fairly frequent, especially so on the edge of Canford Heath.

Panolis flammea Schf.: One larva in the School grounds in 1953. Imago 24.iii.1954. Fairly frequent in May 1956 on the edge of Canford Heath.

Heliophobus anceps Schf.: Common.

Leucania pallens L.: Abundant though never taken in any numbers at light.

L. impura Hub.: Frequent.

L. straminea Tr.: Frequent.

L. pudorina Schf.: 18th July 1955 and ♀♀ on 6th and 9th July 1956.

L. comma L.: Common.

L. vitellina Hüb.: ♂ on 13th October 1954, being very dark in colouring. ♀ on the 19th June 1956 which laid infertile eggs.

L. lithargyria Esp.: Common.

Cucullia umbratica L.: Fairly frequent.

Brachionycha sphinx Hufn.: Fairly common in the first week of November.

Bombycia viminalis Fab.: Uncommon and irregularly seen.

Aporophyla lutulenta Schf.: Rare. 19th October 1954.

A. nigra Haw.: Not uncommon in the autumn.

Lithophane semibrunnea Haw.: Rare. 21st March 1953 and 13th October 1955.

L. socia Hufn.: Rare. A worn male on 16th May 1956 to m.v. light.

Graptolitha ornitopus Hufn.: Rather uncommon at m.v. light.

Xylocampa areola Esp.: Common; some very dark specimens were obtained in March 1956.

Allophyes oxyacanthae L.: Common at the end of October, yet I have taken it in the first week of September in the Cotswolds.

Griposia aprilina L.: Frequent in mid-October.

Parastichtis suspecta Hüb.: Fairly common in the riverside ditches, but only occasionally at m.v. light.

Dryobotodes protea Schf.: Common.

Dasypolia templi Thun.: A male on 15th October 1955; female 17th October 1955; both in perfect condition.

Eupsilia transversa Hufn.: Fairly common throughout the winter months.

Dasycampa rubiginea Schf.: A single specimen on 25th October 1953.

Omphaloscelis lunosa Haw.: Common.

Agrochola lota Cl.: Common.

A. macilenta Hüb.: Fairly common.

A. circellaris Hufn.: Common.

A. lychnidis Schf.: Common.

Anchoscelis litura L.: Rare, though it was not uncommon in 1955.

A. helvola L.: A single specimen on 13th October 1955.

Citria lutea Strom.: Frequent at m.v. light.

Cirrhia icteritia Hufn.: Fairly common.

Atethmia xerampelina Esp.: One on 1st October 1954.

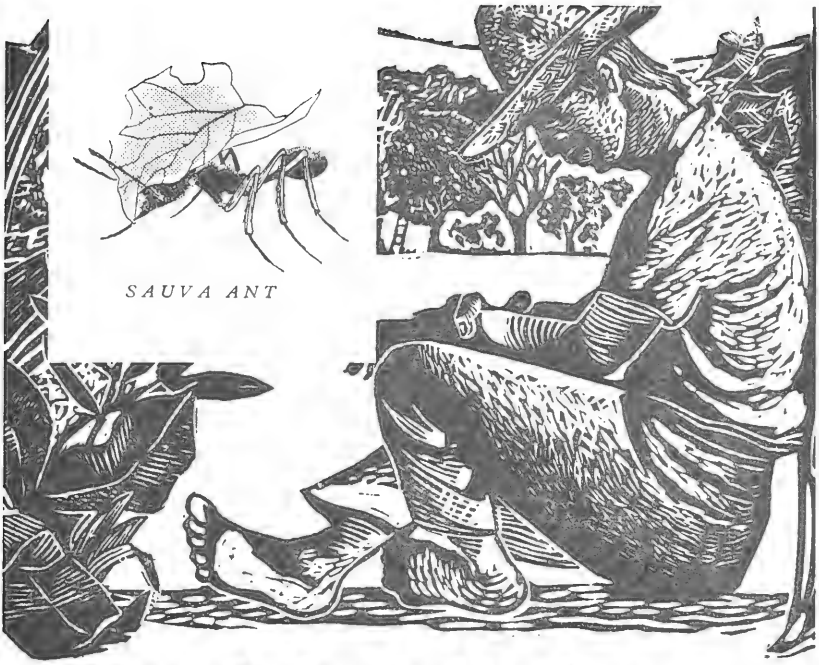
Conistra vaccinii L.: Fairly common.

Cryphia perla Schf.: A single specimen on 19th July 1955.

C. muralis Forst.: A single specimen on 27th June 1953.

Apatele leporina L.: Frequent in 1955 and 1956 but rare before then.

(To be continued.)



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Wanted.—The following monthly parts of *The Entomologist's Record* :—Vol. 26, No. 12 (December 1914) and Vol. 41, No. 3 (March 1929).—*N. D. Riley, 7 McKay Road, Wimbledon, London, S.W.20.*

Wanted.—An early run of *The Entomologist*, preferably Vols. 1-22.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

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AND JOURNAL OF VARIATION

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Collecting in East Anglia and in the West Country During 1956

By The Rev. Guy A. Ford.

It has occurred to me that a few notes on the 1956 season in this eastern area would possibly interest readers. There are one or two captures worth recording from East Anglia and also some made while on a holiday in the West Country.

At Portland, Dorset, from July 5th to 10th, the weather was fine at first, turning latterly to a strong north-east wind, which was not good for collecting on the east side of the island; but two *Sterrha degeneraria* were taken by day by casually beating bramble clumps at Church Ope Cove. (In my three years' residence on the island before the war (see *Ent. Rec.*, **67**, 106) I never saw this moth by day). But no *degeneraria* were taken by night at a very good locality further north along the east coast; it has never failed to be taken here before. One *Sterrha rusticata* was found at rest at dusk in the same tiny area (about ten yards long, at the base of a cliff) where I last took it seventeen years ago. Two *Pyrrhia umbra*, both females, were caught flying at dusk.

Leucania l-album was taken well after dark at valerian blossom (*Kentranthus ruber*) right down near the sea at Church Ope Cove, in fair numbers, but was not seen on this visit in other parts of the island. Several larvae of *Cucullia chamomillae* were taken at sea chamomile on Chesil Beach, and also found, probably for the first time, on the same plant in old quarries at the top of the island (near Easton). One *Lygris prunata* was taken at the light of a paraffin lamp at Church Ope Cove.

One of my chief hopes while staying in this area was to take a series of *Coscinia cribrum* (*cribraria*) at a locality near Wareham; however, although I paid several visits to the spot both by day and night I only took one specimen (at light). I think I was a week or so too early. It gave one considerable satisfaction, however (how infrequently this occurs!) to take specimens of several species at this spot which I had never taken before and which, after careful studying of a good local list, I (in theory) expected to find for certain. In this case I did find them. For example, *Sterrha straminata* (*sylvestraria*)—I call this one of the really rare "commoners"; not once in 25 years of working some of the finest heathland in the south of England have I seen this creature before. *C. cribrum*: one very fresh specimen only. *Hadena contigua*: one female at rest on the grass. *Semiothisa notata*: one worn specimen. *Heliothis dipsacea*: two specimens by day. I have taken this moth in Surrey years ago.

On moving on to the village of Curry Rivel, on the main road into Taunton from the east, on 13th July to stay with an old parishioner and friend of war-time days, I continued to have interesting results. I ran a 125-watt m.v. outfit in the garden, but only, be it noted, until 1 a.m. at the latest on any night. We had a spell of fine weather, and great numbers of moths came to the light, and, incidentally, all over the light-coloured walls of the house. I mention only the outstanding captures.

13th July: *Stauropus fagi* (3), *Angeronia prunaria* (1) new to me;

and at last captured in the depths of an empty dustbin in the yard, where it took refuge. *Cleorodes lichenaria*, a few *Semiothisa liturata*, one fine dark variety of this species. *Philereme vetulata*, a few. (*Lepidoptera of Somerset*, 1955, states "very scarce and local".)

July 14th: Apparently a night when moths were not only "milling around" in their local haunts, but also apparently travelling long distance routes. Thus in addition to re-taking the three *fagi*, which doubtless had spent the day in concealment in the garden, four *Lithosia quadra* (all males) literally dropped on to the sheet in the course of about 1½ hours. A fine *Oria musculosa* (how early for this species!) also turned up. (*Lepidoptera of Somerset*, 1955, says "locally common in Wiltshire, from which county it may have spread", and proceeds to record one specimen at Weston-super-Mare in 1955 at m.v. light.) I also took one *Discoloxia blomeri*, which the Somerset list mentions as "scarce and local".

July 15th. Two *Eilema deplana* (not recorded hitherto for Somerset) and a few *Pseudoips bicolorana* (*prasinana*).

On my return home there was not a great deal to record in the latter half of the year, but what there was was quite interesting, such as a good run of *Selenia lunaria* in June.

On July 25th I took one female *Hadena compta* (it really is *compta*, there have been mistakes!).

Aug. 13th: one *Procus literosa* appeared quite unexpectedly.

Sept. 23rd: one *Margaronia unionalis*.

Oct. 7th: one *Ennomos autumnaria* male; I had previously taken a female of this species at Mildenhall a few nights earlier, so it looks as though I can claim the first Cambridgeshire record for *compta*, and the first record of *autumnaria* for both Cambridge and Suffolk.

I collected a considerable number of larvae from dark red Sweet William flowers in a garden very near the site of the light trap soon after the end of July, and I hope these will prove to be *compta*.

Finally, in view of the fact that the foodplant of *Coenotephria berberata* is very scarce and local, so that the future of the species in eastern England would seem to be precarious, it would already seem to have ceased to exist in Cambridgeshire following the total destruction of its foodplant. I am hoping to bring the species back to Cambridgeshire, having by now established its foodplant in my garden. I can think of no possible objections to such procedure.

Balsham Rectory, Cambridgeshire.

Diptera of the Chalk Downs in May, about Old Coulsdon, Surrey

By L. PARMENTER, F.R.E.S.

Chalk downland, with slopes of scrub, and with copses and woods on the clay and flint cappings, is decorated with an abundance and variety of flowers and grasses. Many are restricted to the chalk and even at the fringe of the suburban garden offer refuge to a host of insects. The attraction of the downland about Old Coulsdon is strong in May. One renews acquaintance with species met before and always a few more are found that may have been overlooked or unrecognised previously.

Farthing Downs have been visited by many entomologists; several rail-routes cross and twist at its feet. Access by modern bus and car bring more from the growing number of naturalists. The valley leads on to more downland towards the northern escarpment overlooking the Weald, whilst to the east, behind ridges, is the large open area of Kenley aerodrome.

Downland and Hedgerows

One tends to avoid the trampled paths and tracks and climb the downs through the long grass that is crowded with plants, some in flower. One passes between the shrubs and young trees of the scrubland, by the hedgerows fringing it and into the marginal woodland and its clearings.

Tipula vernalis Mg. is the most numerous of its genus over the open downs and occurs at the foot of the hedgerow on the herbage. The males of *Dilophus febrilis* (L.) and *Bibio marci* (L.) rest on the tops of plants and leaves of trees and shrubs in between their 'swarming' flights above the grass when they await the opportunity to pair with the emerging females. *Microchrysa polita* (L.) rest on tree leaves 'sunning' in the centre of the leaf. *Leptogaster cylindrica* (Deg.) are found flying slowly about the tufts of long grass hunting aphides and small flies. Empididae are represented by many species. The most prominent is *Empis tesellata* F., a visitor of flowers for nectar but also a hunter of other flies. Along the hedgerow, the prey has consisted of *Tipula vernalis* Mg., *Bibio marci* (L.) and *Syritta pipiens* (L.). Scuttling over the leaves are the aphid predators—*Platypalpus agilis* (Mg.), *P. annulipes* (Mg.) and *P. longicornis* (Mg.). The other Empididae noted along the hedgerows were *Empis caudatula* Lw., *E. chioptera* Mg., *E. punctata* Mg., *E. nigritarsis* Mg., *E. nuntia*, *E. trigramma* Mg., *Hilara albitarsis* von Ros., *Rhamphomyia nigripes* (F.), *Trichina elongata* Hal. and *T. opaca* Lw. *Rhamphomyia atra* Mg. rested under hazel leaves in hot sunshine and has been taken here with *Tipula pabulina* Mg. and *Sciara* sp. as prey.

Spiniphora bergenstammi (Mik) found on the open downs has also been bred from Roman snails whilst *Megaselia pseudogiraudii* (Schmitz) and *Phora aterrima* (F.) were on the bushes of the hedgerow. The males of the latter at times swarm and dance among the bushes of the scrubland. *Pipizella varipes* (Mg.), *Paragus tibialis* (Fln.), *Cheilosia vernalis* (Fln.), *Mellanostoma mellinum* (L.) and more commonly, *Rhingia campestris* Mg. seek flowers for nectar and pollen at the foot of the hedges and among the shrubs. The latter, *R. campestris*, has been seen laying eggs in the cow-pats of the pasture edging the open downs. These cow-pats also are visited by ovipositing females of *Mesembrina meridiana* (L.) and *Scatophaga stercoraria* (L.). *Platystoma seminationis* (L.) and *Piophila varipes* Mg. were found along the hedge where a *Neottiophilum praeustum* (Mg.) female rested, probably after emergence from an old nest of a blackbird or just prior to visiting one for ovipositing.

The Trypetid causer of the gooseberry gall on the thistle, *Cirsium arvense* (L.) Scop.—*Urophora cardui* (L.) is much less often seen than its gall. Others of the family, *Chaetostomella onotrophes* Lw., *Spilographa zoë* (Mg.), *Oxyna parietina* (L.), and *Philophylla heraclei* (L.) were generally found to be confined to the food-plants of the larvae—thistles,

mugwort, and umbelliferae respectively. *Lonchae vaginalis* Fln., *L. flavidipennis* Zett. and *Tephrochlamys rufiventris* (Mg.) var. *canescens* (Mg.) have been taken off the leaves of the hedges where also *Psila merdaria* Collin was seen close to umbellifers in whose roots it is suspected to have bred. *Anthomyza sordidella* (Zett.), *Anthracophaga strigula* (F.), *Meromyza nigriventris* Macq., *Dicraeus styriacus* Strbl. and *Sciomyza dubia* Fln. have been swept from the grassland.

Scatophaga maculipes Zett. was found on the hedgerow herbage where Tachinidae, *Calliphoridae* and *Muscidae* were mostly captured, such as *Oswaldia muscaria* (Fln.), *Anachaetopsis ocypterina* (Zett.), *Medina luctuosa* (Mg.), *Meigenia bisignata* (Mg.), *Zenillia vulgaris* (Fln.), *Z. nemea* (Mg.) and *Wagneria lentis* (Mg.); *Sarcophaga carnaria* (L.), *S. dissimilis* Mg., *Lucilia caesar* (L.), *Morinia nana* (Mg.) and *Nyctia halterata* (Panz.); *Mesembrina meridiana* (L.), *Hydrotaea dentipes* (F.), *H. occulta* (Mg.), *H. meteorica* (L.), *Muscina pabulorum* (Fln.), *Morellia simplex* (Lw.), *Fannia hamata* (Macq.), *Phaonia serva* (Mg.), *P. variegata* (Mg.), *Pegohylemyia fugax* (Mg.) and *Coenosia tricolor* (Zett.).

Flower Visitors

The white flowers of *Anthriscus sylvestris* (L.) Hoffm. of the margins of hedges, copses and woods attract an abundance of diptera, whilst Wood Spurge, with its greenish yellow flowers, seems to be the greatest attraction in the woodland margin. A few other flower visitors have been noted so far as follows: —

Ranunculus repens L. Buttercup.
Empis tessellata F., *Cheilosia albitarsis* Mg., *Leucozona lucorum* (L.), and *Melanostoma scalare* (F.).

Geranium robertianum L. Herb Robert.
Empis pennipes L.

Crataegus monogyna Jacq. Hawthorn.
Empis tessellata F., *Syritta pipiens* (L.), *Syrphus luniger* Mg., *S. torvus* O.S., *S. vitripennis* Mg., and *Melanostoma scalare* F.

Sorbus aria (L.) Crantz. White Beam.
Empis tessellata F.

Anthriscus sylvestris (L.) Hoffm. Keck.
Empis chioptera Mg., *Hilara brevistyla* Collin, *Hilara ? woodi* Collin, *Platypalpus incertus* (Collin), *Diploneura nitidula* (Mg.), *Phora aterrima* (F.), *Urophora quadrifasciata* (Mg.), *Sepsis* sp. *Dicraeus vallaris* Collin, *Chlorops hypostigma* Mg., *C. pumilionis* (Bjerk.), *Liriomyza pusilla* (Mg.), *Alophora pusilla* (Mg.), *Melinda caerula* (Mg.), *Nyctia halterata* (Panz.), *Fannia serena* (Fln.), *Hydrophoria conica* (Wied.), *Hylephila personata* Collin and *Phaonia serva* (Mg.).

Euphorbia amygdaloides L. Wood Spurge.
Bombylius major L., *Empis tessellata* F., *E. trigramma* Mg., *Baccha obscuripennis* Mg., *Cheilosia bergenstammi* Becker, *C. paganus* Mg., *C. variabilis* (Panz.), *Eumerus tuberculatus* Rond., *Leucozona lucorum* (L.), *Melanostoma mellinum* (L.), *Eristalis*

pertinax (Scop.), *Miatropa florea* (L.), *Pipiza noctiluca* (L.), *Platycheirus albimanus* (F.), *Rhingia campestris* Mg., *Syritta pipiens* (L.), *Syrphus albostriatus* (Fln.), *S. eligans* (Harris), *S. luniger* Mg., *S. ribesii* (L.), *S. vitripennis* Mg., *Sphaerophoria scripta* (L.), *Volucella bombylans* (L.) var. *plumata* Deg., *Echinomyia fera* (L.), *Ernestia nielseni* (Vill.), *Lypha dubia* (Fln.), *Gymnochaeta viridis* (Fln.), *Pales pavida* (Mg.), *Paraphorocera stabulans* (Mg.), *Phorocera assimilis* (Fln.), *Calliphora erythrocephala* (Mg.), *C. vomitoria* (L.), *Lucilia* sp., *Pollenia rudis* (F.), *Sarcophaga carnaria* (L.), *Musca autumnalis* Deg., *Phaonia serva* (Mg.) and *Sciomyza griseola* Fln.

Veronica officinalis L. Common Speedwell.
Bombylius major L.

Ajuga reptans L. Bugle.
Rhingia campestris Mg.

Viburnum lantana L. Wayfaring Tree.
Empis tessellata F.,*Syrphus eligans* (Harris) and *S. vitripennis* Mg.

Bellis perennis L. Daisy.
Empis femorata F. with *Nupedia dissecta* (Mg.) as prey.

Endymion nonscriptus (L.) Garcke. Bluebell.
Empis femorata F.

Woodland

Of the predators of the woodland margins, two are particularly common, *Empis femorata* F., which hunts under the lower branches of the trees, taking mostly the cruising, ? swarming, males of Bibionidae and Fanninae—*Dilophus febrilis* (L.), *Bibio nigriventris* Hal., *Delia cilicrura* (Rond.), *Fannia sociella* (Zett.) and *Pegohylemyia discreta* (Mg.), and the other is *Rhamphomyia sulcata* (Mg.). The males of this species cruise in the open at the edge of the woodland and have been seen to capture many males of *Dilophus febrilis* (L.) as presents for the female when mating. They have also taken at the edge of this wood or copse *Dilophus femoratus* (Mg.), *Hilara longivittata* Zett., *Rhamphomyia atra* Mg., *Empis chioptera* Mg., *Platypalpus minutus* (Mg.), *Sepsis* sp. and *Fannia* sp.

Collecting in the open parts of the woodlands and along the margins, the following species have been taken: —

Tipulidae.—*Cylindrotoma distinctissima* Mg., *Limonia flavipes* (F.), *L. nigropunctata* Schum., *L. nubeculosa* Mg., *Tipula flavolineata* Mg., *T. pabulina* Mg., *T. variipennis* Mg.

Bibionidae.—*Bibio johannis* (L.), *B. reticulatus* Lw., *B. venosus* (Mg.), *Dilophus febrilis* (L.).

Stratiomyidae.—*Beris chalybeata* (Forster), *Microchrysa polita* (L.), *Sargus iridatus* (Scop.).

Empididae.—*Empis chioptera* Mg., *E. femorata* F., *E. punctata* Mg., *E. nigritarsis* Mg., *E. tessellata* F., *Hilara galactoptera* Strobl, *H. hirtipes* Collin, *H. longivittata* Zett., *Oedalea holmgreni* Zett., *Platypalpus agilis* (Mg.), *Rhamphomyia atra* Mg., *R. sulcata* (Mg.).

Phoridae.—*Phora aterrima* (F.).

Syrphidae.—*Cheilosia albitarsis* Mg., *C. variabilis* (Panz.), *Criorhina*

floccosa F., *Eristalis intricarius* (L.), *Melanostoma mellinum* (L.), *Syrphus eligans* (Harris), *S. venustus* Mg., *Xanthogramma citrofasciatum* (Deg.).

Conopidae.—*Myopa polystigma* Rond.

Piophilidae.—*Piophila vulgaris* Fln.

Trypetidae.—*Chaetostomella onotrophes* Lw.

Sepsidae.—*Sepsis violacea* Mg.

Sciomyzide.—*Ditaenia cinerella* (Fln.).

Helomyzidae.—*Helomyza notata* Mg. var. *hilaris* Zett., *H. ustulata* Mg.

Drosophilidae.—*Drosophila melanogaster* Mg.

Agromyzidae.—*Phytomyza milii* Kalt.

Choloropidae.—*Elachiptera cornuta* (Fln.), *Oscinella frit* (L.)., *Thaumatomyia notata* (Mg.).

Cordiluridae.—*Amaurosoma fasciatum* (Mg.), *A. nigripes* (Zett.) = *tibiellum* (Zett.), *Norellisoma spinimanum* (Fln.), *Scatophaga inquinata* Mg., *S. maculipes* (Zett.), *S. stercoraria* (L.).

Tachinidae.—*Echinomyia fera* (L.), *Ernestia nielseni* (Vill.), *Gymnochaeta viridis* (Fln.), *Pelatachina tibialis* (Fln.).

Calliphoridae.—*Calliphora erythrocephala* (Mg.), *Sarcophaga haemorrhoa* Mg.

Muscidae.—*Botanophila varicolor* (Mg.), *Coelomyia molissima* Hal., *Fannia hamata* (Macq.), *F. serena* (Fln.), *F. sociella* (Zett.), *Hebecnema umbratica* (Mg.), *Helina impuncta* (Fln.), *Hydrophoria conica* (Wied.), *Hydrotaea dentipes* (F.), *Hylemya strenua* R.D., *Lasiops semicinereus* (Wied.), *Mesembrina meridiana* (L.), *Pegohylemyia discreta* (Mg.), *P. fugax* (Mg.), *Phorbia gentilis* (Schbl. & Dzied.).

SUMMARY.

1. An account is given of about 170 species of diptera found on chalk downland in May.
2. The fauna is treated under open downland and woodland.
3. Special mention is made of flower visitors and of predators.

94 Fairlands Avenue,
Thornton Heath, Surrey. 3.iii.57.

Notes on Micro-Lepidoptera: June

By H. C. HUGGINS, F.R.E.S.

Eucosma simplana F. v. R. It is time this pretty little Tortricid was taken again. I last saw it on 24th June 1930 in a Kentish wood, when I netted 17 in an evening, and could have taken more, but I had to catch an omnibus to pick up a car home, and on 28th June 1939, when I saw three in an Essex wood. I did not take these as I had a series and did not wish to destroy a rare insect unnecessarily. I visited this locality last year, but the state of the wood was not suitable for working. *E. simplana* can only be sought successfully when the aspen on which it feeds has been cut down two or three years before; it may then be seen at about 7 p.m. (G.M.T.) buzzing slowly round the bushes, looking very white on the wing. Care must be taken not to confuse it with *Gypsonoma neglectana* Dup. which is on the wing at the same time and around the same aspens, but *simplana* looks whiter

on the wing and, at any rate thirty years ago, I had little difficulty in distinguishing them. I have little doubt the moth could be obtained in the Ham Street, Shadoxhurst and Bilsington group of woods, and in some parts of Blean.

Look out for migrants. With the advent of the M.V. lamp the chance of catching some of the rarer Pyralides and Crambids is greatly increased, but I wonder how many are even now being passed over by those not greatly interested. *Palpita unionalis* Hubn., until recently a great rarity, seems now to be one of the usual scarcer immigrants like *Nycterosea obstipata* Fabr. and *Diasemia ramburialis* Dup. seems to turn up nearly every year. I do not imagine that *unionalis* was often overlooked, but I think it very possible that this was the case with *ramburialis* until the recording of three or four examples got it talked about. Again, it is not likely that a striking insect such as *Uresiphita gilvata* Fab. (*polygonalis* Hb.) would be passed over, although I might mention that the late summer insects abroad are frequently small, with greyish brown forewings and whitish hindwings (Mr. Dewick's specimen taken last year at Bradwell was of this form). Insects likely to be neglected are, however, *Antigastra catalaunalis* Dup. and *Eromene ocellea* Haw. The first, which my friend Beirne compares with a wasted *Pyrausta cilialis* Hubn. is also, except for the spots (and often these become faint in the common insect) very like one of those miserable little pale *Pyrausta martialis* Guen. which visit us in swarms from abroad in late summer and early autumn in some years; they are particularly common in the coastal districts where *catalaunalis* might be expected to occur, and I have recently received specimens to check from Mizen Head and from Tory Island lights. *E. ocellea*, on the other hand, is probably sometimes overlooked among the number of pale Crambids about in the summer. I think it is significant that so high a proportion of our few records were in the spring, when it would attract attention, as no other Crambid would be about. The last British specimen was, I know, carefully examined for this reason. The only August capture, of which I also have personal knowledge, was taken on Denny Heath in the New Forest by a collector just beginning to take Crambids; his more experienced companion, who incidentally got the moth out of him, was taking no notice of the *tristellus* and *geniculeus* amongst which it rose.

Notes and Observations

Maculinea arion L. in North Devon.—I visited north-west Devon in 1955 and 1956. In 1956 I saw that the hill which had been set aside as a Nature Reserve had been badly burnt and found that it was assumed this had been done by the owner of the Reserve for some reason. I have since been in correspondence with Major Sir Dennis F. B. Stucley of Hartland Abbey, the owner of the Reserve, and he tells me that the burning of his Nature Reserve was the work of vandals. He has given much thought to preserving the Large Blue and had met with some success. He does not think that the fires have done so much damage as he at first feared.

I observed last year that *arion* was flying on the Reserve and in other adjacent localities, but not as plentifully as in 1955. I took

only one specimen and that was at Speke's Waterfall. The burning of the gorse on the Reserve and adjacent hills must however have had a bad effect on the Grass Emerald, *Pseudoterpna pruinata* Hufn. The moth was common in 1955 but I saw none in 1956. It flies when *arion* is on the wing.

This explanation should interest Mr. H. Symes who reported the burning of the Reserve in the *Record*, Vol. 68, No. 10, October 1956.—CLIFFORD CRAUFURD, 'Denny', Galloway Road, Bishop's Stortford. 4.v.57.

EARLY EMERGENCE OF EUCHELIA JACOBAEAE L.—I should like to record that once again an early *jacobaeae* has come my way. On 16th April Mr. J. D. Morton of Idmiston, Wilts, brought me a live and apparently freshly emerged female that was caught in his garden on Saturday, 13th April. This is about two miles from Porton where the interesting records of last year were obtained.

Once again may I suggest that users of m.v. moth traps should be on the look-out for this species. In view of the recent early and late appearances of *jacobaeae* could it be possible that this species, under favourable conditions, is making an attempt to become double brooded? —C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Wilts. 20.iv.57.

EARLY APPEARANCE OF MACROGLOSSUM STELLATARUM L.—A Hummingbird hawkmoth was flying about my house at Clarendon on 4th April last.—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Wilts. 20.iv.57.

——.—A friend at Margate, Kent, writes that his wife brought home a specimen of *M. stellatarum* recently. This is very early, is it not? I suppose it was a migrant specimen, or could it have survived our mild winter?—A. C. R. REDGRAVE (*in lit.*, 18th March 1957).

EARLY EMERGENCE OF ANTHOCHARIS CARDAMINES L.—As a supplement to my note in the *Record* for May (**69**: 118) I may mention that I saw two more *A. cardamines* males today at Chilworth. One of them was of the miniature form.—E. E. JOHNSON, Highfield House, Portsmouth Road, Guildford, Surrey. 4.iv.57.

CELASTRINA ARGIOLUS L. IN DERBYSHIRE.—I was quite thrilled to see yesterday (29th April) the first butterfly of the season here, for it was a Holly Blue, which species has seemingly been missing from the district for three years. During the past winter the hollies have been magnificent with the best crop of berries ever, and I was hoping this would mean a revival of *argiolus*. The first sound of the cuckoo and the emergence of a couple of Lime Hawkmoths confirmed the arrival of spring.—T. D. FEARNENOUGH, 13 Salisbury Road, Dronfield, Derbyshire. (*in lit.*, 30.iv.57).

MOTHS AT M.V. LIGHT IN EAST HERTS IN 1956.—On 5th June 1956 in Vol. 68, No. 7/8, of the *Record* some new arrivals to the four local m.v. traps were recorded. *Hyloicus pinastri* L. arrived on 9th July. It was in very poor condition but just recognizable. The Breckland or Suffolk coast is the nearest habitat of which I know. On the same date

Bomolocha crassalis Fab. was in the trap. Its foodplants probably grow at Epping, 15 miles away. *Lampropteryx suffumata* Schf. came on 2nd June. Mr. D. Ashwell recorded *Comacla mundana* L. on 26th July.

Ennomos autumnaria Wernb. appears to be increasing, no fewer than 19 being trapped in the last three years, four of them in my trap from 26th September to 8th October 1956. *Laspeyria flexula* Schf. has been taken in all four traps. In Current Notes in Vol. 67, No. 7/8, Mr. Allan mentioned that I had taken *Hadena compta* Schf. This was on 20th July 1954 from a garage window in the town, and the insect also came to my trap on 22nd July 1955. I hope that some beds of sweet williams which I have now planted in my garden will bear fruit this year.

Apart from trapping, *Eustrotia uncula* Cl. was discovered in the district in June 1955 by Mr. G. H. B. Sell and one or two were seen last year. He also found by lantern light *Lampropteryx suffumata* Schf. at Hatfield Forest in May 1956. We have been able to add *Aegeria myopaeformis* Bork. to our lists as Mr. Ashwell took both larvae and imagines from his apple trees in July 1936. *Dicycla oo* L. came to sugar near a local wood on 21st July 1956, and on 17th September an imago of *Acherontia atropos* L. was found near the town by a lorry driver and was passed on to me in very good condition.—Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford. 4.v.57.

Vanessa huntera Fab. in the British Isles.—I read with interest Mr. John Lobb's note (antea p. 74) of the capture of a specimen of *Vanessa huntera* Fabr. at Freshwater on 19th August 1956. Mr. Lobb referred also to a previous record by Capt. Blomer in Pembrokeshire in 1828, while the Editor added particulars of two further records, namely, by Miss C. L. Pole-Carew in Cornwall in 1876 and by T. D. Gibson-Carmichael in Berkshire in 1871. There is also an Irish record, a specimen having been taken by Miss B. Donovan near Timoleague, Co. Cork, on 12th August 1912. (See C. Donovan, *Cat. Macrolep. Ireland*, 1936.)

How did these butterflies reach these islands? It has been suggested of another North American species, *Danaus plexippus* L., that the journey across the Atlantic is accomplished partly by ship and partly by wind assisted flight. On the other hand, both species exist in the Canary Islands, *plexippus* being locally abundant, but *huntera* rare. Is it not possible that our immigrants have their origin in the Canary Islands?—E. S. A. Baynes, 2 Arkendale Road, Glenageary, Co. Dublin.

Three Uncommon 'Micros' in Suburban North-west Kent.—The following three captures are, I think, worth recording, since the species (though possibly not rare at times in some restricted localities further afield) are certainly not typical insects of the immediate surroundings of London. The work cited under each species as 'Woolwich Surveys' is, to give it its proper title, *A Survey and Record of Woolwich and West Kent*, ed. C. H. Grinling *et al.*, Woolwich, 1909.

Euxanthis aeneana Hübn. (Phaloniidae): Recalling a note by Mr. H. C. Huggins to the effect that *E. aeneana*, in his experience in south-east Essex, was confined to heavy soils, I decided on Abbey Wood Marshes as the nearest likely place where, owing to the abundance

of its foodplant (*Senecio jacobaea*), this very local and handsome Tortrix might be found. In view of the fact that the energetic local collectors of the last century did not meet with it (there being no record in 'Woolwich Surveys') I had little expectation of success; however, after a few hours' search on the sunny afternoon of 25.vi.56, I had the pleasure of securing an apparently fresh specimen which was hovering low over young plants of ragwort. No others were seen, even at dusk; and I regret to say the area is probably now destroyed—or soon will be—for bulldozers were even then at work in neighbouring parts of the marshes. I failed to find the species in a nearby field full of ragwort, but may have been rather late for it. I understand from Mr. J. M. Chalmers-Hunt that there is only one other Kent record—for Chattenden (Rochester district).

Roeslerstammia erxlebella Fabr. (Hyponomeutidae): Although very widespread, this moth appears to be far from common, at all events around London; for this district, the entry in 'Woolwich Surveys' is 'Uncommon.—Eltham, Chislehurst, Bexley (B. A. Bower)'. There seems also to be some uncertainty about the foodplant, which is generally birch, but Ford (1949, *Guide to Smaller British Lepidoptera*: 142) adds 'Also said to feed on *Tilia*' and Meyrick (1895, *Handbook of British Lepidoptera*: 771) says 'Larva on *Tilia*'. On 21.v.55 I beat a specimen, after dark, off one of a row of young limes (now cut down) overhanging a wall of my garden. There are large lime trees also bordering the road near at hand, but the nearest birches, in gardens, are much farther off. This capture seems, on the whole, to confirm the association of the species with *Tilia*, and I wonder whether it is recognized by microlepidopterists as a regular inhabitant of our lime-planted suburbs. I believe it generally rests and disports itself high up in the trees and so is doubtless often passed over (or under!).

Eidophasia messingiella F.R. (Plutellidae): I took an example of this distinctive species—quite unknown to me at the time—in a sort of weedy gully between two dense thorn hedges on Erith Marshes (12.vii.55); it was, as far as I remember, sitting on low herbage. The sole record in 'Woolwich Surveys' is 'Eltham, scarce (B. A. Bower)'. The species seems nowhere common, or it may be very local; Ford (*l.c.*: 171) gives *Cardamine amara* and *Lepidium draba* as foodplants.—A. A. Allen, 63 Blackheath Park, S.E.3. 14.iv.57.

Cetonia aurata L. in March.—On 22nd March I saw two partly crushed specimens of this insect on the footway along this road. The earliest date on which I had previously seen this species was 7th April (1953) as recorded in *Ent. Rec.*, **65**: 185, where Mr. A. A. Allen in a note said that records for early April were very few. I wonder whether he knows of a previous record for March?—H. Symes, 52 Lowther Road, Bournemouth. 23.iii.1957.

Thecophora atra F. (Diptera, Conopidae) in Nottinghamshire.—I was watching mining bees (for possible associates) passing in or out of burrows into a dry red clay bank of southerly aspect overhung by grasses and ragwort plants in woodland among whitethorn and elder scrub, in Nottingham, during the afternoon, 26th July 1952. Some flies of different appearance, obviously *Thecophora*, were noticed,

settled on grass blades, drinking from the ragwort blooms, or taking short flights in the vicinity, in very warm and sunny conditions accompanied by only light air movement in this sheltered site.

I estimated that about a dozen of the bees were visible at once, *i.e.*, excluding any bees possibly within the burrows, or foraging, or hidden in some other way from the observer, while at least five *Thecophora* examples were shown by capture to have been present, of which one was a female. The *Thecophora* were all examples of *T. atra* F. and the bees, *Halictus morio* F. There is stated to be some association between mining bees and *Thecophora*, but I was unable to prove any.

Three species of ragwort, *Senecio jacobaea* L., *S. squalidus* L., and *S. erucifolius* L., grew in or overhung the site, and flowers of all three were visited by both fly and bee during the period of observation which lasted some thirty minutes.

Air temperature at the time of observation 16.00 hours, 26° C. (thermometer waved at waist level in shadow), cloud nil, light N.W. air. Temperatures over the few preceding days with one exception had exceeded normal maxima.

No *Thecophora* appear in Carr's local list.

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—O. M. White, 78 Eastdale Road, Nottingham.

Current Literature

Revue Francaise de Lepidopterologie, **15**: 6, 1956. The cover design is a photograph of the larva of *Hemerophila nycthemeraria* Hb. on *Juniperus* and Dr. H. Cleu supplies a description of the larva and an account of his breeding the moth. Y. de Lajonquiere writes on *Heliophobus texturata* Alpheraky, a species new to the French fauna with a plate figuring this species together with *H. reticulata* Vill. for comparison. J. T. Betz writes on *Melitaea aurinia* Rott. in Algeria with a fine double half-tone plate showing 39 examples including *Euphydryas desfontainii* R., *E. desfontainii gibrati* and *E. aurinia barraguei*: a footnote reconciles the use of *Melitaea* in the article and *Euphydryas* in the plate. There are further notes from H. Marion on the French Pyrales, this time dealing with *Crambus digitellus* H.-S., *C. latistrius* Hw. and *C. monotaeniellus* H.S., which he considers to be a synonym of *latistrius*, and he also writes on *Homoeosoma nimbella* Dup. H. de Lesse contributes an article on the fixation of lectotypes and the description of a new subspecies of *Erebia tyndarus* Esp. ssp. *savalanica* from Savalan in N.W. Persia. An article on the family *Abrostola* with three plates comprising 22 figures, six of the imagines and the remainder of genitalia dissections comes from C. Dufay. The species concerned are *A. trigemima* Werneb. (*triplasia* vulgo sensu), *A. asclepiadia* Schiff.

and *A. triplasia* L. (*tripartita* Hfn.). Finally E. de Laever writes on *Eupithecia cooperata* Dietze and another species confused in series he has inspected, viz. *E. gemmellata* H.-S., and he accordingly describes the differences. He also mentions *E. poecilata* Pungeler as an addition to the French list.

THE LEPIDOPTERIST'S NEWS, **10**; 3-4, 1956, opens with an article by Wm. N. Burdick on *Coenonympha* species from the front range of the Colorado Mountains including the new subspecies *C. inornata phantasma*. A half-tone figure shows examples of *C. inornata ochracea* Edw., *C. inornata phantasma* Burdick, and *C. inornata benjamini* McD. Asher E. Treat cites cases of phoresy by pseudoscorpions on moths; J. B. Ziegler writes on *Kalmia* as a foodplant of *Incisalia augustinus* Westwd. and a very full annotated list of Rhopalocera from South East Wyoming is given by Gene R. de Foliart. Donald Eff writes on *Speyeria egleis secreta* dos Passos & Grey. Chas. D. Bird contributes a note on a collection of Rhopalocera from the Whiteshell Forest Reserve, Manitoba, and listing species of special interest. Don B. Stallings and J. R. Turner write a note on the giant skipper *Megathymus polingi* Skinner. Field notes include one on southern lepidoptera being taken at Cape Cod after hurricanes. In two papers specially contributed for field workers, J. W. Tilden writes on San Francisco's vanishing butterflies (so we are not alone), and E. P. Wiltshire notes 46 species of butterfly taken in one day in S.W. Asia. Lionel P. Gray writes on bog collecting in central Maine, and finally there is a further list of recent literature on Lepidoptera.

The United States National Museum, Bulletin 207: *American Moths of the Subfamily Phycitinae*, by Carl Heinrich: Smithsonian Institute, Washington, DC., 1956. (Large 4to, cloth; viii + 581 pp). This fine work is, alas, the last we shall seen from the pen of Carl Heinrich, who died on 31st May 1955, shortly after completing the reading of the galley proofs.

The introduction gives a chart of genera, grouped according to genitalia and venation, and after a short note on the author, with details of his nine other major works, one enters immediately on the body of the work with keys to genera and descriptions of genera and species, which occupies 316 pages, and is followed by a check list. Pages 332 to 565 are devoted to figures, all excellently clear; first of all typical venations of the genera are illustrated followed by a section giving the male genitalia and finally the female genitalia. The index has the added convenience that species and genera are indexed alphabetically, but under the genera, the species of that genus are also listed. There is a short index of unrecognized or misplaced species, and finally a list of host plants.

Although limited to the American Phycitinae, this excellent book has been keenly awaited, as it forms the foundation on which the long overdue accounts of this subfamily from other regions can be built, and now that the book is published, we sincerely hope that others will work industriously to produce their contributions, so that what has for a long time been an entomological "backward area" may quickly be brought into line with other possibly less difficult families, for so many Phycitid moths are of considerable economic interest.

The Changing Scene, No. 1, 1957: 63 pp. This interesting annual, the joint transactions of The Eden Field Club, The Penrith and District Natural History Society, and the Kendal Natural History Society is intended to keep up-to-date with the flora and fauna and other natural changes of the Lake District and the surrounding terrain. It is based on notes from "The Field Naturalist" with additional papers by specialists. It is divided up into sections, commencing with a short account of the three societies, followed by a survey of the district covered. Following sections include a meteorological survey of the period 1953-56, Mammals, Birds, Fishes, Insects (at present limited to lepidoptera and coleoptera), Flora, and finally mines and minerals. The make-up is such as to interest all interested in natural history, whether specialized or general, and should be most useful to anyone proposing to work the Lake District. It is obtainable from J. G. Aynscough, 19 Clifford St., Appleby, Westmorland.

Entomologische Berichten, **16**, 12, 1.xii.56, opens with a paper on the hoverflies of Terschelling by V. van der Goot listing some 45 species. This is followed by a detailed paper on the Tipulidae in the Berling collection by B. Theowald and B. Mannheim. J. van Lith writes on two *Hoplomerus* species, *H. sinipes* L. and *H. reniformis* Gmel. (Hym. Eumeninae) and K. Tsuneki describes *Stigmus marocensis*, a new Sphecid fly from Morocco.

17, 1, 1.i.1957, commences with the secretary's account of the summer meeting of the Dutch Entomological Society. P. H. van de Pol gives an account of the Macro-lepidoptera Hullenberg (Guelderland) accounting in a detailed census for 529 species. A note by S. de Boer concerns a strong colony of *Thera juniperata* L. J. A. Janse writes in English on the occurrence of the butterfly *Sloperia proto* O. in Italy and there are two other papers in English by H. H. Bergman describing a new Hymenopterous parasite (Drinidae) of leaf-hoppers in Java and by J. B. M. van Dinther on scale insects in Surinam.

Forestry Commission Leaflet, **40** (9d), gives a good account of the attacks of *Evetria* spp. (Tortricina) on conifers with photographs of habitats and damage. The species discussed are *E. buoliana* Schiff., *E. turionana* Hb., *E. resinella* L. and *E. purdeyi* Durr. Chemical control is not recommended, but information on the results of infestation and the handling of infested trees should be of great use to growers.

Entomologische Zeitschrift, **66**, 21, 1.xi.56, commences with an article by R. Mell on the pairing time of butterflies; Dr. Werner Martens continues his paper on migratory, mating, and ordinary flight of butterflies, completed in No. 22.

66, 22, 15.xi.56, contains a note on the larva of *Tapinostola hellmanni* Ev. P. Pekarsky commences an article on the 1955 season, completed in No. 23.

66, 23, 1.xii.56, opens with a paper by Erich Schmitt "Uber den Lastenausgleid entomologisch gesehen" sub-titled "A fantasy of insect step-children". Dr. Werner Martens opens an article on the Zygaenidae of the Iberian Peninsular, continued in **66**, No. 24, and **67**, No. 1, and Karl Stamm contributes a note on the cerci as auxiliary organs to the wings of earwigs.

66, 24, 15.xii.56. Kurt Herz writes a note on the egg-laying of the great green grasshopper.

67, 1, 1.i.57, opens with a long article by Hans Nadbyl entitled: "On the trail of *Papilio Hospiton* in Sardinia" with five half-tone views of the terrain in the text.

67, 2, 15.i.57. B. Alberti writes on *Pieris napi* L. form *fumigata* Gillmer with four half-tone photographs in the text. Gerd Heinrich writes on some Ichneumonidae from Afghanistan.

Canadian Entomologist, **88**, 10, 1.x.1956, opens with an exhaustive article on the satin moth, *Stilpnotia salicis* L. in the Maritime Provinces and its control by parasites and spraying, contributed by W. A. Reeks and C. C. Smith. Eugene Munroe writes on North American species of the Pyralid genus *Diathrausta* with text figures of ♂ genitalia of the two species and five half-tone text figures illustrating the subspecies mentioned. An article by L. G. Monreith describes some experiments with the Tachinid fly *Drino behomica* Mem. on its being attracted to its hosts by their movements. A very full biological and historical note on *Lambdina* (*Ellopia*) *fiscellaria* Guen., the hemlock looper moth, in Newfoundland is contributed by W. J. Carroll, and L. A. Syms writes on the insects affecting the seed production of the red pine, Part I concerning the Scolytid beetle, *Conophthorus resinosae* Hopk. Finally a note on *Coenosia tigrina* (F.), an Anthomyiid fly predacious on the onion fly *Hylenya antiqua* Mg., with an account of its habits and of the rearing of the species in captivity is given by J. P. Perron, E. J. Le Roux and J. Lafrance of the Ottawa Department of Agriculture. S. N. A. J.

Scandinavian Pipunculidae. *Opusc. Ent.*, 1951, **21**: 149-169, by J. E. Collin.

The publication of the Check List of British Insects by G. S. Kloet and W. D. Hincks, followed by the series of Handbooks for the Identification of British Insects, of the Royal Entomological Society, has given an impetus to the revision of many families of British Diptera. The present paper under consideration was undertaken as a preliminary for the Pipunculidae handbook. It is based on an examination of Fallen's collection at Stockholm and the collections of Zetterstedt and Roth at Lund.

As would be expected, Latreille's *Pipunculus* is accepted and not Meigen's 1800 name of *Dorilas*. A key to the family separates seven genera, *Chalarus*, *Verrallia*, *Nephrocerus*, *Alloneura* (=*Tomosváryella* Aczel = Group 1 of the Check List), *Dorylomorpha* (Group 2), *Pipunculus* (Group 5), *Cephalops* (Group 3 and part Group 6) and *Eudorylas* (Group 4).

Five new species are described, including two additions to the British List:—*Alloneura minuscula* from Sweden, *Pipunculus oldenbergi* from Germany, *Cephalops subultimus* from Golspie, Scotland, 7th-24th August, *Eudorylas furvulus* from Sweden and *Eudorylas inferus* from New Forest, Hants, June to July, also known from Surrey, Kent, Hereford, Oxford and Suffolk.

In addition, three species described by Verrall in 1901, have had to be renamed as follows:—

Pipunculus fascipes Zett. of Verrall becomes *Eudorylas subfascipes* Collin.

Pipunculus terminalis Thoms. of Verrall becomes *Eudorylas subterminalis* Collin.

Pipunculus zonatus Zett. of Verrall becomes *Eudorylas zonellus* Collin, whilst we are informed that *Verrallia pilosa* of Verrall is not Zetterstedt's species and will be renamed later on.

Other items of interest to British dipterists are concerned mostly with changes of names but it is noted that *Chalarus latifrons* Hardy, 1943, is a British addition being 'not uncommon in Britain'. *Pipunculus incognitus* Verrall, 1911 nec 1901, becomes *Dorylomorpha beckeri* Aczel, *Pipunculus ater* Mg., 1824, becomes *P. campestris* Latreille, 1804, confirming Verrall's acceptance of this synonomy in 1901. *Pipunculus pulchripes* Thoms., 1870, becomes *P. calceatus* v. Ros., 1840, *Pipunculus flavipes* Mg. of Verrall becomes *Cephalops aeneus* Fln. and *Pipunculus distinctus* Becker becomes *Eudorylas zonatus* Zett.

The paper also includes 19 useful figures of male and female terminal abdominal segments of the following species *Verrallia pilosa* Zett., *Pipunculus oldenbergi* Coll., *Alloneura minuscula* Coll., *Dorylomorpha infirmata* Coll., *D. incognita* Verr., *D. beckeri* Aczel, *D. albitarsis* Zett., *Cephalops semifumosus* Kow., *C. subultimus* Coll., *Eudorylas terminalis* Thoms., *E. subterminalis* Coll., *E. furvulus* Coll., *E. fusculus* Zett., *E. inferus* Coll., *E. zonellus* Coll.

As most of these figures are of the types, they greatly increase the value of this latest study of this family of flies parasitic on Homoptera. It is known that there are more new species to be described from material taken in this country including the bombed area in the city of London so that it is to be hoped that British dipterists will pay particular attention to the family this season.

L. P.

In a recent paper, "A study of the variability in *Scatophaga litorea* Fall. (Dipt., Scatophagidae)" 1956, *Notulae Entomologicae*, **36**: 1-8, by Dr. W. Hackman of Zool. Museum, Helsingfors, who has kindly sent us a copy, we have an interesting study of this coastal species whose larvae live in decaying sea-weed. Nearly 500 specimens were examined; the localities are mentioned and diagrams and photographs illustrate the variation in pilosity. The species is regarded as a cline and as including *islandica* Beck. and *impudica* Reihe as synonyms rather than as sub-species. In addition, the females of *S. villipes* Zett. and *litorea* Fall. are compared and English specimens are briefly described.

L. P.

In 1953, Mr. J. E. Collin in *Trans. Soc. Brit. Ent.*, **11**: 181-207 revised the British species of Lonchaeidae giving illustrations of the hypopygia of most of the species. British dipterists will be grateful, however, for the further figures of genitalia, male and female and of antennae included by Dr. W. Hackman in his "The Lonchaeidae (Dipt.) of Eastern Fennoscandia", 1956, *Notulae Entomologicae*, **36**: 89-115, as many of the British species are included, described and keyed. *L. zetterstedti* Beck. of Collin, 1953, is redescribed (and illustrated) as a new species, *L. collini* with *L. zetterstedti* Hennig 1948 as

a further synonym and a note is made of its rearing from pupae found in the galleries of *Blastophagus* (=*Myelophilus*) *piniperda* (L.) (Col., Scolytidae) under bark of *Pinus silvestris*. *L. deutschi* Zett. of Collin 1953 is regarded by Dr. Hackman as being *L. lucidiventris* Becker. Three new species from Finland are described, *L. difficilis*, *L. ragnari* and *L. sororcula*. Biological data are given for several species and the point is made of the influence of *Populus tremula* as a habitat for many species and of the habit of the larvae as predators of coleoptera larvae and pupae.

L. P.

The Lepidoptera of the Aldershot District of N.E. Hampshire

By A. W. RICHARDS.

(*Continued from page 117.*)

Pheosia gnoma Fab. v.c.
P. tremula Cl. c.
Stauropus fagi L. f.c.
Ptilophora plumigera Schiff. Alton n.c.
Pterostoma palpina L. c.
Odontosia carmelita Esp. f.c.
Lophopteryx capucina L. c.
Cerura vinula L. and *C. furcula* Cl. c.
C. hermelina Göze. Two sp. at Aldershot.
Phalera bucephala L. v.c.

POLYPLOCIDAE

Habrosyne derasa L. v.c.
Thyatira batis L. c.
Tethea duplaris L. c.
T. or Schiff. f.c. at Fleet.
T. ocularis L. v.c.
Asphalia diluta Schiff. c.
Achlya flavicornis L. abdt.
Polyploca ridens Fab. f.c.

LYMANTRIIDAE

Orgyia antiqua L. f.c.
Dasychira fascelina L. Hawley and Farnborough n.c.
D. pudibunda L. abdt. Dark leaden specimens occur.
Euproctis similis Fuess. v.c.
Lymantria monacha L. c.

LASIOCAMPIDAE

Lasiocampa quercus L. c.
Poecilocampa populi, L. c.
Macrothylacia rubi L. Usually abdt.
Trichiura crataegi L. Three sp. at Hawley, two sp. at Fleet.
Malacosoma neustria L. c.
Philudoria potatoria L. v.c.
Gastropacha quercifolia L. f.c.

Saturniidae

Saturnia pavonia L. c.

Drepanidae

Cilix glaucata Scop. c.
Drepana lacertinaria L., *D. falcataria* L., *D. binaria* Hufn. and *D. cultraria* Fab. c.

Arctiidae

Eilema complana L. and *E. lurideola* Zinck. c.
E. deplana Esp. Hawley and Fleet. n.c.
E. griseola Hüb. c. at Fleet.
E. sororcula Hufn. Alice Holt. n.c.
Lithosia quadra L. One sp. at Alice Holt.
Cybosia mesomella L. abdt. on heaths.
Nudaria mundana L. Aldershot, a few.
Comacla senex Hub. w. n.c.
Miltochrista miniata Forst. w. and c.
Hypocrita jacobaeae L. abdt.
Phragmatobia fuliginosa L. c.
Cycnia mendica Cl. f.c.
Spilosoma lutea Hufn., and *S. lubricipeda* L. v.c.
S. urticae Esp. 1 sp., Hawley.
Diacrisia sannio L. c.
Arctia villica L. w. n.c.
A. caja L. c.
Parasemia plantaginis L. Taken at Alice Holt by C. J. Moys.

Nolidae

Nola cucullatella L. c.
N. strigula Schiff. 1 sp. at Aldershot.
Roselia confusalis H.S. c.

Caradrinidae

Apatele leporina L., *A. aceris* L., *A. psi* L., *A. megacephala* Schiff., and *A. rumicis* L. c.
A. alni L. Has been taken near Farnborough.
Colocasia coryli L. abdt.
Cryphia perla Schiff. c.
Amphipyra pyramidea L. and *A. tragopoginis* L. v.c.
Gortyna flavago Schiff. c.
Luperina testacea Schiff. v.c. and variable.
Laphigma exigua Hüb. occasional.
Rusina umbratica Göze. c.
Coenobia rufa Haw. 1 sp. at Hawley.
Nonagria typhae Thun. 1 sp. at Aldershot. Larvae at Fleet Pond.
Cosmia pyralina Schiff. and *C. affinis* L. c.
C. diffinis L. f.c. Aldershot; sc. elsewhere.
C. trapezina L. abdt.
Caradrina clavipalpis Scop., and *C. morpheus* Hufn. c.
C. blanda Schiff. v.c.
C. alsines Brahm. f.c. at Hawley.

C. ambigua Schiff. Hawley n.c.
Mormo maura L. c.
Zenobia retusa L. c.
Z. subtusa Schiff. n.c.
Dicycla oo L. 2 sp. at Hawley.
Pyrrhia umbra Hufn. 1 sp. at Fleet.
Rhizedra lutosa Hüb. 2 sp. at Hawley.
Arenostola pygmina Haw. c.
A. phragmatidis Hüb. 1 sp. at Hawley.
Petilampa minima Haw. c.
Meristis trigrammica Hufn. v.c.
Thalpophila matura Hufn. c.
Phologophora meticulosa L. c.
Euplexia lucipara L. c.
Dipterygia scabriuscula L. c.
Xylophasia remissa Hüb., *X. crenata* Hufn., and *X. lithoxylia* Schiff. c.
X. sublustris Esp. 2 sp. at Fleet.
X. monoglypha Hufn. abdt.
X. scolopacina Esp., and *X. hepatica* Hüb. f.c.
Apamea furva Hufn. 1 sp. at Aldershot.
A. sordens Hufn. abdt.
A. unanimis Hüb. w. n.c.
Procus furunculus Schiff., *P. strigilis* Cl., *P. latrunculus* Schiff., and *P. fasciunculus* Haw. c.
Euxoa nigricans L., and *E. tritici* L. c.
Agrotis segetum Schiff., *A. puta* Hüb., and *A. exclamationis* L. abdt.
A. vestigialis Hufn., and *A. clavis* Hufn. c. at Hawley and Fleet.
A. ypsilon Rott. Usually c.
Peridroma saucia Hüb. c.
Lycophotia porphyrea Schiff. abdt.
Ochropleura plecta L. abdt.
Graphiphora augur Fab. c.
Amathes agathina Dup. 1 sp. at Hawley.
A. castanea Esp., *A. triangulum* Hufn., *A. umbrosa* Hüb., *A. baja* Schiff., and *A. glareosa* Esp. c.
A. xanthographa Schiff., and *A. c-nigrum* L. abdt.
Spaelotis ravida Schiff. 2 sp. at Aldershot.
Diarsia brunnea Schiff. and *D. festiva* Schiff. c.
D. rubi Vieweg. abdt.
Triphaena pronuba L. and *T. janthina* Schiff. abdt.
T. comes Hüb., and *T. interjecta* Schiff. c.
Axylia putris L. abdt.
Phalena typica L. c.
Lampra fimbriata von Sch. c.
Cerastis rubricosa Schiff. c.
Anaplectoides prasina Schiff. f.c.
Brachionycha sphinx Hufn. 1 sp. at Aldershot.
Aporophila lutulenta Schiff. and *A. nigra* Haw. c.
Conistra ligula Esp. c.
C. vaccinii L. abdt.
Anchoscelis lunosa Esp., and *A. litura* L. c.

A. helvola L. f.c.
Dasycampa rubiginea Schiff. c.
Atethmia centrago Haw. (*xerampelina*). Hawley n.c.
Tiliacea citrago L. c.
Citria lutea Strom. c.
Cirrhia fulvago L. c.
C. gilvago Schiff. Hawley and Fleet n.c.
Agrochola circellaris Hufn., *A. lychnidis* Schiff., *A. lota* Cl., and *A. macilenta* Hüb. c.
Parastichtis suspecta Hüb. c.
P. ypsilon Schiff. Hawley c.
Eupsilia transversa Hufn. v.c.
Allophyes oxyacanthae L. c.
Cucullia chamomillae Schiff. Hawley n.c.
C. umbratica L. w. and c.
C. verbasci L. w. n.c.
Xylena vetusta Hüb. 1 sp. at Aldershot.
Lithophane semibrunnea Haw. c. before 1940; not seen since.
Graptolitha ornitopus Hufn. c.
Xylocampa areola Esp. c.
Griposia aprilina L. w. f.c.
Antitype chi L. Hawley 1 sp.; Aldershot 1 sp. by Peter Michael.
A. flavicincta Schiff. c.
Bombycia viminalis Fab. c.
Eumichtis adusta Esp. c.
Drybota protea Schiff. c.
Leucania pudorina Schiff., *L. impura* Hüb., *L. comma* L. and *L. conigera* Schiff. c.
L. pallens L. and *L. lithargyria* Esp. v.c.

(*To be continued*)

The Lepidoptera of Canford, South Dorset 1953-1956

By Alan Kennard.

(*Continued from page 124*)

A. aceris L.: Common in 1953, but 1955 was probably a bad year for the species. It was fairly frequent in 1956.
A. megacephala Schf.: Common, especially so in 1953.
A. alni L.: Nine specimens in the four years, of which five were taken in 1956.
A. psi L.: Common and variable. Some may have been *tridens*, but no larvae of the latter were found.
A. rumicis L.: Frequent both as larvae and imagines.
Craniophora ligustri Schf.: Fairly common in 1955 but absent in 1956 and only sparingly in other years.
Amphipyra pyramidea L.: Occasionally in late July.
A. tragopoginis Cl.: Common, though not often seen at light. In 1952 it was all over the School buildings.
Rusina umbratica Göze: Common.

Mormo maura L.: Often found in and around the School buildings but I have never had it at the m.v. light although I have seen it flying apparently uninterested twenty yards from the trap.

Dypterygia scabriuscula L.: Eight specimens were taken between 20th June 1956 and 20th July, but it had not been recorded before. Of two females that came neither was willing to lay.

Apamea lithoxylea Schf.: Common in the riverside ditches and not uncommon at m.v. light.

A. monoglypha Hufn.: Abundant.

A. crenata Hufn.: Common.

A. sordens Hufn.: Common.

A. unanimis Hüb.: Fairly frequent and common in 1955.

A. infesta Ochs.: Two specimens, 15th July 1955 and 30th June 1956. Probably a wanderer off Canford Heath.

A. obscura Haw.: Not uncommon.

A. secalis L.: Common and variable.

A. ophiogramma Esp.: Locally common but only once at m.v. light.

A. scolopacina Esp.: A single specimen on 22nd July 1953.

A. ypsilon Schf.: Pupae often found beneath willow bark, imagines were common around willow trees at dusk, but the insect came to light only occasionally.

Procus strigilis Cl.: Common.

P. fasciuncula Haw.: Common.

P. furuncula Schf.: A single specimen on 19.vii.1955.

Euplexia lucipara F.: Frequent, a number being taken in 1955.

Phlogophora meticulosa L.: Common and abundant on some nights in early October.

Thalpophila matura Hufn.; Fairly frequent.

Laphygma exigua Hb.: A single specimen on 25.ix.1953.

Petilampa minima Haw.: Fairly frequent, particularly in the riverside ditches.

Meristis trigrammica Hufn.: Common, especially so in 1953.

Caradrina morpheus Hufn.: Frequent; some very dark specimens came in 1956.

C. alsines Brahm: Common.

C. ambigua Schf.: Frequent, chiefly in the autumn.

C. clavipalpis Schf.: Rare; taken 24.x.1953; probably missed during the summer holidays.

Hydraecia oculea L.: Frequent.

H. micacea Esp.: Common; very early in appearing in 1956.

Cosmia pyralina Schf.: Rare. 13.vii.1953.

C. affinis L.: Taken 19.vii.1953 and 19.vii.1955.

Rhizedra lutosa Hb.: Common though rather erratic in appearance.

Arenostola pygmina Haw.: Two specimens on 2.x.1955.

Jaspidia pygarga Hufn.: Common on the Heath and a few at light at the School.

Bena fagana Fab.: 31.v.1953 and a large number in June and July 1956.

Pseudoips prasinana L.: Five specimens between 29th June and 1st July 1953 but not taken since. All were taken in the enclosed situation.

Catocala nupta L.: Not uncommon in the autumn but not so often at m.v.

Euclidimera mi Cl.: Common on Canford Heath and a few on the rough ground near the School.

Calocasia coryli L.: Fairly common, chiefly as second brood.

Polychrisia moneta Fab.: Taken 11.vii.1955 and 20.vii.1956.

Plusia chrysitis L.: Common.

P. festucae L.: This insect appears to be on the increase in the neighbourhood though it is still scarce; one was taken as late as 2nd October; but normally it comes to m.v. in mid-June as a first brood.

P. iota L.: Frequent in July, particularly in 1955.

P. pulchrina Haw.: Two specimens taken in 1955 and two in 1956.

P. gamma L.: Common; none of the small race noted.

Abrostola tripartita Hufn.: Rather uncommon, though it was frequent in 1956.

Lygephila pastinum Treits.: Frequent, particularly so in 1955, but absent in 1956. I was unable to locate any quantity of its foodplant in the district.

Rivula sericealis Scop.: Rare; taken 15.vii.1955.

Scoliopteryx libatrix L.: Infrequent, but taken every month of the year except June.

Phytometra viridaria Cl.: Not infrequent on Canford Heath.

Hypena proboscidalis L.: Frequent in June and again in the autumn.

Zanclognatha grisealis Schf.: Not uncommon.

Laspeyria flexula Schf.: Fairly frequent at m.v. light.

Geometridae

Pseudoterpna pruinata Hufn.: Common on the Heath and comes occasionally to m.v. at the School.

Geometra papilionaria L.: Locally common on Canford Heath and came to m.v. at the School on 20th and 21st July 1955. I have had a male emerge in darkness and yet have a brown patch on the abdomen as if it had faded and in contrast a specimen killed in chloroform and left for some time in daylight is still as green as when it emerged.

Hemistola immaculata Thun.: Taken 12.vii.1955.

Comibaena pustulata Hufn.: Fairly frequent.

Chlorissa viridata L.: Locally plentiful on the Heath.

Hemithea aestivaria Hb.: Not uncommon.

Alsophila aescularia Schf.: Common.

Sterrha inornata Haw.: Not uncommon.

S. aversata L.: Common and variable.

S. trigeminata Haw.: Common but rarely comes to m.v. light.

Scopula floslactata Haw.: Taken 15.vi.1955 at m.v.

S. marginepunctata Göze: Taken 1.vii.1955 at m.v.

Cosymbia porata L.: Taken 3.vi.1955 at m.v.

C. punctaria L.: Not often at m.v., but fairly frequent otherwise.

C. linearia Hb.: Fairly common, often appearing at m.v.

C. albipunctata Hufn.: Fairly frequent on Canford Heath but only once at m.v., 6.vi.1954.

Calothysanis amata L.: Frequent and sometimes common in the autumn.

Xanthorhoe spadicearia Schf.: Common.

X. designata Hufn.: Fairly frequent.

X. montanata Schf.: Common.

X. fluctuata L.: Common, especially in the autumn.

Nycterosea obstipata Fab.: Taken 21.x and 3.xi.1954; also 9.vi.1955.

Ortholitha mucronata Scop.: Abundant on Canford Heath but never taken in the School grounds.

Colostygia pectinataria Knoch: Common.

Europhila badiata Schf.: Occasionally in early May.

Anticlea derivata Schf.: Occasionally in early May. This and the previous species are probably missed during the Easter holidays.

Perizoma affinitata Steph.: A single specimen on 21st June 1956.

P. flavofasciata Thun.: Only once or twice at m.v. light, but sometimes beaten out of a hedgerow.

Euphyia bilineata L.: Very common, though I very rarely take a specimen at m.v.

Lyncometra ocellata L.: Common, often coming to m.v.

Lampropteryx suffumata Schf.: One taken in some extremely rough ground near the river in May 1954.

Electrophaes corylata Thun.: Not uncommon.

Lygris mellinata Fab.: Common, often appearing at m.v.

Cidaria fulvata Forst.: Generally at least one specimen each year at m.v.

Chloroclysta siterata Hufn.: Common.

Dysstroma truncata Hufn.: Fairly common.

D. citrata L.: Not uncommon.

Thera obeliscata Hb.: Abundant, particularly so in the autumn.

T. variata Schf.: Generally a number of this species come in the autumn.

T. firmata Hb.: Very rarely taken as the first brood but often common as a second brood in early October.

Hydriomena furcata Thun.: Very common and variable at the end of July.

H. coerulata Fab.: Rare. Taken 25.vi.1955 and 29.v.1955.

Triphosa dubitata L.: A specimen was taken on Canford Heath in July 1954.

Calocalpe undulata L.: A female specimen came to m.v. on 8th July 1956.

Chesias legatella Schf.: Fairly frequent at m.v. in October.

Epirrhoe rivata Hb.: One specimen, 30.vi.1955.

E. alternata Müll.: Common.

Eupithecia linariata Schf.: One specimen, 15.vi.1955.

E. centaureata Schf.: Common.

E. assimilata Dbld.: One specimen, 30.v.1955.

E. nanata Hb.: Common on Canford Heath and occasionally taken in the School grounds and at m.v.

E. virgaureata Dbld.: One specimen, 3.vi.1955.

E. abbreviata Steph.: Common at m.v. light in May.

Chloroclystis coronata Hb.: Common.

C. rectangulata L.: Common.

Horisme vitalbata Schf.: A single specimen came to m.v. on 12th May 1956.

Ecliptopera silaceata Schf.: One specimen, 5.vi.1955.

Nothopteryx carpinata Bork.: Occasionally in early May but the bulk are probably missed in the Easter holidays.

Oporinia dilutata Schf.: Common.

Operophtera brumata L.: Common.

Hydrelia flammeolaria Hufn.: One specimen, 12.vii.1955.

Abraxas grossulariata L.: Fairly frequent but this insect has the habit of flying up to the m.v. and then flying away again.

Lomaspilis marginata L.: Common.

Ligdia adustata Schf.: Common.

Bapta temerata Schf.: Fairy frequent at m.v.

Cabera pusaria L.: Common in Break-Hill Wood and occasionally visits m.v.

Ellopia fasciaria L.: Common and often showing great variation in size.

Campaea margaritata L.: Common; this species also shows great variation in size.

Ennomos quercinaria Hufn.: Common.

Deuteronomos alniaria L.: Common in the autumn.

D. fuscantaria Haw.: Frequent.

Selenia bilunaria Esp.: Common, especially as second brood.

S. tetralunaria Hufn.: Common as second brood, but only taken as first brood, 6.v.1956.

Apeira syringaria L.: A female taken on 3rd July and another female on 5th July, 1956, the latter to m.v. Both specimens were in perfect condition.

Gonodontis bidentata Cl.: Not common and only a single specimen was taken in 1956.

Colotois pennaria L.: Abundant in October.

Crocallis elinguaria L.: Common.

Ourapteryx sambucaria L.: Fairly frequent at m.v.

Plagodis dolabraria L.: Common in some years, particularly 1953.

Opisthograptis luteolata L.: Common.

Epione repandaria Hufn.: Rare. Taken 19.x.1955 and 13.x.1956.

Semiothisa notata L.: Rare. Taken 30.v.1955.

S. alternaria Hb.: A number were taken in 1956 but rare in other years.

S. liturata Cl.: Fairly frequent at m.v.

Itame wauaria L.: Fairly common.

Theria rupicapraria Schf.: Common as larvae but only once have I had the moth to m.v.—20.iii.1956.

Erannis aurantiaria Hb.: A single specimen taken on 22.xi.1955.

E. marginaria Fab.: Common.

E. defoliaria Cl.: Common and very variable; specimens were exceptionally dark in 1955.

Phigalia pedaria Fab.: Common.

Apocheima hispidaria Schf.: A single specimen on 21.iii.1956.

Lycia hirtaria Cl.: Not uncommon in 1956 though seen only occasionally in other years.

Biston strataria Hufn.: Common.

B. betularia L.: Common. About 15-20% are ab. *carbonaria* and occasionally ab. *insularia* appears. Quite the smallest specimen (wing span 41 mm.) that I have seen came to m.v. in 1956.
Hemerophila abruptaria Thun.: Rare. Taken 23.v.1953 and 31.v.1956.
Cleora cinctaria Schf.: A single ♀ on 14.v.1955 found at rest at the foot of a birch trunk on Canford Heath.
Alcis repandata L.: Common and variable.
Boarmia punctinalis Scop.: A single specimen, 29.v.1953.
Ectropis crepuscularia Hb.: Fairly frequent.
E. extersaria Hb.: Fairly common and variable.
E. consonaria Hb.: Fairly frequent on Canford Heath and once or twice I have taken it at m.v. in the School grounds.
Aethalura punctulata Schf.: Common in Break-Hill Wood.
Pachycnemia hippocastanaria Hb.: Fairly frequent at light at the School and abundant on Canford Heath in 1955.
Gnophos obscurata Schf.: Fairly common on Canford Heath.
Ematurga atomaria L.: Very common on Canford Heath and occasionally seen in the School grounds.
Bupalus piniaria L.: Common, particularly on Canford Heath.
Lithina chlorosata Scop.: Abundant both on Canford Heath and at m.v.

ZYGAENIDAE

Zygaena trifolii Esp.: Common on some of the playing fields and rough meadows bordering them.

LIMACODIDAE

Apoda avellana L.: A specimen taken 7.vii.1956 and two on 8.vii.1956 at m.v. light.

COSSIDAE

Cossus cossus L.: Larvae found in old stumps on Canford Heath.
Zeuzera pyrina L.: Common in 1955 but rare in other years.

HEPIALIDAE

Hepialus humuli L.: Common; abundant in 1956.
H. sylvinus L.: Taken 3.vi.1954.
H. lupulinus L.: Common.

This completes my list of Canford macrolepidoptera. Of the Pyralidae most were common species. The two best captures were *Dioryctria splendidella* H.-S. (19.vi and 13.vii.1956) and *Evergestis extimalis* Scop. (31st May). Amongst other species which came to m.v. light were *Schoenobius forficellus* Thun., *S. mucronellus* Schf., *Myelois cribrumella* Hb., *Eurrhypara hortulata* L., *Pyrausta aurata* Scop., and *Alucita pentadactyla* L. The latter was abundant on the river bank but appeared only occasionally at m.v.

Of macrolepidoptera obtained on Sunday afternoon outings in the district were *Panaxia dominula* L., *Lasiocampa trifolii* Schf. (abundant as a larva in most years but almost absent in 1956), *Eustrotia uncula* Cl., *Eulype hastata* L., *Cepphis advenaria* Hb., and *Procris geryon* Hb., the latter being abundant in a very small area in 1956 (June 24th).

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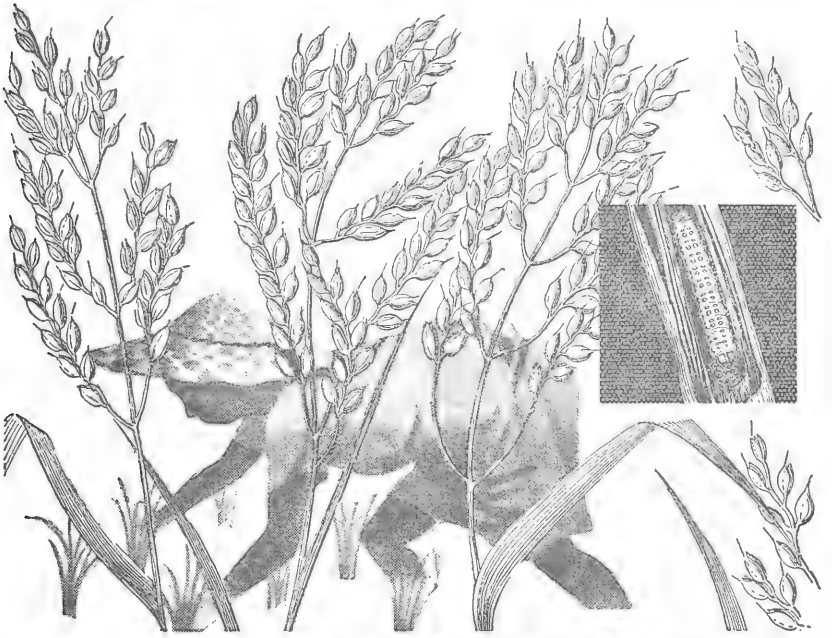

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Further Comments on the Distribution of Lepidoptera, chiefly in Yorkshire

By S. M. Jackson

The article by Mr. Michaelis on distribution of Lepidoptera in the northern counties (*Ent. Rec.*, 68: 290) has prompted me to write on this subject, but, unlike that article, mine is more concerned with the apparent decrease in distribution in the North, and only deals with the so-called 'macros'.

Firstly, I would suggest that in Dr. E. B. Ford's book *Butterflies* the writer seems to slip up in this otherwise excellent book, when referring to the northern distribution of some species. It would appear that some details of distribution have been taken from Porritt's *List of Yorkshire Lepidoptera* compiled over fifty years ago, forgetting all the changes, mostly for the worse, which have taken place in Yorkshire since 1900, and particularly the felling of the greater part of the large timber. I feel that Dr. Ford might have gone to the trouble of writing to an experienced collector of to-day, such as Mr. Hyde of Doncaster or Mr. Smith of York, who would have given a more accurate picture of distribution in Yorkshire today.

Firstly, he states that both *Argynnis adippe* and *A. paphia* occur in Yorkshire, even stating that *A. paphia* occurs widely in North Yorkshire and Westmorland. I am reasonably certain that both species have disappeared from Yorkshire, at least since the 1914-18 war; there is a single record of *A. adippe* from Shipley recently, but I suggest that this is a stray from some other locality as it is not uncommon in both north Lancashire and Westmorland. I very much doubt whether *A. paphia* occurs much to the north of Grantham in the east and Warwickshire in the west.

Euphydryas aurinia is also said still to occur in Yorkshire, but this is very doubtful and I believe that it has now disappeared even from its Lincolnshire haunts at Skellingthorpe and Market Rasen; probably the only northern localities for *E. aurinia* are now in Cumberland.

On the other hand, Dr. Ford states that *Melanargia galathea* has long ceased to occur in Yorkshire, although he marks it as occurring there in his distribution map. In point of fact it is now quite common in a locality on the Yorkshire wolds, not far from its original locality of Sledmere, and has, I believe, extended its range to the Pickering area.

Doubt is also expressed as to the existence in Yorkshire of *Pararge aegeria* and *Strymonidia w-album*. Since 1934 I have found *P. aegeria* to be quite frequent to the south and west of Selby, and it is abundant in the Wentbridge area. *S. w-album*, although probably extinct in the Doncaster area, occurs close to York and Pickering, and probably elsewhere.

Some idea of the decline in distribution of butterflies in this area of Yorkshire, mainly in the West Riding, can be gained from the fact that in Porritt's List the following butterflies were all recorded for the Selby district, the first eight for Bishop's Wood: *Vanessa polychloros, Maniola tithonus, Aphantopus hyperantus, Thecla quercus, A. paphia, A. adippe, A. euphrosyne, Hesperia comma, E. aurinia*, and

Plebeius argus. In twenty-five years of collecting, I have not seen any of these insects near to Selby although one *M. tithonus* and a few *T. quercus* larvae have been recorded from Skipworth Common, about five miles from Selby. The disappearance of the ringlet is strange; it appears to be almost, if not quite extinct in the West Riding, and yet still occurs, often commonly, over a wide area north and east of York; I have seen it on Allerthorpe Common only fourteen miles north east of Selby, and yet not on Skipworth Common.

Fortunately there has been an increase in the distribution of some butterflies, but in the North this has generally been only temporary: for instance, *Argynnis aglaia* and *Celastrina argiolus* became common locally between 1945 and 1950, but in the Selby district at least they seem to have been absent for the past few years. *Polygonia c-album* has also been seen several times in Yorkshire, but does not seem to have become established north of the Midlands.

I am pleased to say that one butterfly, *Satyrus semele*, the grayling, seems recently to have established itself locally, and during 1956 in a colony four or five miles from Selby it was frequent between late July and early September. I have heard of one or two other colonies being discovered recently, so perhaps it is extending its range.

Turning to the moths, in Richard South's *Moths of the British Isles*, many misleading statements are made with regard to distribution, and again too much reliance has been placed in old records and presumption. The following species are given a general distribution, whereas they are all either very local or scarce in Yorkshire today, and some may even have disappeared from that county. These include *Hemaris tityus*, *Clostera pigra*, *Tethea or*, *Asphalia diluta*, *Sarrothripus revayana*, *Craniophora ligustri*, *Triphaena interjecta*, *Chloroclysta siterata*, *C. miata*, *Eupithecia venosata*, *Cleorodes lichenaria* and *Cossus cossus*.

The ridiculous statement that *C. cossus* probably occurs in all parts of the British Isles is made: I am sure that this was not true even fifty years ago. One never sees it mentioned as being taken in Scotland today and hardly ever in Yorkshire. The only area in the north where it seems to be established is in the Formby district.

There are no recent records for *C. siterata* from Yorkshire, and it is scarce even in the favoured North Lancashire-Westmorland area. *C. miata* also now seems to be local or scarce in Yorkshire.

Some species, although mentioned in South's books as being found as far north as Yorkshire (sometimes farther north), are almost if not quite extinct in the North today. These include *Lymantria monacha*, *Atolmis rubricollis*, *Miltochrista miniata*, *Eilema griseola*, *Eilema complana*, *Graptolitha ornitopus*, *Xanthorhoe rivata*, *Ennomos quercinaria*, *Angerona prunaria* and *Cepphis advenaria*.

There is, however, a brighter side to the picture, and a number of moths have either extended their range northwards, or perhaps in some cases have only recently been discovered in the north, probably having been overlooked in the past. I have taken in the county the following species not mentioned by South as occurring in Yorkshire: *Aspitates ochrearia*. In the case of this species I believe I was the first to discover it in Yorkshire, near Spurn, and I subsequently bred it

from eggs. Other species, mostly recent additions to the Yorkshire list, are *Drepana binaria*, *Hydraecia lucens*, *Nonagria dissoluta*, *Chilodes maritima*, *Leucania straminea*, *Cucullia absinthii*, *C. asteris*, *Catocala nupta* and *Scopula emutaria*.

Since the war we often see remarks about *D. binaria* being discovered in the north, so I would like to mention that I first beat larvae of this species three miles from Selby in October 1937, and have bred it several times since, finding the larvae mostly on isolated oaks bordering grass fields. I have also bred two other species locally which are not usually mentioned as occurring in Yorkshire today; these are *Drymonia dodonaea* (*trimacula*) and *Comibaena pustulata*.

C. nupta I first found locally in 1943, and I have since seen several every year excepting the past two years. *L. straminea* has probably been present all along in reed beds, but confused with *L. impura* and *L. pallens*. It was first discovered a few years ago at Askham Bog, I believe by a southern collector. *C. maritima* was first discovered in Yorkshire by Mr. Smith at Strensall Common before the war.

In conclusion, I hope that my having pointed out these facts will have given a clearer picture of the distribution of some species in the north, especially to southern collectors. It is high time the books were brought more up to date as regards the distribution of species.

15 Westbourne Road, Selby, Yorks.

Notes on the Proboscis in the Saturniidae

By J. Sneyd Taylor.

It seems to have been generally accepted in the past that the proboscis was absent in the *Saturniidae*, and that the moths were in consequence incapable of feeding. Thus Imms (1925) states under this family "proboscis absent", while Sharp (1901), in addition to making a similar statement, adds "In some forms, *Saturnia* e.g., there appears to be no buccal cavity whatsoever". Comstock (1904) mentions that "the palpi are small and the maxillae but little developed, often obsolete", and Packard (1889) refers to the "often obsolete mouth-parts (the maxillae or tongue being especially short compared with other moths)". In view of such *ex cathedra* statements, entomologists can perhaps be excused for taking for granted the absence of a functional proboscis in the *Saturniidae*.

While engaged some months ago on the preparation of a previous paper on the proboscis in Lepidoptera (*Ent. Rec. & Jl. Var.*, **69**, 1 & 2, 1957), the writer had the privilege of meeting Prof. J. Berlioz, Director of the Museum National d'Histoire Naturelle, Paris, who informed him that Mons. P. C. Rougeot had recently discovered Saturniid moths drinking at rivers and roadside pools in Gabon, French West Africa. Mons. Rougeot was then approached about his important and interesting discovery, and responded most generously with data and specimens. In addition, he has very kindly permitted the writer to make full use of the details of his experiences with these Saturniids.

The insects concerned are various species of *Epiphora*, belonging to the sub-family *Attacinae* of the *Saturniidae*. Mons. Rougeot reports that he has been studying this group for some considerable time, but, like everyone else, he assumed that these moths were unable to feed. Presently, however, he noticed them resting on the brinks of rivers

and pools, as well as at the edges of roadside puddles, but it was not until October-November 1955 that he discovered at Libreville the reason for this attraction to water. The Attacids in question, he continues, behave exactly like Papilionids, Pierids and Lycaenids in drinking at suitable places on their journeys. About dusk these large moths leave their resting places, and, after circling around, they take various routes to the water. On reaching the latter, they descend suddenly, settling at the edge, and commence to drink. When drinking they maintain a fixed position with wings raised or lying open, the antennae extended and the abdomen held up. They frequently dip their proboscides into the water, and at the same time discharge, for some 6 to 8 seconds, a fine jet of water from the anus to a distance of about 10 cm. Drinking continues for some 15 to 20 minutes, after which the moths resume their flights. Mons. Rougeot has seen these Attacids drinking from dusk until 7.30 p.m. (after nightfall), but not later, although he is of the opinion that they drink again during the early hours of the morning.

The species concerned were *Epiphora rectifascia* Roths., *E. albida* Druce, *E. plotzi* Plotz, and *E. vacuna* Westw. According to Pinhey (1956), however, *E. plotzi* is a subspecies of *E. vacuna*. All were found to possess proboscides, the details of which are as follows.

Epiphora rectifascia. Male. Yellow in colour; fine, short, bluntly pointed and plumose, with fine long hairs on either side from base to tip, and resembling male Culicid antennae in appearance. Length about 1·5 mm. Substantial palps.

E. albida. Male. Short and thick; ridged transversely on external surface, and somewhat resembling a section of hose-pipe; humped and then narrowing to the somewhat blunted tip. The edges of the galeae are fringed with long, stout, curved and sharply pointed setae or hairs. Length some 3 mm., and with substantial palps.

E. plotzi. Male. Short, stout and curved to straight; surface ridged transversely; tip rounded but with a short point in centre. The margins of the galeae with long, stout and curved spines. Length 3 mm., and with substantial palps. There is much resemblance to the proboscis of the male of *E. albida*.

E. plotzi. Female. Short, almost filiform and antenna-like, tapering to a somewhat bluntly pointed tip. Surface ridged or convoluted; a few short hairs present, and the edges of the galeae slightly and bluntly serrated. Yellow in colour; length some 2 mm., and with substantial palps.

E. vacuna. Male. The proboscis was very similar to that of the male of *E. plotzi*. Length about 3·5 mm.

In all cases the galeae were easily separable, if not actually separate.

Through the kindness of the Directors of the Albany and Transvaal Museums it has been possible for the writer to examine several other species of *Attacinae*, and the details are as follows.

Attacus atlas L. Male. Apparently no proboscis; palps only present.

Samia cynthia Dr. Male. The same as in the male of *E. plotzi* except that the proboscis is slightly shorter and thinner.

S. cynthia. Female. The same as in the female of *E. plotzi*.

Callosamia promethia Dr. Apparently no proboscis; palps only present.

Epiphora mythimnia Westw. Smallish palps present, but apparently no proboscis. The only South African species of *Epiphora*.

SUMMARY.

From the foregoing it will be seen that functional mouth-parts exist in certain species of the *Saturniidae* belonging to the sub-family *Attacinae*, although they do not appear to be characteristic of the sub-family or even of the genera in which they occur. It is interesting to note that in addition to some of the African species of *Epiphora*, they are also found in *Samia cynthia* from India. It is likewise noteworthy that the proboscides of at least some species exhibit sexual dimorphism.

ACKNOWLEDGMENTS.

To Mons. P. C. Rouget belongs the honour of this interesting and important discovery, and the writer is much indebted to him for so generously placing data and specimens at his disposal. Thanks are also due to Prof. J. Berlioz for drawing the writer's attention to the matter, and to Dr. J. Hewitt, of the Albany Museum, and Mr. L. Vari, of the Transvaal Museum, for kindly supplying specimens from their respective institutions.

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1956: Collecting Notes and Observations

By S. Wakely.

The year was notorious for its minimum of sunshine and its maximum of rain. However, in spite of these conditions a review of the season's captures shows numerous interesting insects taken or seen. A number of the species mentioned were taken or seen at field meetings of the South London Entomological Society, and not in every case actually taken by myself.

On 7th April at Oxshott, Surrey, galls of *Laspeyresia servillana* Dup. were found on sallow twigs, and a few moths bred at the end of May. A single *Aegeria flaviventris* Staud. was bred in early July from a sallow gall taken at the same date. A small moth rescued from a pool of water proved to be the very local *Amphisbatis incongruella* Stt. On the 14th a visit was paid to a locality in Surrey near Byfleet when a quantity of black poplar catkins were gathered from the ground under tall trees. These catkins were shaken out over sheets of paper every evening during the following week and the tiny noctuid larvae which were found were regularly supplied with fresh catkins and young shoots. These larvae proved to be *Cirrhia ocellaris* Borkh., a number of moths being bred in September. The larvae like peat or loam under which to retire during the daytime. It seems likely that this local species would be found to be much more generally distributed if searched for by gathering the poplar catkins in mid-April. It is important to get the larvae

away from the bulk of the catkins as soon as possible as the material quickly deteriorates into a mouldy mass. Larvae of the beetle *Dorytomus longimanus* Foster invariably occur in these catkins, but require earth to pupate in. On the 22nd, at Horsley, during a sunny spell in the afternoon a number of small moths were seen flying round the trunks of fir and oak trees. Some of these were seen at rest on the trees, and proved to be *Anybia epilobiella* Roem. and *Mompha nodicolella* Fuchs, the former being the more common.

On the 28th April it was decided to visit Stanford-le-Hope, Essex. From stems of hemlock a series of *Lozophera beatricella* Walls. was bred in June. A few tiny larvae were found on *Lepidium draba* from which a nice specimen of *Eidophasia messingiella* F.R. was bred on the 29th May. The white cocoons of *Bucculatrix maritima* Stt. were very common on leaves and grasses in the immediate vicinity of clumps of sea aster, moths emerging at the beginning of June. The quaint fiddle-shaped larval cases of *Nemotois fasciella* F. were not uncommon under some plants of *Ballota nigra*, while specimens of the beetle *Chrysolina banksi* F. (together with larvae) were also found on the same plant. From April to July a number of *Tinea granella* L. emerged from fungi found the previous autumn on an oak tree at Peper Harow Park, Surrey. The beetle *Eledona agaricola* Herbst. was also present and gradually reduced the fungi to a powdery mass.

On the 5th May the South London Entomological Society went to Benfleet and visited the large refuse dump near Pitsea. A remarkable discovery was made here, namely, that a flourishing colony of *Heterographis oblitella* Zeller existed on the dump. Although not present myself when the first captures were made, I was able to visit the spot the same evening when a number were taken. An account of this by Mr. C. H. Huggins is published in the 1956 *Entomologist*, **89**: 152-4. An attempt was made to breed this species from ova obtained, but was found to be difficult. Mr. L. T. Ford did succeed in rearing one moth, but the larva apparently lives below the surface of the soil and feeds on fresh and withered leaves of different kinds near its retreat. With this experience to go on it should be possible now to find out more of its feeding habits. Several species of Cruciferae were eaten by the larvae, as well as *Atriplex*, but it is not known if these are the natural foodplants. On the same day (5th) at Creeksea, Essex, a large bunch of seedheads of *Limonium vulgare* were collected, those with the seeds matted together being chosen. From these a few weeks later were bred dozens of *Aristotelia brizella* Treits.

At Buxted, Sussex, on the 20th larvae of *Cnephasia incanana* Steph. were found feeding on flowers of *Scilla nonscripta*. The larvae like to rest when not feeding in silken tubes among dry dead leaves or paper, as the food is very wet and sticky. The moths appeared in mid-June. Some small cocoons found in turned-down edges of willowherb proved to be *Mompha schrankella* Hb., a very highly-coloured species. On the 30th a specimen of *Perinephela lancealis* Schiff. emerged. The larva was found on 3rd September, 1955, in spun leaves of *Mentha aquatica* at Ockham, Surrey. At Holmbury St. Mary, Surrey, on 3rd September, 1955, larvae of this moth were common on *Teucrium scorodonia*. These two foodplants are worth noting as little is mentioned of feeding habits in British books on Entomology.

On 2nd June, at Horsley, Surrey, a few specimens of *Bactra furfurana* Haw. were netted round the edges of a small pond where its foodplant, *Eleocharis palustris*, was growing profusely. *Mompha nodicolella* larvae were not uncommon in galls on *Epilobium angustifolium* in the area where we saw moths flying on the 22nd April. Among scores of larvae of *Depressaria applana* F. taken on *Anthriscus sylvestris* by Mr. L. T. Ford it is interesting to note that several of the very local *D. albipunctella* Hb. occurred. Larvae of *Platyptilia pallidactyla* Haw. were common at Bookham, Surrey, on the 9th June, feeding in central shoots of *Achillea ptarmica*, the moths emerging a month later. A single specimen of *Procris statices* L. was taken during a short sunny period between the heavy showers of rain. Ham Street, Kent, was visited on the 16th, another very wet day. One *Platyptilia calodactyla* Hb. was netted, and a search among the plants of Golden Rod was rewarded by finding one pupa. A few larvae of *Oidaematophorus tephradactylus* Treits. were found on the same plant, while larvae of *Eucosma quadrana* Hb. occurred in plenty. The latter are not easy to rear as they feed up slowly and do not thrive in tins. At Horsell on the 24th *Trichoptilus paludum* Zell. was quite common in the afternoon. A good series was taken by walking slowly among the heather in the damper places and netting the moths as they were disturbed. A keen eye was needed to detect these gnat-size creatures. *Crambus uliginosellus* Zell. and *Ancylis unguicella* L. were taken on the same day. Larvae of *Acrocercops brongniardella* F. were not uncommon on oaks, the shiny white feeding patches made by the larvae on the leaves being very conspicuous. Towards the end of the month several *Laspeyresia funebrana* Treits. emerged, the larvae having been taken the previous autumn on sloes at Canvey Island, Essex.

From 20th June to 14th July I was on holiday with Canon Edwards at Studland, Dorset. The weather generally was cold for the time of the year, and insects at light in the garden (on the slopes of Ballard Down) were not abundant. Our best captures at light were *Tethea ocularis* L., *Euphyia rubidata* F., *Eupithecia subumbrata* Schiff. (common), *Eucosma fulvana* Steph. (common), and a few *Coleophora spissicornis* Haw. Sugaring was tried at the top of the cliffs near the Old Harry Rock, and it was exciting for me to take three *Leucania l-album* L. for the first time by this method. I was surprised to see *Polia nebulosa* Hufn. present at sugar so frequently on these wind-swept downs as it is usually a woodland species. Common species were in numbers in spite of the low evening temperature. Our visits to Studland and Wareham Heaths during the day enabled us to take small series of *Heliothis maritima* Graslin, which was fond of flying over the boggy heaths whenever the sun shone. Other species worth recording are a worn female *Chlorissa viridata* L. which laid four eggs, two larvae being reared to the pupa stage; *Trichoptilus paludum* Zell. was scarce; several *Capperia britanniodactylus* Gregs. were netted from a clump of wood sage; two *Stenoptilia zophodactyla* Dup. were taken on Wareham Heath where *Gentiana pneumonanthe* grows and were thought at the time to be the very local Gentian Plume. A number of larvae were taken on sallows, from which the following moths were subsequently bred: *Clostera pigra* Hufn., *Argyroploce semifasciana* Haw., *Gelechia sororculella* Hb., and *Depressaria ocellana* F. Other species bred in-

cluded: *Capua grotiana* F.; *Phalonia atricapitana* Steph. (over a score from the base of stem and rootstock of a single plant of *Senecio jacobaea* found at top of cliffs on Ballard Down); *Tortrix viburniana* F. (common on bog myrtle); *Peronea aspersana* Hb. (common on *Potentilla anserina*); *Depressaria chaerophylli* Zell. (very common on flowers of *Chaerophyllum temulum*); *D. pallorella* Zell. (a small series bred from *Centaurea scabiosa*): D. *subpropinquella* Stt. and *D. arenella* Schiff. (both from *C. scabiosa*): *D. nervosa* Haw. (common on *Oenanthe crocata*, but it is worth recording that I bred a moth from a larva found feeding on flowers of *Aegopodium podagria*); *Acrolepia granitella* Treits. (abundant in leaves of *Pulicaria dysenterica*); *Leucoptera lotella* Stt. (common in leaves of *Lotus major* on the heaths). Small larvae of *Oidaematophorus carphodactylus* Hb. were seen in root crown of *Inula squarrosa* on Ballard Down. A single specimen of the local *Eucosma cnicolana* Zell. was found after dark on a stem of *Pulicaria dysenterica*. *D. pallorella* Zell. was of special interest to me as I had not taken it previously. Three nice beetles were also taken: *Carabus nitens* L. (a dark variety with none of the characteristic green colouring) and *Cryptocephalus biguttatus* Scop. (both on the heath), and *Odontaeus armiger* Scop. (at light).

A mercury vapour light was used at Byfleet, Surrey, on 27th July and on several nights in August and September. The following species are worth recording: *Dasychira fascelina* L., *Stauropus fagi* L., *Comacla senex* Hb., *Eilema griseola* Hb., *Euxoa tritici* L., *Triphaena interjecta* Hb., *Tholera cespitis* F., *Apamea ophiogramma* Esp., *Caradrina ambigua* F., *Cirrhia icteritia* Hufn. (including several ab. *flavescens* Esp.), *Parascotia fuliginaria* L., *Tholomiges turfosalis* Wocke, *Mysticoptera sexalisata* Hb., *Xanthorhoë quadrifasciata* Clerck, *X. biriviata* Borkh. (two only, but not surprising as there is a large clump of *Impatiens biflora* growing near and odd plants grow among the garden flowers), *Zeuzera pyrina* L., *Phycita spissicella* F. (including a fine dark variety with no brown coloration), *Crambus selasellus* Hb. (verified by Mr. Bradley at the B.M.), *Crambus contaminellus* Hb. (several), *Platyptilia ochrodactyla* Hb., *Eulia formosana* Geyer (several), and *Hyponomeuta vigintipunctella* Retz. In spite of the house building still going on in this district the record of rarities is astonishing.

On 4th August a trip to Chilworth, Surrey, yielded some *Telphusa humeralis* Zell. on the heather, while *Crambus contaminellus* Hb. was found after dark near St. Martha's Church. The beetle *Euchlora dubia* Scop. was common at St. Martha's on this date. Some *Coleophora erigerella* Ford. taken at Mickleham, Surrey, the previous autumn started to emerge in mid-August. *Coleophora asteris* Muhlig. from Benfleet emerged at the same time.

On 22nd September, at Mickleham Down, a bag of beech mast was collected, hoping to find a few larvae of *Laspeyresia grossana* Haw. To my surprise they were in abundance, almost every beech nut appearing to have a larva when examined a few weeks later. These larvae were given access to some chunks of soft wood in which I had drilled scores of holes into which the larvae readily retreated when full fed. Towards the end of the month, I found three larvae of *Cucullia absinthii* L. feeding on the flowers of *Artemisia absinthium* in my garden at Camberwell. Two years previously I had taken the moth there, so was not

altogether surprised at the find. Pevensey, Sussex, was visited on 29th September, when larvae of *Eupithecia millefoliata* Rössl. and *Phalonia dipoltella* Hb. were taken by gathering the seedheads of *Achillea millefolium*. Larvae of *Coleophora erigerella* Ford were also found on seedheads of *Erigeron acris* on the Crumbles, the first record of this species in Sussex.

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A Matter of Coppers

By An Old Moth-Hunter.

In an article in the *Record* last year (*Ent. Rec.*, **68**: 68-73) Mr. Allan suggested the possibility of *Lycaena virgaureae* Linn., the Middle Copper, surviving in this country until early in this present century. I say nothing about that here, for he and I have a good deal in common; but as a matter of idle curiosity I thought I would have a look at the magazines and see how this butterfly has been conducting itself on the Continent of late.

The result of this reading was interesting, for it indicated that during the last fifty or sixty years the German race of *L. virgaureae* has been moving, regularly or irregularly, towards our island.[1] Before 1858 this butterfly was not known to occur west of a line drawn from the Baltic town of Stralsund (just east of Longitude 13° E.) to Brunswick and thence to Aachen. Since then it has overrun the provinces of Mecklenburg and most of central and north Hannover as far west as Bremen. Thence it has spread into Holstein. In 1899 a specimen was taken at Lubeck; now it is widespread and common all round about that town. By 1906 it had reached Groneberg; now it has crossed the Kiel Canal and is spreading northwards and westwards towards Denmark. In Denmark it was formerly rare; in 1938 it was reported to have spread into that country from Sweden to such an extent as to occur in some places "in large numbers".[2]

These facts are interesting when one compares *virgaureae* with its congener—I speak of course as a lumper—*dispar*. The former appears to be on the up grade; the indications are that *dispar* is a dwindling species. It survives, to a limited extent, in Holland and Belgium and perhaps Denmark; it has gone from England and from the marshes of the Somme and Aisne. Perhaps the only places where it ranges at large today are the vast marshes of Polesie and the east of Europe. Some of its smaller forms, e.g. *dispar carueli*,[3] hold their own in certain places in north-west Europe, but no one would call them common butterflies. Even *dispar rutilus* does not seem to be as common everywhere as it was when Bethune-Baker, Alfred Jones, Rowland-Brown and the Victorians took net to the Continent in mid-Victorian years.

The facts that the Dutch race of *dispar* when introduced into Eng-

[1] See G. Warnecke in *Mitteilungen der Faunistischen Arbeitsgemeinschaft fur Schleswig-Holstein, Hamburg und Lubeck*. New Series, No. 5, April 1948.

[2] Hoffmeyer and Knudsen: *De Danske Storsommerfugle*, 1938, p. 42.

[3] Which, incidentally, is double-brooded. Individuals of the second brood are not infrequently dwarfs as small as *Heodes phlaeas* though the normal wing-span (twice centre of thorax to tip of right forewing) of the first brood females seems to be about 36 mm. (See *Lambillionea*, **58**: 38).

land held its own at Wicken until obliterated by a war and that it still flourishes in Huntingdonshire are, to my mind, of considerable interest. This was a biological experiment which has abundantly proved its value. No one, so far as I know, has suggested that the physiological requirements of *L. dispar batavus* differ to any appreciable extent from those of *L. dispar dispar*. On the contrary, had there been any grounds for such an assumption presumably the experiment of artificial introduction would not have been attempted. It would seem therefore that since the English race became extinct in our country a hundred years ago some alteration of area climate must have occurred in the fenland since then. If you doubt this, let me say that at least an adverse condition in the fenland has ameliorated to an extent which renders that area suitable once more as a habitat for the butterfly.[4]

Now carry this reasoning a little farther. Here are two butterflies, *dispar* and *virgaureae*, which became extinct in England at about the same time (fifty or sixty years is neither here nor there). Both species were presumably common, perhaps even abundant, in England for several thousand years, in fact throughout the long ages between the Boreal Period and those more recent times when England was still a land of marsh, mere and forest. *Why* these two insects became extinct we do not *know*: the likeliest guess is that an alteration of climate brought about a condition or conditions inimical to them. For it is known that an alteration of climate did actually occur in western Europe between the early decades of the 18th century and 1850, in which year the winter temperatures began to rise all over north temperate regions, the rise amounting to 5° F. in western Europe.

This change in the climate of western Europe has become more rapid and more pronounced since 1900, and—thanks to the foresight and courage (for there was not lacking opposition) of those who made the *dispar batavus* experiment—we can assert today that so far as the Large Copper is concerned the status quo ante has been restored *to a certain extent*. It is possible therefore that our island is also suitable, today, to the physiological requirements of *dispar*'s congener, namely *L. virgaureae*; for I have already suggested that this insect is on the up grade and therefore possessed of a greater intrinsic viability than the larger species.

Moreover, our island contains vastly more possible habitats of *virgaureae*, which in Lapland ranges well within the Arctic Circle, than the fenland which alone appears to suit *L. dispar*. It is hardly open to doubt that if there were still a substantial land-bridge between our island and the Netherlands *L. virgaureae*, moving westwards, would have been flying in our island this last twenty years and more.

[4] I rule out the possible extinction, in our fenland, of a certain predator which exterminated *dispar dispar*. Natural predators do not usually exterminate their own hosts—though, since most insect parasites are in actual fact polyphagous, or at the least oligophagous, they may play a part in exterminating one of the hosts.

Collecting Notes on the 1956 Season

By Bernard B. West

1956 was essentially a year in which one had to make the best of a bad job. Collecting activities being limited to weekends and the

annual holiday it was with an emotion bordering on desperation that one awoke on so many Saturday mornings to cold winds and grey skies. Nevertheless the year in retrospect seems to have been quite memorable.

It began for the writer with a visit to friends in the Isle of Wight in early March, when the opportunity was taken to explore the *Melitaea cinxia* colonies between Ventnor and St Catherine's Point. The larvae were out of their hibernacula and several had already moulted. The colonies seemed denser on the steeper cliffs than last year, and none were apparently present as near to the municipal gardens in Ventnor as I have previously found them.

My parents having recently removed from the centre of Bedford to the outskirts of the town, it has been possible on weekends from London to run a mercury vapour lamp in the garden, and whenever climatic conditions were favourable my father, Mr. K. E. West, ran the light during the week. The site of the garden is within a few hundred yards of the Great Ouse, where extensive poplar, willow and elm plantations line the banks. The garden has a southerly aspect on to a small orchard and nursery, with a large open area beyond, the 'St John's Glebe', an extensive church property full of well matured trees. My father has evolved a time switch for the light trap, with an automatic electro-magnetic closing mechanism. We have found that with adequate internal egg-crating, no killing agent is needed, and providing that the light is set to go out about dawn no damage due to restlessness is caused to the moths inside. The only possible offender was *Triphaena pronuba*, of which species we had as many as 400-600 in the trap at one time by mid-July; they were often exceedingly active, and audible for a distance, as a distinct hum, drumming inside the trap.

The most interesting capture at home was undoubtedly that of three *Lophopteryx cucullina* Schiff. Maples abound in the district, but it seems unusual to find this species both so far from the chalk, and near to the town centre. A complete list of the species taken at Bedford would occupy too much space, though it is intended eventually to record them. The county has not been well worked for a number of years. One or two of the more interesting were *Gastropacha quercifolia* L., *Pseudoips bicolorana* Fues., *Spilosoma mendica* Cl., and *Cossus cossus* L., which is a pest here in the riverside willows.

Having been fortunate the previous year in obtaining a portable generator, we were able to have many memorable evenings with the lamp in the surrounding country. The first good evening was on 12th May at Newton Blossomville woods, Buckinghamshire, where we coincided with an emergence of *Drymonia ruficornis* Hufn. and *Selenia tetralunaria* Hufn., the latter a particularly dark and strongly marked form. The night of Saturday, 9th June, was spent in woods at Northhill, Bedfordshire, when *Dasychira pudibunda* L. was present with *Thyatira batis* L., the former in considerable numbers. Over 30 species were recorded on this occasion.

Several trips were made to Salcey Forest throughout the summer, in the company of Dr. D. M. Jeffreys and Dr. Malcom Hague; the most memorable was undoubtedly on the night of the 30th June when over 70 species were recorded. Amongst them were *Stauropus fagi* L., *Craniophora ligustri* Fab., *Notodonta anceps* Goeze, *Anaplectoides*

prasina Fab., *Drepana binaria* Hufn., *D. falcataria* L. and *D. lacertinaria* L. The forest was also visited by Dr. Hague and myself in search of larvae of *Apatura iris* on 16th June when five were taken. My father and I have obtained our series almost entirely by collecting at this time, and so far have had no losses through parasitism. On this particular visit to Salcey *Hepialus hectus* L. was abundant, many hanging *in cop.* from the heads of tall grasses.

Two visits were paid to the Lake District during June, one from the end of the first week for seven days, and the latter for slightly over a week at the end of the month. On the first visit in the company of Dr. D. M. Jeffreys several enjoyable outings were made in the company of Dr. Birkett of Kendal and his family. The most memorable trip was with the portable m.v. lamp to Black Tom's Lane, Witherslack, on the night of 10th June, which was recorded in the January issue of this journal. I took my first *Apatele alni* L. on this occasion. On the second trip to the north, in the company of Dr. Hague, *Erebia epiphron* Kn. was abundant on Langdale Pikes, flying in hot sunshine; the date was 25th June. Owing to a strong wind from the north-west, many were blown well down the slopes and into the bracken level far below their breeding grounds. We took a limited number of larvae of *E. aethiops* Esp. on the 23rd June at Arnside Knott; the night was still and warm after heavy thunder and they were feeding in hundreds on the tips of the grass. Contrary to reports we did not find that there was any tendency for them to fall when the beam of a torch was shone on them.

On this latter trip to the north we visited several of the more southerly colonies of *Coenonympha tullia* Müll., beginning on the 22nd June, a hot clear day, at Whixall Moss, where the magnificent *philoxenus* form of the insect is worth all the effort to track it down. It was flying abundantly in the centre of the Moss, and it was gratifying to find that the recent fires had apparently not seriously affected numbers. At Meathop Moss on the 24th of June a fine heavily marked lanceolate form of *tullia* was taken; there appears to be a tendency to this form in this locality. At Fylingdales Moor, Yorkshire, on 27th June the little colony of *tullia* near the Flask Inn was found to be surviving, but numbers were limited, and fire has devastated over a third of what is a very inadequate habitat. We sat out various heavy storms on 28th June before being able to get on to Thorn Wastes in South Yorkshire, and in spite of hot sunshine our quest seemed likely to be in vain, the devastation after the Whitsun fires was appalling. It was with great satisfaction therefore that we located *tullia* in an area where peat cutting has left lower levels, over which the fire had apparently passed only at the upper level. Here after much effort we took a very short series of the richly coloured but practically obsolete form of the species which occurs in this locality. Many escaped in a high wind, and owing to the impossible terrain could not be pursued.

Wood Walton Fen, Huntingdonshire, was visited with the portable m.v. lamp on the night of 21st July when we recorded over 50 species, amongst them being *Lygephila pastinum* Tr., *Jaspidia pygarga* Hufn., *Laspeyria flexula* Schiff., *Comacla senex* Hüb., and *Coenotephria sagittata* Fab.

Several trips were made throughout July and early August to Salcey

Forest, Royston Heath, and other localities, most of the familiar species being recorded. The flight of *L. coridon* at Royston was a heavy one, though no extreme forms were noted in the time at our disposal.

At the end of August my parents were the guests of friends, Dr. and Mrs. Bellringer, at a seaside cottage at Waxham in Norfolk, and the m.v. lamp was set up there below the sea wall. It was run on all favourable nights for a fortnight and many interesting species were recorded. A large number were obviously from the neighbouring Broads which were only a mile or two distant. Amongst them were *Nonagria typhae* Thun., *Plusia festucae* L., a newly emerged *Cerura furcula* L., and several *Cerapteryx graminis* L. After a day of damp discomfort at Horning Ferry, when a full grown larva and a pupa of *Papilio machaon britannicus* were taken, the m.v. lamp was set up on the night of 2nd September with very little conviction. There was a sea fog, and a cold, rain bearing wind from the south east. Prospects seemed very poor, but we persisted, and in a short time there were quantities of moths around the lamp, the numbers of which slowly increased. Heavy rain forced us to set up the tripod and sheet on a verandah which fortunately as it turned out faced due south. At about 9.30 an *atropos* suddenly landed on the sheet simultaneously with a large female *convolvuli*, and from then on there were arrivals of one or other species every few minutes. It is perhaps of interest to record that several of the *atropos* were audible before they were visible, a very definite squeaking preceeding their arrival at the light. We have subsequently learnt that a similar number of these species was being taken on the same night only 25 to 30 miles along the coast. The direction of arrival was always from the sea, in a S.S.E. direction. The light was switched off at 12.30 not owing to any falling off of numbers, but to sheer fatigue! Our final total was 14 *atropos* and 6 *convolvuli*.

The season ended with several satisfactory nights with the lamp in Salcey Forest. The best perhaps was with my father on 21st September when the flight of 'Sallows', in company with a fantastic number of *Asphalia diluta* Schiff. was some compensation for the unseasonably low temperature.

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Notes on the Biology of North-East Lancashire Brachycera (Diptera)

By Allan Brindle, F.R.E.S.

Although the knowledge of the larval stages of Diptera is steadily increasing, the present unsatisfactory position reflects the desultory attention that this particular study has received in the past. The larvae of many common flies remain undescribed, and even the food of the larvae are but little known. Much can be done by breeding flies from moss, rotten wood, soil, fruits, and various kinds of refuse, but this, whilst forming a basis for further study, only gives the probable food of the larvae, and the more exacting work of describing and figuring the larvae remains to be done.

The collector can assist greatly in narrowing down the possible food

of the larvae. It is reasonable to suppose that if a particular species of fly occurs only in marshes, then its larvae will be either (*a*) aquatic or semi-aquatic, or (*b*) attached to some particular marsh plant. If a closely related species of fly is known to have an aquatic larva, then it is a reasonable hypothesis that the first species will also have an aquatic larva. If one species of fly has a carnivorous larva, then any closely related species may also have a carnivorous larva. These working hypotheses, though obviously open to correction, follow from the assumption that our present system of classification is a reasonably natural one. If the system of classification is natural, then the larvae of related species will usually show considerable affinities, both in structure and in habits, but if these affinities are not found, then the classification may be at fault.

The success of Mr. D. Bryce, of Great Harwood, in rearing many species of the Tipulidae has encouraged the two of us to extend the scope of the breeding into other families of the Diptera. Incidentally from his experience with the larval Tipulidae has come the assurance that in this family at least, a reasonably accurate system of classification has been established. There are suggestions that one or two species may have been misplaced, but on the whole the classification seems to be in accord with the larval characteristics. This is, of course, based entirely on comparatively short experience, and is open to future correction.

In attempting to identify the larvae of the Brachycera, however, it was thought useful to summarise our present knowledge of the distribution of the Brachycera in North-East Lancashire, the area from which most of the material for breeding will come, with some attempt at discussing the possible food and habitats of the larvae in order to narrow down the search as much as possible. This summary may be of some interest to other collectors of Diptera who may also be prepared to undertake the breeding of some of our Brachycera.

In Verrall (1), are found useful notes on and keys to the larvae of the Brachycera, by Sharp and Brauer, and the following notes and keys are taken from this volume (by kind permission of Oliver and Boyd Ltd.) but are modified from Malloch (2).

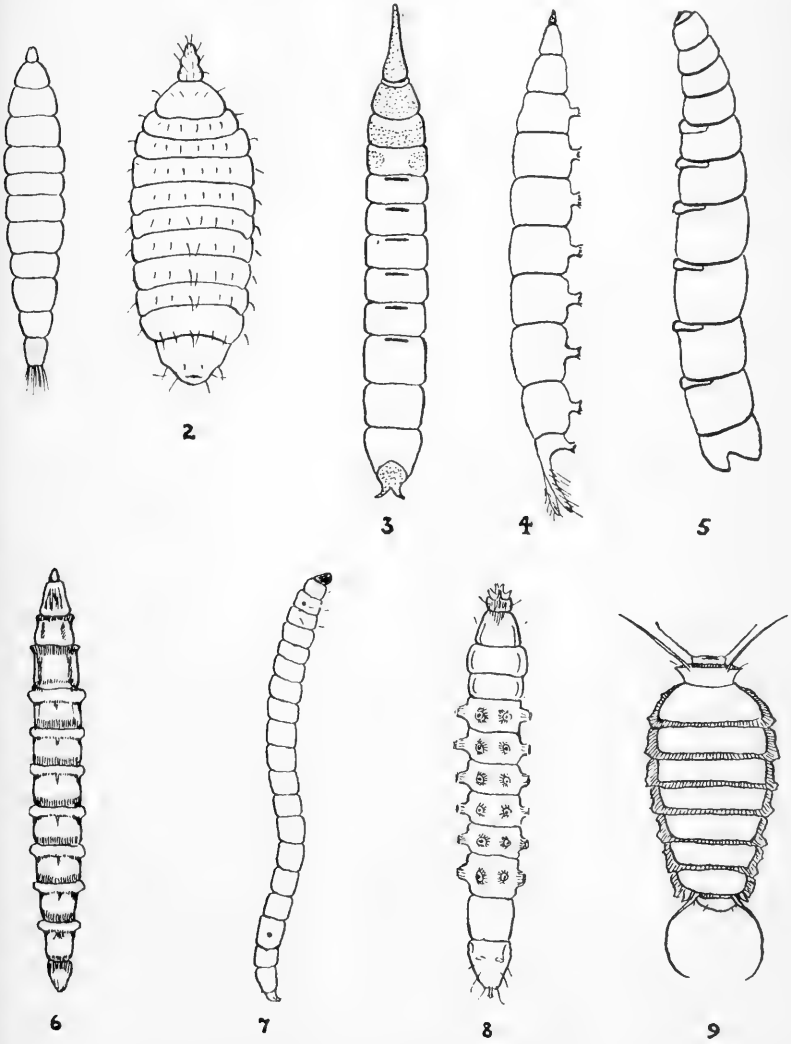
Diptera larvae may usually be distinguished by the total absence of jointed legs, though pro-legs or pseudopodia may be present; by their peculiarly shaped head, which may be very small or apparently absent; and by the position of their spiracles.

If the spiracles only consist of a pair at the posterior of the larvae, the latter are metapneustic; if, in addition, they have an anterior pair placed behind the head, they are amphipneustic; if they have intermediate spiracles, they are peripneustic. The frequency of the two first types (metapneustic and amphipneustic) characterise the Diptera. In other orders the peripneustic type is usual.

The larvae which most nearly resemble Diptera larvae are the maggot like larvae of the Curculionidae, but these have little or no power of locomotion, whilst Diptera larvae can usually move freely by means of pro-legs or pseudopodia, or by bristles.

If the head is complete, with the mandibles moving horizontally, the larva belongs to one of the families of the Nematocera. If the head is incomplete with vertically moving mandibles it may be either one

of the Brachycera or one of the Cyclorrhapha. The former may be distinguished by their well-developed maxillae and well-developed antennae. In the Cyclorrhapha, according to Malloch (2), both these appendages are poorly developed.



TYPES OF BRACHYCERA LARVAE.

Fig. 1. Odontomyia (after Needham).
Fig. 2. Microchrysa (after Cameron).
Fig. 3. Xylophagus (from specimen).
Fig. 4. Atherix (from specimen).
Fig. 5. Rhagio (from specimen).
Fig. 6. Tabanus (after Hart).
Fig. 7. Thereva(after Verrall).
Fig. 8. Laphria (after Verrall).
Fig. 9. Lonchoptera (after Imms).

KEY TO THE LARVAE OF THE BRACHYCERA.

1. Posterior spiracles close together, usually more or less concealed situated within a terminal fissure 2
   Posterior spiracles rather widely separated, on the terminal, penultimate, or antepenultimate segment 3
2. Terminal fissure transverse, head capsule not retractile, body surface finely shagreened ..... *Stratiomyidae*
   Terminal fissure vertical, head retractile, body surface smooth, usually striated longitudinally ..... *Tabanidae*
3. Posterior spiracles on apical segment 4
   Posterior spiracles anterior to apical segment 9
4. Labial plate, and rods behind it, in one plane, absent, or fused with the head capsule 5
   Labial plate and rods meeting almost at right angles, in profile appearing bent ..... *Empididae, Dolichopodidae*
5. Projecting part of head heavily chitinized, cone-shaped, not retractile ..... *Rhagionidae (Xylophagus)*
   Head not as above, retractile 6
6. Apical abdominal segment ending in two long fleshy processes fringed with long hairs. Abdomen possessing fleshy pseudopodia ..... *Rhagionidae (Atherix)*
   Not as above 7
7. Ten segments behind the segment bearing the antennae ..... *Lonchopteridae*
   Eleven or twelve segments posterior to the segment bearing the antennae 8
8. Head capsule long, cone-shaped ..... *Rhagionidae*
   Head capsule short, minute ..... *Cyrtidae*
9. Hind spiracles on penultimate segment 10
   Hind spiracles on antepenultimate segment 11
10. Thoracic segments each with two long hairs, one each side on the ventro-lateral margin, apical segments with six or eight long hairs, body straight in life ..... *Asilidae*
    Thoracic segments without hairs, or if present very weak, apical segment without hairs, body curved in life ..... *Bombyliidae*
11. Ventral posterior projections in the form of two short chitinized rods ..... *Therevidae*
    Ventral posterior projections absent ..... *Scenopinidae*

The Phoridae are not included in the above key, nor are they included in the summary of North-East Lancashire species below.

NOTES ON THE LARVAE, POSSIBLE HABITATS AND FOOD, AND DISTRIBUTION IN NORTH-EAST LANCASHIRE.

Stratiomyidae.

The larvae of flies belonging to this family may be divided into the aquatic and terrestrial types. Of the aquatic types only *Oxycera formosa* Mg., has been recorded from the district. It occurs around Whalley during June. The larvae of *Oxycera* resemble those of *Stratiomys* in general shape but are smaller and lack the long tapering apical segments. In *Oxycera* (as in *Odontomyia*) the segments are all broader than long except the apical segment, which

is only a little longer than broad and bears the posterior spiracular chamber which is fringed with long hairs. The larvae feed on algae, vegetable debris, or on minute organisms, such as crustaceans (2). It appears likely that the larva of *Oxycera* will be found in the pools in the marshes around Whalley, since the streams are clear, swift-flowing, and lack organic debris.

The terrestrial larvae are found in soil, fungi, rotten wood, and vegetable debris, according to Colyer and Hammond (3). They appear to be scavengers, feeding on decaying vegetable matter, manure, etc. The larva of *Geosargus flavipes* (Mg.) has been bred from manure (4).

Geosargus larvae have broad, bristly bodies, rather parallel sided, rounded posteriorly, and narrowed anteriorly. The bristles are arranged in transverse series of six and are stronger on the dorsum (2). The adults of *Geosargus flavipes* (Mg.) and *G. iridatus* (Scop.) are widespread and common, often being found on leaves of trees and bushes, especially in sunshine, a habit shared by the Syrphidae. The former appears from July to September, the latter from June to August. *G. bipunctatus* (Scop.) is fairly common, and apparently more confined to woodlands, and all records have been made in September. Only one record of *G. cuprarius* (L.) has been made; this was from Twiston in July.

The larvae of *Chloromyia formosa* (Scop.) is reported to feed in dung (4), but this species, though so common generally, has not yet been found in N.E. Lancashire.

The larvae of *Microchrysa* are similar to those of *Geosargus* but have a longer head (2), and are smaller. Their habitats should be also similar to those of *Geosargus*. *M. polita* (L.) has been bred from dung (4). The adult flies show considerable similarity to species of *Geosargus* in their habit of sitting on leaves. Sweeping bushes, especially birch, from the end of May to August often produces a good number, *M. cyaneiventris* (Zett.), predominates, with *M. polita* (L.) and *M. flavicornis* (Mg.) less frequently.

Beris larvae resemble those of *Geosargus*, but have shorter dorsal bristles, and these are arranged in groups of four (2). All the *Beris* species, taken in N.E. Lancashire are more or less confined to wooded areas. Their larvae therefore may be found in fungi, rotten wood, or any of the food mentioned by Colyer and Hammond. Assuming, however, that their food will not vary greatly from that of *Geosargus* and *Microchrysa*, it would appear that either dung, fungi, or vegetable debris is most likely. *B. vallata* (Forst.) occurs commonly through the area during June and July, whilst *B. clavipes* (L.) is fairly common in June. *B. chalybeata* (Forst.) is the commonest of the genus, occurring in May and June. *B. fuscipes* Mg., is less common, during June, July and August.

Rhagionidae.

This family is fairly well represented in the area, and their larvae show an interesting range of habitats. In general the larvae are all carnivorous, but hunt their prey in a range of habitats, ranging from running water (*Atherix*) through soil (*Rhagio*) to wood (*Xylophagus*).

The well grown larvae of *Xylophagus ater* Mg. are found not uncommonly in dead wood during early Spring and the flies can be bred out without any special provision being made for their food. Normally

their food probably consists of such soft-bodied larvae as those of *Tipula flavolineata* Mg., which share the same habitats, or worms which occur in the more decayed wood. The adult flies are swept from herbage in the woods near Sabden during June. The larvae of *Xylophagus* differ from other Rhagionidae larvae in being far more heavily chitinized (adaptation for habitat ?) with a bifurcated apical plate and a non-retractile head.

An adult male *Atherix ibis* (F.) was swept from herbage along the banks of the river Hodder, just above Whalley (and just out of the N.E. Lancs. area) in June, 1953. Further visits to the river brought to light many larvae and these are being bred out. This species has attracted notice on account of the curious laying habits of the female flies. The female lays her eggs on twigs or branches of trees overhanging water, but dies after oviposition, remaining attached to her egg-mass. Since further females come along and add to the egg-mass, a mass of dead flies, together with their eggs is eventually produced. The larvae, on hatching drop into the stream, and feed on other larvae or worms. They are distinct from other Rhagionidae larvae in the possession of abdominal pseudopods and the long, hair-fringed apical processes. They are very active, and, though when taken from the water may retract, and look like an aquatic Tipulid larva, when placed into water they soon start moving and display the large pseudopods and apical processes.

Rhagio larvae are white, cylindrical, and quite active, feeding on other larvae, worms, etc., in soil, rotten wood (probably very much decayed). From observations made whilst collecting, the larvae of *R. scolopacea* (L.) and those of *R. lineola* F., should both be found in woodland soil, since both are woodland species in the area. That of *R. scolopacea* has been recorded from rotten wood, but local larvae have so far been obtained from soil only. The adults of *R. scolopacea* are very common from the end of May to early July, resting head downwards on trees, fences, and the like, whilst the adults of *R. lineola* are most frequently swept from herbage from July to early September.

R. tringaria (L.) occurs quite frequently in marshes, more especially on moorlands, in June and July. Its larvae should thus occur in this type of soil. It has been recorded as feeding on earthworms in decaying wood and leaf mould (5).

The larvae of *Chrysopilus* are very similar to those of *Rhagio*. According to Malloch (2) the two upper protuberances of the apical segment of the larvae have a small projection on the ventro-lateral side of their bases. These projections are absent in *Rhagio*. They probably live in the wet soil of marshes, feeding on worms and other larvae. *C. cristatus* (F.) occurs commonly but locally in marshes during June and July. *C. aureus* (Mg.) occurs in the woods along the river Hodder, just above Whalley during August. It is not common apparently.

The habitat and time of appearance of *Symphoromyia crassicornis* (Panz.) are similar to those of *C. cristatus*, but the former is far less common. The larvae also are very similar but can be distinguished by the apical segment ending in two fleshy lips (a dorsal and a ventral) whereas in *Rhagio* and *Chrysopilus*, the apical segment ends in four processes.

Spania nigra Mg. has been taken at Thursden, near Nelson, on 12th

June, 1949. Further observations are needed to establish its particular habitat.

(To be continued.)

A Collection of Ants (Hym. Formicidae) in the Leicester City Museum

By C. A. Collingwood.

Through the courtesy of Mr. C. W. Hunt of the Leicester City Museum, I have been able to examine a substantial collection of ants in the Entomology section. The major part of this collection was presented in 1931 by the late Mr. H. St. J. K. Donisthorpe and includes a considerable wealth of specimens of British *Formica*, *Lasius* and *Myrmica*. Other British genera are less well represented. Among the British ants, series of some of the commoner species have been added by other un-named collectors. There is in addition a fair number of European ants from the Swiss and French Alps collected by Mr. P. A. H. Muschamp in the 1920s and 1930s. The whole collection has now been sorted through by the writer and the more interesting specimens are discussed below.

Most of Donisthorpe's specimens date from the years 1908 to 1914 and a large number were taken in 1913. This was probably a year of great activity for him as he was then about to bring out the first edition of his book on British ants. Much ground was evidently covered during the season both in the Scottish Highlands and in S. England. The collection seems to have been intended for students rather than as an assemblage of types. There is no proper balance between the various castes and as is usual with ants there is a vast preponderance of workers. A number of the smaller rarer species are lacking although familiar enough to Donisthorpe. At the same time some groups notably many of the *Formica* species are in generous abundance. Many of the specimens are as originally mounted on portions of card that have been apparently detached from larger series of the same species. This has had the result in some cases that a few of the mounts now bear no locality or even date label.

There is a good series of *Formica cunicularia* Latr. Donisthorpe, following continental writers, attempted to divide this species into two forms, *F. fusca* var. *glebaria* Nyl. and *F. fusca* var. *rubescens* For., a distinction mainly based on a presumed colour difference. It is notable however that many of his '*glebaria*' are just as brightly coloured as his '*rubescens*'. Yarrow (1954) showed that there was no basis for such a distinction and that neither were varieties of *fusca* but belonged to a single distinct species *cunicularia* Latr. Most of the specimens are from the Isle of Wight and the New Forest, but there are examples from other areas including one from Bewdley, Worcs., from which locality the species has not been found in recent years and also a series of workers and a queen from Stroud, Glos., where the species is not common.

Formica rufibarbis Fab. rare to the point of extinction in this country is represented by five males and twenty-one workers from Weybridge, Surrey. In recent years this ant has only been found near

Chobham in the same county and it is something of a puzzle as to why this robust species which is common enough on the continent should be so rare with us. Another uncommon species *F. transkaucasica* Nas. is represented by a queen and a worker from Matley, S. Hants. Fortunately this species has been recently found to be quite widely distributed in parts of the New Forest and near Wareham in Dorset and seems to be in no present danger of extinction.

Donisthorpe did not distinguish *F. lemani* Bond. from *F. fusca* L. and many workers and queens of the two species from all over Britain had been placed together under *fusca*. On sorting out the two species most specimens fell into place as expected with *fusca* from all southern localities and *lemani* from Scotland and N. England. There are however a few curious anomalies some perhaps due to mislabelling. Thus among the many *lemani* from Scottish localities are two single *fusca* workers labelled 'Rannoch'. This species is most unlikely to occur there. Conversely a worker labelled 'Ewhurst' in Sussex is quite clearly a *lemani* which again is most unlikely. More probable are two series of *lemani* workers from the island of Eigg off mid-west Scotland. Yarrow (1954) in his revision of the British *Formica* of this group identified two small workers taken by Donisthorpe from this island as *fusca*. While both species may occur there together as they do in some other areas of Britain, *lemani* is the more probable for climatic reasons. An interesting specimen is an undoubted *fusca* from Richmond, Yorks., taken by G. B. Walsh in 1912. This is a northward extension of the known range of this species on the eastern side of Britain. Other specimens from N. Yorkshire taken by the same collector are *lemani*. There are also *lemani* from Clare, Donegal and Kilkenny in Ireland which further establishes that this is the common species of the group in that country, true *fusca* so far being unknown. Some pale *fusca* from Lundy Island had been named by Donisthorpe '*fusco-rufibarbis*' probably part of the same series of workers referred to by Yarrow, *op. cit.* Among other mis-identifications is a *cunicularia* male from the Isle of Wight which had been placed under *fusca* and more curious a *niger* worker placed with '*glebaria*'.

F. sanguinea Latr. is well represented by males from Weybridge, queens and workers from Woking, Surrey and from E. Sussex. A few workers from Rannoch are of interest since this species has not been reported from there since Donisthorpe's discovery in 1913. There is an interesting series of workers of *F. exsecta* Nyl. from Bournemouth where this species is probably now extinct; there are 4 alate queens from Parkhurst forest, Isle of Wight, and a few workers from Rannoch.

The *Formica rufa* group of species had been arranged much as would be expected from references to Donisthorpe's nomenclature by Yarrow 1955 in his revision of this group. Thus all the *F. rufa* L. from S. England had been correctly so named. Placed under 'var. *rufo-pratensis*' were *rufa* from Bexhill and from Parkhurst, Isle of Wight for no reason that could be detected from the specimens most of which are of quite normal colouration. The Parkhurst specimens include pseudogynes as mentioned by Yarrow presumably from the same series that he saw in the British Museum but the majority are normal looking workers. Also in this section were a few workers of *F. lugubris* Zett. from Aviemore, Scotland. '*Pratensis*' was mostly represented by

numerous series of workers of *lugubris* from Rannoch, Loch-an-Eilean and St. Filans but also by two workers of *F. aquilonia* Yarrow. According to Yarrow, *op. cit.*, Donisthorpe referred *lugubris* not only to '*pratensis*' but to the supposed variety '*rufa* var. *alpina*'. Many of the specimens in the latter section are however *aquilonia*. Although Donisthorpe (1927) made frequent reference to '*rufa*' in Scotland presumably meaning the species distinguished as *aquilonia* by Yarrow, the latter were not present in the section under *rufa* in the collection. There are several pseudogynes of all three species. The '*pratensis*' of most continental writers now synonymised by Yarrow, *op. cit.*, as *nigricans* Em. is represented by one male only from Bournemouth. This is of special value as the species is now apparently quite extinct in the Bournemouth area and almost so in Dorset, its only other known British locality.

In the confusion of varietal names applied to the above group of species which has been so ably resolved by Yarrow, *op. cit.*, Donisthorpe was not the least offender in his failure to see the real differences between a supposed '*rufo-pratensis*' from Bexhill for example and one from Aviemore. However he was only attempting to apply the names that were current among all the leading authorities in his day. There were frequent exchanges of both opinions and specimens at that time and neither Forel to whom much of the original confusion is probably due nor Wheeler himself showed any better sense of discrimination between what are clearly trivial forms and what are distinct species. To judge by the Leicester specimens, Donisthorpe resolved the confusion in his own way by referring *lugubris* to '*pratensis*' and *aquilonia* together with series of smaller *lugubris* workers to '*rufa* var. *alpina*'. This variety was supposedly restricted to forms with especially narrow heads but there is no consistency in this even among his named specimens and as with '*glebaria*' and '*rubescens*' among the fusca group his attempted distinctions appear to have been somewhat arbitary.

In the genus *Lasius* Donisthorpe seems to have been both consistent and accurate. *Niger* and *alienus* and various forms of *umbratus* and *flavus* were safely separated. There is much material of interest here however in that with the *umbratus* group many of Donisthorpe's specimens appear to belong to *L. rabaudi* Bond. recently distinguished from *L. umbratus* Nyl. by Wilson (1955) who has revised the *Lasius* species. His nomenclature as it applies to the British species has been discussed by Collingwood (1957). *Rabaudi* would appear to be not uncommon in S. England and recognisable as this species among Donisthorpe's specimens are not only a numerous series of males, queens and workers from Weybridge, Woking and Richmond in Surrey but also queens from Portheawl and Horton in Glamorganshire. The differences indicated by Wilson, *op. cit.*, between queens of *rabaudi* and *umbratus* are well shown in Donisthorpe's specimens. Additional points of difference appear to be that *rabaudi* queens are consistently darker than the hairy form of *umbratus*; males are somewhat less robust looking and both queens and workers although with appendage hairs as in *umbratus* sensu Donisthorpe are apparently less hairy than the more extreme forms of the latter. The very long funicular segments in queen *rabaudi* distinguish at once from any form that might hitherto have been referred to *mixtus* Nyl. now synonymised by Wilson under *umbratus*. Specimens of true *umbratus* are also present from above named *rabaudi*

localities and it is evident that the presence of the one does not exclude the other.

L. flavus Fab. is well represented both among Donisthorpe's specimens and those of other collectors. Among the latter a series of alate queens and workers from Ashurst Wood, E. Sussex, included also one queen and a few workers of the hairless or '*mixtus*' form of *umbratus*. *L. alienus* Foerst. workers are also well represented but there is only one queen. Under the name 'var. *alieno-niger* Forel' were five small pale workers of *L. niger* L. from Cwrt-y-ala, Glamorganshire, evidently collected by Mr. H. M. Hallett, two undoubted *alienus* workers from Bletchington, Oxfordshire, and one *niger* queen with somewhat reduced pilosity. More difficult to place are two queens collected by Mr. P. Harwood at Clacton-on-sea. These are probably *niger* but it must be admitted that the specimens are so near the borderline between *niger* and *alienus* that accepting the modern view of the inadmissibility of the category '*alieno-niger*', it is a matter of opinion as to which species the specimens actually belong if indeed they are not inter-specific hybrids.

The uncommon *L. brunneus* Latr. is poorly represented by one worker and two males which are unlabelled. Among them had been placed two *niger* workers from Oxford. *L. fuliginosus* Latr. is represented by workers from several localities, one alate queen from Woking and a male. Among them are a few unlabelled myrmecophilous beetles.

(*To be continued.*)

Current Notes

Another British insect has invaded Canada, this time a 'clearwing', *Sciapteron tabaniformis* Rottenburg. In July 1952 some larvae were found in Newfoundland boring into the trunk of an injured balsam poplar, the common *Populus balsamifera* L. of our gardens. Pieces of the trunk of this tree containing the larvae were cut out and put into a larva cage. The following June six moths emerged and these have now been identified as *S. tabaniformis*, the 'Dusky Clearwing' of 'South'. How the insect crossed the Atlantic it is difficult to suggest, since its foodplant is indigenous to Canada and therefore unlikely to have been imported. At all events the moth appears to have been unknown previously in the New World. According to Seitz *S. tabaniformis* occurs in most parts of Europe, in Turkey and in Transcaucasia, and no foodplants other than *Populus* spp. are known. Henry Doubleday took this moth in Epping Forest, and perhaps it still occurs in this country.

The latest Nature Reserves are 131 acres of Northward Hill at High Halstow in Kent, the fossil beds at Wren's Nest (part in Worcestershire and part in Staffordshire), and a small bog of 24 acres in Wybunbury Moss, Cheshire. This last must be an interesting little bog, for the flora with which it is carpeted include *Erica tetralix*, *Oxycoccus palustris* and *Andromeda polifolia*. The last-mentioned plant stirs a memory. At the end of May 1870 an entomologist named Carl Berg, working for larvae at twilight at Kurtenhof, near Riga, beat from *Andromeda polifolia* three larvae which were unknown to him and from which in due

course imagines of *Caenophila subrosea* Steph., the Rosy Marsh moth, emerged. He noted that these larvae would also eat several species of willow and, happily, gave a description of the larva, and a very good description it is too.—See *Ent. mon. Mag.*, xi, 67.

C. subrosea was discovered in this country by Richard Weaver in 1836 (not "about 1837" as asserted by Barrett). He relates "I spent thirteen weeks in exploring the extensive fens on the borders of Whittlesea Mere, and whilst sojourning there I was fortunate enough to capture several pairs of *C. subrosea* on Yexley Fens, about midway between the villages of Yexley and Home . . The moth, in the evening twilight, I found attracted by blossoms of the teasel, and in no instance did I observe it on any other plant, although various other flowers blossomed in the same spot". After Weaver had told everybody when and where to go and how to find it (a practice not followed by certain professional collectors of a later age) several collectors visited Yaxley and found *subrosea* to be abundant there—so abundant that rows in cabinets were soon filled and nobody troubled to go to Yaxley any more. How long the moth lingered in our Fens is not known; Barrett seemed to think that its extinction may have synchronized with the draining of Whittlesea Mere in 1851, though he gives no reason for a nexus. Willows like the ones from which English (Doubleday's henchman) beat the larvae still grow there today.

To stop the spread of the gipsy moth the U.S. Department of Agriculture recently undertook what is described as "the greatest single aerial spray job ever conducted in the United States". Low-flying aeroplanes sprayed three million pounds of D.D.T. in an oil emulsion over large areas of the states of New York, New Jersey, and Pennsylvania. Watching the falling emulsion coating their gardens and swimming pools some of the residents were not impressed, and a group of eight Long Island property owners have filed a suit against the Department.

"D.D.T. is a cumulative poison," the curator of birds in the New York City Museum of Natural History is reported to have said. "It kills birds, fish, valuable insects—maybe even people—and throws the entire balance of nature out of gear. Last time we had a big spraying here we had the worst plague of red bugs Long Island has ever seen, and we had to *shovel up* the dead birds." To this, the Department of Agriculture has admitted that a few fish and birds succumb, but no bees or humans. At the week-end, however, the protests of farmers, fruitgrowers, and other interested persons mounted to such a pitch that even the Federal officials were concerned. One area alone reported 50 acres of strawberries destroyed and heavy loss among bees.

In this country also there is some disquiet over this matter of spraying. Recently "a timely reminder to farmers" was issued by our own Ministry of Agriculture pointing out the serious risk attaching to the drift of chemical sprays. "The high toxicity of some of the chemicals used against weeds and pests, and the greatly increased efficiency of modern spraying machines have created a problem which is causing much concern". Last year there were more reports than ever before

of crop losses caused by drifting spray. Some sprays are said to be dangerous over distances of more than half a mile; also the spray drifts into glasshouses, and tomatoes (which seem to be particularly sensitive to it) are destroyed. Surely it should not be difficult for the Ministry to obtain an Order in Council regulating the present unregulated and indiscriminate use of toxicant sprays. So widespread has the use of these sprays become in at least one of the Home Counties that those who can grow their own vegetables—and can protect them from the spray used by neighbours—are fortunate indeed.

The Agrotid larva *Heliothis zea* is becoming a serious pest in Canada. In 1953 (we read in *The Canadian Entomologist*) the harvest of tomatoes for processing was prematurely terminated because of the presence of these larvae in the ripe fruits. Almost all the fields in two counties, involving some 12,000 acres, were infested, the infestations being as high as 11 per cent. The situation was aggravated because fruits with no visible larva entry holes often contained larvae. Apparently the newly hatched larvae had burrowed immediately into the fruit and there completed their growth. The tiny entrance holes soon healed, leaving small scars that were impossible to detect. The more food man grows, in all parts of the world, the more he increases the populations of his chief enemy the insects. The long-term policy of spraying all his food with insecticides and 'preservatives' (including fish and meat) until he sprays himself out of existence, *per* viruses and new diseases, is interesting; but to kill foes and friends and himself indiscriminately seems an odd way of protecting humanity.

There has been some correspondence recently in the *Scotsman* on the purchase of the island of Rum in the Inner Hebrides by the Nature Conservancy, for the purpose of maintaining it as a Reserve. For many years this island has been privately owned and consequently permission has had to be obtained to visit it. Thus it is already, and has been for a long time, a natural reserve. From time to time it has been visited by naturalists, and changes in the fauna and flora under normal evolution of communities have gone on unchecked. Why, then, has the Conservancy (which disposes of a Government grant of £280,000 per annum) devoted a portion of its funds to the purchase of what is already a substantive reserve?

The important signatories to a letter in the *Scotsman* (among them Professors of the Universities of Edinburgh, Glasgow and Aberdeen) put forward another objection to the Conservancy's action. They point out that in view of the "notorious eviction of its inhabitants about 130 years ago" the intention of the Conservancy to keep people away from the island is unwarrantable. "We feel strongly", they write, "that the use of public money for the purpose of maintaining a Scottish island of over 30,000 acres in a state of permanent desolation . . . is very questionable". Certainly it would seem that the Conservancy's funds could be employed to better purpose than this.

Notes and Observations

EARLY APPEARANCE OF MOTHS IN 1957.—The remarkably mild winter

and warm advent of spring brought forward by about 12 days the average emergence of moths in East Herts. In 1956 *Apocheima hispidaria* Schf. was recorded on 21st March but this year it must have emerged during the warm days at the beginning of February. Nineteen species had visited the m.v. trap by 30th April in 1956 and thirty-nine by the same date in 1957. One does not often see the Poplar Hawkmoth in April: one arrived on 30th of that month. *Ochropleura plecta* L. was seen on 26th March, six weeks early; *Orthosia miniosa* Schf. also on the same date, five weeks early; *Cycnia mendica* Cl. on 21st April, three weeks early. I saw *Selenia bilunaria* Esp. on a street lamp on 8th March, four weeks earlier than last year.—Clifford Craufurd, Galloway Road, Bishop's Stortford, Herts. 12.v.57.

April Moths in Cornwall.—April has been very disappointing, with cold winds and drought, and few moths; but perhaps some of the following dates may be of interest:—*Cycnia mendica* Cl., 16th; *Spilosoma lubricipeda* L., 20th; *Notodonta anceps*, 20th; *Pheosia tremula* Cl., 21st; *Phalera bucephala* L., 21st; *Abrostola tripartita* Hufn., 22nd; *Hadena conspersa*, 22nd; *Laothoe populi* L., 23rd; *Smerinthus ocellata*, 26th.—Colonel H. G. Rossel, Bodinnick, Lanteglos-by-Fowey. 27.v.57.

Moths at M.V. Traps.—I have many times read in the *Record* of large numbers of moths being taken in one night, but I have rarely seen the exact numbers given. I notice that in an article by Mr. R. F. Bretherton in the *Proc. South London Soc.* for 1955 that the numbers trapped in ten years at Ottershaw, Surrey, 132,110, and in four years at Horsell, in the same county, 64,303, over a period of four years, were exactly counted, giving an average of about 13,000 and 16,000 during the years in question. Being retired from business I have the leisure to count every moth in the trap and also those on or near the trap at dawn when it is covered and taken into the house.

My highest figure over the four years was 554 on 8th July 1956 of 76 species, and 556 on 16th July of 67 species. The largest number of species on one night was the 76 of 8th July 1956. The totals for the four years of numbers and species were as follows:—

1953	7,035	175
1954	13,198	264
1955	16,081	275
1956	22,316	300

The peak period of the year is from 5th to 25th July.

I have also read of very large numbers (thousands) being at or in the trap in one night and nearly all being hopelessly damaged. Perhaps the regulation trap is used whereby the insects inside still see the light through the cellophane. I use an old chicken-brooder as a trap. If this trap is packed properly inside there is no room for the moths to fly or damage themselves. The usual egg cardboard containers should be discarded. The cardboard containers for storing apples (25 to a container) are much better than the egg containers. The moths can be boxed from them much more easily. If they are properly cut to fit the inside of the trap the only space left open is that above the perforated zinc placed to carry away the rain.

If the trap is not covered at dawn and taken into the house about 40 per cent of the insects will be lost as they will leave the trap when

the daylight strengthens and the m.v. light consequently weakens.—CLIFFORD CRAUFURD, Denny, Galloway Road, Bishop's Stortford. 4.v.57.

VANESSA HUNTERA FAB. AND NOTODONTA PHOEBE SIEB. IN THE ISLE OF WIGHT.—As joint captors of the two insects figured in the March number of the *Record*, may my brother and I congratulate you on a very fine plate? You may be interested to know that we have so far found eight different records of *V. huntera* for the British Isles; one indeed on 26th August 1905 at Luccombe, I. of W. (*Ent. Rec.*, **20**: 122).

The most interesting fact about the capture of *N. phoebe* is that the night in question was a 'bad' one for the m.v. trap, there being less than a hundred other common (and worthless) moths caught; in fact but for the capture of *V. huntera* in the morning it would not have been out at all! Incidentally, our father does not collect; he merely pays the electricity bills for the trap.—ROBIN and SAM KNILL JONES, Brooklands, Freshwater, Isle of Wight. 10.iv.57.

REARING MAMESTRA ALBICOLON HB. AND HELIOTHIS DIPSACEA LINN.—In answer to Mr. Hyde's enquiry concerning these two moths, I have had a little experience of both which may be helpful to him. I have never attempted to rear *albicolon* from the Breck, although I have seen the moth there, but have reared several larvae found in sea-sand in company with those of *Agrotis ripae* Hb. The larva, at any rate when half grown, lives two or three inches beneath the surface of the sand like that of *ripae*, and may be dug up with *ripae* in early September. I have found both in company at St. Osyth and at Dungeness. Both appear to feed on almost any plant growing in the sand, but their favourite is undoubtedly sea rocket, beneath and around which they are commonest.

To rear them I take an 18″ flowerpot, now, I fear, almost unobtainable, put in good drainage, and eight inches of the sea sand in which they were found. The larvae immediately burrow into this, and I place on the surface sliced runner beans, and after the beans become unobtainable, sliced carrot. I then tie a piece of strong muslin over the top of the pot and stand it on the garden path in the open air. No larvae will be seen by day though their holes will be visible near the food; they come up to feed at night. After the end of October no feeding is really necessary, though I usually leave slices of carrot on the surface in case of a belated feeder, as both species are said to be cannibals in times of shortage. Leave the flowerpot alone in the open air after this until June, when the perfect insects emerge and may be seen on the sides of the pot.

It seems that Mr. Hyde failed through not providing sufficient cover for a burying larva, and in the case of *albicolon*, which lives inland as well as on the coast, I have no doubt ordinary builder's sand would suffice.

I have two or three times taken the larva of *dipsacea* at Dungeness, feeding on sticky groundsel in company with *H. peltigera* Schiff. and have reared these successfully in company with the *peltigera* by putting them in a flowerpot, treated as previously mentioned, but filled with builder's sand, and placing them in the sun, the floodplant supplied being the flowers and green seeds of marigold. The larvae when full

grown burrow an inch or so into the sand and pupate. After ten days to harden, I dig them up and keep them on the mantelpiece in a living room, bone dry, on a piece of linen in a metal box: *peltigera* emerges from October to December in these conditions, getting darker and darker as the year gets colder; a mid-December specimen I bred is even darker than those of Dr. Kettlewell's experiments.

Some *peltigera* and all *dipsacea* lie over the winter, however, and emerge in April, such *peltigera* being, as would be expected from Dr. Kettlewell's conclusions, similar to the October ones. Sir Beckwith Whitehouse bred a series of *dipsacea* from Dungeness which he recorded as *maritima* Graslin, but Dr. Cockayne told me that they were all *dipsacea*.—H. C. Huggins, 65 Eastwood Boulevard, Westcliff on Sea. 19.iv.57.

Some Notes on Rearing Heliophobus albicolon Hb.—Mr. G. Hyde's note on *H. albicolon* (*Ent. Rec.*, **69**: 79) reminds me that some years ago I used to take this species rather commonly on Hayling Island, Hampshire, at the blossoms of viper's bugloss and privet, and also from sugared marram grass on the sand dunes there. I have also, on several occasions, reared moths from eggs obtained from captured females. The species is not, however, an easy one to deal with in confinement, and I had many bitter failures before I finally achieved success. At first I used to keep my larvae in various closed containers such as tin boxes, jars, etc., but this form of treatment proved unsatisfactory as I never could get the larvae beyond the half-grown stage, so I determined to try other methods.

First, I constructed a special cage of wood and glass, with ventilators of very fine wire mesh, in which I could keep the larvae from the time of hatching. On the bottom of the cage I put an inch or so of fine sand from the dunes, hoping in this way to prevent one of my chief troubles, sweating, which frequently occurred among the larvae kept in the close confinement of the earlier receptacles.

For the same reason, I also changed the type of foodplant; instead of juicy leaves from succulent plants I gave only old ones and half-ripe seed heads from the poorest, scraggiest plants I could find. A previous survey of the vegetation of the sand dunes where *albicolon* occurs had shown that the foodplants most likely to be eaten by the larvae—*Atriplex*, *Rumex*, *Chenopodium* and *Polygonum aviculare*—were, in the main, poor half starved, stunted specimens compared with those growing on more fertile soil in fields and lanes further inland, and at first I found it difficult to believe that *any* larvae could exist on such miserable fare. Nevertheless I decided to give them a trial, and to my surprise, the larvae not only thrived, but became full-fed, finally pupating in the sand at the bottom of the cage and the moths emerged in due course without further trouble.—A. T. Postans, Broadmayne, 13 Stanfield Road, Winton, Bournemouth, Hants. 24.iv.57.

Breeding Lithocolletidae.—Having tried for several years past to breed these interesting little moths, without the success I would have liked in view of the small numbers of moths obtained, I decided to change my method, and the following account may be of help to younger micro-lepidopterists.

Having collected, last October, mines from oak, elm, hazel, apple and sloe, I placed them in flowerpots on a layer of fine gravel, and then kept them out of doors under top cover until mid-March this year, when they were brought into a shed of an average temperature of 65° F. by day and 45° F. by night. Into each pot I placed a small piece of wet blotting paper which imparted just enough moisture to the leaves, and about every third day the blotting paper was renewed. From 4th April until 27th seven species were bred in plenty; these were *Lithocolletis tristrigella* Haw., *L. coryli* Nic., *L. corylifoliella* Haw., *L. scheeberella* Fab., *L. blancardella* Fab., *L. concomitella* Bankes, and *L. spinicolella* Zell.—H. L. DOLTON, 36 Chester St., Reading, Berks. 29.iv.57.

[We note the absence of any species emerging from the oak mines gathered, and it may be that Mr. Dolton wrote his note before the emergence was complete. The oak species might well emerge a little later, having in mind that their foodplant is usually fairly late in coming into leaf.—ED.]

DEVONSHIRE NOTES.—The usual spring moths have been considerably earlier in Devon this year, though I found at the end of March that they were about a week or so behind those near Oxford. Both *Orthosia miniosa* Schf. and *O. gracilis* Schf. have been more numerous than in the past four years. *Drymonia ruficornis* Hufn., *Nothopteryx carpinata* Bork. and *Thera obeliscata* Hb. appeared, rather surprisingly, in March, while the hibernating species have also been numerous, particularly *Agrotis ipsilon* Hufn., *A. segetum* Schf. and *Peridroma porphyrea* Schf. (*saucia* Hb.).

Nomophila noctuella Schiff. first appeared in my light trap on 27th March, while Mr. Lees mentioned that he had taken it a few days earlier at Maidencombe and had also had two examples of *Heliothis peltigera* Schf. earlier in the month. *Plusia gamma* L. first put in an appearance on 2nd April, and a pleasant surprise was a fine male *Leucania unipuncta* Haw., in the m.v. trap on 9th April. This last-mentioned species is, I assume, a hibernated specimen and had migrated last autumn, the winter having been sufficiently mild for it to survive.—A. KENNARD, Torns, Ashburton. May, 1957.

Current Literature

ANNALES ENTOMOLOGICI FENNICI, **21**: 3 (1955) includes a very useful revision of the palearctic species of *Medetera* Fisch. (Dipt., Dolochopodidae) by E. Thuneberg. Of the seven new species described one, *M. borealis* Thuneb., must be added to the British list, and *M. apicalis* of our list is renamed *M. abstrusa* Thuneb. The author makes much use of the penis sheath and side lamella of the male genitalia as specific characters. The value of these characters in this genus was first shown by Collin in his revision of the British species in 1941 (*Ent. mon. Mag.*, **72**: 141-153) and in the present paper these structures are illustrated for 23 of our 27 British species. This paper is in English and the key, covering 71 palearctic species, is recommended to British dipterists, as probably many species as yet unknown from this country remain to be found here.

C. E. D.

WARBLE FLIES AND OTHER OESTRIDAE: BIOLOGY AND CONTROL. By A. W. E. Ganser. Published by the Hide and Allied Trades Improvement Society, 75 Burdon Lane, Cheam, Surrey. viii-63 pp. 1957. 9½″ × 6″. Obtainable from the publishers.

This paper-backed booklet, produced on good quality art paper, is an adaptation of the third Swiss edition published in French in 1951. Its object is to stress to the English-speaking world the need for international action against warble-flies and their relatives and to indicate briefly not only what is known but also what needs to be known about these flies and their control. Half the book is taken up by the biology of ox warbles, and several pages are devoted to the other Diptera once placed in the Oestridae. Horse bots are also dealt with as well as the nostril flies of sheep. Unfortunately there are a great many misprints and misspellings, and the illustrations are very variable. In spite of these criticisms there is much useful information in this book which is not easily come by elsewhere, and there is a bibliography of 83 references. The useful papers of A. E. Cameron are not included; but a helpful inclusion is the synonymic list of vernacular names for different species and their larvae.

The Lepidoptera of the Aldershot District of N.E. Hampshire

By A. W. RICHARDS.

(*Continued from page 143.*)

L. albipuncta Schiff. and *L. geminipuncta* Haw. 1 sp. each Hawley and Fleet.
Orthosia incerta Hufn., *O. stabilis* Schiff., *O. cruda* Schiff. and *O. gothica* L. abdt.
O. munda Schiff. and *O. miniosa* Schiff. c.
O. populi Strom. Fleet. f.c.
O. advena Schiff. 1 sp. each Hawley and Aldershot.
O. gracilis Schiff. c. at Aldershot; 1 sp. each Hawley and Fleet.
Charaeas graminis L. c.
Tholera popularis Fab. and *T. cespitis* Schiff. c.
Panolis griseovariegata Göze. abdt.
Hada nana Hufn. c.
Hadena lepida Esp. Aldershot and Fleet. n.c.
H. bicruris Hufn. and *H. cucubali* Schiff. c.
Hecatera serena Schiff. and *H. trifolii* von Rott. v.c.
Lacanobia contigua Schiff., *L. genistae* Borkh., and *L. thalassina* Hufn. c.
Heliophobus saponariae Borkh. 1 sp. each Hawley and Runfold.
H. anceps Hüb. 2 sp. Hawley, 1 sp. Aldershot.
Diataraxia oleracea L. v.c.
Ceramica pisi L. c.
Polia tincta Brahm. 2 sp. each Hawley and Aldershot.
P. advena Schiff. 1 sp. Fleet.
P. nebulosa Hufn. c.
Mamestra brassicae L. c.
Melanchra persicariae L. abdt.
Anarta myrtilli L. c.

Plusiidae

Parascotia fuliginaria L. c. at Hawley and Fleet.
Zanclognatha tarsipennalis Treits, and *Z. nemoralis* Fab. c.
Herminia barbalis Cl. c.
Tholomiges turfosalis Wocke. Has been taken locally.
Schrankia costaestrigalis Steph. Hawley, a few.
Hypena rostralis L., and *H. proboscidalis* L. v.c.
Laspeyria flexula Schiff. c.
Ophiusa pastinum Treits. c.
Scoliopteryx libatrix L. c.
Catocala nupta L. c.
C. promissa Schiff. Crookham 1 larva; said to inhabit Pamber.
Euclidimera mi Cl. v.c.
Ectypa glyphica L. v.c.
Jaspidia fasciana L. c.
Eustrotia uncula Cl. c.
Phytometra viridaria Cl. c.
Rivula sericealis Scop. c.
Plusia moneta Fab., and *P. chrysitis* L. c.
P. festucae L. A few at Hawley and Aldershot.
P. iota L. w. n.c. except at Fleet.
P. v-aureum Hüb. w. abdt. at Fleet.
P. gamma L. c. sometimes abdt.
Abrostola tripartita Hufn. v.c.

Cymbidae

Pseudoips bicolorana Fuess. Hawley and Fleet c.
Bena prasinana L. c.
Sarrothripus revayana Scop. c.

Sterrhidae

Sterrha virgularia Hub., *S. laevigata* Scop., *S. subsericcata* Haw., *S. biselata* Hufn., *S. dimidiata* Hufn., *S. trigeminata* Haw., and *S. emarginata* L. All c.
S. aversata L. abdt.
S. muricata Hufn. Farnborough f.c.
S. sylvestraria Hub. Aldershot and Blackwater c.
S. inornata Haw. 2 sp. at Runfold near Aldershot.
Scopula remutaria Hub. v.c.
S. immutata L. c.
S. imitaria Hub. f.c.
Cosymbia pendularia Cl., *C. porata* Fab., and *C. punctaria* L. v.c.
C. trilinearia Borkh. c. at Hawley.
C. annulata Schulz. Fleet and Alice Holt n.c.
Calothysanis amata L. v.c.

Geometridae

Hemithea strigata Muell. c.
Comibaena pustulata Hufn. v.c.
Hemistola immaculata Thun. 1 sp. Aldershot; c. at Runfold.
Jodis lactacaria L. abdt.

Geometra papilionaria L. c.
Pseudoterpna pruinata Hufn. w. and c.

HYDRIOMENIDAE

Acasis viretata Hüb. c. at Fleet, less so at Hawley.
Tricopteryx carpinata Borkh. c.
Mysticoptera sexalata Retz. c.
Lobophora halterata Hufn. f.c.
Chloroclystis coronata Geyer. c.
C. rectangulata L. c.
Gymnoscelis pumilata Hüb. c.
Eupithecia assimilata Guen., *E. vulgata* Haw., *E. centaureata* Schiff., *E. icterata* Vill., *E. pulchellata* Steph., *E. succenturiata* L., *E. castigata* Hüb., and *E. abbreviata* Steph. All c.
E. absinthiata Cl., *E. satyrata* Hüb., and *E. sobrinata* Hüb. f.c.
E. goossensiata Mab., and *E. exiguata* Hüb. n.c.
E. venosata Fab. 1 sp. at Hawley, c. at Runfold.
E. lariciata Frey. c. at Hawley.
E. virgaureata Dbday. 2 sp. at Fleet.
E. isogrammaria H.S. A few at Hawley and Fleet.
E. tantillaria Boisd. c. in spruce woods.
E. nanata Hüb. abdt.
Eucymatoge subnotata Hüb. c.
Horisme vitalbata Schiff. f.c.
H. tersata Schiff. A few at Aldershot; c. in Surrey near Aldershot.
Anticollix sparsata Treits. c.
Chesias legatella Schiff. c.
C. rufata Fab. abdt.
Anaitis plagiata L. v.c.
A. efformata Guen. In W. Surrey only.
Calocalpe cervinalis Scop. c. at Hawley and Aldershot.
C. undulata L. v.c.
Philereme transversata Hufn. c. at Runfold nr. Aldershot.
Lygris testata L., *L. mellinata* Fab., and *L. dotata* L. c.
L. populata L. A few at Aldershot.
Epirrhoe galiata Schiff. Nearby at Seale, Surrey.
E. rivata Hüb. w. n.c.
E. alternata Muele. abdt.
Eulype hastata L. c. but scarcer since 1945.
Lyncometra ocellata L. c.
Thera variata Schiff. c. at Ewshott and Alice Holt.
T. obeliscata Hüb. abdt.
T. firmata Hüb. 2 sp. at Minley, 1 at Fleet.
Cidaria fulvata Forst. c.
Chloroclysta miata L. 4 sp. at Aldershot.
Hydriomena furcata Thun. abdt.
H. impluviata Schiff. c.
H. ruberata Frey. A few at Hawley.
Dysstroma truncata Hufn. abdt.
D. citrata L. Aldershot n.c.
Ecliptopera silaceata Schiff v.c.
Triphosa dubitata L. w. n.c.

Europhila badiata Schiff. abdt.
Coenotephria derivata Schiff. w. n.c.
Euphyia picata Hüb. 2 sp. at Runfold nr. Aldershot.
E. cuculata Hufn. 1 sp. at Hawley.
E. rubidata Schiff. f.c. at Seale.
E. unangulata Haw. c.
E. bilineata L. abdt.
Perizoma alchemillata L., *P. albulata* Schiff., and *P. flavofasciata* Thun. c.
Mesoleuca albicillata L. c.
Asthena candidata Schiff. v.c.
Melanthia procellata Schiff. A few at Fleet and Aldershot; c. on Hog's Back.
Nycterosea obstipata Fab. 1 sp. each at Hawley and Aldershot.
Pelurga comitata L. c.
Operophtera brumata L. abdt.
O. fagata Scharf. c. at Hawley.
Euchoeca obliterata Hufn. c. at Hawley and Aldershot.
Hydrelia flammeolaria Hufn. v.c.
Minoa murinata Scop f.c. at Alice Holt—also at Pamber.
Oporinia dilutata Schiff. abdt.
Xanthorhoe ferrugata Cl., and *X. fluctuata* L. abdt.
X. spadicearia Schiff., and *X. montanata* Schiff. c.
X. designata Hufn. f.c., at Hawley c.
X. munitata Hüb. 1 sp. at Minley.
X. quadrifasciata Cl. 2 sp. at Runfold nr. Aldershot.
Larentia cervinalis Scop. c. at Hawley and Aldershot.
Ortholitha plumbaria Fab. c.
O. limitata Scop. abdt.
O. bipunctaria Schiff. A few at Hawley and Aldershot; c. on Hog's Back.
Colostigia multistrigaria Haw. w. n.c.
C. didymata L. c. at Aldershot, sc. elsewhere.
C. pectinataria Knock. c.
Orthoname vittata Borkh. c.

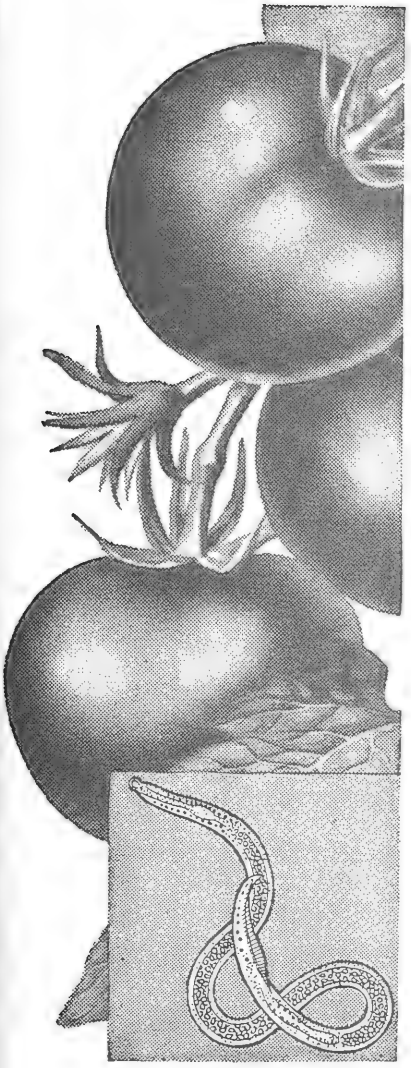
Brephidae

Alsophila aescularia Schiff. abdt.
Brephos parthenias L. abdt.
B. notha Hüb. Said to occur, but I cannot find it.

Selidosemidae

Opisthograptis luteolata L. abdt.
Semiothisa liturata Cl. abdt.
Chiasmia clathrata L. Abdt.
Itama wauaria L. c.
Ectropis luridata Borkh., *E. bistortata* Göze, *E. consonaria* Hüb., and *E. crepuscularia* Hüb. all c.
Boarmia roboraria Schiff. v.c. dark forms frequent.
B. punctinalis Scop. c. dark forms occasional.
Selidosema plumaria Schiff. Aldershot n.c.

(To be continued)



larger love-apples

Tomatoes have put a ring round the world since travellers' tales first told of the succulent Peruvian love-apple. Wherever there are warmth and water and good, rich soil, the tomato is a paying proposition—provided the soil is not, also, a home for nematodes. Two of these minute yet voracious parasites, the Potato Root eelworm (*Heterodera rostochiensis*) and the Root-knot eelworm (*Meloidogyne incognita*) are among the tomato's deadliest enemies, and in a very short time their root-gnawing hunger can mean complete crop failure. Yet until recently there was little that could be done about such attacks.

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Wanted.—The following monthly parts of *The Entomologist's Record* :—Vol. 26, No. 12 (December 1914) and Vol. 41, No. 3 (March 1929).—*N. D. Riley, 7 McKay Road, Wimbledon, London, S.W.20.*

Wanted.—An early run of *The Entomologist*, preferably Vols. 1-22.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

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In a Serbian Forest

By Ralph L. Coe

During the summer of 1955 I travelled for two months through Jugoslavia collecting specimens of Diptera for the British Museum (Natural History). By train, bus and steamer my journey took me from Zagreb in the north-west to the Albanian frontier in the extreme south, thence west to Skoplje in Macedonia, and up the east side to the Serbian capital of Belgrade. From the great city at the confluence of the Danube and the Sava I planned to complete the circuit of the country by returning to Zagreb on the railway that straddles northern Jugoslavia from east to west.

I decided, however, to break my long cross-country journey at the junction of Sid, and from there to travel by a single-track railroad to the primitive hamlet of Morovic, which lies at the edge of a vast and ancient forest. It seemed likely that a few days' collecting in such territory would be productive.

On alighting at Morovic in the early afternoon, I set out to contact Dr. Milic, the director of the local Forestry Corps, to whom an official letter of introduction had been sent from Belgrade. After a short walk I arrived at the foresters' headquarters, where Dr. Milic gave me a hearty welcome and took me into the common-room. Around the walls hung glass cases with specimens of the leaves and fruits of various forest trees. At a long table sat a score or so of men and women workers to whom my host introduced me. A feast of welcome began, lashed by copious glasses of plum-brandy, local wine and beer. My capacity for food and drink was taxed to its limit, for at a Serbian feast the guest's plate and glass is continually being replenished.

An old man with fine flowing moustaches was seated beside me. In halting English, he told me that as a young man he had emigrated to America, returning to his native land in 1910. For years he had not spoken English, but would do his best to act as interpreter. Sometimes one of the company would break into a lively Serbian song, the others joining in with great gusto. One handsome young forester sang a number of verses in which I heard my name repeated. The old man explained that this song had been improvised in my honour. Towards the end of the feast the director clambered upon the table, and reduced the company to helpless laughter with realistic imitations of animal noises, the medley of barks in a massed dog-fight being his pièce de résistance. As evening wore on the company dispersed, and with an escort of foresters singing lustily beside me, I was shown to my humble but clean sleeping quarters in a peasant's cottage.

Early next morning, I hurried back to the foresters' headquarters, from where they had arranged to take me to the heart of the forest for a day's collecting. Outside the long wooden building stood a line of waggons, each with a pair of sturdy horses in the shafts. The day was fine, and I was anxious to make the early start promised by my hosts. However, they decided first to hold a conference in the common-room, and everyone sat down at the long table. Two hours passed, and still one after the other stood up and with lively gestures harangued the company on some aspect of the work to be done that day. At last,

to my relief, everyone rose as though about to leave. Just then a youth brought in a gargantuan bowl of soup, and they all sat down again. A large jug of plum-brandy followed, and with the arrival of various foodstuffs another feast began.

Eventually, around 10 o'clock, we all got up and sorted ourselves out into the various waggons. The procession of horses moved off smartly to the cracking of whips and encouraging cries from the drivers. Beside me in the bottom of a waggon on a rough padding of straw sprawled a young peasant girl. Entering the sombre shade of the forest, the waggons dispersed along diverging tracks. Our vehicle bumped over the most fearful ruts. Once the girl hastily scrambled out as the intrepid driver set the horses straight at a deep and wide ditch half filled with water and strewn with rotting logs. It seemed inevitable that our waggon would topple over or break into pieces. However, we swayed and crashed through without disaster, the girl clambering in on the far side.

Soon we were deep in the forest, surrounded by magnificent giants of oak trees. Unluckily, it started to rain in torrents and this continued for the rest of the day, making any collecting impossible. The forest held great promise as a source of uncommon insects, and as we returned to Morovic, I hoped fervently for fine weather on the morrow, my last day in the locality.

Next morning the sun shone in a cloudless sky, and to add to my delight, a two-horse waggon was brought to the cottage at an early hour to take me direct to the forest. Climbing in, I stretched in solitary state on the straw at the back. Before we set off, the driver produced a bottle of the inevitable plum-brandy from a capacious coat pocket, and we both drank some of the fiery liquid. The reins were shaken up, and the horses galloped away smartly. Every now and then the driver pulled up, and out came the bottle. As we bumped along the rough forest tracks, my companion entertained me with some delightful Serbian folk-songs. Suddenly approaching us we saw a little boy astride a great mare, alongside which ran a spindly legged foal. I hurriedly brought out my camera, and the boy obligingly drew up for a snap. As the shutter clicked the foal stretched out its neck to take nourishment from the mother.

Off we set again, and soon came across a group of tree-fellers, fine muscular men, stripped to the waist as they slashed at the timber in the blazing sun. When the driver explained that I was English, excited shouts arose for a man who was working nearby. He came hurrying up and spoke to me in broken English. His name was Savo Skundric, and he had worked in England for several years. When he returned to Serbia his son had remained behind, and would I please find him, as he had not written for a very long while. Pathetically, the only address he could provide was 'House No. 8, Manchester'. As we talked, up came a waggon loaded with timber, and to my astonishment the driver was the bewhiskered patriach who had been my interpreter at the feast of welcome.

We drove on, and soon reached a clearing where great trunks of felled pine trees lay in profusion. Here I was set down, the driver arranging to pick me up in the late afternoon. Out came my net, and I started collecting the flies that abounded in the lovely and peaceful

spot. As I moved about on the marshy ground, a multitude of frogs jumped in all directions, some a brilliant green, others brown. Most fascinating was a small green species with suckers on its feet, which would leap upon my bare arms and face, where it clung tenaciously with complete unconcern. Over the felled trunks small brown snakes slithered, resembling the young of our own harmless grass-snake.

Before long a line of waggons loaded with timber came bumping along the track. The horses were halted, and the men started unloading. The poor animals were plagued by the vicious attentions of swarms of horse-flies. These merciless blood-suckers clustered densely on their legs and flanks, and it was pitiful to see the blood actually streaming from the punctures made by the bites. *Tabanus perplexus* was the worst tormenter. I set to work with my net, and had the double pleasure of augmenting my collection and of relieving the suffering of the horses.

Early the next morning I left Morovic to continue my journey to the west, my good friends the foresters taking me by waggon to the tiny station and waving me good-bye as the train drew out. Not only in Serbia, but wherever I went in Jugoslavia I was impressed by the unfailing kindness of the ordinary people, who would often put themselves out to an astonishing degree to help me in every possible way.

54 Crossways, Addington, Surrey.

A Collection of Ants (Hym. Formicidae) in the Leicester City Museum

By C. A. Collingwood

(*Continued from page 170.*)

There are large series of *Myrmica ruginodis* Nyl., *M. scabrinodis* Nyl. and *M. sabuleti* Mein. *Ruginodis microgyna* Brian (1949) is present from Rannoch and Tiree in Scotland and also apparently from the New Forest. This form is quite abundant in some areas of N.W. Britain but the macrogynous race is more generally distributed and queens of *macrogyna* Brian (1949) are abundant in the collection. It is not yet clear what taxonomic distinction should be applied to the two forms as they appear to behave as separate species in some areas but with two much overlap in others to warrant specific designation while, being sympatric and even sharing the same nest situations, they cannot be regarded as subspecies. *M. rubra* L. (=*laevinodis* Nyl.) is less well represented. One large worker had been placed with *sabuleti*, and a few others were found among *ruginodis*. Two large workers had been labelled 'var. *ruginodo-laevinodis*'. *M. sulcinodis* Nyl. is not represented, rather surprisingly as Donisthorpe knew this species well from both Scotland and the New Forest. There is a series of workers of *M. lobicornis* Nyl. from Nethy Bridge, Scotland and some workers of the rare *M. schencki* Em. from Sully, Glamorganshire, where the species was first discovered in Britain by H. M. Hallett in 1915.

Tetramorium caespitum L. workers are present from several areas including the Bass Rock, Scotland, the northernmost British station for this species. There are workers of *Stenamma westwoodii* West. from Wexford in Ireland and Cornwall and inexplicably a single worker of

the S. European ant, *Temnothorax recedens* Nyl., labelled 'Kingston'. There is no reference in Donisthorpe's book (1927) either to the locality or to this species. Ants of the genera *Myrmecina*, *Formicoxenus* and *Anergates* are not represented and *Solenopsis fugax* Latr. only by five males from the Isle of Wight. *Leptothorax acervorum* F. queens and workers are present from a number of places including Skye, but there are no examples of either *L. tuberum* F. or *L. interruptus* Sch. There are two unlabelled workers of *L. nylanderi* Foerst. and two from Stonehouse. Both series had been placed with *Lasius fuliginosus* and had presumably been taken from a nest of the latter.

The few cosmopolitan species in the collection include one queen and three workers of *Wasmannia auropunctata* Rog., a few workers of *Colobosis truncatus* Spin. and one *Crematogaster scutellaris* Ol. all from Kew Gardens, also one queen of *Tetramorium guineense* F. from the Edinburgh Botanic Gardens.

The above collection has now been overhauled by the writer, the nomenclature brought up to date and series and missing species added where possible. All the British species are now represented including the doubtfully native *Ponera punctatissima* Roger from an example kindly supplied by Mr. A. W. Stelfox from a colony nesting in the open in the Dublin docks and the rare parasite *Anergates atratulus* Sch. kindly supplied by Mr. S. C. S. Brown from the New Forest. The equally rare *Strongylognathus testaceus* Sch. was unknown to Donisthorpe as a British species at the time he donated his collection and a male and queen from Dorset as well as much other material has been supplied by the writer. The above now forms one of the larger and more representative series of British ants in the country and should be of considerable interest to future students containing as it does many now historic specimens of species which are either extinct or rare in the localities from which they were taken.

The ants from Switzerland and France taken by P. A. H. Muschamp are mostly the commoner and larger European species. There are complete series of *Camponotus vagus* Scop., *herculeanus* L. and *ligniperdus* Latr. Also noteworthy are a series of the large Myrmicine *Manica rubida* Latr. and representatives of both *F. nigricans* Em. and the allied rarer species *F. cordieri* Bond. There are in addition a few exotic species mostly from Africa. A list of all the species represented in Leicester City museum collection is given below:—

A. British Species.

I.—Ex coll. mea. II.—Ex coll. Donisthorpe *et al.*

Ponera coarctata Latreille, I.—2 workers, S. Devon.

Ponera punctatissima Roger, I.—1 worker, Dublin docks (A. W. Stelfox).

Myrmecina graminicola Latreille, I.—5 workers, 3 queens, 2 males, Kingston, Dorset.

Formicoxenus nitidulus Nylander, I.—5 workers. Wigsley, Notts. 3 queens, 2 males, Braemar, Aberdeen.

Monomorium pharaonis Linnaeus, I.—3 workers, Worcs.; 1 worker, Glos.; I queen, West Meath (A. W. Stelfox).

Solenopsis fugax Latreille, I.—5 workers, Dorset. II.—5 males, Isle of Wight.

Myrmica rubra Linnaeus (=*laevinodis* Nyl.), I.—queens, males, England. II.—Numerous workers, England, Scotland, Ireland.

Myrmica ruginodis Nylander, *microgyna* Brian, I.—workers, queens, males, W. Ross, Scotland. II.—Workers, queens, Tiree, Inverness, S. Hants.

Myrmica ruginodis Nylander, *macrogyna* Brian, I.—Queens, males. II.—Abundant queens, males, workers, England, Scotland.

Myrmica sulcinodis Nylander, I.—Queens, males, Scotland; workers, Scotland, S. England.

Myrmica scabrinodis Nylander, II.—Numerous queens, males, workers, England, Wales, Scotland.

Myrmica sabuleti Meinert, II.—Numerous queens, males, workers, S. England, Scotland.

Myrmica lobicornis Nylander, I.—Males, Derbys.; queens, workers, Scotland. II.—17 workers, Nethy Bridge, Inverness.

Myrmica schencki Emery, II.—11 workers, Sully, Glamorgan.

Stenamma westwoodii Westwood, I.—5 workers, 1 male, Worcs. II.—Workers, Ireland, Cornwall.

Leptothorax acervorum Fabricius, I.—Queen, males, Sutherland; queens, workers, England. II.—Queens, Skye; workers, England, Wales.

Leptothorax nylanderi Foerster, I.—1 queen, 1 male, 5 workers, Worcs. II.—2 workers, Glos., 2 unlabelled.

Leptothorax tuberum Fabricius, I.—2 queens, Dorset; 5 workers, S. Devon.

Leptothorax interruptus Schenck, I.—4 workers, Matley, S. Hants.

Anergates atratulus Schenck, I.—1 queen, 1 male, S. Hants. (S. C. S. Brown).

Strongylognathus testaceus Schenck (*diveri* Donis.), I.—1 queen, 1 male, Dorset.

Tetramorium caespitum Latreille, I.—3 queens, 1 male, Dorset. II.—Approx. 20 workers, S. England, Wales; Bass Rock, Scotland.

Tapinoma erraticum Latreille, I.—1 queen, S. Devon; 5 workers, Devon, Dorset. II.—3 workers, Weybridge, Surrey.

Lasius fuliginosus Latreille, I.—3 queens, Worcs.; 1 worker, Northants. II.—1 queen, 1 male, several workers, S. Wales, S. England.

Lasius niger Linnaeus, II.—Abundant queens, males, workers, England, Wales, Scotland.

Lasius alienus Foerster, I.—3 queens, Glamorgan; 2 males, Worcs. II.—1 Queen, Surrey; 40 workers, S. Wales, S. England.

Lasius brunneus Latreille, I.—3 queens, 2 males, 3 workers, Worcs.; 2 workers, Glos. II.—2 males, 1 worker, unlabelled.

Lasius flavus Fabricius, II.—Abundant queens, males, workers, England, Wales, Scotland.

Lasius umbratus Nylander, II.—Numerous queens, males, workers, S. England, S. Wales.

Lasius umbratus race *mixtus* Nylander, I.—1 queen, Worcs.; 2 males, 3 workers, Westmorland. II.—1 queen, Sussex; several workers, S. England, Scotland (Isle of May), Wales.

Lasius rabaudi Bondroit, II.—14 queens, Weybridge, Surrey, 1913; 1 queen, Woking, Surrey, 1913; 2 queens, Horton, Glamorgan; 1

queen, Porthcawl, Glamorgan; 4 males, 3 workers, Weybridge; 1 male, 5 workers, Richmond, Surrey.

Formica rufa Linnaeus, I.—Queens, males, workers, Leics., Notts., Dorset. II.—Queens, numerous workers, S. England; 2 pseudogynes.

Formica aquilonia Yarrow (1955), I.—Queens, males, workers, Inverness, W. Ross. II.—50 workers, 1 pseudogyne, Perth., Inverness.

Formica lugubris Zetterstedt, I.—Queens, males, workers, Derbys., Cumberland, Inverness. II.—2 queens, Rannoch (*'pratensis'* and 'var. *alpina*'); 50 workers, Perth., Inverness; 3 pseudogynes, Perth.

Formica nigricans Emery (*pratensis* auctt.), I.—2 workers, Dorset. II.—1 male, Bournemouth.

Formica exsecta Nylander, I.—2 workers, Abernethy, Inverness. II.—4 queens, Parkhurst, Isle of Wight; several workers, Bournemouth, Parkhurst, Rannoch.

Formica sanguinea Latreille, I.—Queens, males, workers, Bewdley, Worcs. II.—7 queens, Sussex, Surrey; 2 males, Surrey; several workers, Surrey, Sussex; Rannoch, Perths.

Formica fusca Linnaeus, I.—Queens, males, workers, Leics.; workers, Mull of Kintyre, Derbys. II.—Abundant queens, workers, England, Wales.

Formica lemani Bondroit, I.—Queens, males, workers, Leics.; 1 queen, 1 pseudogyne, Derbys. II.—Queens and numerous workers, England, Scotland, Wales, Ireland.

Formica cunicularia Latreille, I.—1 queen, S. Devon; 1 male, Dorset; 2 workers, Rutland; 3, workers, Northants. II.—5 queens, 3 males and abundant workers, S. England, S. Wales.

Formica rufibarbis Fabricius, I.—1 worker, Chobham, Surrey (J. Siddorn). II.—5 males, 21 workers, Weybridge, Surrey, 1913. 1 queen, France (P. A. Muschamp).

Formica transkaucasica Nasonom (*picea* Nyl.), I.—5 workers, Wareham, Dorset. II.—1 queen, 1 worker, Matley, S. Hants.

B. European Ants coll. P. A. H. Muschamp.

Many of the specimens were unlabelled; named localities included Le Yaudet, France; Ticino, Muzzano and 'Swiss Alps', Switzerland. All the species are such as would be found in the Alps from 2,000 to 5,000 ft.

Manica rubida Latreille—1 queen, 5 workers.
Myrmica rubra Linnaeus—1 male.
Myrmica ruginodis Nylander—Several males and queens.
Myrmica scabrinodis Nylander—Several males and queens.
Myrmica sabuleti Meinert—1 male.
Myrmica sulcinodis Nylander—1 male.

Lasius niger Linnaeus—Many males, queens and workers.
Lasius alienus Foerster—1 queen, males and workers.
Lasius brunneus Latreille—1 queen.

Formica rufa Linnaeus—1 queen, 6 workers.
Formica lugubris Zetterstedt—1 male, 7 queens, 1 worker.
Formica nigricans Emery—1 male, 1 queen, 7 workers.

Formica cordieri Bondroit—1 queen, 3 workers? (not distinguishable from *nigricans*).
Formica cunicularia Latreille—2 males, 1 worker.
Formica fusca Linnaeus—Several workers.
Formica cinererea Mayr—1 worker.
Formica sanguinea Latreille—Several workers.
Camponotus vagus Scopoli—Several males, queens, workers.
Camponotus ligniperdus Latreille—Several males, queens, workers.
Camponotus herculeanus Linnaeus—Several males, queens, workers.

C. Exotic Species.

These include a few African ants of the following genera:—*Carebara* (1 giant queen), *Myrmosericus*, *Oecophylla*, *Peltothyreus*, *Crematogaster*. There are some *Dolichoderine* workers with the label 'from bananas' and 1 *Myrmecia* worker from Australia.

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Dec. 27th, 1956. Shardlow Hall, Shardlow, Derby.

On the parasitization of *Syritta pipiens* (L.) (Syrphidae) by a species of *Trichopria* (Hymn., Diapriidae)

By R. R. Bürk.

Near the house is a silage pit whose end is a favourite breeding ground of flies. On top there is a foot of well drained chalk, then three feet of sodden rotting molasses-soaked silage and at the bottom three inches of chalk through which the pit is drained. Throughout the autumn I have watched *Xylota segnis* (L.), *Eristalis tenax* (L.) and *Eristalis arbustorum* (L.) lay their eggs in these bottom three inches and I have also watched *Syritta pipiens* (L.) lay eggs in the silage.

On the 26th October, I examined these layers for pupae. In the top chalk I found many *S. pipiens* and one possible *Eristalis tenax*. In the bottom chalk I only found larvae and in the drier layers of the silage I again found many *S. pipiens* and a few *E. tenax* and *E. arbustorum* pupae.

Of the 29 *S. pipiens* pupae in the chalk, 27 had emerged, one remained intact and one was mouldy. Searching harder in the silage I found 43, of these only 17 had emerged, 10 were intact (but by February, 1957, are mostly holed), and the rest had one or more neat round holes in them. Actually two were holed once, two holed twice, 7 holed thrice,

one five times, and one seven times, one was mouldy and two I damaged. In one of those I damaged I found twelve of the wasps which had made the holes. Mr. G. E. J. Nixon of the Commonwealth Institute of Entomology kindly identified these as a species of *Trichopria* (Hymn., Diapriidae).

There appear to be two possibilities:—1. The wasp lays her eggs in the pupa, which is safe when buried in chalk but easily accessible in dry silage; or 2. She lays them in the larvae and those parasitized cannot reach the top and so pupate lower down.

One point in favour of the second suggestion is the fact that I noticed that the success of the emergence seemed to be related to the angle of the pupa in the silage. Those with the head down seemed more prone to failure. Having noticed this I started counting and obtained these figures:—Of 12 with the head down vertically, 11 were punctured and one emerged; of the three with head upwards, one was holed and two had not emerged.

Does the presence of an internal parasite affect the position and angle of the puparium?

Great Hayesden Farm, Tonbridge, Kent.

Notes on the Biology of North-East Lancashire Brachycera (Diptera)

By Allan Brindle, F.R.E.S.

(*Continued from page 167.*)

Tabanidae.

The larvae are cylindrical, elongate, tapering at both ends, and with encircling swellings at the segmental sutures. These swellings are used for locomotion. The head is small and retractile. Their habitat appears to be aquatic or semi-aquatic, being found in marshy or boggy situations, and they are predaceous on other larvae, etc.

Only two species occur in N.E. Lancashire; these being *Haematopota crassicornis* Wahl., and *H. pluvialis* (L.), of which the first is the commoner, though neither are so plentiful as to cause the least trouble even during the most sultry weather. Their larvae should be found in the marshes, particularly at Rimington and Thursden, where the adults appear to be more frequent.

Cyrtidae

The larvae of flies of this family show the noteworthy features associated with the larvae of Meloe. The first instar larvae are active, spinose, and with two long apical bristles, serving as means of locomotion to find their host, a spider, in which the larvae live as internal parasites. After entering a spider, the larvae become sluggish and maggot-like.

No species of Cyrtidae have been found locally.

Bombyliidae.

The larvae of this family also show the larval dimorphism associated with parasitic requirements, the first instar larvae being extremely active, the hosts in this family being in the Hymenoptera, Lepidoptera, Orthoptera, etc., though the single species found locally, *Bombylius*

major L., which has been recorded from Ribchester in early June, appears to select species of Andrena for its host. The task of searching for this larva appears to be a lengthy one, though if the particular Andrena species in this area was known, it may prove to be one of the species having an extremely local distribution, such as *A. armata* (Gmel.). This species, with us, only exists in extremely small colonies. Thus the digging for *Bombylius* larvae would be much less extensive than in the case of a widely distributed bee.

Therevidae.

The larvae are very long and slender, tapering to both extremities. Head moderately large, exserted. Body apparently of twenty segments, due to segments 1 to 6 being divided by a circular constriction (2). They have been found in the ground, decaying wood, and decaying vegetable matter. They are predaceous, feeding on insect larvae, and show cannibalistic tendencies if overcrowded, according to Malloch.

No species of Therevidae have been recorded from the area.

Scenopinidae.

The larvae resemble those of Therevidae but are smaller. The larva of *S. fenestralis* (L.) is predaceous, feeding upon larvae of other insects in fungi, rotten wood, under carpets in houses, in roots of plants, etc. (2).

No species of Scenopinidae have been recorded from the area.

Asilidae.

The larvae are cylindrical, consisting of a head and eleven or twelve segments. The head is exserted and moderately broad. The middle segments of the body may have circles of pseudopods or areas intercalated on the ventral surface between two segments (1). The larvae are found in soil, rotten wood, decaying vegetable matter and there seems to be doubt whether they are predaceous or not. Colyer and Hammond state that they are not carnivorous, but feed on decomposing vegetable matter (3). Although some resemblance to the larvae of the Tabanidae is to be seen, especially when they possess circling pseudopods, the larvae of the Asilidae appear to prefer dry situations, hence the prevalence of these flies in sandy areas. Colyer and Hammond mention that the Asilid larvae do not appear to be adapted for living in wet or saturated conditions.

No species of Asilidae have so far been recorded from the area, in spite of extensive sweeping. It would appear likely that at least such common species as *Dioctria rufipes* (Deg.) must be present, but no tangible evidence of the presence of any Asilid has been obtained.

Empididae.

The larvae of this family are comparatively unknown. They appear to be found in soil, rotten wood, decaying vegetable matter, and are considered to be carnivorous. Small pseudopods or locomotory swellings or protuberances may be present.

In the Tachydromiinae, *Tachypeza nubila* (Mg.), *Tachydromia arrogans* (L.), and *T. annulimana* (Mg.) are common, running quickly over bark, feeding on such small flies as Psychodidae. The species of Platypalpus have yet to be worked out. One might expect to find the

larvae of flies of this sub-family in rotten wood, since the larvae of Drapetis are said to be found under bark and in rotten wood (2) but even in this genus, another species, *Drapetis nigritella* (Zett.) has been recorded from dung (4).

In the Hybotinae, all three species of Hybos are found in woods during the summer, from the end of June to September. *H. culiciformis* (F.) and *H. femoratus* (Muell.) are perhaps more often found than *H. grossipes* (L.). Their larvae may be in rotten wood or decaying vegetable material—there seems to be no guide as to their food.

If the larvae of the Ocydrominae were similar to each other in the matter of food, one could expect them to be found in decaying wood, for *Oedalea flavipes* Zett., has been bred by myself from rotten wood. But *Ocydromia glabricula* (Fln.) has been recorded as being bred from dung (4). In view of the fly's preference for woodlands, however, it appears more likely that its normal food is decaying vegetable material, with dung as an alternative. Amongst other local species of this subfamily *Bicellaria spuria* (Fln.) occurs fairly commonly in August and September. *Trichina clavipes* Mg., is frequent in wooded areas in June, and *T. flavipes* Mg., equally common in August and September. *Oedalea flavipes* Mg. occurs frequently in May and June, and three other species have been recorded—*O. stigmatella* Zett., in June and July, *O. zetterstedti* Coll., in June, and *O. holmgreni* Zett., in June.

Ocydromia glabricula (Fln.) mentioned above, is very common in woods from June to September.

The larvae of the Empidinae may well be all soil dwellers. Amongst the species recorded are:—

Hilaria albipennis v. Ros.	May, June	Fairly common
,, *chorica* (Fln.)	June to Aug.	Very common
,, *flavipes* Mg.	Aug. to Sep.	Very common
,, *fuscipes* (F.)	July	Fairly common
,, *interstincta* (Fln.)	June, July	Fairly common
,, *litorea* (Fln.)	July to Sep.	Common
,, *manicata* Mg.	June, July	Fairly common
,, *matrona* Hal.	July	Not common
,, *maura* (F.)	May, June	Common
,, *quadrivittata* Mg.	June, July	Fairly Common
,, *nigrina* (Fln.)	June	
,, *thoracica* Macq.	June, July	Locally common
Empis chioptera Mg.	June	Fairly common
,, *digramma* Mg.	May, June	Local (Sabden, Whalley)
,, *grisea* Fln.	June, July	Widespread but not common
,, *livida* L.	June, July	Common west of Whalley
,, *lutea* Mg.	End of June and early July	Local
,, *opaca* Mg.	May, June	Local on moorlands
,, *pennaria* Fln.	May, June	Common
,, *punctata* Mg.	May to July	Very common
,, *stercorea* L.	June, July	Very common

,,	*tessellata* F.	June, July	Common
,,	*trigramma* Mg.	June	Local
Rhamphomyia	*albipennis* (Fln.)	May	
,,	*anomalipennis* Mg.	June	
,,	*dentipes* Zett.	May, June	Common
,,	*erythropthalma* Mg.	Aug. Sep.	Common
,,	*flava* (Fln.)	June, July, Sep.	Fairly common
,,	*geniculata* Mg.	June	
,,	*laevipes* (Fln.)	May, June	Common
,,	*nigripennis* (F.)	July	Common
,,	*nigripes* (F.)	May, June	Common
,,	*sciarina* (Fln.)	June	
,,	*sulcata* (Mg.)	May, June	Common
,,	*tarsata* Mg.	May, June	Common
,,	*tibiella* Zett.	June	
,,	*umbripennis* Mg.	June	Very common

Of the above *Empis trigramma* has been recorded from dung (4), and *Rhamphomyia laevipes* from soil (D. Bryce). Both these records suggest that soil is likely to be the normal habitat, since old dung harbours many soil-inhabiting larvae.

In the Hemerodromiinae, *Heleodromia immaculata* Hal., has occurred in May and September, and *Phyllodromia melanocephala* (F.) in June and July. Both appear to be not uncommon. The species of Chelifera have yet to be studied, *C. praecatoria* (Fln.) appears to be common in June and July. *C. diversicauda* Coll. has been recorded from Whalley in September and Darwen in June (H. Britten) and *C. astigma* Coll. from Sabden in July. Their larval life is uncertain.

In the Clinoceratinae, *Trichopeza longicornis* (Mg.) is common in woodlands from June to August, but is somewhat local. *Wiedemannia rhynchops* (Now.) occurs at Twiston in August. *Clinocera bipunctata* (Hal.) is found along streams in June, and *C. stagnalis* (Hal.) has been recorded from Downham in September. *Dolichocephala irrorata* (Fln.) and *D. guttata* (Hal.) both occur in limited numbers in wooded areas by streams during June, July and August. *W. rhynchops* has been seen creeping from moss on stones by a stream—this suggests that the larvae may be found therein, and since many seem to be taken near streams, this may be the case with others of this sub-family.

Dolichopodidae.

The larvae are elongate, narrowed anteriorly, with a small retractable head. The hind end is broader and somewhat truncate with four short tubercles bordering the posterior spiracles. (3) Small protuberances serving a locomotory function may be present on the ventral surface. They appear to be semi-aquatic, living in mud, marshy soil, and similar wet situations, and are considered to be mainly predaceous. From the habits of the adults, this habitat of the larvae is most probable, since most are taken on or near mud or other wet places.

This family has not been well worked as regards the local species. In the Dolichopus genus may be mentioned *D. popularis* Wied., as possibly the most common, though *D. discifer* Stann., *D. plumipes* (Scop.), and *D. trivialis* Hal., appear to be common in suitable situations. *D. brevipennis* Mg., *D. pennatus* Mg., and *D. ungulatus* (L.) have also

been recorded. Gymnopternus species, such as *G. celer* Mg. and *G. cupreus* Fln., are common during the summer, and *Argyra diaphana* (F.) though apparently somewhat local, is common during May and June. *Sciopus platypterus* (F.) is very common from June to August in marshes especially in wooded areas. The records of *Campsicnemus curvipes* (Fln.) and *C. loripes* (Hal.) have so far been made in September.

Lonchopteridae.

The larva is oval, flattened, and possesses long curved bristles at both ends, and with a lateral fringe of hairs, giving a curious appearance to the larva. The head is poorly developed (6). They are reported to live under decaying vegetable material, possibly being saprophagous. The adult flies are more or less in evidence throughout the year, though they are more noticeable during the Autumn and early Spring when less material comes into the sweeping net. The records cover most months, suggesting continuous breeding through the year, and hibernating as adults. The species so far found are *L. tristis* Mg., *L. lutea* Panz., and *L. furcata* (Fln.).

The above summary makes no pretence to be complete. More references could be made regarding the larval stages of the Brachycera, but it is obvious that much more needs to be done before any degree of certainty exists with regard to the food and habitat of many of the commonest of these flies. The immensity of the task is clear, but with sufficient workers, the general pattern of food, habitat and structure of the larvae of the Brachycera will become clearer, and should afford interesting evidence of the degree of accuracy, or otherwise, of our present classification.

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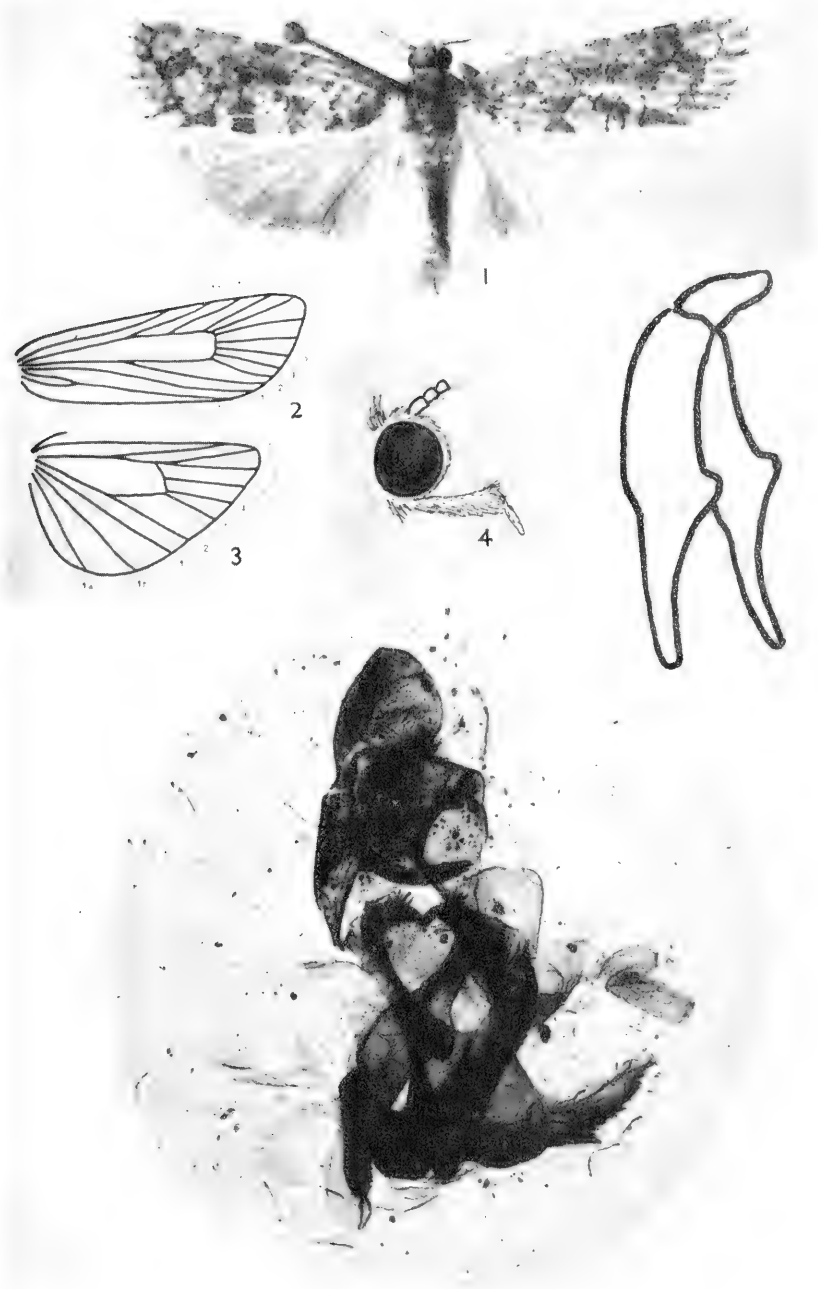
A new Tortricid from Morocco: *Semasia lucasiana* Sp. nov.

By Joseph Soffner.

Expansion 22 mm.

Vorderflügel: die Costa ist rötlichbraun, die übrige Fläche hell-grau. Der ganze Flügel besitzt Gitterzeichnung. Einzelner Felder sind dunkelgrau ausgefüllt, die Fransen gescheckt mit dunkler Teilungslinie. (Abb. 1). Auf der Unterseite sind sie rotbraun angehaucht mit verschwommenen Flecken. Die übrige Fläche ist dunkelgrau. Das Geäder ist auf Abb. 2 dargestellt.

Hinterflügel sind grau gegen die Wurzel lichter, die Fransen hell-



SEMASIA LUCASIANA SOFFNER SP. NOV.

grau. Auf der Unterseite sind sie an der Costa schwach rötlich, die übrige Fläche ist hellgrau. Das Geäder ist auf Abb. 3 abgebildet.

Kopf: Labialpalpen vorgestreck, das Endglied ist nach unten abgeknickt, schwach behaart. Die ühler sind bewimpert, die Kopfhaare braun, die Augen grosz und hervortretend (Abb. 4).

Thorax: Haare braun, Tegulae braun mit gelber Spitze.

Abdomen grau mit kräftigem hellen Afterbusch. Das männliche Genitalorgan ist auf. Abb. 5 dargestellt.

A translation of the above approved by the author is:—

Expanse 22 mm

Forewings: The costa is reddish brown and the remainder of the wing clear grey reticulated with areas filled with dark grey; the fringes are checkered with dividing lines of dark grey (Fig. 1). On the underside they are reddish brown costally with the markings faintly discernible; the remaining surface is dark grey. The neuration is shown in Fig. 2.

Hindwings: grey, lighter towards the base, fringes light grey. On the underside they are dull reddish on the costa, the remaining space being clear grey. The neuration is shown in Fig. 3.

Head: The labial palpi are porrected, the end segment pointing downwards, weakly hairy. The antennae are ciliate, the head scales brown and the eyes large and prominent (Fig. 4).

Thorax: Scales brown, tegulae brown, yellowish at the tips.

Abdomen: Grey with strong light caudal tuft. The male genitalia are shown in Fig. 5.

The insect was taken by Mr. Buckwell on 19th August 1955 near Ifrane in Morocco and is now in the possession of M. Daniel Lucas of Auzay, near Fontenay-le-Comte, La Vendée.

On the grounds of neuration and the formation of the wings, I have placed this species, with reserve, in the genus *Semasia*, although in the light of the ciliate antennae, it may be said to occupy an exceptional position in that genus.

(19) Stassfurt, Hohenerxlebner Str. 31, Germany.

Notes on Micro-Lepidoptera

By H. C. Huggins, F.R.E.S.

Palpita unionalis Hübn. This handsome immigrant should appear at m.v. light in September and October, and females should be kept for eggs, as it is not difficult to rear in captivity. There is a superstition that the temperature for the larva must not be allowed to fall below 75° F., but this is quite erroneous and I reared a brood of full-sized specimens in March 1955 in a linen cupboard heated by pipes from a stove which was allowed to go out every night so that temperatures by the morning ranged from 50° to 40° F. The brood occupied much the same time as Mr. Howarth's, which were reared at a much higher temperature, and I had few losses. They were fed throughout on yellow jasmine, no white being available in the winter, and I recommend that this food plant be adopted in all cases, as a previous attempt on my part in November resulted in failure as I did not then know that the larva would take yellow, and they all died through eating frost-bitten leaves of the white in early December.

As the date given, March, may seem strange to those who know how brief is the life cycle of *unionalis*, I should perhaps explain that my larvae were the result of a pairing obtained in captivity by my friend, Mr. A. J. Dewick, who had reared a large brood from a wild October female. Of course there is no virtue in letting any forced insect become cool at night, and nowadays I keep up the heat with the immersion heater.

Euxanthis aeneana Hübn. I was interested in Mr. Allen's note on this insect in Kent (*Ent. Rec.*, **69**: 133-4) but he is not quite correct as regards the Kentish records.* I believe Mr. Chalmers-Hunt's information was derived from myself, but apparently I omitted to give him the neighbouring localities to the Chattenden one, which should be of interest, as the moth is probably still living there: *aeneana* used to be found in several places at Hoo, more particularly on St. Mary's Hall Farm; it was not on the marshes, but on the cultivated uplands just above them. In those days, possibly still, there were often good wide grassy margins between the fields, and *aeneana* fed on the ragwort growing on these. I never looked for the moth, but several times obtained the larva in March and still have specimens bred from these. Of course modern agriculture may have totally cleared up the ragwort, also I do not know who is the present occupier; those from 1900 to 1930, Mr. Henry Pye, and Mr. Lachlan McLean were both friends of my father; perhaps today I might be unceremoniously chucked out!

The Chattenden locality was two wet meadows next to the plantation where *Nola albula* Hübn. formerly lived; these were usually called the Foresters' meadows, as *Procris statices* Linn. was common there, and *aeneana* flew freely in them in the sunlight so I never looked for the larva there.

*See a note by Mr. Allen on page 200.

Current Notes

The Lincolnshire Naturalists' Trust has acquired four areas in the Isle of Axholme as nature reserves. One of these areas, Linwood Warren of 70 acres, has long been known for its plants and insects, and the area round about it was one of the last strongholds of the Mazarine Blue (*Cyaniris semiargus* Rott., *acis* Schiff.) in eastern England. In *The Entomologist's Weekly Intelligencer* Samuel Hudson of Epworth wrote on 31st July 1860 in a Note headed "Polyommatus Acis": "On Monday last I took a female of the above species, in fine condition, in the same field where my brother took one last season, and I hope to take more during this week: I believe this insect is said to frequent chalk and limestone districts, but we have neither within twenty-five miles". This is the last record of *semiargus* in Lincolnshire which we have seen.

Two new forms of common moths are described by T. H. van Wisselingh in *Entomologische Berichten* of 1st July 1957 (Vol. 17, No. 7, p. 126). One is *Hydriomena furcata* Thunb. which is nearly completely black without markings and has been named f. *nigra* ab. nov. The other is *Bombycia viminalis* Fab. f. *vinctuncula* ab. nov. which has a

narrow dark band across the middle of the forewings, strongly reminding one of *Miana furuncula* Schiff. f. *vinctuncula* Hb.

The same issue of *Entomologische Berichten* has an interesting paper (in Dutch) by N. W. Elfferich on rearing *Leucodonta bicoloria* Schiff., the White Prominent. The larvae of this species have the reputation of being difficult to rear. From a female imago found on 6th July 1955 about 200 eggs were obtained, and by placing the newly hatched larvae in the dark a fairly good percentage (for this species) was reared. After the second moult the larvae were brought into the light. By 8th August the most advanced ones were full grown. Finally, out of 55 larvae 41 pupae were obtained. The moths from these emerged between 1st and 27th June 1956; but seven went over for another year and one, a male, emerged on 12th May 1957.

Moth-hunters are well aware that 'sugar' is not the only substance that will attract moths; not by any means; in fact anything that promises a meal will serve. Even soapsuds and turpentine have been used with success. The beetle-hunters too have various baits by means of which they lure beetles large and small from their lairs. But few entomologists would regard chlorine as attractive to insects; indeed most of us would class it with repellents such as naphthaline. However, we read in *The Canadian Entomologist* (**89**: 214) that "on a warm morning of May 27, 1956, some laundry hanging out to dry attracted large numbers of a strange Cerambycid-like beetle". The place was British Columbia and the beetle *Priacma serrata* Lec. of the family Cupesidae. Experiments were promptly carried out to discover the nature of the attraction and it was found to be "a solution of domestic bleach containing 5 per cent available chlorine" in which the laundry had been washed. The experiments were thorough and left nothing to chance. "At the end of nine hours . . . 245 beetles had been recorded, 9 on the dry articles" (which were variously coloured) "nine on the articles treated only with water, and 270 on articles wet with bleach and in the pan containing bleach solution."

Greatly concerned with the increase in the number of fires on heaths and commons, the Nature Conservancy recently called a conference of some fourteen or fifteen public bodies to consider the matter. Normally about nine out of ten fires on south-eastern heaths and commons occur during March, April and May. Surrey Fire Brigade attended 2,966 such fires during those months last year, and on the peak day, Monday, 9th April, they were called to 155. Ten such fires burnt over areas from one to eight square miles, and many acres of valuable timber were destroyed. In the single month of March 1956 Hampshire firemen were called to 755 fires in open country. One-third of these were on commons and they cost the Hampshire ratepayers £1,597, or over £50 daily. East Sussex Fire Brigade attended between two and four hundred heath fires annually, the cost last year being £1,698. West Sussex, Kent, Hertfordshire and other south-eastern counties had the same story to tell. To this direct fire-fighting expense must be added the loss of production by part-time firemen called away from industrial and agricultural work, the cost of precautionary measures, and the direct loss of timber, and in some cases of buildings destroyed.

These, says the Conservancy's report, are only the money debits. "Fire has caused the disappearance of the rare Dartford Warbler from a number of its last remaining haunts . . . Rare butterflies and plants are also among the victims. On the other hand repeated fires favour the spread of bracken and other nuisances, and reduce the abundance of heather and the interesting plants and animals associated with it. The only thing to be said for fires is that they are an effective, although dangerous and harmful, method of checking the spread of scrub woodland over open spaces The stimulus of fresh growth of grass which sometimes follows fires on bracken-clad land is only temporary; in the end the bracken wins as its vital parts are underground and fire enables its fresh shoots to dominate its scorched competitors. Certain types of strictly controlled fire, at suitable intervals and seasons and on limited parts of an area only, may be necessary in certain circumstances; but in general uncontrolled heath and common fires are an evil both to man and to nature".

Our contributor Mr. E. P. Wiltshire, who for some years has been at the British Embassy in Bagdad and is a well known authority on the Lepidoptera of the Middle East, has in the press a book on the Lepidoptera of Iraq. It is being issued under the authority of the Government of Iraq and provides an annotated list of Iraq's 937 species of butterflies and moths. A hundred and eight species are to be illustrated photographically and fifty-six in colour. We hope to review this important book in a subsequent issue. Mr. Wiltshire, who is at present on leave in this country, has now been posted to Rio de Janeiro and will be going there shortly.

The Annual Exhibition of the Amateur Entomologists' Society will be held on Saturday, 21st September, at Buckingham Gate Central Schools, Wilfred Street, Westminster, from 2 p.m. to 5.30 p.m., and all interested in Entomology will be welcome. The hall will be open from 10 a.m. for the receipt of Members' exhibits, which will consist of insects of all Orders, living and dead, equipment, apparatus, photographs, drawings, etc., and it is asked that all exhibits be labelled clearly. During the exhibition entomological talks are being arranged and there will be demonstrations of setting insects of various Orders. A feature will be the "Surplus Table" (available to Members free of charge), on which spare eggs, larvae, imagines, equipment, books and so on may be displayed for sale or exchange. Offers of help and enquiries should be made to the Hon. Meetings Secretary, Mr. S. M. Hanson, 167 Gunnersbury Park, London, W.5.

Notes and Observations

AN EARLY YEAR FOR BUTTERFLIES.—This is an exceptionally early year for some species. At Eynsford, Kent, on 23rd April I noted a male *Pararge megaera*. And on a trip to Hog Wood near Chiddingfold, on 18th May with Sir Geoffrey Keynes (who used to write for the *Record* at the beginning of the century) we noted *L. sinapis* and *E. aurinia*—the former fairly commonly. Both species had been out some time, however, for Major Collier, whom I met there, told me that he had

seen *aurinia* flying on 13th May, and E. E. Trundell informed me that two or three *sinapis* were seen on the wing by Stockley about 4th May—a most remarkable date.—J. M. Chalmers-Hunt (*in lit.*, 13.vii.57).

——.—While walking along a ride in a wood near Fareham, Hants, on 15th June, which was a very hot day, I observed a fresh, normally sized male *A. paphia*. I saw it four times during the afternoon flying briskly along the ride. It will be noted that this is about a fortnight early for the emergence of this species.—B. S. Burns, 1 Jamaica Villas, Stoke Road, Gosport, Hants. 20.vi.57.

——.—I notice one or two early dates in the *Record* which came this morning, so here are one or two more. *Aglais urticae*, presumably hibernated, 11th March. *Pararge aegeria* and *Anthocharis cardamines* on 30th March. *Polyommatus icarus* on 1st April. All these while I was sitting in my garden.—G. V. Bull, White Gables, Sandhurst, Kent. 18.v.57.

Macroglossum stellatarum L. in Derbyshire and Aberdeenshire.—A *Macroglossum stellatarum* L. was seen by the Recorder visiting blooms by the kitchen garden wall of Sudbury Hall, south Derbyshire, at 15.30 G.M.T. on 22nd June 1957. Just sixteen hours later I was in Aberdeen, 360 miles further north, and the first thing I was shown was a living Humming-bird Hawk captured by my father-in-law when it flew into his Pitfodels garden shed, by a remarkable coincidence, at the same time of the same day!.—D. C. Hulme, 1 Melton Avenue, Littleover, Derby. 12.vii.57.

Acherontia atropos L. in Somerset.—An almost full-grown larva of *Acherontia atropos* was brought to Wells Museum for identification on 6th August 1957. It was found on a potato plant in a Wells garden and has been returned to the same place.—W. J. H. Hopkins, 9 Churchill Road, Wells, Somerset. 11.viii.57.

Acherontia atropos L. in Cumberland.—I had a specimen of *A. atropos* brought in to me yesterday. It was found at Ousby, Cumberland, on 22nd July. The moth was dead but perfectly fresh and was discovered among some bee-keeping equipment.—W. F. Davidson, 9 Castlegate, Penrith, Cumberland. 24.vii.57.

A Note on Vanessa huntera Fab.—I was interested to read the note on *Vanessa huntera* (Fab.) in the last number of the *Record*. The other day I was speaking to Miss Pole-Carew's nephew and he told me that he had inherited her collection but that all the specimens were now no more. But I still use her setting-house, which came to me through my God-mother, and very useful it is.—The Rev. Peter Hawker, Gautby Rectory, Lincoln. 11.vii.57.

A Rare Aberration of Agrotis exclamationis Linn. in Cumberland.—On 14th June last, two friends and I were working m.v. at the locality, near Carlisle, which produced several specimens of *Hydrillula palustris* Hbn. many years ago. Our main quarry did not appear, but a very odd-looking noctuid came to the sheet. The moth was sent to Dr. Kettlewell, who identified it as an extreme form of ab. *plaga* of *A. exclamationis* L. In my specimen the stigmata are so heavily diffused

as to be inseparable, having coalesced into a uniform deep brown "lobe" on each forewing, strongly contrasting with the darker than normal ground colour.—W. F. Davidson, 9 Castlegate, Penrith, Cumberland. 22.vii.57.

Never Say Die.—Early last August, after a vast amount of searching of golden rod with my grandson, he found a single larva of *Cucullia gnaphalii* Hüb. It was about an inch long and was apparently sound in wind and limb; even under a good magnifying glass I could find no blemish. Everything seemed normal until, when in its last skin, the caterpillar developed a discoloured spot on one side, which appeared to be the foul work of an ichneumon fly. I toyed with the idea of destroying the poor thing, especially as the spot grew more pronounced, but the larva went on feeding and seemed to be otherwise healthy.

Then, one day at the end of August, it disappeared under the peat at the bottom of the cage, and I thought: "That will be an ichneumon fly in the spring". I have the habit of bringing my pupae and cocoons indoors in February after they have wintered in the open, and today, 24th April 1957, I found a freshly emerged *gnaphalii* in the cage, and was I pleased?—Percy Cue, Ashford, Kent. 24.iv.1957.

Graphiphora augur Fab. in West Central London.—Though stated in the text books to be generally common this is a moth that I very seldom see. Indeed, I may say that in my own county, Kent, I personally know of nowhere where one could go and be sure of seeing even a single specimen. It was therefore something of a surprise to note one flying around a lamp by the Embankment at Charing Cross about 10 p.m. on 9th July. I do not usually carry a net in such a locality and in order to identify the moth I was obliged to catch it in my hand, and unfortunately damaged it in doing so.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 13.vii.57.

Peronea aspersana Hb. and Chrysoclista linneella Cl. in St. James's Park, London.—Trunk-hunting in St. James's Park on 12th July in the hope of finding the beautiful little *C. linneella* proved successful. Among the many and unattractive Plane Trees (prevalent in London and upon which I have never yet found a moth) was an old Lime upon whose trunk were several *linneella*, including a freshly emerged pair *in cop.* On an Elm trunk it was a surprise to find a single *P. aspersana*, a moth one usually associates with chalk downs, at least in Kent and Surrey.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 13.vii.57.

A Note on the Distribution of Zygaena Lonicerae Esp. in Kent.—This species is absent from most of East Kent and is not included in the local lists for the Folkestone and Romney Marsh area (Morley, 1931), Dover and Deal districts (Embry & Youden, 1949), and Ashford district (Scott, 1936 and 1950). It is therefore of interest to note that (1) at Ebbsfleet near Sandwich I discovered a strong colony of *lonicerae* in 1950 (this is the colony mentioned in *Folkestone N.H. Soc. Ann. Report* for 1956), (2) at Dungeness in 1955 the moth was found by E. Philp, commonly, close to the Long Pits, and his specimens determined by me (a visit in 1957 shows this to be a strong colony). The moth has never

been noted at Dungeness prior to 1955 to my knowledge and therefore must, I think, be a recent arrival here. In West Kent *lonicerae* is widely distributed and I personally know of the existence of many colonies in this area. It has also been long established in North Kent, where its range extends eastwards as far as Blean Woods. It would be interesting to know if there are other colonies present in the areas covered by the Morley and Embry-Youden lists, apart from the two mentioned above, and if *lonicerae* has ever been seen in the area covered by Scott's list.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 13.vii.57.

Feral Mating of Zygaena lonicera Esp. and Z. filipendulae L.—When I was at Dungeness on 22nd June this year I noted that Z. *filipendulae* was widely distributed; *Z. lonicerae* on the other hand appeared to be confined to a small stretch of marshy ground by the Long Pits (situated between the Pilot Inn and the old railway line—now pulled up—to the Lighthouse). Both species were abundant, and about midday many pairs were seen *in cop.*, including one pair which to my surprise consisted of a ♂ *lonicerae* and a ♀ *filipendulae*. An hour and a half later they were still paired, but had separated by 2.30 p.m.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 13.vii.57.

Eupithecia egenaria H.-S.—Some time ago I received from Germany a full account of this species. As the name *egenaria* H.-S. has appeared so many times in various books dealing with lepidoptera in this country, some notes on this article will, I am sure, be of interest. It appears in the *Transactions* and *Report LIX* of the Society for Natural Science at Kassel (*Abhandlungen und Bericht LIX des Vereins für Naturkunde zu Kassel e.V.*, 1954), and is written by Eduard Schütze.

Considerable confusion has existed for many years as to what actually the species is to which Herrich-Schäffer gave the name of *egenaria*. For example, Barrett and Meyrick give it as a synonym of *Eupithecia helveticaria* Boisd. In Heslop's *Check-List of British Lepidoptera* (1947) it is given as *Eupithecia egenaria* H.-S., with *arceuthata* Frey. as a synonym and "The Pauper Pug" as the English name. Spuler, in *Die Schmetterlinge Europas*, gives a description and figure of *Tephroclystia* (*Eupithecia*) *egenaria* H.-S., but as the larva is mentioned as feeding on scabious it is obvious the description refers to a different species from the one mentioned by Herr Schütze.

To refer to the article, two moths resembling *castigata* Hb. were taken at light at Dresden, but genitalia showed them to be *egenaria* H.-S. Four others were taken near Stuttgart. All these were compared with specimens from Vienna and verified as *egenaria* H.-S. Further investigation disclosed that the moths frequent the tops of lime trees, and that the larvae feed on the flowers. As far as is known at present the species is attached to only one species of Lime, namely *Tilia platyphyllos* Scop., which is referred to as the "Summer Lime" as distinct from the "Winter Lime". The moth is very closely related to *E. pimpinellata* Hb. A coloured figure of the larva is depicted, with drawings of the genitalia of *egenaria* and *pimpinellata*, and a map showing 14 localities in Europe where the species has occurred.

Tilia platyphyllos, according to our botanical literature, grows in

rocky woods in the West of England and is probably indigenous. A search for the moth, or larvae, in the localities where this tree occurs might result in its discovery. The moth occurs in May and June and the larvae feed up in three weeks, occurring in July and August. The moth comes freely to light, but is very local.

I should like to record my thanks to Mr. K. A. Spencer for his translation of the German which has enabled me to write this note.—S. WAKELY, 26 Finsen Road. London, S.E.5.

NEWSPAPERS FOR PUPATION.—Newspapers often provide suitable material for the spinning of cocoons, and I have found that some larvae, notably *Calophasia lunula* Hufn., prefer screwed-up bits to anything else one may supply. In most cases it does not seem to matter what newspaper is selected for the purpose; but it is, or should be, well known that *Lasiocampa trifolii* Schiff. prefers the "Evening Standard". Having recently had a few larvae of this species, and no "Evening Standard" to offer them, I put some crumpled pieces of the "Times" in the breeding-cage. The larvae treated them with contempt and crawled off to pupate in odd corners of the cage, except one which, after wandering about disconsolately for a couple of days, finally spun up on an obituary notice. I fear the worst.—EDGAR J. HARE, Harrow Place, Pinden, Dartford, Kent. 10.vii.57.

EUXANTHIS AENEANA HÜBN. IN KENT: A CORRECTION.—In the June number of the present volume (*Ent. Rec.*, **69**: 134) I stated, in recording the above species from Abbey Wood Marshes, that I understood from Mr. J. M. Chalmers-Hunt that Chattenden was the only other recorded locality in Kent. I must now, however, make it clear that my friend did not in fact say this, and my belief (at the time) that he had must have been entirely due to some misunderstanding on my part. What I should have written is that Chattenden was perhaps the chief or best known locality in the county for *aeneana*. I am indebted to Mr. Chalmers-Hunt for pointing out the mistake, and hope this correction will ensure that it is not attributed to him.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 11.viii.57.

LASIUS BRUNNEUS LATREILLE IN SURREY.—On 28th April my friend Mr. L. Christie and I noticed an ant on an oak tree (*Quercus robur* L.) in Central Wood, Bookham Common, Surrey. These ants keep right in the deep crevices in the bark, and after some difficulty two specimens were captured. These were later identified by Mr. Christie as *Lasius brunneus* (Latreille), the brown tree ant, a species which, I believe, is new to Surrey.—D. OLLEVANT, 3 Salcombe Drive, Morden, Surrey. 14.vii.57.

'COLLECTING IN EAST ANGLIA.'—I was interested in the Rev. G. A. Ford's paper in the *Record* of last June (page 125), particularly as it covered the Wareham and Portland districts of Dorset and the Mildenhall district of Suffolk where I have done quite a lot of collecting since the war. Like Mr. Ford, I too was disappointed over *Coscinia cribrum*, taking not even one specimen although I was with the late Archibald G. B. Russell who knew the district well.

The spread of *Ennomos autumnaria* is satisfactory. I first came

across this species at Colchester, when I beat a single larva from a blackthorn bush in 1937. I saw nothing more of the insect until 2nd October 1952 when I found a female at rest near my house in Stowmarket. She refused to lay any eggs, so I concluded she must have been unmated. On 3rd October 1954 I took another specimen, this time a male, also in Stowmarket. These records did not appear in the *Transactions* of the Suffolk Naturalists' Society because contributions have to be in the editor's hands by 1st October. However, I am sorry to disappoint Mr. Ford over his hoped-for claim of the first record of this species for Suffolk!

Regarding his last paragraph I am rather perturbed over the status of *Coenotephria berberata* in Suffolk. The foodplant of this species in its Bury St. Edmund's habitat seems to be in danger of destruction as it appears that road widening is imminent. I have found both the larva and imago of *berberata* during the last few years and like Mr. Ford have established a plant of *Berberis vulgaris* in my garden, intending to try to start a colony of the insect; but this has never been done. I understand from a local botanist that there are one or two isolated plants of *Berberis* in this district, so that if it could be established in the neighbourhood it might have a chance of spreading and strengthening its rather precarious foothold.—H. E. Chipperfield, 27 Chilton Avenue, Stowmarket, Suffolk. 11.vii.1957.

A Comparison of M.V. Light in 1957 with 1956.—Up till 31st July this year the number of species attracted to my trap in East Hertfordshire is the same for each year—233; but the number of moths has fallen away a great deal: 9,614 with an average of 65 per night in 1957, and 13,857 averaging 121 per night in 1956. The count is from the end of February each year.

During the peak period of 1956, from 8th to 28th July, the average number of moths per night was 301, while in 1957 the peak period occurred from 25th June till 8th July and the average was 215. During the peak period of 1956 the average number of species each night was 53. In 1957 it was 55.

The mild winter of 1956-7 appears to have been bad for the moths in their various stages but good for the birds, although it has apparently not affected the number of species.

Many of the spring moths were reduced in numbers. The 1956 figure is given first. *X. areola* Esp. from 112 to 48. *O. gothica* L., 1,060 to 852. *O. incerta* Hufn., 679 to 426. *O. stabilis* Schf., 270 to 150. *L. hirtaria* Cl., 180 to 97. The two common Ermines have also fallen in numbers: *L. lubricipeda* L., 485 to 184, and *S. lutea* Hufn., 607 to 303.

This year *L. impura* Hb. is still coming freely to the trap but *L. pallens* L. has fallen to 73 from 362 in 1956. On the other hand *pallens* is the usual 'wainscot' to be seen at sugar this year. *L. impura* I have not noticed at sugar.

Hadena compta L. came to m.v. on 5th and 9th July. *L. cucullina* Schf. on 16th July. *C. absinthii* L. on 20th July. *D. oo* L. on 26th July, and *T. interjecta* Hb. on 27th July. *T. interjecta* appears to be increasing in East Herts., as ten more have arrived in August.

Many writers to the *Record* regarded 1956 as a poor year, but although it has better daytime weather 1957 is worse up to date. There

have been too many dry clear nights in 1957 compared with the wet warm nights of 1956.—CLIFFORD CRAUFURD, Denny, Galloway Road, Bishop's Stortford. 9.viii.57.

The Lepidoptera of the Aldershot District of N.E. Hampshire

By A. W. RICHARDS.

(*Continued from page 180.*)

Cleora repandata L., and *C. rhomboidaria* Schiff. v.c
Bupalus piniaria L. abdt.
Ematurga atomaria L. abdt.
Hemerophila abruptaria Thun. c.
Erannis leucophaearia Schiff., and *E. progemmaria* Borkh. abdt
E. aurantiaria Esp. c. At Hawley occasionally abdt.
E. defoliaria Cl. c. and very variable.
Apocheima hispidaria Schiff. c.
Phigalia pilosaria Schiff. v.c.
Lycia hirtaria Cl. f.c.
Biston strataria Hufn. c.
B. betularia L. abdt. About seventy per cent *carbonaria*
Abraxas grossulariata L. n.c.
A. sylvata Scop. In a wood N. of Alton
Ligdia adustata Schiff. Locally c.
Lomaspilis marginata L. abdt.
Theria rupricapraria Schiff. abdt.
Bapta bimaculata Fab. f.c.
B. punctata Fab. c.
Pseudopanthera macularia L. c. in large woods.
Pachycnemia hippocastanaria Hüb. c.
Gnophos obscurata Schiff. Hawley a few
Lithina chlorosata Scop. abdt.
Dyscia fagaria Thun. f.c. at Aldershot; a few at Hawley.
Perconia strigillaria Hüb. c.
Cabera exanthemata Scop. f.c.
C. pusaria L. abdt.
Ourapteryx sambucaria L. v.c
Ellopia prosapiaria L. c.
Campaea margaritata L. c.
Anagoga pulveraria L. Hawley 1 sp.
Plagodis dolabraria L. c.
Angerona prunaria L. Alice Holt f.c.
Epione repandaria Hufn. c.
Selenia bilunaria Esp. v.c.
S. tetralunaria Hufn. c.
Hydrochroa syringaria L. c.
Cepphis advenaria Hüb. Aldershot a few; Fleet 1 sp
Colotois pennaria L. c.
Deuteronomos alniaria L. v.c.
D. erosaria Schiff., and *D. fuscantaria* Haw. c.
Ennomos quercinaria Hufn. w. n.c.
Gonodontis bidentata Cl. v.c.

Crocallis elinguaria L. c.

Phycitidae

Salebria formosa Haw., and *S. fusca* Haw. ? at Aldershot and Hawley
S. betulae Göze. w. and c.
Hypocalcia ahenella Schiff. Hawley n.c.
Dioryctria abietella Schiff c.
D. splendidella H.S. 1 sp. at Hawley, 1952.
Phycita spissicella Fab. c.
Nophopteryx palumbella Fab. c.
Euzophera pinguis Haw. 1 sp. each at Hawley and Aldershot
Myelois neophanes Durr. Aldershot f.c.
M. cribrumella Hüb. c.
Eurhodope advenella Zinck. c. at Hawley.
E. suavella Zinck. 1 sp. at Hawley.
Acrobasis consociella Hüb. 1 sp. at Hawley.
A. tumidana Schiff. f.c. at Hawley.
A. tumidella Zinck. Hawley a few.
Aphomia sociella L. c.

Crambidae

Crambus pascuellus Thun., *C. pratellus* L., *C. hortuellus* Hüb., *C. pinellus* L., *C. perlellus* Scop., *C. inquinatellus* Hüb., and *C. tristellus* Schiff. All c.
C. culmellus L. Hawley a few.
Cataclysta lemnata L. c.; abdt. at Fleet Pond.
Nymphula nymphaeata L. abdt.
N. stagnata Don. c. especially at Fleet Pond.
N. stratiotata L. f.c.
Notarcha ruralis Scop. abdt.
Eurrhypara hortulata L. abdt.
Pereniphele lancealis Schiff. c. at Fleet; Hawley a few.
Phlyctaenia crocealis Hüb., *P. lutealis* Hüb., *P. fuscalis* Schiff., *P. prunalis* Schiff., *P. sambucalis* Schiff., and *P. ferrugalis* Hüb. c.
Nomophila noctuella Schiff. Always present, sometimes plentiful.
Pyrausta purpuralis L., and *P. olivalis* Schiff. c.
P. cespitalis Schiff. Locally c.
P. verbascalis Schiff. c. in some years.
P. aurata Scop. f.c. over border in Surrey.
P. nubilalis Hüb. 1 sp. at Fleet, 1956.
Microstege pandalis Hüb. f.c. at Fleet and Pamber.
Loxostege verticalis L. c.
L. palealis Schiff. 1 sp. at Hawley.
Scoparia cembrae Haw., and *S. ambigualis* Treits. c.
S. mercuria Haw., and *S. dubitalis* Hüb. f.c.
S. angustea Steph. 2 sp. at Hawley.
Evergestis straminalis Hüb. c. at Aldershot; a few at Hawley and Fleet.
E. extimalis Scop. 1 sp. at Aldershot.
Mesographe forficalis L. v.c.

Pyralididae

Endotricha flammealis Schiff. v.c.

Hypsopygia glaucinalis L., and *H. costalis* Fab. c.
Pyralis farinalis L. 1 sp. at Aldershot.
Aglossa pinguinalis L. 1 sp. at Aldershot.
Synaphe augustalis Schiff. f.c. at Hawley.

ALUCITIDAE

Platyptilia gonodactyla Schiff. Aldershot n.c.
P. pallidactyla Haw. c.
Stenoptilia pterodactyla L. c.
Alucita pentadactyla L. abdt.
A. galactodactyla Schiff. c. in woodlands.
Oidaematophorus lithodactylus Treits. c.
O. monodactylus L. Hawley a few.
O. carphodactylus Hüb. Hawley sc.
O. osteodactylus Zell. Hawley n.c

HETEROGENEIDAE

Cochlidion avellana L. c.

ZYGAENIDAE

Zygaena filipendulae L., and *Z. trifolii* Esp. v.c.
Z. loniceraе V. Schev. f.c. at Pamber.
Procris statices L. c.

COSSIDAE

Zeuzera pyrina L. c.
Cossus cossus L. f.c.

ORNEODIDAE

Orneodes hexadactyla L. abdt.

SESIIDAE

Sphecia bembeciformis Hüb. Alice Holt 1 sp.
Aegeria formicaeformis Esp., and *Ae. tipuliformis* Cl. f.c.
Ae. spheciformis Schiff. 2 sp. at Fleet.

HEPIALIDAE

Hepialus hectus L. Locally c.
H. lupulinus L., *H. sylvinus* L., and *H. humuli* L. c.

The strong resemblance between the above list and that published by R. F. Bretherton in the Proceedings and Transactions of the South London Entomological and Natural History Society, 1955, for N.W. Surrey is hardly surprising in view of the geographical contiguity and geological similarity of the two areas. The N.W. Surrey list contains 64 more species of macrolepidoptera and 27 more Pyralidina, but the Hampshire list is more of a solo effort and mercury vapour lamps were only operated at Hawley, Fleet and Farnborough, all in the extreme N.E. and only seven miles apart, whereas the Surrey list contains records of some nineteen observers with mercury vapour lamps well distributed over the region. I have no doubt that records from other collectors could bring the totals of species much nearer to those recorded by R. F. Bretherton.

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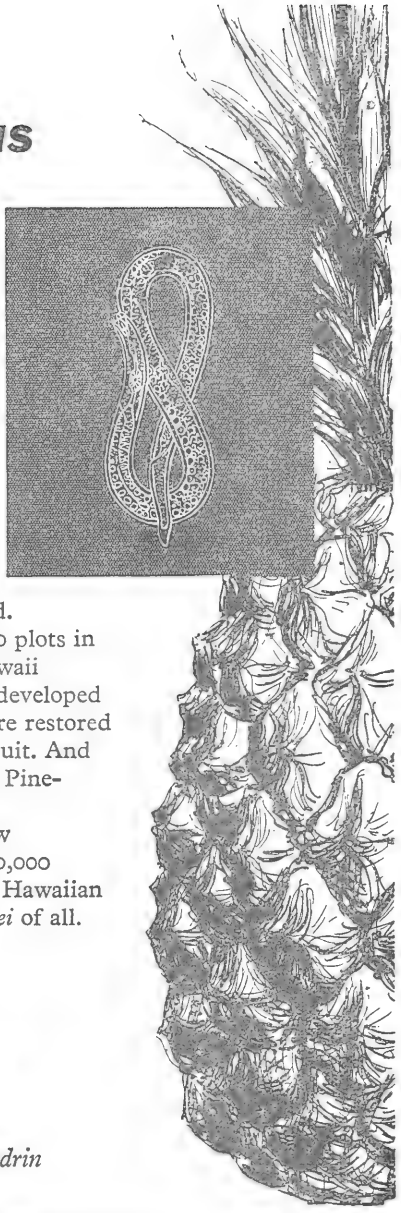

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EXCHANGES AND WANTS

Wanted.—The following monthly parts of *The Entomologist's Record* :—Vol. 26, No. 12 (December 1914) and Vol. 41, No. 3 (March 1929).—*N. D. Riley, 7 McKay Road, Wimbledon, London, S.W.20.*

Wanted.—An early run of *The Entomologist*, preferably Vols. 1-22.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—Named Set Specimens of all insect orders (with data) wanted for cash.—*Davidson, 9 Castlegate, Penrith, Cumb.*

Cambridgeshire Lepidoptera.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890).

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Pammene aurantiana Staudinger [Eucosmidae] in Britain

By S. Wakely

Some months ago I received from Mr. L. Price, of Stroud, Gloucestershire, several species of microlepidoptera for naming which he had taken the previous season. Among them were two specimens of a tortricid which I was unable to determine, so they were sent on to Mr. J. D. Bradley at the British Museum, who replied that they appeared to be referable to *Pammene aurantiana* Staudinger. Later they were verified by comparison with specimens loaned from a continental museum, as there were no specimens available in the National Collection. At the same time Mr. Bradley had found two others among some insects sent for determination by Mr. B. O. C. Gardiner of Cambridge. Both were taken at Dover on the 11th July 1943. One of Mr. Price's moths was taken at Rodborough Common, Glos., on 31st July, and the other at Studland, Dorset, on 14th August 1956.

In these days of the mercury vapour light, species new to the British List are reported yearly, but in this case all four specimens were netted after being disturbed from their resting places. The occurrence of this species in such widely distributed localities is of great interest, and seems to point to the moth being well established here. On looking up the foodplant of the larva, I find it is mentioned by Spuler as feeding "on *Acer*"; Eckstein, *Schmetterlinge Deutschlands*, vol. 5, states "larva on Maple, scarce", while Lhomme says "larva unknown, probably on *Acer*, around which bushes the moth flies". So there would be no foodplant difficulty in Britain.

In general appearance the species reminds one of *Hemimene flavidorsana* Knaggs, but the orange dorsal mark on forewings is absent although the orange colour is present as a suffusion across the wing. The hindwings are also darker than those of *H. flavidorsana*.

Mr. Price has generously presented one of his specimens to the British Museum.

26 Finsen Road, London, S.E.5.

Variation in *Colias croceus* (Fourc.) ab. *helice* Hb.

By D. A. L. Davies, M.A., Ph.D.

Although the Summer of 1955 was marked by impressive records for migrant species in the Salisbury district, *Colias croceus* (Fourc.) did not appear until very late in the season. On 13th October several apparently freshly emerged females were captured, including two *helice*. The very large number of eggs laid caused some embarrassment as adequate supplies of food had not been prearranged; however snow did not cover the ground until shortly after the F1 generation had pupated. One yellow type female excelled when laying on potted *Medicago lupulina*, 589 eggs were actually counted but the total number must have exceeded 600. This is a larger number than that recorded by Frohawk (1934).

The fate of one *helice* brood is thought to be of some interest. The

number of eggs laid in this instance was about 400. During the late Autumn most of these were reared in my laboratory where the temperature is constantly between 68 and 71° F. The remainder, 43 in number, were reared by my colleague, Mr. C. M. R. Pitman; these were kept in a room which was warm in daytime but cool at night. In other respects breeding conditions were not very dissimilar.

Emergence took place during the second half of December, the peak being reached on Christmas day (32 specimens). In the main batch the following numbers were obtained:

♂♂	♀♀ *helice*	♀♀ *yellow*
173	83	69

This shows a normal sex ratio, and the figures for the two types of female do not deviate significantly from the 1:1 ratio expected if the parent *helice* had not chanced to mate with a male heterozygous for the *helice* factor. A range of variation naturally occurred amongst the brood, *e.g.* several obsolete females were obtained. However, in every case the orange patch in the centre of the hindwing was present, as it normally is in *helice*, although specimens with no orange patch are not infrequent among captures in the field; two such forms were captured with 12 normal *helice* in North Wales in August 1947. These would seem to correspond to var. *albissima* Ragusa, as illustrated by Verity (1947).

The batch of 43 reared by Mr. Pitman gave the following progeny:

♂♂	♀♀ *helice*	♀♀ *yellow*
17	12	12

Only two failed to reach maturity. The *helice* group of 12 included two of the *albissima* type.

The chance of finding 2 variants in 12 and none in 83, if the ratio of *helice* to *albissima* was constant under different breeding conditions, is remote, the odds against this occurring by chance being about 1 in 70. The appearance of *albissima* would seem likely to be due, therefore, to an environmental effect, probably one of temperature.

Several matings between *helice* females and their brothers were obtained in early January 1956, though with some difficulty in the almost complete absence of sunshine. Very poor layings followed, few of the eggs hatched and no larvae reached maturity. Unfortunately it is not possible to decide whether this was due to unsuitable breeding conditions during the Winter or to effects exerted by lethal factors in the F2 generation as found *e.g.* by Jarvis (1955).

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Insect Records from Bardsey Island (N. Wales)

By E. R. Nye, M.B.

The small island of Bardsey lies about two miles from the mainland of the Lleyn Peninsula, Caernarvonshire. The island itself is about

a mile and three-quarters long and three-quarters of a mile across. In spite of the island's small size, however, a fairly wide habitat range can be found. The wind-swept top of the five hundred feet high 'mountain' slopes down moderately steeply on its gorse and bracken covered western face and merges with the low-lying pasture land of the western side of the island. The low ground is itself interspersed with small marshy areas and clumps of willows.

The following observations were made during a short visit to the island during the third week in May 1956 during which time the weather was mild and generally spring-like. Rough estimates of ground wind speed on the western side of the island range from scale 0 to 5 for the week with an average of scale 3. Light-trapping was attempted on four nights near the observatory with almost negligible results.

The observations of three other visitors to Bardsey have been included in an attempt to bring together data on Bardsey's insects. In May 1954, for example, P. E. S. Whalley recorded the following Hemiptera-Homoptera Auchenorhyncha: *Delphacodes pellucida* Fab., which was abundant, and also found eggs of *Conomelus anceps* Germar and *Delphacodes fairmairei* Perris. In addition he records *Philaenus leucophthalmus* L., *Eupelix cuspidata* Fab., *Psammotettix confinis* Dahlb., *Macrosteles sexnotatus* Fall.

Hymenoptera records for 1954 were made up by T. Poole who lists the following:—

Bombidae. *Bombus lapidarius* L., *B. lucorum* L., *B. agrorum* Fab.

Formicidae. *Tetramorium caespitum* L., *Myrmica scabrinodis* Nyl., *Lasius flavus* Fab., *L. alienus* Forst., *L. niger* L., *Formica fusca* L.

Vespidae. *Ancistrocerus pictus* Curtis.

Apidae. *Nomada goodeniana* Kirby.

In May 1956 I noted the following Coleoptera:—

Carabidae. *Cicendela campestris* L., *Feronia madida* Fab., *Harpalus aeneus* Fab., *Nebria brevicollis* Fab., *Broscus cephalotes* L., *Aphodius punctata-sulcatus* Sturm.

Elateridae. *Agriotes sputator* L., *A. lineatus* L., *Adelocera murina* L.

Chrysomelidae. *Prasocuris phellandrii* L.

Curculionidae. *Strophosomus retusus* Marsh, *Apion hydrolapathi* Marsh, *Sitona* sp.

Staphylinidae. *Quedius mesomelinus* Marsh.

Silphidae. *Necrodes littoralis* L.

Meloidae. *Meloe proscarabaeus* L.

In addition to the foregoing A. Darlington, collecting in August 1954, recorded: *Geotrupes stercorarius* L., *Ceratophyus typhoeus* L., *Necrophorus vespillo* L., *Staphylinus olens* Muel., *Chrysomela* sp.

Diptera positively identified from 1956 collecting included: *Tipula oleracea* L., *Bibio marci* L., *Melophagus ovinus* L., *Lonchoptera nitidifrons* Strbl., *Eristalis aeneus* Scop., *Orygma* sp., *Lucilia aericata* Meigen.

Lepidoptera: *Pararge megera* L., *Aglais urticae* L., *Lycaena phlaeas* L., *Pieris napi* L., *Saturnia pavonia* L., *Callimorpha jacobaeae* L. In the first two weeks of August 1954 A. Darlington recorded the following species of butterflies and moths: *P. brassicae* L., *P. napi*, *Colias croceus* Fourc., *A. urticae*, *Vanessa cardui* L., *V. atalanta* L., *Argynnis paphia* L., *Eumenis semele* L., *P. megera*, *Maniola jurtina*

L., *M. tithonus* L., *Coenonympha pamphilus* L., *L. phlaeas*, *Polyommatus icarus* Rott., *Lasiocampa quercus* L., *Arctia caja* L., *C. jacobaeae*, *Apamea monoglypha* Hufn., *Euphyia bilineata* L., *Abraxas grossulariata*, *Ourapteryx sambucaria* L., *Biston betularia* L., *Agrotis exclamationis* L.

I am very grateful to the Hon. Secretary of the Bardsey Bird and Field Observatory for allowing me to publish these notes and to Dr. C. M. F. von Hayek and Mr. M. E. Bacchus of the British Museum (Natural History) for identifying many of the beetles.

REFERENCES: A. Darlington, *Bardsey Observatory Report*, 1954; P. E. S. Whalley, *ibid.*; T. Poole, *ibid.*

A note on the mites found on Bardsey by J. Hobart appears in the same publication.

Notes on the Treatment of Hibernating Larvae

By H. SYMES

It is a great satisfaction to rear any species of insect from the egg. In the first place, it is the only way to study the various stages in its life history: in the second, it is often the best way to obtain a good series of fine specimens. But difficulties arise in the case of moths whose larvae hibernate, when half grown. These include many interesting species belonging to the families formerly known as Bombyces. It is not always easy to bring their larvae through the winter, and many collectors who are highly successful in other ways have met with repeated failures in dealing with hibernating larvae.

People who have large gardens can sleeve their larvae on growing trees and bushes, but many entomologists do not have a large garden, but live in 'digs', flats, or a town house without any garden, and this is particularly true of young collectors. Even if you can sleeve your larvae on your own trees, it is just as well not to put all your eggs in one basket, as sleeves are sometimes attacked by birds, and exposure to all weathers may cause holes, through which a spider, an earwig—or, in the words of Cmdr. G. W. Harper (*Ent. Rec.*, **67**: 134), a 'foul dermapteron'—or some other vicious predator can gain admission.

A very simple method which I have found remarkably successful is the use of muslin or leno bags, which serve as small sleeves but are kept under cover. When the larvae begin to neglect their food in the autumn, and to show signs of settling down for the winter, they are placed in the bag with a sprig of their food plant, if it has a stiff stem and can support the bag in an upright position. With larvae that feed on a soft plant, such as dead nettle, a sprig of some bush, *e.g.* sallow or *Prunus*, must be inserted along with the nettle inside the bag to support it. Care must be taken to see that there are a few dry leaves inside the bag, and these need not be of the food plant. When these leaves curl up, the larvae will use them for winter quarters. I have found a few oak leaves much appreciated. The actual size and shape of the bag is immaterial. I prefer them oblong in shape, and most of mine are 7 in. by 5, with a few larger ones 10 in. by 8. A 7 in. by 5 bag will accommodate about 25 larvae comfortably. When they are safely inside, the open end of the bag is tied securely with tape (better than string) round the stem of the food plant, which

should extend four or five inches below the mouth of the bag, so that it can be inserted in an old ink bottle or small jam jar, which should be half filled with damp sand. These bottles, with the bags standing upright on their supports, should be placed inside the open window of any small shed or outhouse, or even on a bedroom window-sill, provided that it has a more or less northerly aspect.

The bags should be left undisturbed until the first signs of spring appear. This, of course, varies with the season. As a rule, I open the bags and examine their contents towards the end of February. Most of the larvae will be found resting in curled up leaves, some will be sitting on the inside of the bag, and a few will probably be dead. The leaves, larvae and all, may now be transferred to a breeding cage: if the bag is gently turned inside out and placed in the cage, the larvae found on the leno will in due course crawl away to the food when it is offered them: thus any handling of the larvae is avoided. Of course, food may be introduced into the bag and the larvae may be kept there until they grow too large for it. It is worse than useless to disturb them during a cold spell, or before there is anything for them to eat: on the other hand, if there is a mild spell and supplies of food are available, I think it is best to start them feeding as early in the year as possible. Once they have begun to eat, they must be brought indoors, placed in a sunny window and protected from a sudden fall in temperature.

Among the larvae that I have brought through the winter by this method with very few casualties are *Orgyia recens* Hb. (*gonostigma* Fab.), *Dasychira fascelina* L., *Euproctis chrysorrhoea* L., *Coscinia cribaria* L., *Panaxia dominula* L., *Boarmia roboraria* Schiff. and *Angerona prunaria* L. Another larva which has come through the winter in one of these bags is *Pseudoips prasinana* L. (*bicolorana* Fuess.), but in this case the percentage of survivors has been very small. It is a most interesting larva and a wonderful example of protective colouring. In September it may be beaten from oak, in some years quite plentifully. The small larva is green, and matches very closely the underside of the oak leaves. When it takes up its position for hibernation on a twig, very often close to a bud, it turns brown and closely resembles the colour of its resting place. In the spring, when the brown buds begin to burst, the larva begins to feed on them, and as the tiny green leaves appear, the larva assumes a mottled brown and green colour, and finally, when it is full grown in May, it is a beautiful pale green and almost indistinguishable from oak leaves at that time of year.

Another method that may be employed with success is to erect a tent made of leno or muslin material over a flower pot in which a root of the food plant has been established, with a little grass and a cut twig of some tree or bush with the leaves attached. This arrangement is especially suitable for larvae that feed on herbaceous plants. A bag, or rather cylinder, of leno is made, open at both ends and wider at the bottom than at the top. It must be wide enough at the bottom to be slipped over the top of the flower pot and fastened round it below the rim. A stick must be driven firmly into the centre of the earth in the pot, high enough for the upper end of the cylinder to be bunched up and tied tightly round its top, which should have a

projection to prevent the leno from slipping down. The larvae must be placed inside the cylinder immediately before the top is secured, so that they will not have time to crawl up the leno and risk being crushed. The pot must be kept out of doors and if possible on the north side of the house: one winter, the contraption I was using was buried in snow without the larvae inside being affected. The pot itself must be of considerable size: one year I used a 9-inch pot and brought 50 larvae of *P. dominula* safely through the winter without a single casualty. Most of them were snugly ensconced in rolled-up leaves, often two or three larvae together. Only once have I met with disaster. The last time that I had a small brood of three dozen *dominula* I made the mistake of putting all my eggs in one basket, and when I opened the tent at the end of the winter I found nothing inside but a few fragments of larvae. An evil beast must have effected an entrance, presumably through the drainage hole at the bottom of the pot, and devoured the lot. I suspected a centipede or a devil's coach-horse (*Staphylinus olens*), but careful search of the earth and leaves in the pot showed no trace of the culprit. Some years ago I potted up a plant of Hemp Agrimony (*Eupatorium cannabinum*) and brought about thirty larvae of *Plusia chryson* Esp. through the winter with the loss of only two or three: the larvae tucked themselves away snugly in the curled-up withered leaves of their food plant. Another larva, and one reputed to be rather difficult to rear, that I have brought very successfully through the winter by this method is *Xanthorhoë quadrifasciata* Cl. In this case the flower pot contained a growing plant of violet and some grass.

Some larvae will hibernate quite readily in an ordinary breeding cage: of these *Lasiocampa quercus* L. is probably the easiest to deal with, and a good second is *Gastropacha quercifolia* L., which should be provided with twigs of its usual foodplants, such as blackthorn or hawthorn, to which it will cling as closely as possible, flattening itself so as to become almost invisible. This species ought to be kept out of doors or in a cold shed. I have never found the larva of *Arctia caja* L. easy to get through the winter: most of them dry up and die. Once, many years ago, I tried to rear a large batch of larvae from the egg, and the whole brood perished during the winter except seven. But one of these eventually produced a lovely aberration with its fore-wings creamy white, relieved only by a few black dots about the size of a pin's head. I happened to be examining the breeding cage just at the moment when the moth emerged from its pupa, and the sight of the lovely creature expanding its wings was a consolation for many disappointments with this species. *A. villica* L. I have found about as hard to bring through the winter as *caja*. Larvae of *Euplagia quadripunctaria* Poda differ from those I have already mentioned in two points: they continue to nibble their food throughout the winter whenever the weather is mild, and they must be kept indoors. Last year I brought a few through the winter by a method so simple that it may be of interest to other entomologists. I took a box which had contained ½ lb. of Meltis Berry Fruits and cut out the centre of the lid, leaving a margin of about ½ inch round the edges. A piece of muslin about two inches larger all round than the box was then laid over the box and the lid was replaced, holding the muslin in position.

The semi-transparent, parchment-like material of which the box is made affords remarkably good visibility inside it, and when it is held up to the light, the contents can be examined easily through the muslin without taking off the lid. Last winter the weather was so mild that the larvae went on feeding without a break. I gave them groundsel, which stayed fairly fresh for two or three days, and I kept a check through the muslin to see when fresh food was required and when an accumulation of old food needed removal. I thought it advisable to disturb the larvae as little as possible. When removing old food it is as well to count the larvae, as they are apt to hide themselves in the groundsel, but their favourite resting-place was on the muslin in the corners where they could not be seen until the lid was removed. Of six larvae, only one died.

Sometimes hibernating larvae begin to bestir themselves in a mild spell in early March or even late February before there is any of their normal food available for them. This is a risk to which larvae that hatch from the egg at this season are also exposed. I have never failed to find something that they would eat. Twenty years ago, I was given a few very small larvae of *Amathes ashworthii* Doubl. in the autumn. They fed readily on knotgrass (*Polygonum aviculare*) before hibernation, preferring the flowers and seeds to the leaves. One larva pupated before Christmas, but the pupa was undersized and the moth dried up inside it when fully formed. The other larvae passed the winter more than half-grown, hidden away in chinks and corners of a wooden breeding cage. There was a mild spell early in the following spring, and the larvae began to move about before any regular food was available. Something had to be done, and I had a brain-wave. There was a fine display of pink, fleshy flowers on a row of wych-elms near my quarters, and I picked some of these and put them in the larva cage. To my great satisfaction, the larvae took to this diet readily and stripped the twigs of the flowers. They flourished on this fare until other food was procurable, and eventually I had four fine moths from five larvae.

Two larvae differ from other hibernators in being full-fed before hibernation and taking no nourishment when they reappear in spring. These are *Macrothylacia rubi* L. and *Phragmatobia fuliginosa* L. I have found the latter to be extremely easy to deal with: if the cage is placed in a sunny window the larvae will nearly always spin up without any trouble. *M. rubi* is a very different proposition. Various successful methods of treating it have been described in the entomological journals and handbooks, and I have bred a few moths myself on two or three occasions, but I have had many more failures, and can only regard it as a very difficult species to rear. The best method seems to be to expose the larvae to frost, the sharper the better, and then to bring them indoors, say in February, and keep them in a very warm place, sprinkling with tepid water every evening the moss in which you hope they will spin up. Even then the larvae may not spin up, and, if they do, they may fail to pupate, or they may produce a crop of tachinid pupae, or if the pupa is properly formed it may die, or produce a cripple, or finally, if you are lucky and escape these undesirable alternatives, all of which have fallen to my lot, you may succeed in breeding a beautiful specimen of *M. rubi*.

Sciomyzidae taken in Shropshire and North Wales, except as otherwise stated

By C. H. Wallace Pugh

	Shropshire.	*North Wales.*
SCIOMYZINAE		
Pelidnoptera nigripennis F.	Knockin Heath, 1 m., 1.6.39 (J. H. Hignett).	
Phaeomyia fuscipennis Mg.	Candy Wood, Oswestry, common on bracken—June.	
Sciomyza albocostata Fln.	Candy Wood, Oswestry, Benthall. Frequent in woods—June, July.	Llwyngwril (Merioneth).
Sciomyza griseola Fln.	Whixall Moss, July.	Talybont (Merioneth) July.
Sciomyza dubia Fln.	Candy Wood, Oswestry. Fairly frequent—June to August.	Breidden Hills (Montgomeryshire)
Sciomyza pallidiventris Fln.	Candy Wood, Oswestry, June, July.	Llwyngwril.
Pteromicra glabricula Fln.		Llwyngwril.
DITAENIINAE		
Ditaenia cinerella Fln.	Whixall Moss, June-August, very common on salt marshes.	Cardigan Bay.
Ditaeniella grisescens Mg.		Talybont, Llanbedr (Mer.) June, August.
Pherbellia schoenherri Fln.	Whixall Moss, May, August, not common.	Talybont, Llanbedr
TETANOCERINAE		
Renocera striata Mg.	Whixall Moss, May-June.	
Renocera pallida Fln.	Whixall Moss, May-June.	
Tetanocera hyalipennis v. Ros.	Oswestry (Morda and Penygwely), Whixall Moss, common June-August.	Llwyngwril, Criccieth (Carn).
Tetanocera unicolor Lw.		Llwyngwril, Jn.
Tetanocera elata F.	Oswestry (Llanforda, Penygwely), Whixall Moss.	Llwyngwril.
Tetanocera robusta Lw.	Oswestry (Morda).	Aberdaron (Carn).
Dictya umbrarum L.		Dyffryn, June ♂.
Trypetoptera punctulata Scop.		Dyffryn, Llwyngwril (Mer.),
	Swampy ground — frequent in suitable spots.	Breidden H. (Mont.).

Pherbina coryletti Scop.		Dyffryn (Mer.).
	May-August.	Criccieth (Carn).
Pherbina paludosa R.-D.	Whixall Moss, 2 f., September-October.	

(This species is not included in Kloet & Hincks, and if correctly identified may be an addition to the British list)

Elgiva (*Hedroneura*) *cucularia* L.	Oswestry, Whixall Moss, March, May.	
Ilione albiseta Scop	Oswestry (Morda, Llechrydau), June-August.	Criccieth, Aberdaron.
Ilione lineata Fln.		Criccieth, June.
Hydromyia dorsalis F.	Whixall Moss, Oswestry (Candy Wood, Stiperstones, March-Sept.	Talybont, Arthog (Merion.).
Limnia unguicornis Scop.	Oswestry, Benthall, Whixall Moss, fairly common, June, July.	Aberdaron, Talybont.
Limnia (*Euthycera*) *fumigata* Scop.	Oswestry, Whixall Moss, uncommon.	
Statinia (*Coremacera*) *marginata* F.		Dyffryn (Merioneth), June.
Sepedon sphegeus F.	Whixall Moss, 1 m., September.	
Sepedon spinipes Scop.	Whixall Moss, 2 m., 1 f., August.	

TETANURINAE

Tetanura pallidiventris Fln.	Candy Wood, Oswestry, Wrekin, June, July, local.	

NOTES ON HABITATS OF SCIOMYZIDAE LISTED ABOVE.

Oswestry (*Morda*): Yellow Iris and *Petasites* on banks of mill-race.

Oswestry (*Candy Wood*): Boggy ground by banks of Morda Brook and wooded hillside above.

Oswestry (*Penygwely*): Boggy moorland about 1,250 ft.

Oswestry (*Llanforda*): Similar to Candy Wood.

Oswestry (*Llechrydau*): Similar to Penygwely.

Whixall Moss: an extensive acid peat bog, on which peat cutting is actively carried on. A canal runs through it, while there are boggy areas with Reed Mace in places.

Knockin Heath: a sandy wooded district.

Wrekin: Deciduous woodland with boggy patches.

Llwyngwril: Swampy ground along banks of swiftly flowing river.

Talybont: Marshy ground and ditches along delta of small stream.

Criccieth: Banks of lower reaches of River Dyfawr.

Aberdaron: Small ponds and boggy patches near sea.

Dyffryn: Salt marshes with drainage ditches near sea.

Breidden Hills: Edges of pond.

CORRIGENDA.—Page 15, line 20, for *sexatilis* read *saxatilis*; page 95, line 32, for *Leucopsis* read *Leucopis*; page 190, line 27, for *Hilaria* read *Hilara*.

Some Miscellaneous Records of Bred Diptera

By KENNETH G. V. SMITH

The following notes are on Diptera bred during the past few years.

TIPULIDAE

Tipula vittata Mg.: A pupa of this species was found at water level in the root of a rotten birch stump, partly submerged in a bog at Whitwell Coppice, near Much Wenlock, Shropshire, on 8.iv.55. A female emerged 24.iv.55.

Tipula flavolineata Mg.: Mr. G. R. Gradwell brought me two pupae of this species taken in a wooden stump at Wytham Wood, Berks, on 13.ii.56. A male and female emerged on 27.iii.56. I found a larva in a rotten trunk at Bagley Wood, Berks, on 25.iv.56. This larva pupated on 2.v and a female emerged on 17.v.56.

Dictenidia bimaculata (L.): At Waterperry Wood, Oxford, on 8.v.55, I found two larvae of this species in a birch stump colonised by the ant *Lasius niger* (L.). A male and female emerged on 5.vi.55.

Tanyptera atrata (L.): From larvae found in an old birch stump at Whitwell Coppice, Shropshire, on 8.iv.55 adults were bred as follows:— Two males, 23.v and 31.v and a female 5.vi.

Diogma glabrata (Mg.): I found the striking larva of this species among moss at Bagley Wood, Berks, on 6.v.55. A few days later my colleague, Mr. P. J. Osborne, found a further sample among moss in the same locality. The larvae pupated on 22.vi and two males emerged on 2.vii and 4.vii. As far as I know this species has not previously been bred in this country. The larvae are very sluggish and their green colouring and shape blend perfectly with the mosses on which they feed. Brauns (1955) figures the larva of *Diogma* and other Cylindrotominae. Other species of this interesting subfamily of 'leaf' eating Tipulids have been bred by Taylor (1945), Bainbridge Fletcher (1945) and Hicken (1946).

ANISOPODIDAE

Anisopus fenestralis (Scop.): Many larvae were found on rotting roots of *Angelica* at Calne, Wiltshire, on 25.xii.54. Adults emerged during mid-April 1955. Colyer and Hammond (1951) record various larval habitats for *Anisopus* species including decaying roots of *Angelica* and Burdock.

CERATOPOGONIDAE

Forcipomyia bipunctata (L.): Mr. P. J. Osborne brought me larvae of this species of which he had found large numbers under bark in the University Parks, Oxford. Adults emerged 20.xii.54. This species has often been bred from similar habitats.

Neurohelia luteitarsus (Mg.): Adults emerged 20.vi.56 from two pupae found on rushes bordering the canal in Oxford. The pupae were 'cemented' to the leaves a few inches above the water surface.

SCATOPSIDAE

Scatopse fuscipes Mg.: This species was found breeding in some numbers in the Cricket cultures described by Jordan and Baker (1956) in the Cytology Laboratory at Oxford. While Scatopsidae are known

to breed in many media the present habitat strikes me as being a rather unusual one.

MYCETOPHILIDAE

Sciophila ochracea Walk.: Prof. G. C. Varley recently brought me part of a cherry tree branch covered with dry silken webs of this species, and from cocoons beneath the webs three males emerged 12 and 13.viii.56.

BRACHYCERA

STRATIOMYIDAE

Beris geniculata Curt.: Many larvae of this species were collected at the roots of *Angelica*, 25.xii.54, at Calne, Wilts. Four males and five females emerged 25.vi.55.

Pachygaster leachii Curt.: One female bred 15.vi.55 from a larva found at Angelica roots, 25.xii.54, at Calne, Wilts (along with *Beris geniculata* and *Anisopus fenestralis*).

Pachygaster meromeles Duf. (=*orbitalis* Wahlb.): Mr. A. J. Pontin brought me 10 larvae of this species found under Elm bark, Tubney, Berks, 19.iii.56. Five adults subsequently emerged.

RHAGIONIDAE

Rhagio lineola F.: I have bred one male, July 1956, of this species from a pupa found in sandy soil beneath leaf mould, Tubney Wood, Berks.

Rhagio scolopacea (L.): Mr. H. E. Hammond kindly gave me a female (em. 31.v.49) of this species found as a pupa in a rotten fence-post (possibly alder) at Alvechurch, Worcestershire.

EMPIDIDAE

Tachypeza nubila (Mg.): One female bred 5.v.55 from a rotting moss-covered birch stump, Whitwell Coppice, near Much Wenlock, Shropshire. One female bred April 1955 from a pinkish-white larva found in a rotten Ash log, Shotover, Oxon., on 20.iii.55.

SYRPHIDAE

Microdon eggeri Mik: Mr. A. J. Pontin brought me several larvae of this species which he had collected from a nest of *Lasius niger* (L.) in a tree stump at Shabbington Wood, Buckinghamshire, 6.v.56. Adults emerged 15.v.56. Mr. Pontin also brought in some empty skins of the same species from a *Lasius niger* nest at Padworth, Berks, 26.v.56. This species does not appear to have been previously recorded from Bucks and there appears to be only one previous Berkshire record (vide Donisthorpe, 1927).

PALLOPTERIDAE

Palloptera quinquemaculata Mcq.: One female bred 15.v.55 from a pupa found in soil under a group of Fool's Parsley and Dandelion, Wolvercote, Oxon., 7.v.55.

Palloptera ustulata Fln.: Several bred 26.iii.56 from larvae found under Poplar bark in Oxford. Morge (1956) has recently described the immature stages of *Palloptera usta* Mg. and *P. ustulata*.

SEPSIDAE

Nemopoda nitidula (Fln.): My wife found several pupae of this

species in a rotten log at Bagley Wood, Berks, from which adults emerged 17.iv.57.

CLUSIIDAE

Clusiodes albimana (Mg.): From 3 puparia found in a mossy tree stump at Wytham, Berks, a male and two females emerged 4.vi.55. This species and others have been bred from similar habitats on several occasions.

CALLIPHORIDAE

Sarcophaga villeneuvei Boett. or *nigriventris* Mg.: Mr. A. J. Pontin brought me a bee, *Bombus terrestris* (L.), containing a *Sarcophaga* pupa inside the abdomen, from Sivercombe Down, Oxford. A female emerged 27.vi.56 of either *S. villeneuvei* or *nigriventris*. Unfortunately even with the recent key to females (Day and Fonseca, 1955) it is not possible to determine this specimen further, and I must thank Dr. van Emden for confirming this. Previously *S. nigriventris* is recorded as parasitising living snails and has also been reared from a locust, a *Carabus*, a moribund *Necrophorus* and a *Blaps*. It seems likely that the bee from which the present specimen was bred was dead or moribund before the parent *Sarcophaga* found it.

MUSCIDAE

Phaonia gobertii (Mik) (det. J. E. Collin): Several bred 9.iv.56 from larvae found under Elm bark, Tubney, Berks.

Phaonia scutellaris (F.): One male bred May 1955 from a pupa found in a rotten log, Whitwell Coppice, near Much Wenlock, Shropshire.

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Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

Peronea cristana Fabr. Should the weather keep reasonably warm it is still possible to beat out *Peronea cristana* Fabr. and its relatives *P. umbrana* Hüb. and *P. literana* L. until almost the end of October, as they do not enter their winter quarters until a steady cold patch has arrived. Of course it is quite useless to try for them on a frosty morn-

ing, as they will drop at once and refuse to rise again but even on such days after a little sun they will fly in the afternoon. *P. umbrana* does not seem to be taken often today, but probably only wants looking for. I know one place in the New Forest where one or two could usually be taken before the war, and Hayward got a few near Crewkerne in Somerset in the early 'thirties.

Eucosma sordidana Hüb. may be beaten from alders, amongst which it is sometimes common in the first three weeks of October. It is a sluggish insect and keeps in fair condition for some time, though as it is not a hibernating species it is as well to take it as early as possible after emergence. I have usually found it best in the copses of alders, called 'carrs' in East Anglia, and not amongst mixed growth in a wood. It was very common in one of these near Faversham in Kent.

Anthophila pariana Clerck. Although this little moth is rather local it is more generally distributed in the south than is usually supposed. A building with a thatched roof near an apple orchard, or, failing this (corrugated iron being now the usual roofing material) a well-thatched stack is a good place for its capture. A beating-tray or old umbrella should be held below the overhanging thatch, which should then be well beaten and the moths will fall into it, usually in some numbers. Sundry Depressariae and *Alucita hexadactyla* L. will usually be taken at the same time.

A Moth Border. Between the two wars I formed a moth border in my garden at Westcliff. Unfortunately it became completely overgrown and the plants perished between 1939 and 1946. The idea was to accumulate sundry perennials which harboured scarce micros, so that a visitor or correspondent could be supplied at once. My plan was to plant a clump known to be infested by some desirable insect between two other strong ones, and after a year or so all would form a strong colony. Thus I had half-a-dozen plants of *Artemisia absinthium* which contained a flourishing colony of *Euzophera cinerosella* Zell. and *Eucosma pupillana* Clerck, introduced in a clump from Chatteris given me by the late Sir John Fryer. A row of tansy produced *Hemimene saturnana* Guen. and *H. sequana* Hüb., introduced with a root from Melford Road, Sudbury, Suffolk, sent me by Bernard Harwood, and *H. flavidorsana* Knaggs and *Platyptilia ochrodactyla* Hüb. introduced by myself from Horning in Norfolk. It would be tedious to detail other insects, but mugwort alone produces a host, if the appearance of such a disorderly plant can be tolerated.

Notes and Observations

Lycaena virgaureae Linn. on the Continent.—I have now taken *virgaureae* on the Continent so that I know what it looks like should I ever have the luck to run across it in England. I took it on 10th July at Les Entrages, about 5 miles from Digne (Basses Alpes) and probably at an altitude of about 3,000 feet. It was slightly tattered there, but I got it in good condition three days later at La Grave (Hautes Alpes) at an altitude of between four and five thousand feet. At La Grave *Melitaea dictynna* was also flying in the same places as *virgaureae*, but I saw neither species above 4,700 feet. At about the 5,000 feet mark where the vegetation was more like that of England, both *M. varia* and

A. pales were fairly numerous and I wondered whether these two species had ever occurred in England.—ALAN KENNARD, Torns, Ashburton, Devon. (*in lit.*, 25.vii.57).

— —.—I was particularly interested to learn that *L. virgaureae* is extending its range. I found it in Austria both this and last year but I have never seen it round here (Western Germany) . . . I have not come across it north of an E.W. line through Osnabruck, which gives an added interest to the fact that I heard from Brig. Lipscomb the other day that he had encountered it between Lüneburg and Soltau. With regard to *L. dispar*, I was in Schleswig-Holstein in June and I came across a colony of what I took to be *rutilus*. The insects were just emerging and were in the very pink of condition. Unhappily I had no gear with me, and as it was a scorching hot day was unable to examine them in detail . . . . The date was 18th June and the locality was a damp hay meadow surrounded on three sides by woods, north of Eutin.—Major W. A. C. CARTER, R.A., B.A.O.R. 28. (*in lit.*, 11.viii.57).

MACULINEA ARION LINN. ON DARTMOOR.—My knowledge of *M. arion* is somewhat limited as I have never been in this area, until this year, during the early part of July. There are two localities on Dartmoor, or perhaps it would be better to say that there *were* two localities as one was very weak and the insect has not been seen there in recent years. As far as the other one goes it was thriving until two winters ago when someone ploughed up its habitat and planted beet. I feel certain that it exists elsewhere on Dartmoor but probably always as a weak colony, though I think the species as a whole has now passed its lowest ebb and is beginning to increase again.—ALAN KENNARD, Torns, Ashburton, Devon. (*in lit.*, 25.vii.57).

RHODOMETRA SACRARIA LINN. IN SOMERSET.—I took a specimen of this moth on the 28th June at Hardington Mandeville, near Yeovil.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey. 3.vii.57.

SCIAPTERON TABANIFORMIS ROTT.—In the July/August *Record* (p. 170) there is a note on *Sciapteron tabaniformis* and there is quoted a statement from Seitz or rather based on Seitz in which it is stated that *Populus* spp. are the only known foodplants. This is hardly accurate since Seitz, Vol. II of the Palaearctic portion at page 380 under *Paranthrene tabaniformis* Rott., gives *Salix* also and as well refers to Herrich-Schäffer's statement that *Eubulum humile* was also a foodplant. Mr. Wm. Fassnidge and I obtained larvae and pupae of this species in some numbers from *Hippophae rhamnoides* growing amongst the alluvial detritus on the edge of the Bachelard torrent at Uvernet, Basses Alpes. We were looking for the larvae of *Deilephila hippophaes* when Mrs. Fassnidge drew my attention to an empty pupa case protruding from the stem of a *Hippophae* bush. Fassnidge got from the villagers at Uvernet the loan of a small axe and a small saw and cut out both larvae and pupae in some numbers. Three of the bred moths are in my cabinet. I have often wondered if the insect could be found on the golf links at Burnham-on-Sea, Somerset, where *Hippophae* grows in quantity. It is not a nice bush to work as the spines are very poisonous. I have had no chance of investigating this as I have not been in Burnham for many years. Incidentally, A. E. Burras bred

a specimen from *Populus canadense*. It was feeding in a stolon in the Portsmouth area.—W. Parkinson Curtis, Ladywell Cottage, Branksome Park, Bournemouth. 8.viii.57.

[This history is particularly interesting to us as Fassnidge's series in our possession contains twelve fine specimens labelled 'Uvernet'. But Mr Curtis is mistaken in assuming that the authority for the foodplant of this insect given in our note was Seitz. 'Poplars' are named as the foodplant by Dr. G. H. T. Stovin, G. C. Barrett, South, and, probably, all English authorities. The idea that sea buckthorn is "very poisonous" is a local legend which appears to be without substance. The berries are harmless and indeed are made into jam in some countries. Possibly there are persons who are allergic to the spines, as there are some who react to the thorns of roses.—Ed.]

A Mercury Vapour Lamp-Trap in Dulwich Village.—For some ten months from September 1956 I have put out a m.v. trap on certain nights, when the conditions seemed suitable. It stood in a rather restricted suburban garden near the railway embankment, where there is a considerable growth of poplar. Dulwich is situated in the Metropolitan borough of Camberwell, and the area is largely built up, apart from the neighbouring College playing fields. There is little point in my recording a long list of the common species familiar to all Londoners, but I think it may be of some interest if I give the names of some which seldom occur in the area of greater London, at least in my experience.

Pheosia tremula Clerck: one in May and five in late July and August. *Hadena w-latinum* Bork.: on 8th June. *Agrotis clavis* Hufn.: on 8th June. *Hydraecia micacea* Esp.: several from July to September. *Hadena cucubali* Fuessl.: twice in July. *Cucullia absinthii* L.: two on 24th July. *Drepana binaria* Hufn.. *Cilix glaucata* Scop. *Cerapteryx graminis* L. *Arenostola pygmina* Haw. (*fulva* Hüb.). *Cosmia pyralina* Schiff.: a single specimen on 28th July. *Abrostola triplasia* L. *Zanclognatha tarsipennalis* Treits. *Herminia barbalis* Clerck. *Tholomiges turfosalis* Wocke: on 10th July. *Sterrha rusticata* Schiff. *Scopula marginepunctata* Goze. *Philereme transversata* Hufn. (*rhamnata* Schiff.), *Thera firmata* Hüb. *Perizoma alchemillata* L. *Itama wauraria* L. *Chiasmia clathrata* L. *Anania nubilalis* Hüb.: very common. *Euzophora pinguis* Haw. *Platyptilia pallidactyla* Haw. *Eucosma foenella* L.: two specimens.

The trap was not in use between 12th June and 6th July.

For those interested in the melanic variations of *Biston betularia* L. it may be worth noting that only one specimen out of 53 was of the type form: the remainder were all ab. *carbonaria*.

Many score of *Arctia caja* L. came to the trap and at least 20 *Phragmatobia fuliginosa* L.

I should be glad to hear from any readers if some of these records should prove of interest; many of them are new to me, though I have lived in S. London for more than forty years.—Canon T. G. Edwards, 93 Alleyn Park, Dulwich, London, S.E.21.

Scarcity of Butterflies in 1957.—This has been a most disappointing season for resident and immigrant butterflies. Very few of the migrants have been seen although on 1st September nine *Colias croceus*, a few *Vanessa atalanta* and two *V. cardui* were seen near Salisbury.

The early part of July showed promise with two *Apatura iris* on the 5th, and with the first *Lysandra coridon* flying on the 3rd it looked as though there would at least be some 'blues' to potter with; but the season deteriorated rapidly and it turned out to be one of the worst years ever remembered for *coridon* in this area. However, hopefully looking for vars. on 1st August a lovely form of *Aricia agestis* ♂ was taken. The normal bright orange borders were replaced with distinctive milky white on the upper and under sides: a very striking variety in fresh condition. The form mentioned by Frohawk in *British Butterflies*, p. 221, with pale lemon borders as being rare seems to be the nearest approach to it. Can anyone tell me if this is a named variety?

The ubiquitous 'browns' were well below the average in numbers: *Pararge aegeria* and *Aphantopus hyperantus*, which have been extending their range and environment to hedgerows in this district, were seen only occasionally as isolated individuals.

Whilst collecting broods of *Aglais urticae* (*V. io* was non-existent) with a quantity of *V. atalanta* larvae from nettles, with a view to carrying out some temperature experiments, nineteen *V. cardui* larvae were also taken from the same foodplant but none from apparently suitable thistles growing nearby or anywhere else in the neighbourhood. Many of the *atalanta* larvae were of a very dark form, almost black, some with a few yellowish markings on the sides very much like some *cardui* larvae; indeed it was not until pupation had taken place that it was discovered that so many *cardui* had been collected.—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Salisbury, Wilts. 5.ix.57.

LARVAE OF CUCULLIA VERBASCI L. AND C. SCROPHULARIAE.—On a larva-hunting expedition along the Avon valley in Wiltshire on 11th July some Cuculliinae larvae were collected from figwort. Most likely they are *C. verbasci* but could well be *C. scrophulariae*. Can anyone tell me how to differentiate these two species in the larval stage? As the larvae have now pupated there will be a further problem of identification should the moths duly emerge!—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Salisbury, Wilts. 5.ix.57.

LARVAE IN BANANAS.—On 1st September I found some micro larvae living in a thin web between the 'fingers' of a 'hand' of bananas. They are about 1 cm. long, pinkish white with a brown head, and are adorned with black spots. They were placed in a large test-tube and supplied with a portion of banana stem, and have since tunnelled into the stem leaving a trail of frass similar to that left by Sesiid larvae. Is it possible that they are either *Opogona antistacta* or *O. subcervinata*? Perhaps our Editor could enlighten me.—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Salisbury. 5.ix.57.

. [Meyrick, *Revised Handbook*, p. 818, mentions *subcervinata* as a non-resident introduction.—ED.]

LARVAE OF ARCTIA CAJA L. PUPATING IN AUTUMN.—On 1st August fifty larvae of *A. caja* (a species that has become increasingly scarce in this area) were given to me. They were in their first instar, and it was decided to try to 'get them through' this season by forcing. They were kept in a glass tank and supplied with fresh dandelion every

day and they proceeded to grow at a rapid pace, eating almost non-stop. Today, 6th September, all but two are full-fed, and some have started to spin up. Two backward ones are still in the normal hibernating stage and seem plainly determined to remain so.—C. M. R. Pitman, Malvern, Southampton Road, Clarendon, Salisbury, Wilts. 6.ix.57.

Rearing Heliophobus albicolon Hb.—I must thank Messrs. H. C. Huggins and A. T. Postans for their useful and interesting comments in the July/August issue on the rearing of *H. albicolon* Hb., also Messrs. G. Haggett and H. E. Chipperfield who wrote to me privately on the subject. It seems obvious from their remarks that the larvae of *albicolon* bury themselves in sand in nature, and are better in captivity when supplied with sand. They probably have catholic tastes as regards diet, but the books are not very helpful on this point. As I mentioned before, South includes the remark, "it is a larva of secret habits, and very little known". The observation is by no means applicable to *albicolon* only, and it is rather surprising how little has been published in book form about the early stages of a number of common moths. Much of the really helpful information is found in journals like this one. A further interesting point raised by Mr. Haggett concerns the lively behaviour of the newly-emerged moth. He adds that several *albicolon* were reared from pupae dug up in the Breck area in connection with Forestry research work, and that when the moths came out they made determined efforts to escape as soon as their wings were dry. The tip is a useful one to remember, for we know to our sorrow that some species can quickly ruin themselves in the breeding cage.—G. E. Hyde, Pantiles, Warnington Drive, Bessacarr, Doncaster.

The Gipsy Moth in England.—The reference to the efforts by the U.S. Department of Agriculture to exterminate the gipsy moth (page 171, July/August issue) raises an interesting point. How is it that this species, apparently introduced into the U.S.A., has become such a pest there, and yet seems to have died out in this country more than a century ago? Those who have reared alien larvae of the species will agree, I believe, that they are easy to deal with in captivity. Several I had this year accepted a very mixed diet, including plum, sallow, hawthorn and oak, and duly pupated and produced fine moths. I have had others in earlier years, and none gave the slightest difficulty; why, then, should the species have vanished from its ancient British haunts? Mr. H. A. Leeds once showed me a place close to Wood Walton, Huntingdonshire, and said that it was where the last of the British gipsy moths were found. I am not able to throw light on the origin of this claim, but the locality seemed ideal in every way.—G. E. Hyde, Pantiles, Warnington Drive, Bessacarr, Doncaster.

[This matter of the autochthony or introduction of *Lymantria dispar* L. has been debated several times in the entomological magazines. See a paper by C. Nicholson in *Ent. Rec.*, v, 236-240, and Tutt's criticism of it at page 256 of the same volume. "He [Tutt] concluded that the reason why the species was extinct in this country was because it was not a native. Its whole history proved it to be an imported species even when it first became known. Thousands of specimens in all stages had been set loose in various parts of the country,

but with the exception of an odd specimen here and there, no specimens were taken wild. Its abundance in the Fens for a year or two simply pointed to the care with which it was put out, and to the temporary existence of favourable conditions", etc. See also *Ent. mon. Mag.*, 2nd Ser., vii, 169-173 (August 1896), "The Gypsy Moth in England", by Prof. C. H. Fernald, who quotes various literature on the subject. See also *Ent. Rec.*, viii, 208 (Habits); Doubleday on, in *Proc. Ent. Soc.*, 1867 (vol. for 1866), p. xlix; *Lambillionea*, November 1936, p. 257. The Gipsy Moth used to occur also in the Somerset marshes, where J. C. Dale took it during the early decades of the last century.—P. B. M. A.]

NEWS FROM AVIEMORE.—Mr. F. Noble and I left Bishop's Stortford at 5.30 sharp on Saturday morning and had our dinner here at Aviemore at 7.45 p.m. We had alternate sunshine and showers until we got to Perth where we had a cloudburst. The distance was 504 miles.

We have had some good insects at sugar. The numbers have been few but the quality has been good. During the day we have seen the usual moths for the time of year, *D. citrata*, *O. chenopodiata* and *C. didymata*, and also a few belated *E. caesiata*. *Lygris populata* was very common around Loch an Eilean and some very dark brown forms were obtained. One worn *C. paludata* and a fresh *A. plagiata* were observed and an *E. bilineata*. *E. aethiops* though worn was plentiful. *P. napi*, *P. brassicae*, *C. pamphilus* and *A. urticae* were the only other butterflies. The strong winds hindered beating, but *L. callunae*, *L. capucina*, *D. falcataria*, *A. megacephala*, *T. or*, *L. capucina*, *N. dromedarius*, *C. ligustri*, *S. lunaria*, *G. bidentata*, *B. betularia*, *O. luteolata* and *T. juniperata* fell into the tray.

The following came to sugar. Those marked with an asterisk came to light also.

**L. solidaginis* (common), **A. glareosa*, *E. paleacea* (5), **D. dahlii* (common), **N. depuncta* (4), **A. xanthographa* (common), **T. pronuba* (a few), **P. suspecta* (a few), **A. baja* (a few), **A. monoglypha* (a few), **C. graminis* (common), *N. rubi* (1), **A. tragopoginis* (a few), **A. secalis* (1), *H. oculea* (a few), *A. castanea* (1), *C. icteritia* v. *flavescens*. Several of the *oculea* were of a dark red colour and the *castanea* of the deep red so different from the grey f. *neglecta* of the New Forest.

At light only we took: *H. micacea* (a few), *E. tritici* (*aquilina*) (1), *D. citrata* (common), *H. proboscidalis* (1), *L. testata* (1), *L. testacea* (1), *P. chi* (1), and *X. fluctuata* (a few).

On the night of 22 August there was a great storm of wind and rain. Although 110 posts were sugared only 13 moths of five species braved the elements. Ten days ago there was a cloudburst on the Findhorn and the river rose 32 feet (the official figure. I guessed 30 feet from seeing driftwood up in alder trees). The tributaries obliterated one road for 200 yards and washed away a stone bridge.

The ling looks very beautiful on the mountains and there is still a lot of bell-heather in bloom.—CLIFFORD CRAUFURD (*in lit.*, 23.viii.57).

(*later*) Mr. Noble and I left Aviemore at 6.40 on Saturday morning and arrived at Bishop's Stortford at 9.10 p.m. after a journey during which the windscreen-wiper was in continual use. We lost much time in Doncaster where the repair of a bridge and the crowds

from football caused about 45 minutes' delay. Mr. Noble drove throughout both going and coming.—C. C.

A Note from Cornwall.—In Cornwall this year I think it is safe to say things are far from good. Balmy nights have been few and far between, even in June. I have found *E. aurinia* in three new places, and in one of them there appears to be a colony of *H. tityus* too. The mercury vapour lamp has produced one *M. turca*, which I thought was a woodland species, *L. putrescens*, *L. litoralis*, and, I think, *L. straminea*. *H. barrettii* turned up on 5th July, and on 8th July one ♂ *E. chrysorrhoea*, which surprised me. *E. caniola* (three on 4th August) and about ten *L. quadra* so far during this month, about complete the list. *C. cossus* came to the lamp on 4th July, but I overslept and the birds left me only the wings.—Dr. F. H. N. Smith, Perranporth, Cornwall. 18.viii.57.

Foodplants of Papilio machaon Linn.—A correspondent who lives in Norwich has sent me the following note in respect of my paper on *Papilio machaon* in Britain (*Ent. Rec.*, **68**: 257-260). He is a well-known Norfolk naturalist, and as his note contains several observations on the foodplant habits of this butterfly in Norfolk not hitherto published, it will I believe interest readers of the *Record*.

"Rue is not at all uncommon in cottage gardens in East Anglia and it is still used as an antidote for the 'gapes' in poultry (they stuff a leaf of rue down the throat of a gaping fowl). There would be more rue in local gardens if the plants did not become wiped out in severe winters: *e.g.* many of the plants were killed in the hard frosts of February 1947. I used to know several fine old rue bushes in the district when we lived at Gorleston, but never saw or heard of swallowtail caterpillars on them.

"You make no mention of *Angelica sylvestris* as a foodplant of *P. machaon*; yet I find the caterpillars more commonly on this than on *Peucedanum palustre* at Wheatfen *when there is a second brood, i.e.* in autumn. C. W. V. Gane found exactly the same thing happening in the Barton Broad district some years ago. I have also seen the caterpillars on carrots growing near this place *in autumn only*; but, as you suggest, the insects are not likely to keep going on carrots, as these are harvested too soon. It is extremely odd, I feel, that *machaon* should not be widely distributed on *Angelica sylvestris*, which grows throughout these islands. The plant is a biennial and the foliage is available throughout the year, not only in fens, but in damp woods and on heavy land by roadsides. It seems remarkable that one does not find the June-July larvae on this plant. It is possible, of course, that not all strains of the *Angelica* are acceptable to the caterpillars (the plant is variable). There is also a possibility that the angelica is acceptable only for part of its growth period. This may seem an odd suggestion to you, but it is quite usual for plants to be susceptible to attacks by parasitic fungi only for a short period in their lives and to be immune at a later stage of development. I would not go so far as to suggest that *machaon* caterpillars could not be induced to feed on angelica at all seasons, only that the imagines might be repelled from ovipositing on the leaves in early summer.

"*P. machaon* has plenty of opportunities for colonising fresh territory, so far as the dispersal of imagines is concerned. Powerful east winds sometimes scatter the butterflies far over West Norfolk; but they never seem to succeed in extending their breeding territory beyond Broadland.

"I have never come across dill in local gardens (except that I grew it here one summer); dill-water is so cheap that people don't bother. It is an annual only, of course, so would not offer *machaon* much assistance".—E. P. WILTSHIRE. 8.viii.57.

BUTTERFLY HUNTING IN SOUTHERN NORWAY.—I spent the month of July 1957 at Fevik in south-eastern Norway, about twenty kilometres south of Arnedal. It is on the coast, which is rocky with sandy bays and inlets. The country round about is very wooded, with large open clearings given over to farming. For most of the time the weather was sunny and very hot, temperature ranging from 20° to 31° C. There were one or two thunderstorms at night during the end of the month.

Maniola jurtina and *Eumenis semele* were abundant on the grassland. About the 15th of the month *Parnassius apollo* began to appear and a number were seen, a nice series of six being taken. *Argynnis cydippe* and *A. aglaia* were plentiful, a number of the former being var. *cleodoxa*. *A. niobe* was very scarce and only four were taken. On the 21st of the month *Vanessa atalanta* and *V. cardui* were seen flying inland from the south-east in some numbers.

During the last week of the month *Colias hyale* and *C. croceus* were seen in a field of red clover, six fresh specimens of each species being netted. *Euvanessa antiopa* was scarce, the bag being only five. I think July is early for this insect to emerge. There were large numbers of *Pieris rapae* on the farmland: this is the first time I have seen this species flying during my ten years in Norway. I took one in my house two years ago and I think this came out of an imported Dutch cabbage! The empty pupa-case was found in a store cupboard later.

A few *Aporia crataegi* were seen on a large fruit farm inland, and *Lycaena virgaureae* was very common in one locality. *Zygaena filipendulae* and *Z. lonicerae* were abundant on the grassland and roadsides. In the woodlands several *Limenitis camilla* were seen and three perfect specimens caught. *Plebeius argus*, *Polyommatus icarus* and *Cupido minimus* were very common indeed.

It was a successful hunt in many ways. The weather was perfect and a hundred and twenty specimens of twenty-one different species were taken. Eight of these species I had not caught in Norway previously.

A few months ago I read in an Oslo newspaper that there are ninety different species of butterflies to be found in Norway. I can find no books on the butterflies of Norway so can not confirm this. I intend to make inquiries at the local museum presently, for I was under the impression that there were not more than fifty different species in this country. Wahlgren's book with its fine coloured plates, of which I possess a copy, deals chiefly with the butterflies of Sweden and many of the 96 butterflies which it lists are rare migrants that have not been seen since 1895. In conclusion I should like to see more English collectors come hunting in Norway.—HENRY LEE, Sons Gate 7ii Opg I, Oslo.

The Two Subgeneric Names of Butterflies Disparia Vrty. and Simplicia Vrty. Replaced, being Homonyms.—Mr. Francis Hemming has kindly pointed out to me that two subgeneric names which I had given to butterflies are homonyms, having already been used for genera of Lepidoptera. They must therefore be replaced, as required by the Code of Ethics in the Regles established by the Commission for Zoological Nomenclature. I do so as follows in this note.

I replace by the name of *Thersamolycaena* nov. that of *Disparia* Verity, 1943, *Farfalle Diurne Ital.*, II, pages 21 and 58, which is a homonym of *Disparia* Nagano, 1916, *Bull. Nawa Ent. Lab.*, I, page 3, given to a genus of Lymantrid moths.

This new name is intended to recall the fact that the male genitalia of the typical species of this subgenus, *dispar* Haworth (the Large Copper), exhibit intermediate features between those of the genus *Thersamonia* Vrty., to which the subgenus belongs, and the genus *Lycaena* Fabr., as correctly applied to the Coppers.

I replace by the name of *Simplospinosia* nov. that of *Simplicia* Vrty., 1953, *Farfalle Diurne Ital.*, v, page 194, which is a homonym of *Simplicia* Guenee, 1854, *Hist. nat. Ins. Spec. gen. Lep.*, VIII, page 51, given to a genus of Noctuid moths.

This new name is intended to recall the fact that the male genitalia of this subgenus of the genus *Erebia* Dalm. has, in its subgenotypical species *epiphron* Knoch and in its other species, male genitalia with a very simple valve, but a great many prickles upon it.—Roger Verity, M.D., Caldine, Firenze, Italy. 30.v.57.

An Asilid Predator of Dira clytus (L.).—*Dira clytus* (L.), otherwise known as the Autumn Brown, occurs commonly in both the Western and Eastern Provinces of the Cape. The adult is on the wing from the latter part of February until May, and in the Eastern Cape is at its peak for about a month from the last week of March. It is to be found plentifully in the coastal bush as well as inland on grassy slopes and hillsides, flitting about over the grass in countless numbers, sometimes almost in clouds, and in its behaviour reminding one of the Meadow Brown of Britain. It can also be seen in town gardens, as in Port Elizabeth, and has been noted feeding on the flowers of Shasta daisies. The wing expanse is from 52 to 64 mm.

There is an excellent account of the life-history of this Satyrid by G. C. Clark (*Jl. Ent. Soc., S.A.* VI, 1943). The eggs are scattered indiscriminately among grass, most species of which are host-plants. The larva spends the day at the roots, and feeds on the blades at night. It reaches full-growth from August to November, and then remains quiescent at the roots until February when it pupates. Pupation takes place at the roots of grasses, under stones, dead leaves, etc. There is one generation per year, but occasionally there is a partial second generation.

While the writer was on holiday at Port Alfred, a coastal resort north of Port Elizabeth, during April 1956, a large species of Asilid was frequently observed carrying one of these butterflies. Such flies were usually disturbed as one walked along a bush path, rising from the ground and then settling again with their prey some yards ahead. When captured, the flies were reluctant to release their prey, and in all cases

the latter was dead. Dead and battered specimens of the butterfly were often found on paths and elsewhere in the veld, and it seems likely that they were, for the most part, the discarded prey of the Asilid. The latter has now kindly been determined by Mr. H. Oldroyd of the British Museum (Natural History) as being *Alcimus longipes* Macquart (=*alamanus* Walker). Mr. Oldroyd remarks that this is the type species of the genus, and one of the most distinctive of the African *Asilidae*. He adds that these big Asilids (the species concerned is ± 30 mm., in length) do take butterflies, and must be formidable enemies to them.

The writer is much indebted to Mr. Oldroyd for this information, as well as for the determination.—J. SNEYD TAYLOR, Box 7011, Port Elizabeth, C.P. 10.v.57.

UNDERGROUND NEST OF VESPULA SYLVESTRIS (SCOP.).—On 13th August 1957 two wasps' nests were brought into the Natural History Museum, Wollaton Hall, Nottingham. They had been constructed about five feet apart in a garden on the outskirts of the city. The owner of the garden killed the wasps by soaking the nests with paraffin before digging them up. The larger nest proved to be that of *Vespula vulgaris* (L.); it was twelve inches in diameter and consisted of four platforms. About 500 wasps had been killed in the nest, and on examination it was discovered that they were all workers.

The smaller nest had been damaged but it was estimated that its diameter was about six inches. On examining the wasps which had been killed in this nest I was surprised to discover that they were *Vespula sylvestris* (Scop.), a species which normally hangs its nest in trees or bushes. Of the 201 adult wasps 107 were workers, 53 were females and 41 were males. Most of the larvae were full-grown, and there were about equal numbers of larvae and pupae.

The only reference I have found to underground nests of *V. sylvestris* is in *British Hymenoptera Aculeata* (E. Saunders, 1896):—"Smith says that he has once or twice found it (*V. sylvestris*) inhabiting an underground nest". I would be grateful to any reader who could supply me with other references to or personal observations of this phenomenon.—G. S. BAILEY, B.Sc., Natural History Museum, Wollaton Hall, Nottingham. 22.viii.57.

LIVE BEETLES WANTED.—For an investigation which I am making of the physiology of the flight muscles of Coleoptera I need a regular supply of large beetles, *alive* and in good condition. The species I particularly wish to obtain is *Lucanus cervus*, the large stag beetle, and I will gladly pay all expenses incurred in procuring and dispatch, and also a sum per specimen if this is requested. Other suitable species are:—

Melolontha melolontha (the cockchafer).
Geotrupes stercorarius (the large dung-beetle).
Hydrous (*Hydrophilus*) *piceus* (large water-beetles).
Dytiscus marginalis (large water-beetles).

If readers can help me to obtain living specimens for my investigation I shall be most grateful.—DR. J. W. S. PRINGLE, F.R.S., Zoological Laboratory, Downing Street, Cambridge.

Fauna and Flora of Kent.—The Committee of the Kent Field Club would be very grateful if you would be kind enough to publish an appeal for information. We are anxious to compile a complete list of the fauna and flora of Kent, and feel sure that many people who have collected in the county can help us. We should be very grateful for information about localities where common or rare species have been taken, and also where they have not been taken although searched for. This should enable the distribution of each species to be plotted.

Records of macrolepidoptera should be sent to Mr. J. M. Chalmers-Hunt at 70 Chestnut Avenue, West Wickham, Kent, and of microlepidoptera to Dr. E. Scott at 'Suomi', Westwell, Ashford, Kent. Records of other Orders should be sent to the joint secretaries of the Club at Maidstone Museum. Finally, may I close by saying how extremely grateful we should be for the slightest information about any species, however common?—J. F. D. Frazer, D.M., Stone House, Bonley, Maidstone, Kent.

A Migration of Dragonflies in 1938.—"The Trade Wind took the ship close in to the Cape Verde Islands. Nine degrees north of the Equator it died away and we entered the Doldrums. . . . As dusk came on huge dragon-flies with biplane wings purred about the ship; a small white butterfly fell into my hammock. . . . The wind came from the south-east, from the shore a hundred miles off bringing with it a sweet smell like honeysuckle".—from *The Last Grain Race*, by Eric Newby, 1956.

Will our Contributors please note that, owing to the increased postal rates, Proofs of short Notes will not be sent out in future (unless of course stamped addressed envelopes are enclosed)? It is important therefore that all place-names in Notes should be written in CAPITAL letters—there is no 'Kloet & Hincks' for the names of woods, hills, hamlets, etc., to which we can refer. Short Notes will no longer be acknowledged; but this does not mean that they will be any the less gratefully received.

Current Literature

The Lepidoptera of Iraq (Second Edition) by E. P. Wiltshire (Nicholas Kaye, 1957, 45*s*.). This excellent book forms part of a series commissioned by the Iraqi government Ministry of Agriculture to cover the flora and fauna of the country, an enterprising scheme deserving of the help of all in a position to give it. Mr. Wiltshire, well known as an authority on the Lepidoptera of the country, was asked to deal with that Order, and in 1944 the first edition was published as *Bulletin No. 30*. This was an annotated list of 439 butterflies and moths known to inhabit Iraq. This number of known species has now been more than doubled, so that a second edition is more than due.

A comprehensive introduction occupies the first 17 pages and deals with all aspects of the work, its origin, and the plates, which are limited to the main pests, species similar to them, and species new to

science or not illustrated elsewhere; there are also one or two interesting insects shown which may not fall into the above categories.

A census of super-families and families shows how the species are distributed amongst them, and the comparatively small numbers of the Micro-lepidoptera mentioned indicate that there are probably still more species to be added. The country is divided into two biotopes, *viz.* the mountains, 1,500 to 13,000 ft. sub-divided into Above-tree-line (over 5,000 ft.), and the Scrub-forest zone (below 5,000 ft.), this latter being divided again into the various types of land; the other biotope being the Plain, 0-1,500 ft. sub-divided into desert and oasis, each of which is further sub-divided.

There are notes on ecological and phenological adaptations, a distributional chart of families and species as inhabiting the mountain, the plain, or both. A history of the probable origin of the Iraqi fauna and acknowledgments complete the Introduction.

The annotated list follows of 939 species (33 of which were added after the completion of the manuscript). Generally speaking the remarks are limited to locality and biotope, but in certain cases, as of pests and new species, a wider description of habits is included. The larval foodplant is given where known, and descriptions of newly recognized larvae are given, but for those already described the reference is given.

The main treatise is followed by a bibliography and index of species; there is also a list of pests classified under the products attacked, with scientific and arabic names; the insects are referred to by their number in the treatise.

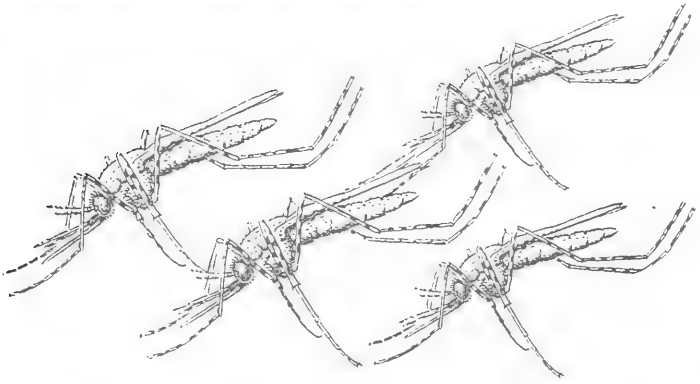
The plates consist of two, each of 28 figures, in colour photography, three of half-tone photographs, followed by nine plates of drawings by the author of 68 genitalia preparations of hitherto unfigured species, and one plate of wing neurations and one of diagrammatic wing patterns of little-known micro-lepidoptera.

Beside its main object of assisting in pest control, this work will be invaluable to local entomologists, and outside the country to those whose interests are not bounded by their frontiers. The book is handsomely produced in dark blue buckram, small 4to format, and of 162 pp. and 16 plates, and should find a welcome on the bookshelves of those mentioned above. Mr. Wiltshire is to be congratulated on his handling of the subject, in doing which he has drawn on all known reliable sources of information, as also are Sayyid Rushdi al Chalabi, Minister of Agriculture, Sayyid Dhia Ja'far, Minister of Development, and Sayyid Darwish al Haidari, chief of the Fourth Technical Section, Ministry of Development, whose energy and foresight have made this work possible.

S. N. A. J.

Night without nets

Among a thousand small and secret sounds of the tropic night there is one which, since time immemorial, has meant disease and misery and death to men in many lands. Unseen in the darkness, riding on diaphanous wings, mosquitoes brought malaria to fifty million, it is estimated, in S.E. Asia alone every year—before control was instituted. And of these, half a million died as a direct result. Today, the picture is changing. Gradually, the night is being made safe for man—without nets. Slowly but surely. By degrees—and by insecticides like dieldrin, developed by Shell.



In the Philippines, dieldrin—used as a residual spray—is playing a major part in a nation-wide house spraying campaign to eradicate malaria-carrying mosquitoes (chiefly *Anopheles minimus flavirostris*) completely from the islands. Already, results are greatly encouraging. Sickness is falling sharply, in some cases by 75%. Infants are growing up free of the malaria menace. And what can be achieved in the Philippines can be repeated elsewhere.

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EXCHANGES AND WANTS

Wanted.—The following monthly parts of *The Entomologist's Record*:—Vol. 26 No. 12 (December 1914) and Vol. 41, No. 3 (March 1929).—*N. D. Riley, 7 McKay Road, Wimbledon, London, S.W.20.*

Wanted.—An early run of *The Entomologist*, preferably Vols. 1-22.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—Named Set Specimens of all insect orders (with data) wanted for cash. *Davidson, 9 Castlegate, Penrith, Cumb.*

Cambridgeshire Lepidoptera.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

For Sale.—Two insect Cabinets, each approx. 20″ × 18″ × 16½″, each containing 6 drawers 13½″ × 16″ × 1½″ (deep enough for Continental pins), each drawer having an airtight glass lid with wooden frame, and a cell for fumigant. Photograph on request. Price £16 the pair or would separate at £9 each. Buyer pays carriage.—*W. Donnisthorne, 109 Pike Road, Efford, Plymouth, Devon.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890).

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TO OUR CONTRIBUTORS

All material for the magazine should be sent to the Editor.

EXCHANGES and ADVERTISEMENTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

CHANGES of ADDRESS should be sent to the *Hon. Treasurer*.

We must earnestly request our contributors NOT to send us communications IDENTICAL with those they are sending to OTHER MAGAZINES.

If REPRINTS of articles (which can be supplied at cost price) are required, please mention this IN YOUR COVERING LETTER.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage

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Editorial

It is pleasant to be able to report, towards the end of a successful year from the magazine's point of view, that the *Record* not only continues to hold its own but still forges steadily if slowly ahead.

Yet we are not altogether satisfied with its progress. We are not enlisting among the ranks of our supporters as many of the younger men as we should like. Specimen copies sent by request do not always 'pull' as they should. Too often there is a polite "Not quite what I require"; "a little too advanced for me"; and so on.

Perhaps the reason for this lack of attraction for newcomers is that if the *Record* is to march with the times it is inevitable that there should be some divergence from the principles which our founder laid down for it. After the first nine monthly parts of the *Record* had appeared Tutt issued a manifesto. He was always forthright, and never more so than on this occasion. This is what he wrote:—

"Owing to the general absence of interest amongst British entomologists in descriptions of purely foreign species, and the gradual tendency of our old magazines to fill up their pages with such matter, utterly useless to the British collector, *The Entomologist's Record and Journal of Variation* was started, with the aim of supplying its readers with material of utility and interest to them, whilst refusing that suited to the requirements of the few. . . . The unqualified approval which attended its publication, and the continued increase in the circulation, tend to prove that an actual need for such a magazine existed amongst British entomologists, rendering its speedy and permanent success a certainty. It is devoted entirely to the requirements of British collectors, and treats of nothing which is not directly or indirectly associated with the study of our British species . . . ."

We are assured that this principle which Tutt laid down is *not* so out of date as some would have us believe: we must remember, however, that an ever increasing number of British collectors find their way to the continent either on service or on holiday, and news of continental collecting conditions cannot fail to be of interest to them. The needs of the purely scientific entomologist are well and admirably supplied by four or more of our contemporaries, not to mention the Continental periodicals. There is—and we believe there always will be—a demand for a *readable* monthly magazine which caters for the British entomologist, and first and foremost for the British lepidopterist. So that whilst progress there must be, we have no intention of losing sight of Tutt's object in founding the *Record*.

Starting with next January, then, we shall resume and/or extend the articles called "Current Notes", "Notes on Life Histories", "Field Notes" and "Practical Hints", and while we shall (as heretofore) devote the major portion of each issue to the Lepidoptera, we shall always welcome (as in Tutt's day) papers on the Coleoptera, the Diptera, the Orthoptera and the Hymenoptera of the British Islands.

Now we have an important announcement to make. In order to build up our reserve fund for assuring the future well-being of the magazine and, we hope, to enable us to have more illustrations and more pages, we are going to raise the Annual Subscription to Twenty-

five Shillings. Will you therefore please remember this when sending the renewal of your subscription to our Treasurer?

S. N. A. J.

Experiments with Eggs of *Lysandra coridon* Poda

By T. D. FEARNEHOUGH

The discovery by Major A. E. Collier that a small percentage of the eggs of *Lysandra coridon* may hatch during the autumn months (*Ent. Rec.*, **68**: 33) was of particular interest to me, for I have for several years tried to rear the species from the egg with but indifferent success. My main difficulty has been in wintering the eggs; the climate in north Derbyshire at an elevation of 700 feet above sea level is vastly different from that of the chalk downs near the south coast where the butterfly appears in such abundance. An original food difficulty has been overcome by growing *Hippocrepis comosa* from seed in pockets of prepared limey compost. The plants need protection during periods of frost or snow, which sometimes lingers for weeks in my garden after it has gone from the lower ground nearby. I have not yet induced *coridon* larvae to eat any plant other than *H. comosa*.

I spent a holiday in early August of the present year at Swanage, and I decided to tackle *coridon* rearing once more. Females of the species were plentiful in nearby localities and I spent some time in selecting a dozen fresh specimens. I was not intending to try any genetic jugglery, but I thought I might with advantage obtain as wide a variation range as possible. Thus my dozen prospective egg producers included abs. *arcuata*, *costajuncta*, and various *obsoleta*.

On returning home the females were caged together and during the following few days they deposited over 1,500 eggs on sprigs of the foodplant. My first concern was to get some of them hatched, and to facilitate observation eggs were removed from the foodplant by using gentle pressure with a setting needle. One thousand eggs were counted into a flat-bottomed shallow aluminium box, and half a dozen 'control' eggs were mounted on a microscope slide using tiny drops of gum. The base of a *coridon* egg consists of a pliable semi-transparent membrane and it is possible by oblique lighting to observe some of the happenings inside the egg. The eggs were kept at normal indoor temperature range and the control eggs were observed microscopically at frequent intervals. Larvae quickly formed and within 10-15 days after being laid all the control eggs appeared to contain fully formed larvae. I now turned my attention to the box of eggs and frequent scannings with a hand lens were rewarded when I spotted the first larva eating its way through the top of the egg. During the following four days 35 larvae hatched and were placed on *comosa* leaves, which they soon dotted with tiny pale feeding scars. For several days no further hatchings occurred and I assumed that the remaining larvae would normally winter in their egg-shells. A considerable number of eggs was obviously infertile so probably one or two of my females had been too fresh. Assuming a maximum of 200 infertile eggs, the number which hatched represented a percentage of 3·5 to 4·4.

I now tried to persuade more eggs to hatch by leaving them out of doors all night, and indoors all day, but only a couple of them responded.

I next heated them by stages to a maximum temperature of 95° F., which resulted in half a dozen more larvae. A repetition of this treatment after a night outside had no result, and I then tried cooling the eggs to the temperature of melting ice for twelve hours followed by various temperature increases up to 95° F. A few more hatchings were thus obtained, but the results of shock temperature treatments soon fell to nil. My grand total was 50 larvae.

I returned to the control eggs on the microscope slide, which had not been subjected to the temperature experiments. The larvae appeared to be coiled round within their egg-shells, the head touching the tail and the legs pointing inwards. I made an attempt to expose a larva by removing the crown of a shell, fragment by fragment, using a fine needle. With a binocular microscope at 30× magnification it was rather like peeling a mushroom with a poker. Within two minutes of its exposure the larva made a little jerk, uncoiled itself out of the egg, and walked away with as much dignity as the glass surface would allow. Telling myself that by a fluke I had chosen an egg which was about to hatch anyway, I tackled egg number two. The larval performance was repeated! Soon I had six lively larvae promenading on the slide. Many times I closely watched larvae climb over empty egg-shells, but I could detect no attempt to nibble the debris. However, when supplied with *comosa* leaves they soon settled down and began to feed.

Having now a good supply of foodplant, I decided I could support a couple of hundred additional larvae, so I set to work to produce this number. Working for short periods at intervals over several days, the two hundred operations were performed, and I now have an apparently healthy brood of feeding larvae.

13 Salisbury Road, Dronfield, nr. Sheffield.

The Life-History of *Alucita galactodactyla* Hubn.

By the Rev. D. P. Murray

Quite a lot has already been written about this Plume Moth but there is always something more to add to what is already known, and no complete life-history giving the early stages has so far appeared (Cfr. *Ent.*, XV, 1881; and Bierne *Brit. Pyralids and Plume Moths*, 1952).

As these Plume Moths generally favour only one particular foodplant it helps considerably with the names to know them by the name of the plant upon which they feed, whether it be coltsfoot, horehound, spikenhard or saxifrage, etc. This one can be called the Burdock Plume.

1. *The Egg*: is oval, pale-green, ½ mm. in length, of a transparent glassy appearance, without markings. The eggs are scattered amongst the woolly texture of the underside of the leaf, very difficult to see, and hatch in a week to ten days according to temperature. One female lays two to three dozen eggs, generally about the end of May.

2. *The Larva*: The first instar larva measures less than 1 mm., pale-green covered with fine silky setae. In the late summer it goes into hibernation amongst the woolly under-surface of the leaf, until the spring, when it begins to feed up from April onwards.

3. *The Full-grown Larva*: may be found at the end of May or the

beginning of June on the undersides of the leaves. They are often gregarious, as many as forty or fifty being found on one plant. At this stage the larva measures 15 mm., pea-green in colour, covered with fine setae; there are two black lines on the back.

4. *The Pupa*: resembles very closely the full-grown larva and is attached to the underside of the leaf, often at the midrib, without any median belt but by a strong cremastral process. Both the larva and the pupa are at first very difficult to see, as the colour is so close to that of the leaf. The moth generally emerges in about 21 days. The ones bred emerged during the last week in June, generally in the late afternoon.

5. *The Imago*: measures about 20 mm., of a sheeny-white with a few black spots on the forewing and a faint brown shade in the lobes of the hindwing. It is single-brooded, generally to be found from the middle of June to the first week of July.

6. *The Genitalia*: as with most of the Pterophoridae the valves are slightly asymmetrical, the right valve being slightly smaller than the left.

7. *The Food-plant*: only *Arctia lappa* Linn., burdock, is used. Although this plant is widespread the moth is somewhat local, being more common in the southern counties. It seems to favour chalk soil, as in places in the Midlands, such as wood-sides and wood-clearings, which appear to be quite favourable habitats, the moth does not occur.

The writer has to thank Mr. D. Tozer for helping with material for some of the early stages at the right time.

EXPLANATION OF PLATE

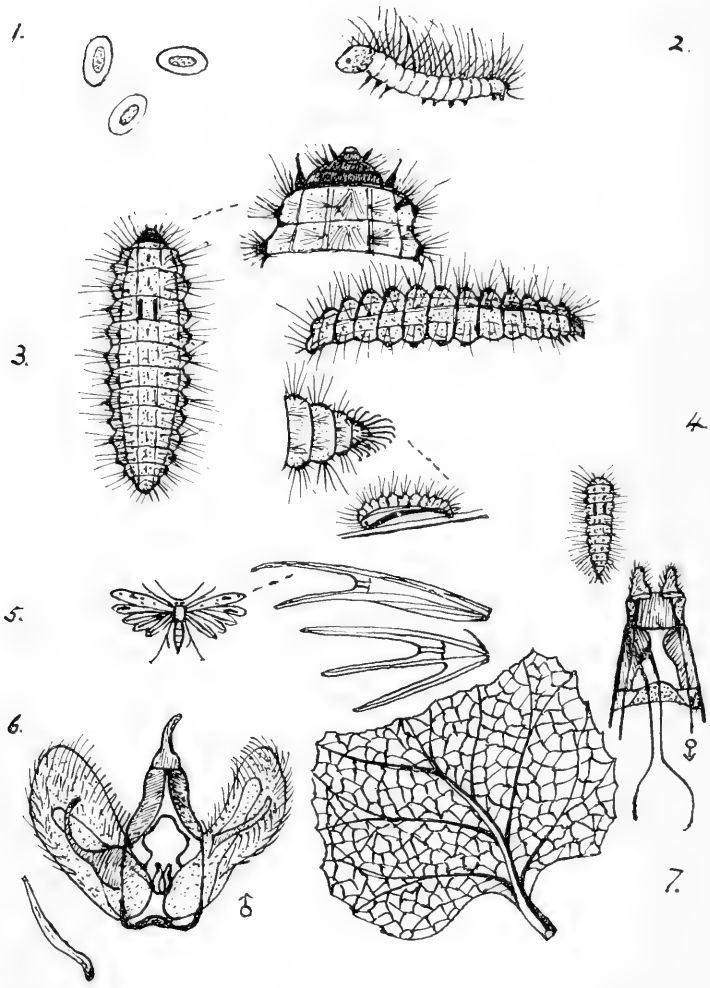
1. Ova × 20.
2. Larva 1st instar × 30.
3. Larva final instar × 4 and part of skin-cast.
4. Pupa × 3 and cremastral process.
5. Imago, natural size and venation.
6. Genitalia ♂ and ♀.
7. Part of underside of leaf of *Arctia lappa* L., burdock.

Continental Migrant Butterflies in 1957

By Brigadier C. G. Lipscomb, D.S.O.

Service in B.A.O.R. has compensations for the entomologist and not the least of them is the opportunity to observe the movements of those migrating butterflies that occur with varying degrees of frequency in the British Isles.

The season opened well for me when I saw early in April, while fishing near Saltau, two *Vanessa antiopa* L. sunning themselves on a bank by the riverside. I watched them for some time and the white borders of their wings, as opposed to the cream colour of the freshly emerged insect, was very noticeable. Unfortunately neither myself nor anyone else to my knowledge has seen another of these fine butterflies during the course of the summer and autumn. It would seem that their reappearanec in Germany will depend on a southerly migration from Scandinavia at some future date. Obviously no such movement took place this year.



Alucita galactodactyla Hb.

Murray del. 1857.

V. cardui L. has been remarkable by its almost complete absence as I have only seen a single specimen, a very fresh one, sitting on a thistle head near Luneburg on August bank holiday. Three weeks' leave in Austria in late August and early September failed to disclose any further specimens. *V. atalanta* L., on the other hand, has been widespread and common.

I had been hoping very much to renew a wartime acquaintance with *Argynnis lathonia* L., but although a friend reported having seen several specimens near Brunswick in June it was not till I reached Austria that I again saw this lovely butterfly. I found the second brood beginning to emerge at the end of August and after some hard work scrambling up and down hillsides near Innsbruck managed to collect a short series. On 9th September I watched a female ovipositing on heartsease growing on a bank by the side of a mountain path.

The most widespread migrant this year has undoubtedly been *Colias hyale* L. which has been very much in evidence all over northern Germany. There must have been a considerable northward movement of this butterfly in early June as fresh specimens started to appear in clover and lucerne fields towards the end of July and throughout the first half of August. They were much in evidence too in Austria and made a grand sight as they careered up and down the steep hillsides and over the lush green fields in the valley bottoms.

C. croceus Fourc. has been all but absent from northern Germany as I only saw three specimens before I left for Austria and none since I returned. In Austria, however, they were fairly common, with many fresh specimens appearing in September when *hyale* was getting very worn. From this it would seem that the original northern movement of this butterfly must have started a month later than that of *hyale*. I only noticed one ab. *helice* but it is possible that others were present as it is not easy to distinguish this form from a ♀ *hyale* on the wing.

Finally, the same friend who reported seeing *lathonia* at Brunswick said he had also identified several specimens of *Pontia daplidice* L. in the same area, but I was not so lucky in finding this butterfly in either Germany or Austria.

Hannover, 30.ix.1957.

The Lepidoptera of Derbyshire since 1926
Part I: Introduction and Sphingidae

By D. C. Hulme

The new *Derbyshire Lepidoptera* is progressing steadily following the most gratifying response to local and national appeals for records (see *Ent. Rec.*, **68**: 157). However, as it will be some considerable time before the work is ready for publication, a paper detailing the most interesting developments in the county's lepidopterous fauna since the appearance of H. C. Hayward's *Lepidoptera of Derbyshire* (1926) may be acceptable to readers.

Hayward's 48-page book included 1,007 species, but of these three are now considered forms, fifteen were queried and fifty-seven were reported only from Burton-on-Trent (these last records also appear in the *V. C. H.*

Stafford list of 1908 and may or may not refer to Derbyshire). The net total, therefore, was 932 certain species. To date the latest catalogue admits 1,061 species and while this may seem a low figure, when compared with the numbers for other counties, it should be appreciated that most lists embody the doubtful insects in their totals.

The history and bibliography prepared for the new work is too lengthy to quote and few of the 178 contributors, 42 of whom have helped the compiler, can be mentioned here. The list has not yet closed and further contributions will be gratefully acknowledged.

Derbyshire (Watsonian Vice-County 57), one of England's central counties, is renowned equally for its beauty and industrial products. Its area is a little over a thousand square miles; its greatest length, 55 miles, and breadth, 35 miles. The surface is thinly wooded, only 3% being forested. The climate is generally mild and the rainfall between 25 and 30 inches annually in the south and east but colder and rainier (about 60 inches on Kinder Scout) in the north and west. Water is the chief feature of the county boundary and has been utilised, wherever it coincides with—or closely follows—the geological formations, for the boundaries of the eight Areas shown on the accompanying sketch-map and here briefly described.

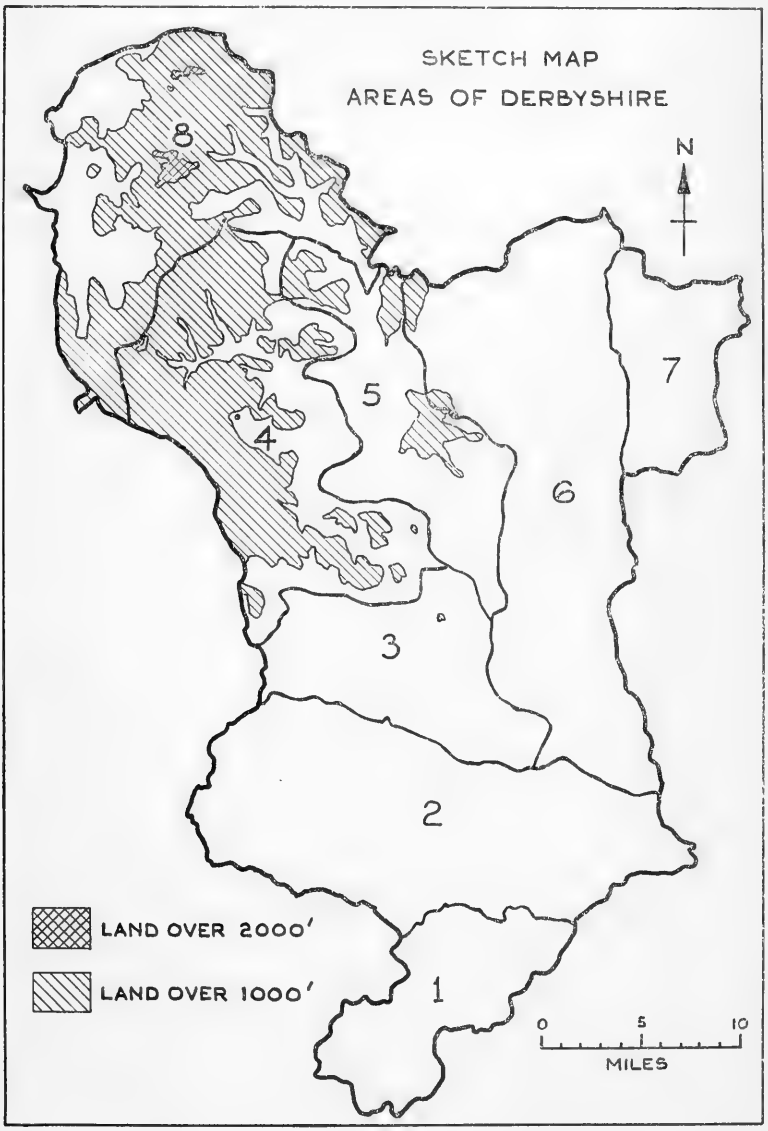
Area 1—South of Trent. A jumble of nearly all the formations found in the county but mainly Triassic. The ground rises from 120 to 604 feet. Habitats are very varied, including mixed woodlands, meadows, osier beds, disused limestone quarries, market gardens and a small coalfield. This Area, especially in the neighbourhood of Repton Shrubs, has been worked continuously for a century by such famous entomologists as Edwin Brown and later Burtonians, numbering among them George Baker, Dr. P. B. Mason, the Rev. C. F. Thornewill, the Rev. F. M. Spilsbury, H. C. Hayward and other Repton School masters along with the boys and Repton-born Mr. A. H. Turner, the compiler of the *Lepidoptera of Somerset* (1955).

Area 2—Sandstone Belt. This Area is richly agricultural over the predominant formation of Red Bunter Sandstone and contains the township of Derby in the centre. The heights range from 90 to 592 feet, and fox-coverts, halls in parkland, shrub-filled gardens and gravel pits are numerous. The vicinity of the county town has been well covered by natural history society members and Mr. N. Blackwell Wood, Honorary Secretary of the Derbyshire Entomological Society for the years 1930 to 1952, and divines—most notably the Rev. Joseph Greene—have, *in the past*, observed the Lepidoptera of their pleasant parishes. The Trent Valley has been marred scenically in the last few years by the construction of three monstrous power stations—all three visible from my home. The newest at Willington has eradicated the Potlock Covert mentioned in early lists.

Area 3—Southern Grit. Mainly Millstone Grit. The uneven ground of this picturesque Area, with its tortuously narrow, winding lanes, dips and rises from 160 to 1,034 feet. Breadsall Moor, among other favoured localities, has long attracted local lepidopterists from the Rev. H. Harpur Crewe, John Hill and W. G. Sheldon's day to the present.

Area 4—Mountain Limestone. Noted for its lovely dales, with their wooded slopes and rich flora, which cut through the thousand-foot high tableland, this Area consists wholly of Carboniferous Limestone. Apart

from some quarries and lead mines the scenery is little spoilt by man and its Dovedale, Lathkil, Millers and Monsal Dales and the Via Gellia have been well worked by visitant entomologists, particularly in recent



years by Messrs. H. W. Daltry, R. G. Warren and H. N. Michaelis.

Area 5—Central Grit. Millstone Grit is the chief rock but small inliers of limestone are enclosed. The vegetation of the grand Derwent Valley is lush and on both banks there are extensive moorlands rising

above 1,200 foot altitude. Residents and visitors, including Dr. E. A. Cockayne and Lt.-Col. A. M. Emmet, have supplied observations on the Macrolepidoptera.

Area 6—Coal Measures. The undisturbed weed-flora of the extensive industrial wastelands supports a great variety of moths. In addition this Area does possess some beauty spots, high moorlands on the west side and large woods (Hardwick Wood, near Chesterfield and Monk Wood, near Dronfield are prominent in the records). Samuel Hooke added many rarities to the 1926 list but the majority of these have now been confirmed by such keen workers as T. D. Fearnehough and J. H. Johnson (see the latter's comprehensive paper, *Lepidoptera of North-East Derbyshire*, 1953, in Volume 66 of the *Record*).

Area 7—Permian. The Magnesium Limestone flora should support many species of Lepidoptera but the coverage of this north-east corner, apart from a three-year period in the 1920's when Mr. A. W. Richards was a resident and the last few years by W. Bilbie, is far from adequate. Perhaps our Yorkshire and Nottinghamshire neighbours could fill some of the glaring gaps east of the Rivers Rother and Doe Lea?

Area 8—Peak Grit. The most northerly Area consists of a high plateau of coarse hard sandstones bounded on the west by industrial towns. Much ground lies 2,000 feet above sea level with the main habitat being grouse moor and having a severe winter climate. The moors, bogs and valleys have always attracted Manchester entomologists, pre-eminently H. N. Michaelis, whose full Microlepidoptera list is the most important contribution on this group since Mr. Hayward's death in 1935.

Sphingidae

The 1926 list followed Edward Meyrick's then unpublished classification. The nomenclature provisionally adopted here is that of Heslop's *Indexed Check List* (1947). His indices and numbering of species have greatly facilitated the compilation in its early stages. Synonyms of Kloet and Hincks' *Check List* (1945) are given where required. The manuscript species sheets for the new list can be easily rearranged to conform to the classification in vogue at the time of publication. The superfamilies will not be treated in systematic order and a small group can now be conveniently reviewed. "Recent" is to be taken as "since 1926" throughout this series.

Thirteen species of Hawkmoths have been observed in Derbyshire and the number per Area is given below.

Area	1	2	3	4	5	6	7	8
Species	10	13	8	7	4	11	3	3

Mimas (*Dilina*) *tiliae* (Linn.). None were reported between the years 1887 and 1939 but there are twenty-five records from the southern half of the county (Areas 1, 2 and 6) since 1940. A single larva and seven pupae have been found recently whilst imagines have been taken between the dates 17th March (in 1944) and 1st October (1955).

Laothoe populi (Linn.). Status seemingly stable—always fairly commonly encountered in the larval and imaginal stages in the south and east. Records for all Areas except Peak Grit.

Smerinthus ocellata (Linn.). Fairly common in the larval state in

all Areas except Central Grit but imagines are rarely taken without the aid of mercury vapour light.

Acherontia atropos (Linn.). Not recorded for Areas 5 and 7. Recent records as follows: an imago in 1927, 1932, 1949 and 1950 and five imagines in 1956 and larvae in 1941, 1950 (eight) and 1955. See *Bull. amat. Ent. Soc.*, **16**: 14 and 35.

Herse convolvuli (Linn.). The only recent examples are a couple of immigrants in both 1945 and 1956. Records lacking for Areas 7 and 8.

Sphinx ligustri Linn. Old records for Areas 1, 2 and 6. Not taken since 1900.

Celerio galii (Rott.). Not taken since 1888.

C. lineata livornica (Esp.). The single record given by Mr. Hayward refers to Staffordshire but the species can now be admitted on the strength of four recent captures in Areas 1, 2 and 6:—

Repton, 2nd June 1931, one (H. C. Hayward).

Donington Hall, 26th June 1931, one taken in the Derbyshire portion of the grounds (F. J. Harper).

Langley Mill, 5th June 1943, a ♂ taken (Dr. J. W. O. Holmes).

Derby, July 1947, a ♀ flew into a hosier's shop and was taken (B. C. Potter; specimen seen by D.C.H.).

Hippotion celerio (Linn.). Recorded in Areas 2, 5 and 6; the three recent records being as follows:—

Derby, summer 1936, two larvae taken on *Fuchsia* (F. R. Larkin and shown to other Derbyshire Entomological Society members) and 21st October 1949, one taken and exhibited alive at a D.E.S. meeting the following day—this specimen was the only British imago of that year (Camden Clarke, *Entomologist*, **83**: 131).

Chesterfield, a fresh imago taken in a garden on the exceptionally late date of 16th December in 1948 (C. P. Robinson).

Daphnis nerii (Linn.). Two old Area 2 records.

Deilephila porcellus (Linn.). Widely distributed in all Areas except 5 and 7 but local and fluctuating from rare to fairly common.

D. elpenor (Linn.). Imagines were rare prior to 1930 but this species has occurred in small numbers almost annually from 1931 onwards, usually in the south and east of the county. Larvae first reported as common this century in 1936, reaching a peak of abundance in 1951. No records forthcoming for the Peak Grit Area.

Macroglossum stellatarum (Linn.). Has visited the county in at least fourteen years of the present century but common only in the three recent years of 1933, 1947 and 1955. Observed between 5th May (1943) and 16th October (1955), most frequently in July and September and once only in June and August.

(*To be continued.*)

Collecting—or Hunting?

By An Old Moth-Hunter

I wish there were more of the collector about me, for I am a hunter by nature; and the more ardent one is to form a collection, the more often and the more eagerly one goes hunting. As a boy, my chief occupation during the summer holidays was with rods and lines.

Wherever there was water which was fishable and on which fly might lawfully be cast—or lobworm sunk—there I was from morning until dusk. But it was not 'specimens' I was after—though the delight of landing a really big one lasted for days and days—nor was I keen to catch a large number, whether of trout or barbel or chub. It was the *hunting* that lured me, and as I grew older the lust of hunting grew with me, so that my rods and tackle increased in efficacy.

In the Christmas holidays I prowled the countryside with a gun. Yet the mere shooting of birds, even though they were edible, never excited me: driven partridges, and pheasants coming high out of a wood, are pastimes which are enjoyable in proportion to one's skill with a gun—'pastimes', not sport; for the prime element of sport, to my mind —*hunting*—is absent from these pursuits. So my ideals of sport had to do with spaniels and hedgerows and, best of all, lonely stalks on the hills or on salterns and estuaries at dusk and dawn.

Even then the collecting trait was absent from my nature. The only bird I ever had stuffed was a godwit which nearly cost me my life: it was on an Irish estuary—a wild January afternoon when a roaring tide and a blinding blizzard cut me off from safety. 'Tis true my father had some big perch, caught in a local mill-pool, stuffed for me; but I took no interest whatever in them: what is the use of a glass-eyed fish that never moves? Stuffed animals are, to me, just stupid; they are lovely in life, but who can say that a stuffed wild cat, or an otter, or an owl, is 'lovely'? The only suitable place for dead animals is a museum.

And that, I am sure, is the reason why I have never been, *sensu stricto*, a collector. It is *life*, and life only, which endows a wild animal with interest for me. A *ziczac* larva delights me: I can watch it for hours so that I have to be called twice ere I will come in to tea. But when the equally lovely moth into which the larva eventually resolves itself is killed and set, what is there interesting about it? All *ziczac* moths are alike, and when dead they are—to me—just corpses. As a hunter I take no more interest in a dead pheasant or fox or pike than I suppose a poulterer does in a dead turkey. What is the use of a body when the only interesting thing about it has departed from it? (I speak, of course, as a hunter and purposely ignore the requirements of science).

Recently I happened to read a book by a Professor of Zoology who enjoys a Continental reputation, about his experiences collecting museum specimens in foreign lands. Towards the end of the book I came across a paragraph which shows that even professors of zoology have, sometimes, more of the hunter than the collector about them. It was as follows: —

"I sometimes thought it a queer and sacrilegious thing that civilized man should build large buildings, called museums, full of glass cupboards, where the corpses of all the world's beautiful beings were exhibited to a gaping multitude, and where wise old men sat in their sanctums classifying every corpse of bird or animal, and sometimes proclaiming this or that to be a great rarity. . . . Civilized man, for the sake of learning, takes his pleasure in seeing life represented in the garb of death, because his opportunities are too poor for anything else. And the books of learned men are mostly long reports on corpses."

I wonder what percentage of moth-hunters are in my company in

this matter? Are there more hunters than collectors, or is it the other way about? Yet whichever way it be we all have this in common—we get the same thrill on entering a woodland or striding out across the downs or hills as the big game man does when on safari in Central Africa: anything may turn up at any moment. That 'blue' coming towards us may be a gynandromorph or an ab. *caeca*; a situtunga may be lurking in the reeds of that lake, a bongo in the fringe of that rain-forest.

But when it comes to trophies the big game hunter is not in the same street with us, not even though he be as keen a naturalist as ever was. For apart from their dubious value as wall-decorations the heads of animals are useless things: they have nothing of scientific value about them and are of interest only to the man who bagged them, and then only because *they remind him of the hunting*.

But we lepidopterists can always find food for thought in a wisely selected series of a species much given to variation. And indeed the more 'advanced' among us hunters usually specialise in variation—an added pleasure to the chase. I had a valued friend who, having spent a long life as a hunter and thus having learnt all that one could garner in a lifetime about the habits of our Lepidoptera, confined his later years to the search for aberrations. I looked up to him with reverence not unmixed with awe and could never tire of pulling out drawer after drawer of his marvellous collection—an education for such a crude hunter as I.

Ninety per cent. of us are hunters did you say? Then what of the remainder? They are the good fellows who might be just as happy if there were no insects at all. Then they would collect stamps or old pewter pots or horse-brasses or snuffboxes. They would get the same thrill from entering a junk shop in a seaport as we experience when we enter a woodland. It is simply a matter of personal predilection: the jackdaw trait is developed in them to a super degree: they *must* collect something and they argue, with reason, that an outdoor hobby is preferable to an indoor one. So they set about acquiring specimens, sometimes by personal capture but more often by swopping or by purchase. And why in the world shouldn't they? But whether they can lawfully be described as 'entomologists' is a moot point; for Entomology demands something more than an acquaintance with the colours and markings of wings, and a knowledge of foodplants and pupation sites.

And here I must stop; for the subject leads on to the 'business' of collecting, the commercialising of insects, and that is a matter with which I have no sympathy at all, for it is sometimes accompanied by practices which are repugnant to the field lepidopterist, who is invariably a singleminded person. Even a science can have its seamy side, and the hunter, spending his life in the open air, has no liking for the slums.

Current Notes

In the October number of *Entomologische Berichten* (vol. 17, No. 10) B. J. Lempke has a paper (in Dutch) on immigrant Lepidoptera observed in the Netherlands during 1956. The 'high light' of the year was of course the invasion by *Acherontia atropos* L. which surpassed

even that of our own island. The first one was noted on 28th April, but it was not until the beginning of August that the numbers mounted high, and in September the peak was reached, twenty-five being reported in a single day. We have not heard whether the invasion reached Norway nor how far east it ranged; perhaps some of our correspondents on the mainland can inform us. In Switzerland on 11th September more than a hundred came to a light at Grimsel Hospice, and hundreds were reported at Palermo. It was indeed an *atropos* year.—But where did the 'explosion' start?

Dr. Werner Marten of Barcelona has an interesting paper (in German) in *Entomologische Zeitschrift* for October 1957, p. 217 *seq.*, on some of the Zygaenids of Spain. In a glen of the Cantabrica mountain range, between the Sierra de Covadonga and the Picos de Europa, at an altitude of some 500 to 700 metres, he caught 25 ♂♂ and 24 ♀♀ of a colony of *Z. scabiosae*, in the same spot and on the same day as *Z. nevadensis*. These proved to be distinguishable from the form *eupyrenaea* and have been named by their captor *Z. scabiosae scabiosae cantabrica* n. var. A photograph is reproduced but this shows only the larva, dorsal and lateral views.

Two other new forms of *Z. scabiosae* are also described in Dr. Marten's paper:—*Z. scabiosae scabiosae leridana* n. var. and *Z. scabiosae orion urania* n. var. The rest of this paper deals with the forms of *Z. sarpedon* Hbn. and there is a map of Spain showing the localities of 22 forms of this species, with comments on the foodplants of some of them. How fascinating are these little red and green moths that fly by day and are often to be found only in tiny colonies in almost inaccessible places! If we had our time over again we should let the world go by so long as we could hunt burnets in European mountain ranges far removed from the haunts of man.—But this postulates an era when one was free to range at large in Europe . . .

Catalogue 152 of entomological books on sale by Jacques Lechevalier (12 rue de Tournon, Paris VIe) has some items of interest for those of us who spend a summer holiday entomologising on the Continent. There are more than 800 books on Coleoptera, some 200 on Diptera, about 275 on Hymenoptera, and the same number on Lepidoptera, with about a hundred on Orthoptera. Among the lepidopterological items are some twelve or fourteen provincial lists—Doubs, Saone-et-Loire, Loire Inf., Calvados, Morbihan, Nord, Pyrenées, Finisterre, and so on, most of them for less than ten shillings, though the 2nd edition of Rondou's Catalogue Raisonné of the Pyrenean Lepidoptera (the 4 parts, 1932-35) is priced at about a pound. Most of the books in this catalogue are modestly priced and some are very cheap. Dupont's Zygaenidae of Normandy with the 4 Supplements, 1900-1925, is certainly not dear at less than seven shillings.

It pays to know one's beetles, as Mr. Frank Blair, a docker at Aberdeen, has recently discovered. In a sack of wheat being unloaded from a Dutch cargo vessel he found a yellow beetle which he identified as an undoubted example of *Leptinotarsa decemlineata*. He reported

his find, and the Potato Marketing Board, presumably *pour encourager les autres*, presented him with a cheque for ten pounds with the remark that his prompt action "may have helped to avoid 'disastrous effects' on next year's potato crop"—so says *The Times*. Presumably the P.M.B. had satisfied themselves that the specimen was a gravid female before they parted with ten pounds of the public's money. Or had they?

Our woods, which throughout the centuries have been a distinctive feature of the English countryside, continue to be felled. Recent advertisements by estate agents announce the forthcoming sales of half a million cubic feet of oak, beech, ash, elm and other hardwoods near Bath and in Yorkshire. In Savernake Forest, Wiltshire, the Forestry Commissioners (*teste* 'The Times') are offering for sale 57,907 cubic feet of "very large oak and beech"—presumably to make room for plantations of Christmas trees. Unhappily the opinions of entomologists, botanists, zoologists, naturalists, nature lovers, artists and all who appreciate the loveliness of the English scene are not considered worthy of notice nowadays. What we need is an energetic trade union.

Field Work

In the first Part of his *Practical Hints*, under the heading 'November and December', Tutt wrote: "Field work is practically finished for the year . . . Pupa-digging and pupa-collecting are still by far the most profitable out-of-door work." They are indeed: the wise—and energetic—lepidopterist who prowls the countryside in winter by day, with a pupa-digger and moss-pick in his pocket, will have no reason to complain of lack of field work. It will not be long before he constructs a 'Littlewood' pupa-cage, which will keep him busy setting the moths which emerge in his sitting-room from December to April.

Many lepidopterists do not practise pupa-digging. They find it "too slow". Yet it is just as important a branch of field work as searching for larvae. By breeding moths from the egg one can note every external character of the pupa and most things about its cocoon. But unless one searches for pupae out of doors one has to rely on the books for a knowledge of pupation sites in the wild. There will be gaps in one's knowledge of the life-histories of certain species. Book information on this subject is quite frequently wrong and at best it is a poor thing compared with actual experience and personal observation in the field.

One can dig for pupae at all times of the year, though winter is the most convenient time: the pupa-digger should be taken in hand on every possible day between October and April. During the summer one should memorize likely trees and places, so that when the pupa-digging season opens one can draw up a regular plan of campaign.

Probably it is owing to this lack of prevision that so many lepidopterists do not take up pupa-digging seriously. They regard it as a somewhat trivial stop-gap to be indulged in as and when the mood takes them. So they spend an hour or two at any trees that take their fancy (usually regardless of the 'lie of the land' and the hundred and one factors which spell success or failure in pupa-digging), find

next to nothing, think it is poor sport, and put the digger aside for a few weeks. Next time a sunshiny day comes round they take up the digger again and adopt exactly the same procedure, with exactly the same result. No wonder they say to their friends "I'm not very keen on pupa-digging. I never find very much".

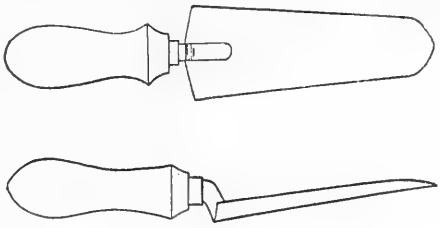
Like most other things in this world success in pupa-digging can be achieved only by perseverance and continual application. If you asked the man who decries pupa-digging whether he could become efficient (let alone expert) in any craft if he took it up "only occasionally" he would doubtless reply "of course not". Yet he expects to succeed as a pupa-digger at the very first essay. The result of his first essay with, shall we say, a woodcarver's tools would hardly be comparable with the work of Grinling Gibbons; how then can he expect to achieve proficiency in the art of finding pupae the first time he takes a digger in hand?

The craft of pupa-digging is not one that can be learnt quickly. Proficiency cannot be acquired by a couple of afternoons' practice. It is in the same boat with larva-hunting: the more assiduously it is practised, the more carefully it is studied and the wider one's experience, the more skilful one becomes. So unless the beginner makes up his mind at the outset that success—constant success I mean: there is such a thing as 'beginner's luck'—will not be achieved straight away he will, as likely as not, find himself in the same class with those who are "not very keen on pupa-digging" because they "never find very much".

It is necessary to have some experience of the *kind of tree* which is patronised by moths. One usually remembers the trees upon which larvae were found in previous months—I mean the situations of such trees in the landscape; their environment; their relation to other trees and natural features; whether they stand out in the open or are more or less shut in; whether one half of the tree is sheltered by other trees and one half open and exposed; whether they are growing on sloping ground or flat. One will also have noticed if the earth at the base of some has been trodden by cattle to the consistency of iron or if it is loose and friable, with grass growing right up to the trunk; if the earth at the roots of others is always wet and sticky; if the tree is in good heart or cankered; whether the roots are liable to be submerged during a flood—knowledge of all these things is necessary to the pupa-digger no less than to the larva-hunter.

Now for the tools of our trade. It is most important to use the right kind of digger. Don't ever be persuaded to buy a handsome digger "specially designed" (I wonder by whom?) for the purpose, since most designs are bad. After much trial and error (and a great deal of digging) I am convinced that the best pupa-digger is a "fern trowel" made of 3/64 inch steel, real good hand-forged Sheffield steel which will take an edge like a knife, and keep it. An ordinary garden trowel is no good at all, besides being the wrong shape. It must be exceedingly strong and the blade should be only $2\frac{3}{8}$ inches across at the shoulders and 6 inches long. Half an inch from the point it should be $1\frac{1}{2}$ inch wide. The curve of the blade—and this is important—should be an arc of a circle 3 inches in diameter. The tang must be welded to the blade, not riveted, and it should be at least 3 inches long. The handle may be of ash, and there should be a strong metal collar round it (to prevent splitting) at the forward end. The overall length of the one here

depicted is 11¼ inches and it weighs 6¼ ounces. I bought it years ago at a big ironmonger's; it cost me tenpence and it has unearthed many thousands of pupae. To-day its cost would probably be about five shillings.



The edges must be kept sharp, all round. Keep a file specially for this purpose and feel the edges of your digger every now and then. I file the edges of mine to knife-sharpness every time I set out to dig. How could any craftsman do good work with a blunt tool? If you hit a chrysalis with your digger you will kill it whether the digger be sharp or blunt, and a really sharp tool makes a world of difference in a long day's pupa-digging. In fact, I will go so far as to say that a sharp pupa-digger makes digging a pleasure; with a blunt one it is wrist-aching drudgery.

The process of pupa-digging is simple. The digger is inserted, at an angle of about 30° with the perpendicular, into the soil five inches from the trunk. Push it well into the ground and, by pressing the handle towards you, lever up the sod between your digger and the trunk. The *north* is usually the most profitable side to dig, and one finds most pupae in the angle formed by two roots as they leave the trunk. I always *begin* on the north side, and if there are likely-looking corners on the other sides I dig these, too. Bear in mind that many larvae cocoon between the trunk and the sod; others pupate among the tangled roots of grass or nettles or brambles close to the trunk; so the sod must be broken up and torn apart very gently.

I have just said that the digger should be inserted five inches from the trunk. This needs qualifying in the case of *N. anceps*, the Great Prominent, which usually pupates from six inches to a foot from the tree. When about to pupate, this larva seems to avoid the angles of roots, preferring a spot in a grassy sod a little away from the trunk. Therefore, whenever you approach a large oak in parkland with a nice looking piece of springy turf going to within a few inches of the trunk, insert your digger in the turf a foot from the tree and very carefully lever up a goodly sod. The pupae of this moth are never (in my experience) very deep, usually about an inch below the surface. If you draw blank, put in your digger again and lever up the grass right up to the trunk. When once you have found the fine big pupa of this moth you will quickly spot the kind of place to search in future.

Remember that *Deliberation is the Whole Art of Pupa-Digging.* The man who hurries when he has dug for half an hour without finding anything will never become a successful pupa-digger. A few species,

such as *Agriopis aprilina*, the Merveille du Jour, form brittle earthen cocoons which break up easily and so are easily found. But by far the greater number—and these the more desirable kinds—spin tough cocoons of silk which do not break up and which, being skilfully camouflaged, will easily escape notice unless you work *slowly* and *carefully*. Moreover, unless you do work slowly and carefully you will assuredly injure the pupae inside these cocoons; those which you overlook you will probably reinter so deeply that they have no chance of resulting in moths, or else you will leave them exposed to eyes sharper than yours.

Notes on Microlepidoptera

By H. C. Huggins, F.R.E.S.

Although new species of 'macros' are being found in this country nearly every year it is doubtful if any are old-established inhabitants. I shall not labour this point further as I have already discussed it elsewhere in the case of *Hydraecia hucherardi* Mab. and my point of view has since received the valued support of Baron C. G. de Worms. On the other hand it is interesting to note that of the new 'micros' that are turning up a high percentage is undoubtedly endemic. Of these *Alucita icterodactyla* Mann. ssp. *phillipsi* Huggins has almost certainly been captured for over half a century. Kane, Langham, and others all recorded *A. tetradactyla* Linn. as common in the Burren, whereas it is a rare insect there, and *icterodactyla* is common. The failure in identification almost certainly arose from the very close resemblance of the Irish subspecies to *tetradactyla*; it is in fact superficially more like that insect than it is to the typical south European race, which could never be mistaken for any British insect. The moral would appear to be that it is advisable to examine any micro carefully that turns up in a new locality or under new conditions. The original *icterodactyla* were not identified until after the expedition returned.

I am well aware that the generic name *Alucita* is no longer correct for these 'plumes' as it has been returned to *hexadactyla* Linn., as in my boyhood. I do not, however, know the correct name for the erstwhile *Alucitae*; possibly it is again *Aciptilia*. Nomenclature is fast becoming an obstacle instead of aid to knowledge.

The preceding reflections were provoked by the recent discovery in this country of *Pyrausta perlucidalis* Hüb. by Mr. Robin Mere (see Mere & Bradley, *Entomologist's Gazette*, **8**: 3). This rather pretty little moth is again an old inhabitant of England. Owing to the kindness of Mr. Mere I had the pleasure of seeing a few alive in June, although the weather was so bad that no safe deductions could be made about its habits. One point, however, ought to be stressed: alive it has little resemblance to *P. fuscalis* Schiff.; except for the conspicuous dark spot on the forewing it very closely resembles a half-sized specimen of *Notarcha ruralis* Scop. It has the same semitransparent appearance and pearly flush as the larger insect and also sits in the same open-winged attitude as opposed to the triangular one of *fuscalis*. *P. perlucidalis* is said to feed on a thistle not native to

this country, and a search for the larva on other thistles is suggested. Although one of these appears to be the most probable foodplant it may well prove something quite different. The moth has been isolated for a great length of time and may have developed an idiosyncracy, like *Papilio machaon* Linn. or *Euchloris smaragdaria* Fab.

Notes and Observations

HELIOTHIS PELTIGERA SCHIFF. AT WESTON-SUPER-MARE.—I took one specimen of *H. peltigera* in my moth-trap in this garden on 28th March last.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 9.ix.57.

MIGRANT MOTHS AT BROCKENHURST.—I took single specimens of *Rhodometra sacraria* Linn. and *Nycterosea obstipata* Fabr. at light at Brockenhurst, Hampshire, on 3rd July last and a single specimen of *Laphygma exigua* Hübn. in the same place on 20th August last.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 9.ix.57.

CARTEROCEPHALUS PALAEMON PALL. IN MONK'S WOOD, HUNTS.—Whilst collecting in Monk's Wood on 27th May this year in company with Mr. J. Briggs three specimens of *C. palaemon* were encountered. Although Doubleday met with it in large numbers in this locality it apparently disappeared. Mr. J. E. H. Blackie, who has exceptional knowledge of Monk's Wood, informs me that as far as he is aware the species has not been recorded from there for many years. It would appear likely therefore that the butterfly is beginning to reappear, perhaps spreading from other not too distant localities where it is still common.—C. R. HAXBY, 4 Windermere Terrace, Bradford, 7. 15.viii.57.

PAPILIO MACHAON IN KENT.—I am informed by a Mr. and Mrs. G. Morgan that on 1st June they had excellent views of a Swallowtail butterfly (*Papilio machaon* L.) on the North Downs above Burham, Kent. Although migration is much in our minds this year I feel that this butterfly is more likely to have been 'home-bred'. I would therefore be interested to hear if any readers have been liberating Swallowtail butterflies in Kent.—ERIC G. PHILP, Museums and Art Gallery, Maidstone, Kent. 11.vi.57.

MACROGLOSSUM STELLATARUM L. AND RHODOMETRA SACRARIA L. IN KENT.—When Mr. J. L. Messenger and I were collecting at Sandwich on 5th July, we saw a half-dozen or so of *Macroglossum stellatarum*, most of them feeding greedily on Viper's Bugloss and other flowers on the edge of the beach. On the following day, 6th July, we caught in the Warren at Folkestone a fine male *Rhodometra sacraria* of the usual pink-striped form, which at that date is unlikely to have been locally bred.—R. F. BRETHERTON, Ottershaw, Surrey. 14.ix.57.

CARADRINA CLAVIPALPIS SCOP. IN FEBRUARY AND MARCH.—I found a specimen of this common 'Noctuid' resting on the inside of one of the windows of our kitchen on the late evening of 20th February last, and another on a wall of the bathroom on the evening or night of 24th

March. Both appeared in fresh condition. My friend, Mr. J. M. Chalmers-Hunt, has seen one of the moths and confirmed its identity and also the very unusual nature of its occurrence at such a season—of which I can offer no convincing explanation, beyond the obvious assumption that it was somehow connected with the phenomenally mild winter. July and August are the normal months for the species, and South (1st ed., p. 319) adds that it is sometimes seen as early as May and as late as October. It would therefore seem that they were either exceptionally hibernated specimens or extremely precocious ones; the former is perhaps the more probable, especially as no others put in an appearance later in the spring or summer.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 10.ix.57.

ARGYRESTHIA GLAUCINELLA ZELL. ON SPANISH CHESTNUT.—On 22nd July 1956, at Knole Park, Sevenoaks, Kent, I found this bark-feeding *Argyresthia* in some small numbers flying about and settling on the trunks of a row of mature trees of Spanish or sweet chestnut (*Castanea sativa*); they were, at this season, in rather wasted condition. The usual host of *A. glaucinella* is oak, but Ford (*Guide to the Smaller British Lepidoptera*, p. 136) adds horse-chestnut; in the present instance neither of these was at hand—the nearest trees being beech—and on the scattered oaks a little farther off the moth was not to be seen. It is likely, therefore, that the species was breeding in the chestnut bark. On a large birch nearby its common but brilliant congener, *A. goedartella* L., abounded (together with a very few *A. retinella* Zell.), almost swarming about the bracken beneath it, the glistening gold of their wings in the evening sun presenting a beautiful sight.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 11.ix.57.

GRAPHIPHORA AUGUR FAB. AND NAENIA TYPICA LINN. IN THE LONDON AREA.—I was interested to read Mr. Chalmers-Hunt's note (*Ent. Rec.*, **69**: 198) on finding *G. augur* near Charing Cross. In Hampshire I found it rather commonly near Alton and once at Chandlersford, but nowhere else. Since moving to London I have had plenty in my garden here, especially in 1955. It comes readily to m.v. light, but does not often find its way into my trap. Instead, I find it in the morning hidden under pieces of wood and foliage nearby. In 1955 the first specimens (5) came on 24th June, in 1956 on 19th (1) and this year on 16th (1).

Another species I was pleased to have taken here is *Naenia typica* L. I obtained a series in 1955 when I was operating a lamp on a tripod. They appeared rather late, about 12.30 a.m., skulking among the rank growth in the corner of the garden, and hardly ever flew in to the light. Using a trap in 1956-7 I have taken three.—B. GOATER, 71 Grant's Close, Mill Hill, London N.W.7. 23.ix.57.

BREEDING LITHOCOLLETIS.—Regarding the breeding of *Lithocolletis* (*antea*, p. 175), as your footnote said, the oak species did not emerge until between 26th May and 4th June, when 10 *L. messaniella* Zell. and 7 *L. cramerella* Fabr. emerged.—H. L. DOLTON, 36 Chester Street, Reading, Berks. 13.ix.1957.

VANESSA HUNTERA FAB.—The specimen taken by Miss Pole-Carew is in my possession and bears a label reading as follows: "Taken by Miss C. L. Pole-Carew, now Mrs. F. Loring, in the garden at Antony House, Torpoint, Cornwall, Sept. 20th 1876 and given by her to me August 1902". This label was written by the 9th Earl Waldegrave, who subsequently bequeathed it to his nephew R. H. Randolph, who gave it to me in 1946.—DENZIL W. H. FFENNELL, Martyr Worthy Place, Nr. Winchester, Hampshire. 4.x.1957.

EPISCHNIA BOISDUVALIELLA GUEN. IN LANCASHIRE—A CORRECTION.—Eighteen months ago I came into possession of the collection of micro-lepidoptera made by the late Wm. Mansbridge, which was left to me by my friend, the late Basil Snell. Recently I had a letter from Mr. L. T. Ford in which, among other matters, he asked if there was a specimen of *Anerastia lotella* (Hübn.) among the series of *E. boisduvaliella*.

An examination showed that such was the case and the specimen is labelled "Lancashire, Formby, 28.vi.21, Wm. Mbge.". This specimen of *A. lotella* has forewings brown sprinkled pale grey and darker brown with a whitish costal streak from base to apex; on the outer edge of the costal streak from the base to one quarter is a faint light brown line; the discal spots are present but obscure. I have taken similar specimens at Spurn, Yorkshire, and, at first glance, thought I had *E. boisduvaliella*.

Apart from structural differences, examination of the forewings distinguishes the two species. In contrast, *E. boisduvaliella* has a shining white costal streak, more narrow than in *A. lotella*, from base to apex edged on the costa with a distinct thin brown streak from approximately one-third to the apex; the black discal dot is clearly defined. I should mention that my other specimens of *A. lotella* from the Lancashire sandhills have pale ochreous forewings with the slightly paler costal streak ill defined.

As a Lancastrian, I regret that *E. boisduvaliella* has not been taken in the county and must be deleted from the records. In *The Lepidopterous Fauna of Lancashire and Cheshire* by J. W. Ellis, 1890, revised by Wm. Mansbridge, 1940, p. 257, under this species is "a single specimen captured at Formby, 28.vi.21 (W.M.) was not satisfactorily identified until recently; it is an addition to our list and although sought for it has not occurred again". There is little doubt that the mention of Lancashire in *British Pyralid and Plume Moths*, B. P. Beirne, 1952, p. 91, refers to the above mentioned specimen of *A. lotella*.—H. N. MICHAELIS, 10 Didsbury Park, Manchester 20. 2.ix.1957.

LEPIDOPTERA ON BEN NEVIS.—On the sweltering 29th of June, 1957, I reclimbed Ben Nevis to show my wife the awful north-east precipice and let my two lads, aged 6½ and 3½ years, play on the famous snow-patch. On the ascent, two *Argynnis aglaia* Linn. were seen at 550 feet and two *Coenonympha tullia* Müll. by the Lochan Meall an t'Suidhe at 1,900 feet above sea level. *Odezia atrata* Linn. was really abundant in Glen Nevis and fairly common up the Ben to 1,250 feet

but *no* higher. (Edward Meyrick in his 1895 work gives the Caledonian Canal as the species' northernmost limit and H. T. Stainton in the *Manual* states "we have ourselves met with it high up some of the Scotch hills".) A single male *Psodos coracina* Esp. was flying where the 3,250 foot contour crosses the zig-zag path in the barren stony region. Incidentally, our time for the 15 miles to the 4,406 foot summit and return to Fort William was $11\frac{3}{4}$ hours—the guide books state that six to seven hours should be allowed.—D. C. HULME, 1 Melton Avenue, Littleover, Derby. 8.x.57.

A NOTE FROM S.E. CORNWALL.—From the beginning of April to the end of June the season was most unproductive, except for a brief spell after the Whitsun rains. The long drought and cold winds allowed but a few moths to fly and these were by no means a select lot. This did not apply to butterflies, which were in general numerous and exceptionally early; in fact, visiting the North Devon area for a few hours on 28th June, I found that *Maculinea arion* had been flying for probably a fortnight (in the sanctuary I saw only one battered female); but it certainly appears that *arion* is spreading outside the sanctuary, and if collectors are reasonable in their catch it should, I think, again become established in this area. The only specimen I took (a small dark female) I netted alongside the car just as we were leaving. I found *Argynnis aglaia* and *Melanargia galathea* flying in quantity, and my companion (who distinguished himself by catching an *aglaia* with my coat, which he was kindly carrying) spotted a solitary *Pseudoterpna pruinata* Hufn. (*cytisaria* Schf.) on a grass stem. The sanctuary is still suffering from the sabotage reported by others, but seems well on the way to recovery.

July and August were, again, very unproductive in moths, though there was an exceptional flight of *Lithosia quadra* L. at Pont from the first week of July till 5th September, and I was able to send small series to several friends. Pont also produced, in June, a dozen *G. papilionaria* L., which has not been common here before.

On 18th September Dr. F. H. N. Smith and I spent a long-planned day and night on the Lizard, on the off-chance of seeing a *Danaus plexippus* L. (*menippe* Hb.) and with the hope of finding *Antitype xanthomista* Hb. We were very lucky in the weather—the only good period for some weeks—but failed in our objectives. We were allowed to switch on a m.v. trap at the Pollurian Hotel at Mullion, where we experienced the greatest kindness and interest from the hotel management. The situation—grassy terraces on the cliff edge—is ideal, and many hundreds of moths visited us, as well as a number of hotel guests who, fortunately, did not enter the trap. One gentleman decided not to go into "the moth business" after receiving an emphatically negative reply to his query, "Is there any money in it?" Most moths were commoners such as *P. meticulosa*, *P. gamma* and *N. c-nigrum*. Although we found no *xanthomista* we collected two *Leucania unipuncta* Haw. and also three *Rhizedra lutosa* Hb., which latter I wanted for a friend's series. *R. lutosa* is usually of exceptional size on this coast. We stood by the trap from dusk till 3 a.m., when we had to pack up to let Dr. Smith get back to his Perranporth duties.

I had to visit London in May for another medical board, and took

two 'suspected' moths to the Museum, where Mr. Fletcher kindly identified them as *Heliothis armigera* Hb. (Bodinnick, 15th September 1956) and *Laphygma exigua* Hb. (Bodinnick, 25th March 1957). I should have recorded, last year, the arrival at Bodinnick of a solitary *Plusia chryson* Esp. (15th September 1956).

The only 'new' arrivals this season have been *Euproctis chrysorrhoea* Hb., *Drymonia trimacula* Esp., *Agrotis ripae* Hb., *Pseudoterpna pruinata* Hufn. (Bodinnick) and *Zeuzera pyrina* L. I had two more *Plusia ni* Hb. at Bodinnick on 6th and 20th July. In general 1957 has been a most disappointing season here, in high contrast to 1956. I have recently moved one of the traps to Polperro, where I am glad to say Mr. Puckey will kindly operate it and where I hope we may find some 'new' species.—Colonel H. G. Rossel, Bodinnick, Lanteglos-by-Fowey, Cornwall. 28.ix.57.

Yorkshire Lepidoptera.—The truth of Mr. S. M. Jackson's remarks in the July/August issue about the distribution of Lepidoptera, chiefly in Yorkshire, must be obvious to many. Dr. E. B. Ford in his excellent work on butterflies has in a few instances unfortunately repeated the errors of some other writers. No author is expected to possess first-hand knowledge of the status and distribution of the butterflies in every part of the country, and for this reason it would be wiser to seek the help of those more acquainted with local areas. As Mr. Jackson mentions, information based on Porritt's *List of Yorkshire Lepidoptera*, compiled well over 50 years ago and much of it dating back to a far earlier period, by no means applies to the present. We know to our regret that many once rich collecting grounds have vanished because of cultivation or more drastic influences.

I have before me a copy of Porritt's *List* which originally belonged to the late Dr. H. H. Corbett, and it includes brief comments on the status of certain species then found near Doncaster. Dr. Corbett was a reliable entomologist (his interests were by no means confined to the Lepidoptera), and he gave me considerable encouragement and help more than 30 years ago. I well remember an occasion when we visited Martin Beck wood near Bawtry, and very close to the Yorks/Notts border. The year was 1917, and on that hot July afternoon I saw my first living fritillary butterfly. It was a rather worn example of *Argynnis cydippe* Linn. Not a very exciting event, perhaps, but the significant point is that I have not seen this species anywhere in Yorkshire since that distant day. And Dr. Corbett mentioned at the time that he had not met with the butterfly in the county. As for *A. paphia*, I caught a single female in a small area of woodland near Crowle, North Lincolnshire, in 1953, and obtained fertile eggs from her. This is the only *A. paphia* I ever saw in North Lincolnshire, and I have never come across the species in any part of Yorkshire that I have visited. This does not, of course, prove that the butterfly is missing from the whole of the county, but it seems to indicate its paucity.

A. aglaia is the most frequent species of fritillary in Yorkshire, but it is local, very liable to fluctuation in numbers, and not usually common in the south of the county. One of its former haunts near Doncaster was destroyed about four years ago. I am pleased to say

that a small colony of *Aphantopus hyperantus* still occupies a very limited area of rough ground near Hatfield, and that I have heard from a reliable source of a second colony not far away. But the ringlet certainly has vanished from other former local haunts in the last 20 years, for no accountable reason. A species which has increased and maintains its numbers in this area is the wall (*Parage megera* Linn.). In my boyhood it was far less common, but it now occupies many grassy places.

If, to quote South, *C. cossus* is probably found in all parts of the British Isles, except perhaps the extreme north of Scotland and the Hebrides, it must be adept in concealment—at least in the places I visit. Only twice during many years of collecting have I had the larvae of this species, and on both occasions they were given to me. It is agreed that the larva, because of its feeding habits, is difficult to locate, but it does at least come into the open when seeking a place in which to pass the winter prior to pupation. A letter published in *The Field* a year or two ago (I forget the exact date) mentioned that some workmen engaged in repairs on a certain road in Essex were amused by the antics of the giant caterpillars seen walking there. They proved to be caterpillars of the 'goat', and the men were making them 'run races'. Oh for a similar opportunity!—G. E. Hyde, Pantiles, Warnington Drive, Bessacarr, Doncaster.

— —.—I have read Mr. Jackson's article (*Ent. Rec.*, 69, 149) with interest, having had three seasons' collecting at Sedbergh, and I feel that I should mention the capture there of a male *L. argiolus* on 4th June 1940. It was the only one I ever saw. Also, in that and the following year the fairly common occurrence of *A. euphrosyne* along the railway line south of Sedbergh. I realise of course that Sedbergh is virtually on the county border and that these records may in fact be rather dull!—Dr. F. H. N. Smith, Perranporth, Cornwall. 18.viii.57.

Butterfly Notes.—Despite the mildness of the winter and early spring, this year, up to the middle of May, does not seem to have been a good one for early butterflies.

They may be divided into three classes: (a) hibernators, (b) immigrants, and (c) spring emergers. (a) Hibernators were very scarce in the Wessex area. So far, the writer has not seen a single specimen of either *Aglais urticae* L. or *Nymphalis io* L. at Bournemouth, an unprecedented occurrence. That is not altogether surprising, as all the Vanessids were very scarce last autumn. A single *A. urticae* was seen in the Bournemouth district. *A. urticae* is reported as being as plentiful as usual at Bishop's Stortford, but *N. io* has not been seen there. One *V. atalanta* L. was seen at Ashburton, Devon, in February, presumably a hibernator. *Polygonia c-album* L. has not yet been reported. *Gonepteryx rhamni* L. was seen in Devon on 11th February and several have been noticed at Bishop's Stortford and near Oxford.

(b) No reports have yet been received of *V. cardui* L. or any other species.

(c) The Pierids (*napi*, *rapae* and *brassicae*) seem to be as numerous as usual. They were plentiful near Oxford, and *P. rapae* at any rate

is common in Bournemouth, where the writer saw his first specimen on 2nd April. One was reported from Upwey on 24th March. *Anthocharis cardamines* L. was first seen in Devon on 5th April and was fairly numerous during the following week. It was fairly plentiful in Bagley Wood, Oxford, at the end of the month. One was seen at Christchurch, Hants, on 21st April. *Pararge aegeria* L. was emerging in strength in Bagley Wood at the end of April and was also seen at Cothill, near Abingdon. Thirty years ago, it was almost unknown in these localities. One was seen at Studland, Dorset, on 2nd May. Several *P. megera* L. were seen at Studland on 9th May.

Several *Celastrina argiolus* L. of both sexes were seen in the New Forest on 21st April: none had been seen at Ashburton up to 25th April. One was seen at Cothill on 10th May. None has been reported from Bournemouth, where it used to be of regular occurrence.

A visit to the woods in South Wilts on 19th May yielded results that seem to be typical of the season. No hibernators of any species were seen. There were three *Argynnis euphrosyne* L., one *P. aegeria*, and plenty of *P. napi*, but not a sign of *A. cardamines*, *Erynnis tages* L. or *Pyrgus malvae* L.—H. Symes, 52 Lowther Road, Bournemouth.

Leucania unipuncta Haw. in the Scilly Islands.—It is worth recording the capture of two male specimens, one worn, one fresh, of *Leucania unipuncta* at sugar on St. Mary's, Isles of Scilly, on 5th September. Other migratory species were very scarce there at that time and it seems very possible that *L. unipuncta* is more or less permanently established in Scilly as, to judge from the pattern of the records, it probably is in South Western Ireland.—R. F. Bretherton, Ottershaw, Surrey. 14.ix.57.

Apion limonii Kirby and its Colour-variation.—'*Finis coronat opus*!' the eminent and venerable Rector of Barham is said to have exclaimed upon first finding this weevil, then new to science, in the saltmarshes of the Norfolk coast about the beginning of the previous century. And indeed the discovery of such a grand species of *Apion*, of regal proportions and clad in imperial purple, made a fitting crown and climax to the Rev. William Kirby's monumental work on the genus—of which over 30 of the 80 British species were first described by him.

Besides the matter of colour, which typically is highly distinctive, the present species has at least one other peculiarity in that it appears to live almost exclusively at and about the roots of its foodplant and so, unlike its congeners, is scarcely ever to be taken with the sweeping-net; it has to be sought by the more tedious and exacting method of 'grubbing' on hands and knees (not always too comfortable in a marsh). Subject to this, and to the search being carried out in late summer or autumn—in fact when the sea-lavender is in flower—it is not difficult to find, whether the plant be growing in large masses or isolated clumps. Since it is distinctly gregarious, when one specimen is encountered others are almost certain to be lurking nearby. Fowler (*Col. Brit. Isl.*, **5**: 167) says that it is found on the decaying leaves and old roots; but I think this is only because the leaves at the base of the stem are

generally more or less withered anyhow by the time the plant is mature, and afford congenial shelter to the beetles—which to me have mostly occurred on the ground under the radical leaves and amongst any debris that may be present. It is conceivable that they come up at night to feed on the newer leaves.

I believe that attention has not yet been drawn to the fact of statistical variation in colour between different populations of *A. limonii*. The colour, always metallic, ranges through light copper, crimson, purple, and blue to partly greenish—I have not seen a wholly green specimen. In the Thames marshes of north Kent (Cliffe, Isle of Grain, etc.) specimens tending towards blue predominate heavily and even true blue is more frequent than coppery-red, whilst purple or violaceous is the average. In the saltmarsh at Yarmouth, Isle of Wight, on the other hand, of about 15 specimens taken at random this year all without exception are of the typical purple-red hue inclining often to copper, but never to blue. I have taken a single example in the type-locality—Holme near Hunstanton—which is coloured like the Yarmouth ones. Nothing of course is deducible in this instance, but it may fairly be concluded that there does exist a tendency to local or regional variation of the kind here described.

Coleopterists working for this attractive insect should bear in mind the possible presence, in the same rather specialised habitat, of a far greater prize: namely, the Coccinellid *Scymnus limonii* Donis., of which only very few specimens appear to be known. It has occurred singly in the Isles of Sheppey and Wight, but must surely await discovery in other localities. Sweeping the *Limonium* at different times of year, as well as searching at the roots, should be tried.—A. A. ALLEN, 63 Blackheath Park, London, S.E.3. 1.x.57.

ADERUS PYGMAEUS DEG. IN SOUTH-WEST LONDON.—I took a female example of this beetle, generally but wrongly regarded as very rare (cf. Allen, 1957, *Ent. mon. Mag.*, **93**: 5) on the wing near an old decayed oak trunk on Tooting Common, on the evening of 13th July last. The locality is well suited to the survival of the species, being a typical remnant of primary forest which used to produce (e.g.) *Gnorimus variabilis* F. Modern records of the *Aderus* (*Xylophilus oculatus* of Fowler) for Greater London are very few, in fact I know only of my own from Greenwich Park (*l.c. supra*); but old ones exist for Forest Hill on the south side and Lee on the east.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 11.ix.57.

TWO UNCOMMON BEETLES IN SOUTH-EAST LONDON.—*Quedius ventralis* Arag.: while collecting in the woods on the west side of Shooters Hill (forming part of Eltham Common) in June 1957, I was surprised to come across a specimen of this Staphylinid in a pocket of very rotten wood—its usual habitat—in the trunk of a smallish birch. The species was taken many years ago by W. West in an old tree in Greenwich Park, but I do not think it has occurred in the present century in the environs of London except in Epping Forest.

Rhagonycha translucida Kryn.: a female specimen was found in the same locality during the following month on low herbage at the base of an aspen trunk. Again I know of no previous record for the

metropolitan district apart from Epping Forest (Chingford area), where on one occasion only, with Mr. H. W. Forster, I took a number of males by evening sweeping in a limited spot. Elsewhere I have never met with more than one example at a time, and mostly in Kent—Darenth, Sevenoaks, Otford, Ham Street, etc. It is essentially a species of open woodland or well-timbered situations.—A. A. Allen, 63 Blackheath Park, S.E.3. 11.ix.57.

Current Literature

La Vie et Moeurs des Papillons, by Alexander B. Klots (No. 7 of the series "La Nature vivante"). 1957; published by Horizons de France, Paris VIIIe.

This large quarto book consists of 89 pp. of text, 24 coloured plates, and 62 plates in black and white, and the cost is 3,350 fcs. (about 57s). It is an interesting addition to a series of popular natural history works and shows a welcome turn in the use of attractive pictures for natural history purposes, in that the superb colour and black and white work is accompanied by an account of the subject matter written, not by a journalist, but by a teaching professor of entomology of the first rank. The French by M. Stempffer is worthy of highest praise.

The text is divided into seven chapters, the first dealing with the evolution of the insects from the paleozoic era to the present day, the last with the characters and classification of the Lepidoptera into three main groups—butterflies, skippers, and moths. Other chapters deal with metamorphosis; colours; food and feeding habits, with a note on the diseases of Lepidoptera; senses and behaviour; the faunistic regions of the world; and the relationship between Man and Lepidoptera. There is a bibliography of the forty-odd works quoted.

Chapter IV, "Lepidoptera and other Animals", is particularly interesting, dealing with predators, their means of defence including capacity for reproduction, protective hairs and secretions, hiding places, conspicuous colours, cryptic colouring, homochromy, protective resemblances and mimicry, and finally a note of lepidoptera as predators, parasites and myrmecophyls.

We understand that it was originally proposed to issue the plates with text in French, English, German and Spanish editions, and we trust that this will eventually be done.

S. N. A. J.

Insect Life in the Tropics. By T. W. Kirkpatrick. Longmans, Green & Co. 1957. Demy 8vo. Illustrated. Price 35s net.

Since the publication, begun in 1815, of Kirby & Spence's *Introduction to Entomology*—a compendium of all that was known to date about insects of all Orders—a veritable library of books about insects has issued from the presses of this country alone; but so far as this reviewer is aware no writer, or body of writers, has since attempted to produce a conspectus of the life histories of even the 'obvious' insects as one might call them, those which bring themselves to the notice of ordinary folk in their everyday life. Yet this task, by virtue of its magnitude an impossible one, has now been attempted, in so far as

tropical insects are concerned, by Mr. T. W. Kirkpatrick, and his attempt is an exceedingly good one.

"A complete natural history of tropical insects", he writes, "covering all that is known today—and that is but a small fraction of the whole—will never be written. Even if it were, few people could afford to buy a work that would run into dozens of volumes. This book is therefore intended to give some idea of the life histories and habits of tropical insects so that anyone living permanently or temporarily in a tropical country may gain a little knowledge of what is going on around him in the insect world. It is not addressed primarily to trained entomologists but rather to that much larger class of people who show an interest, even if initially a slight one, in general natural history. Such people on first coming to a tropical country are inclined to be bewildered by the variety and abundance of insect life, and it is to be hoped that this book may in some measure serve as a guide to personal observations".

So far so good. The first chapter, "The Tropical Environment", also will be useful to the non-entomological reader. But at Chapter II, "The General Structure of Insects", the doubt about the wisdom of Mr. Kirkpatrick's undertaking becomes stronger. Every entomologist knows that chitin is a nitrogenous polysaccharide and that the rigidity of an insect's cuticle depends on its sclerotin content; but do these facts convey anything at all to a non-entomologist? So far as we are concerned this chapter is an excellent concise statement; but for those for whom the book is intended it might surely have been made much simpler. The next chapter, too, that on Classification, is likely to be somewhat abstruse for the 'general reader'. What, he and she may well ask, is a 'phylum'? What a 'linear series'? This chapter, which occupies thirty pages, may be a model of taxonomic compression; but we question its value to (in the author's words) "*anyone* living permanently or temporarily in a tropical country".

That is the only criticism this reviewer has to make of an excellent book, its interest from the entomological standpoint being increased by the fact that a deal of it is based on the author's personal observations. "It is obviously necessary", he writes, "to quote specific examples. Wherever possible, these have been personally observed by me, though it is not claimed that all or even many of the observations are original. Most of the examples are of East African or Trinidadian insects, though a few are of sub-tropical species, especially those of Egypt and the Sudan, where I served for a number of years".

The book is well produced. It is copiously illustrated, and the illustrations are uniformly good. It is well printed and well bound. Its 328 pages, with the binding, bulk less than three-quarters of an inch. Altogether it is a book which is likely to be commended by every entomologist who reads it. We can only hope that it will convert to our ranks many of those for whom it is written. For our part, we found it difficult to put it down.

P. B. M. A.

In the PROC. ROYAL SOCIETY, B, **147**: 90-120, 1957, H. E. Hinton has an article "The Structure and Function of the Spiracular Gill of the Fly *Taphrophila vitripennis*", a species of Tipulidae, Diptera. As

one would expect from a paper communicated to the Royal Society by Prof. Wigglesworth on behalf of the author, Dr. Hinton has produced a good piece of work, well illustrated. With his knowledge of the British Tipulidae, especially of their early stages, he relates his study of this most complex of the known spiracular gills which are only found on the pupae of the aquatic Tipulidae, to a number of other species especially *Lipsothrix remota* Walk., *L. nervosa* Edw. and *Geranomyia unicolor* Hal.

L. P.

The South Essex Naturalist, June 1956, is the 21st anniversary number and has record lists of birds, Lepidoptera, plants, mammals and fishes. The Lepidoptera down to and including the Pyralidina *sensu latu* are listed by H. C. Huggins, so well known to us, together with comments, and he has also dealt with the mammals of the district similarly. Another long list with useful comments by S. T. Jermyn covers the flora.

S. N. A. J.

The London Naturalist, June 1956, continues the list of moths of London and the surrounding counties by Dr. C. G. M. de Worms from *Nonagria* to the end of the Hypenidae. This very complete list gives a short description of the species, its localities in the London district and also its distribution elsewhere in the British Isles. M. Niblett gives a list of the Trypetidae (Dipt.) of this area. There are reports from the various sections of the Society, and as a supplement there is a continuation of the hand list of the plants of the London area, this instalment dealing with the grasses, from *Juncus* to *Festuca*, in similar form to that of the insect lists.

S. N. A. J.

Naturliche Gruppung der Europaischen arten der Gattung Depressaria s.l. (Lep. Oecophoridae) by H. J. Hannemann. We have received from the author separates of this work and the small appendix (Heft I, 15.xii.1953, and Heft II, 15 vii.1954) reprinted from the Proceedings of the Berlin Zoological Museum deals very fully with the classification of this group into five families: *Agonopteryx* Hb., *Levipalpus* gen. nov., *Martyrhilda* Clarke, *Depressaria* Hw. and *Horridopalpus* gen. nov. The species of each family are keyed according to the male genitalia, and there is a description of the genitalia and note of distribution and larval foodplant under each species. There are 18 plates of figures of male genitalia and one of neuration (*Depressaria* and *Agonopteryx*) and side elevations of the head and palpus of all five genera.

S. N. A. J.

We have received from our friend, Dr. Dalibor Povolny, two separates from Acta Entomologica Musei Nationalis Pragae, XXX (1955). The first, No. 449, is by Povolny and Josef Moucha and is entitled "On the high mountain Geometridae of the genus *Psodos* Treitschke, 1828, with regard to the species in the mountains of Czechoslovakia and to the question of the origin of a species in mountain

regions (Lep. Geom.)". This paper is in English, with a short introduction in the Czech language and a summary in Russian with 13 plates of which I/IV are photographs of genitalia, V and VI photographs of the imagines, VII/IX photographs of mountain haunts of the species and X/XIII, drawings of anatomical details. Incidentally a new subgenus *Alpina*, is set up to cover our *coracina* Esp. and *alpinata* Scop. A long bibliography is also included.

The second paper, No. 458, by F Gregor and D. Povolny on the Zygaenidae, is in Czech with a full summary in German and a short one in Russian. This comprises three excellent coloured plates and two half-tone plates of genitalia dissections. Fourteen species are dealt with and there is also a note on the morphology of the genitalia of the Czechoslovak species.

S. N. A. J.

We have a separate from the author from MITTEILUNG DER MUNCHEN ENT. GES., XLV (1956) on The Phycitinae of Central Europe, by Josef Soffner. There is a key to all the genera and figures of wing venations of all genotypes, there are also text figures of other anatomical details

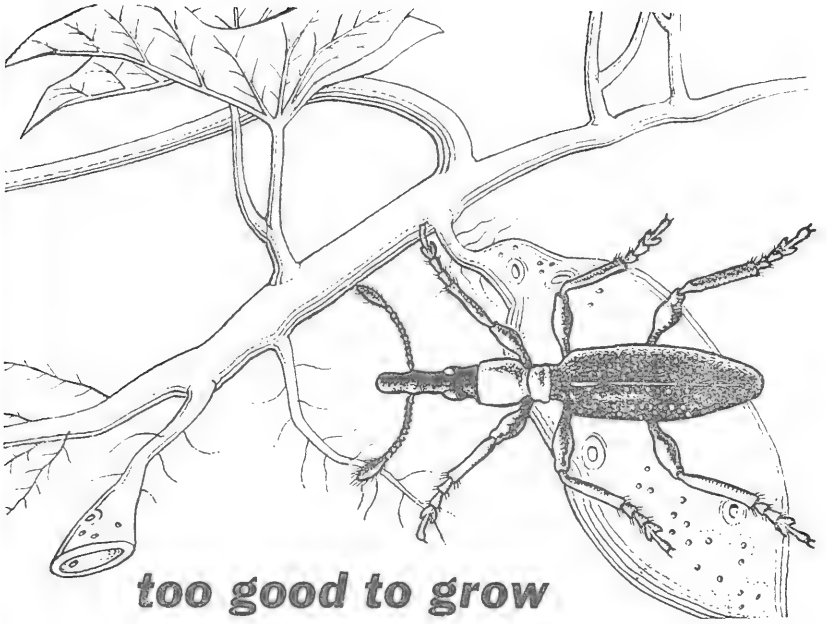
S. N. A. J.

REVUE FRANCAISE DE LEPIDOPTEROLOGIE, Vol. XV, No. 6.—This issue contains an important paper by C. Dufay in which he describes a new species in the genus *Abrostola*, namely *angorista* Dufay, which has been separated from *A. triplasia* L., *A. trigemina* Werneb. (*triplasia, vulgo sensu*) and *A. asclepiadis* Schiff.

The new species has been found over an area in south-eastern France and occurs there in the spring and again in the late summer. The article contains a description of the species and its differences between *triplasia* and *trigemina* and also an account of the genitalia. Y. de Lajonquière contributes a note on the addition of *Heliophobus texturata* Alpheraky to the French fauna. There are also notes by H. Marion on three species of the Pyralidae from France while H. de Lesse describes a new subspecies of *Erebia tyndarus* Esp. from northern Iran and J. T. Betz a new subspecies of *Melitaea aurinia* from Algeria. There are numerous illustrations to a number of the articles.

A. K.

CORRIGENDA.—Page 207, line 6: *for* western *read* eastern. Page 207, line 30: *for* Cicendela *read* Cicindela. Page 207, line 45: *for* aericata *read* sericata. Page 214, line 25: *for* 1955 *read* 1954.



too good to grow

When the Conquistadores came to the New World they gave a new name to a root which had been food for men centuries before Columbus sighted Hispaniola. *Camote*, the Indians called it: *Batata*, it became—the Spanish, or Sweetpotato, grown today in many lands. *If it is worth the growing.*

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EXCHANGES AND WANTS

Wanted.—The following monthly parts of *The Entomologist's Record* :—Vol. 26, No. 12 (December 1914) and Vol. 41, No. 3 (March 1929).—*N. D. Riley, 7 McKay Road, Wimbledon, London, S.W.20.*

Wanted.—An early run of *The Entomologist*, preferably Vols. 1-22.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—Named Set Specimens of all insect orders (with data) wanted for cash.—*Davidson, 9 Castlegate, Penrith, Cumb.*

Cambridgeshire Lepidoptera.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

For Sale.—Two insect Cabinets, each approx. 20″ × 18″ × 16½″, each containing 6 drawers 13½″ × 16″ × 1½″ (deep enough for Continental pins), each drawer having an airtight glass lid with wooden frame, and a cell for fumigant. Photograph on request. Price £16 the pair or would separate at £9 each. Buyer pays carriage.—*W. Donnisthorne, 109 Pike Road, Efford, Plymouth, Devon.*

Pieris napi Varieties.—There is need to share with others the work, responsibility and opportunity of maintaining British and other stocks of this species-group for experiments on inheritance, sexual mosaics, diapause, etc. Foreign as well as British, academic as well as amateur, collaboration is invited. Stocks derived from those of H. W. Head, J. A. Thompson and others.—*S. R. Bowden, 53 Crouch Hall Lane, Redbourn, Herts.*

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AND JOURNAL OF VARIATION

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Notes on *Isophrictis tanacetella* Schrank

By S. Wakely

From time to time various species of lepidoptera are discovered and recorded, and then lost sight of for many years. A species in point is *Isophrictis tanacetella*, which was first recorded for Britain by Stainton, who took a single specimen at light in his garden at Lewisham, London, in 1855. This was recorded under the name *Cleodora striatella*, together with a fine illustration of the moth (1856 *Entomologist's Annual*, 36). The next year another specimen was taken near Brighton (1857 *E.A.*, 125) followed by a report that "Several specimens of this insect have been taken by fen collectors" (1858 *E.A.*, 107).

In 1895 Meyrick's *Handbook of British Lepidoptera* was published. Here we find the species referred to under the name of *Paltodora striatella* Hb. The larva is stated to feed "in stems of *Tanacetum*".

The next record I can trace is of three specimens taken in East Devon in August, 1906. This is in an article by Eustace R. Bankes (1907 *Ent. mon. Mag.*, **43**: 137). The author also gives an older record of two examples taken by C. W. Dale at Glanville's Wootton, Dorset, on 3rd August, 1870. The larva was thought to feed in the flower-heads and afterwards in the stems of *Tanacetum*. It is pointed out that the species in question is the *tanacetella* of Schrank, while the *striatella* of Hübner is quite distinct and not known to occur in Britain.

In 1917 Meyrick calls attention to the fact that the species cannot remain in the genus *Paltodora* and that he has placed it in the new genus of *Isophrictis* (1917 *Ent. mon. Mag.*, **53**: 113).

There may have been other records of this species since the Devon records of 1906, but I have been unable to trace them. The rediscovery of this local insect is most interesting, and the finder is to be congratulated. The particulars are as follows.

During August, 1956, Col. and Mrs. W. B. L. Manley were collecting specimens of the local plume *Platyptilia ochrodactyla* Hb. among tansy, on the banks of the Medway, near Maidstone, when they netted two small moths at the flowers. These were seen by me at their house on the occasion of the Field Meeting there of the South London Entomological Society on the 18th May, 1957. Recognising the rarity of these moths a trip to the locality was arranged, and on 1st June I was taken to the locality, where tansy grows in profusion. There were no signs of any larvae having fed on the dead seedheads, but in spite of this I decided to take a small bag of the seeds and hope for the best.

These were placed in a large glass container, a piece of linen being tied over the mouth of the receptacle. A few days later three small larvae were seen on the linen, and although these did not stay there, others were seen later.

Meyrick's description of the larva is as follows: "Larva yellowish; head black; plate of 2 bisected, light grey; in heads of Tanacetum; 10-5" (1928 *A Revised Handbook of British Lepidoptera*, 605).

I examined my larva carefully and jotted down my own description as follows: "Larva light red; rather wrinkled; head black; plate of 2 bisected, light grey; dorsal and spiracular line darker; distinct

black mark at end of last segment". The difference in colour may have been due to the fact that the larvae I saw were all about to pupate.

A few weeks later some parasites emerged, some of which were kept for identification.

The first moth appeared on 6th July, and between then and the 6th August over 20 specimens of *I. tanacetella* emerged. I was surprised and delighted to breed such a fine series.

An examination of the seedheads later revealed a tiny hole encircling each single seedhead, the larvae apparently having fed on the actual seeds. Several empty pupae were found in a slight web among the debris but there was no sign that the larvae had tried to burrow into the stems either for pupation or feeding.

Readers who are interested should collect the tansy seedheads in late May. If this is done a much more accurate distribution of the species would be obtained. New county records would be of great interest.

26 Finsen Road, London, S.E.5.

The Lepidoptera of Derbyshire since 1926

(*Continued from page 237*)

Part 2—Papilionoidea

By D. C. Hulme

Derbyshire has long been considered an unproductive county for butterflies. At the beginning of the century the Rev. F. C. R. Jourdain complained that "the number of butterflies which are regularly to be found within our limits is exceedingly small . . . only about fifteen species can be considered really common anywhere" (*Derbys. Arch. and Nat. Hist. Soc. Journal*, **25**: 229, 1903). Although it must be admitted that only a single addition—the Large Heath—can be claimed for the recent years (*i.e.*, those since 1926), this instalment will show that the status of a fair number of species has improved considerably.

The modern worker reading Mr. Hayward's thirty year old list will be surprised to find that he gives the Peacock as "usually scarce, even in the south"; the Meadow Brown as "generally distributed in the south, but not very common"; the Large Skipper as "occurs very sparingly near Melbourne and in Repton Shrubs" and mentions no 20th century records for the Dark Green Fritillary, the Comma and the Wall Brown.

Forty-two butterflies have been noted in Derbyshire since 1829. Three species—*Papilio machaon* Linn., *Strymonidia* (*Strymon*) *pruni* (Linn.) and *Thymelicus sylvestris* (Poda)—have been rejected on grounds of insufficient evidence and do not figure in the following table which gives the number of species positively recorded for each Area.

Area	1	2	3	4	5	6	7	8
Species	36	30	27	37	24	27	14	15

It is interesting to note that the Mountain Limestone Area with few resident lepidopterists leads over the continuously well-worked South of Trent Area. The tally for the Permian Area clearly indicates its

inadequate coverage. The Peak Grit Area total also is low and could possibly be augmented given one or two favourable seasons.

Pieris brassicae (Linn.). Common; in some years abundant. The earliest local date for an imago is 24th March (in 1945) and the latest, 21st October (1950).

P. rapae (Linn.). Abundant in all parts. The earliest date is 2nd February (1878) and the latest, 25th October (1947).

P. napi (Linn.). Common yet rarely reported by entomologists in the county. Area 7 lacks records.

Euchloë cardamines (Linn.). Noted for all Areas and common everywhere except on high ground. The earliest date is 14th April (1943) and the latest, 24th June (1944). Dwarf males have been taken near Repton, in Dovedale and Lathkil Dale.

Colias croceus (Fourc.). Has occurred in fourteen years of the present century though abundant only in 1947, when at least 280 specimens were recorded. Recent records from all Areas, those dated referring to the period 3rd August/24th October.

Gonepteryx rhamni (Linn.). Sporadic in appearance, occurring in seventeen of the years 1920/56; most specimens being seen in 1920, 1944, 1948 and 1950. The flight period extends through each month from 9th March (1945) to 13th October (1944), the early specimens having, no doubt, hibernated locally. Information not forthcoming for Areas 5, 7 and 8.

Argynnis paphia (Linn.). Only sixteen observed this century, seven or eight of this number since 1926, though in all Areas except 7 and 8. In 1955 four were found in the Central Grit Area as follows:—Beeley, 23rd July, a ♀ on *Buddleia*; 19th August, a ♂ resting on bracken and 21st August, a very worn ♂—all three were taken and later released (B. Fletcher). Rowsley, 13th August, a worn ♀ taken over bramble (E. A. Price).

A. cydippe (Linn.). Authentic records for Areas 1 to 5 but only one example taken recently. This specimen, now in the Derbyshire Entomological Society's collection, was caught at Willington (Area 2) on 4th August 1929 by Mr. H. C. Hayward.

A. aglaia (Linn.). Reappeared in 1935, after an absence of over 72 years, and now well-established in Dovedale, Lathkil, Monsal, Miller's and other limestone dales of Area 4. In 1956 an extension of its range was put on record when three schoolboys, led by R. E. Morris, discovered a colony in a railway cutting in the south-east corner of Area 3.

A. euphrosyne (Linn.). Abundant in Repton Shrubs prior to 1866 (Rev. F. M. Spilsbury) but has been rare for many years with only one recent example: Repton, 7th June 1947, a ♂ taken (A. M. Holmes).

Polygonia c-album (Linn.). Not seen between 1912 and 1934 but reported in almost every year since 1941 (most frequently the second generation though usually less than six individuals per season for the whole county. Recent records for Areas 1 to 6 (none available for 7 and 8). Dr. E. B. Ford shows the species as absent from Derbyshire on the distribution map in *The New Naturalist Journal* (Spring 1948). Flight period—26th March (1950) to 30th October (1948) with a break between 14th May and 21st July.

Aglais urticae (Linn.). Often abundant in all Areas as in (of recent years) 1945, 1949 and especially 1953 when I counted a maximum of

58 on a clump of *Sedum spectabile*, less than a square yard in extent, on 26th September. Sometimes rare as in 1946, 1950/52 and 1954. Out-of-doors in all months, excepting December and January, between 7th February (1950) and 5th November (1956).

Nymphalis antiopa (Linn.). Has visited Areas 1 to 5. Eight this century, the latest being taken at Allestree (Area 2) on 17th September 1955 by a Mr. J. F. Robinson (Derby Museum).

N. io (Linn.). Obviously a great rarity at the beginning of the 20th century. Two for both 1902 and 1908 and odd specimens up to 1916. Reported as common in 1917 for the first time since *circa* 1860. Few records in the twenties and thirties; common 1940/42, 1945 and 1947/48 but again less plentiful in the fifties. Earliest date is 14th March (1948) and latest, 28th October (1954). No records communicated for the Peak Grit Area.

Vanessa cardui (Linn.). Unpredictable as most immigrants: sometimes common in all Areas as in 1947 and 1949 and at other times rare as in 1954 and, surprisingly, 1948. Early visitors in 1952 on 24th April and 10th May. Imagines noted on almost every day between 20th May and 10th October, with single survivors on 26th and 31st October (in 1947 and 1949 respectively). Jourdain in 1903 stated that "this species affects high ground, and is most numerous on moors and rough pastures, especially in the Peak. To the south it is an occasional straggler . . ." yet the only observation before me for high ground is the published note (*antea*, **64**: 216) of a small pale ♂ seen by J. H. Johnson on 10th May 1952 at Stone Edge—900 feet above sea level.

V. atalanta (Linn.). The most popular insect in Derbyshire with records from forty-two observers. Present in all Areas. Abundant in 1945, 1947 and 1955 of recent years; rare in 1951, 1953/54 and 1956. Seen in every month from April (a single hibernated specimen in 1947) to December (one in 1948).

Pararge aegeria (Linn.). Single specimens in 1915 and 1923 and recorded almost annually since 1939, the southern imagines possibly being wanderers from the flourishing colonies at Tatenhill, Dunstall and Tutbury just over the boundary in Staffordshire. The few dated observations cover the period 21st May/5th October. Unnoted in Areas 3, 5, 7 and 8.

P. (Dira) megera (Linn.). Noted as fluctuating from abundant to rare south of Trent Area by three 19th century observers. No further records until a few specimens were netted north of Chesterfield (Areas 6 and 7) in 1921 and 1935. Common at Langley Mill in the south of the Coal Measures in 1941. Widespread in Areas 1 to 4 and 6 in 1942/43. Single specimens only for Areas 1 and 6 in 1944 and no records contributed for 1945. Annual returns for all subsequent years, reaching a peak of over 200 specimens reported in 1948 and 1949. Fewer in the fifties but now recorded for all eight Areas. Earliest date is 9th May (1946) and the latest, 2nd October (1949) though two dates only for July.

Maniola jurtina (Linn.). Surprisingly little data: apparently rare prior to the 'twenties, except at Derby and Repton in 1906 and 1918 respectively, and now seemingly dismissed by local naturalists—the usual lot of a soberly-clad, ubiquitous creature. On the wing throughout June/August with single late May and mid-September records.

Coenonympha tullia (Müll.). Long rumoured as occurring on the Cat and Fiddle moor, near Buxton (Richard South in *Entomologist*, **28**: 267, 1895) but not established as a Derbyshire insect until 1942 when a small colony was discovered in a fold in the hills near Matlock (Area 5) by the late Mr. E. A. Price. This colony was extant in fair numbers in 1953. In addition, N. Blackwell Wood observed one on 27th July 1947 at a spot not a mile from the Cat and Fiddle.

C. pamphilus (Linn.). Records exist for all Areas though the species is common only in the hilly parts (Areas 4, 5, 6 and 8). Imagines noted from 17th May (1943) and throughout the following three months.

Strymonidia (*Strymon*) *w-album* (Knoch). Apart from a brief reappearance in 1906/10 this species was not recorded regularly this century until 1941. Recent evidence from all except the eastern Areas 6 and 7.

Callophrys rubi (Linn.). Flying throughout May to mid-June with occasional earlier specimens as in 1943 (4th and 18th April). All Areas except Sandstone Belt and Permian with a single recent south of Trent record in 1942.

Lycaena phlaeas (Linn.). Abundant in (of recent years) 1940, 1943 and 1947/48 and rare in 1946, 1950 and 1954. Has a six-month flight period, May/October, extended on either side in 1943 with the dates 14th April and 18th November. Present in all Areas.

Aricia agestis (Schiff.). Practically confined to the dales of the Mountain Limestone Area where it is usually common in June and July. Two old records for Area 5 and one for Area 6. Dr. R. G. Abercrombie took a typical example of the subspecies *artaxerxes* Fabr. in Dovedale on 29th July 1934 (*Entomologist*, **83**: 128).

Polyommatus icarus (Rott.). No observations have come to hand for the period 1924/40 though frequently encountered in later years throughout the county, even at altitudes over 1,000 feet. A single generation in the north but elsewhere noted in the imaginal stage between 12th May and 28th September.

Celastrina argiolus (Linn.). Rare until 1942, in which year it was noted as common in one Southern Grit locality. Widely distributed in all Areas barring 7 and 8 in the years 1946/50. At present rare again.

Pyrgus malvae (Linn.). First taken in 1919 (Areas 1 and 2)—the year it became well-established south of the River Trent from Barton to Cotgrave in neighbouring Nottinghamshire (A. Simmons). Small colonies known to be thriving in restricted localities in Areas 1 to 4 and 6.

Erynnis tages (Linn.). Sometimes common in Area 4; single examples noted occasionally in the other Areas (adequate data are not yet available for 7 and 8).

Ochlodes (*Augiades*) *venata* (Br. & Grey). Not observed north of the River Trent until 1915 and then rare in the county until 1942 when the species started to increase and spread. Imagines now found commonly in six Areas (glaring gaps on my chart for Areas 5 and 8) from mid-May to mid-July.

For the sake of completeness, it might be of value to append brief details of the dozen butterflies that have *not* been recorded in recent years.

No 20th century occurrences of the following seven species are known

to me:—*Aporia crataegi* (Linn.), *Argynnis selene* (Schiff.), *Euphydryas aurinia* (Rott.), *Maniola tithonus* (Linn.), *Aphantopus hyperantus* (Linn.), *Hamearis lucina* (Linn.) and *Thecla quercus* (Linn.).

Four specimens only of *Colias hyale* (Linn.) are reliably documented for the county; the latest being a 1901 immigrant.

Nymphalis polychloros (Linn.) has not been taken since 1917.

A single *Limentis camilla* (Linn.) was captured at Repton in August 1910 by Mr. A. H. Turner.

Eumensis semele (Linn.) survived in Dovedale until *circa* 1890 and one was taken south of the Trent in 1913 (not 1914 as given in the 1926 list). Mr. Hayward thought this last had been accidentally introduced as a larva with drain-pipe packing material.

Cupido minimus (Fuessl.) gradually declined in Dovedale and became extinct about the turn of the century. A beautiful photograph of The Nabs and the Dove Holes, at the northern end of the dale, appears as a locality for this species in L. H. Newman's *Butterfly Haunts* (1948).

(*To be continued*)

Lepidoptera in the City of London

By A. S. Wheeler

In *The London Naturalist* (the Journal of the London Natural History Society) for 1951, a paper by D. F. Owen on the Lepidoptera of the Cripplegate bombed sites was published. I have visited the area on numerous occasions since the article was written and I am setting out a few observations which may be interesting history one of these days.

During the years I have known the vast open spaces cleared by bombing in 1940 and 1941, the area has gradually diminished in size as the building drive gathered momentum. Whereas few buildings of much size existed in 1951 other than on the fringe of the area enclosed by Aldersgate Street, Chiswell Street, Moorfields, Coleman Street and Gresham Street, the picture to-day is quite different. I shall not go into details of the present-day picture, but apart from isolated pockets the only area worthy of much attention by the lepidopterist in the summer of 1956 was the Fore Street Warehouse site.

Field work in the City was quite different from field work anywhere else. The habitats have not been attractive to many species. To find those present, the only requisite, often, was the time to visit a particular spot at the right time of the year and the desired species could be found with little effort. The sparseness of trees contributed to the ease of collecting. It must have been quite exhausting to the ovipositing females flying a quarter of a mile, perhaps, without sight of a tree! It is no wonder that twenty or so *Cerura vinula* Linn. eggs have been found on one leaf and fifty or more larvae on one tree.

The most conspicuously common larvae, including *C. vinula*, have been *Deilephila elpenor* Linn., *Arctia caja* Linn., *Callimorpha jacobaeae* Linn. and *Ceramica pisi* Linn.

A stronghold of *D. elpenor* used to be behind Guildhall, between Aldermanbury and Basinghall Street. The site has now been excavated,

preparatory to building the so-called "Route 11" City By-pass. Larvae have been observed over a wide area, but I have not found them so prolific as in this area in 1954.

C. vinula eggs and larvae have been seen in great profusion on many poplar, sallow and willow trees; notably near Whitbread's Brewery, between Ropemaker Street and White Street, Fore Street Warehouse site, London Wall (between Basinghall Street and Coleman Street) and in Finsbury Square. 1951 was my best year for the species, since when numbers have declined out of proportion to the spread of building work.

A. caja larvae have been found on practically every bit of waste land, feeding on a diet varying from Buddleia to groundsel. I have collected many dozens of these larvae over the past few years and it may be worth recording that whereas in some years I have bred through most of those collected, all the larvae collected in 1954 were parasitized. In 1956, however, my sample of larvae was almost free of parasites.

C. pisi was found abundantly in 1953 on the corner of Watling Street and Watling Court, feeding on thistles and bracken, etc.

Other larvae, conspicuous by their size while not so numerous, have been:—*Mimas tiliae* Linn. on the limes by St. Giles' Church; *Laothoe populi* Linn. on several poplars, principally between Whitbread's Brewery and Moorfields; *Phalera bucephala* Linn. on willow in Tenter Street and London Wall.

The following list of species is that compiled by Mr. Owen, to which I have added two new records, namely *Leucania lithargyria* Esp. and *Cleora rhomboidaria* Schiff. (*gemmaria* Brahm). 46 species are recorded, of which I have seen 30, but this does not necessarily mean that the others were absent after 1950 as my visits, though frequent, were of brief duration. Reference has also been made to Dr. C. G. M. de Worms's reports in *The London Naturalist* on the butterflies and moths of the London area. Finally I should like to thank Mr. C. E. Easterling for information on *Lycaena phlaeas* Linn. and supporting evidence of other records.

Pararge megera Linn. I have seen only one (September 1953), but several have been recorded by Mr. Easterling.

Polygonia c-album Linn. Two records in August 1952.

Aglais urticae Linn. Common.

Nymphalis io Linn. Few.

Vanessa cardui Linn. Few.

Vanessa atalanta Linn. Few.

Lycaena phlaeas Linn. Seen frequently in 1952 and a few in 1953, 1954 and 1955 between Red Cross Street and Aldersgate Street (C.E.E.).

Celastrina argiolus Linn. July 1947 (P. W. E. Currie per *The London Naturalist*, 1949).

Pieris brassicae Linn. Few.

Pieris rapae Linn. Common.

Pieris napi Linn. Few.

Colias croceus Fourc. (*edusa* Fabr.). August 1947 (P. W. E. Currie per *L.N.*, 1949).

Ochlodes venata Br. & Grey (*sylvanus* Esp.). July 1947.

Mimas tiliae Linn. Larvae common on limes in St. Giles' Churchyard.

Laothoe populi Linn. Common.

Smerinthus ocellata Linn. I have seen a few but Owen said they were the most abundant hawkmoth.

Deilephila elpenor Linn. Locally abundant.

Cerura vinula Linn. Abundant.

Phalera bucephala Linn. Common.

Orgyia antiqua Linn. Few.

Spilosoma lubricipeda Linn. (*menthastri* Esp.). I have seen a few larvae of this species, but Owen said it was abundant.

Spilosoma lutea Hufn. (*lubricipeda* auctt.). I saw one specimen in a City street, but Owen said this species, too, was abundant.

Phragmatobia fuliginosa Linn. A few seen, April 1948 (Owen).

Arctia caja Linn. Abundant.

Callimorpha jacobaeae Linn. Abundant.

Apatele aceris Linn. Larvae common in 1948 (Owen).

Apatele megacephala Fabr. Few.

Apatele psi Linn. Larvae abundant (Owen).

Cryphia perla Fabr. Recorded by Owen without comment; but said to be quite common in Inner London, in Dr. de Worms's report.

Agrotis segetum Schiff. 1948 (Owen).

Agrotis puta Hubn. 1948 (Owen).

Agrotis exclamationis Linn. Recorded by Owen without comment.

Triphaena pronuba Linn. Common (Owen).

Mamestra brassicae Linn. 1948 (Owen).

Melanchra persicariae Linn. Common.

Ceramica pisi Linn. Locally abundant.

Diataraxia oleracea Linn. Larvae recorded October 1954.

Leucania lithargyria Esp. Larvae recorded April 1952.

Caradrina morpheus Hufn. Recorded by Owen without comment.

Cucullia absinthii Linn. Recorded by Owen without comment.

Plusia gamma Linn. Few.

Euphyia bilineata Linn. I have seen a few specimens, but Owen said it was abundant.

Eupithecia centaureata Schiff. (*oblongata* Thunb.). Recorded by Owen without comment.

Biston betularia Linn. A larva seen in September 1954.

Biston betularia Linn. f. *carbonaria*. Recorded by Owen without comment.

Cleora rhomboidaria Schiff. (*gemmaria* Brahm). One seen in July 1952.

Zygaena sp. (*lonicera* Esp. ?) worn. Recorded by Owen without comment.

26 Ashurst Road, Tadworth, Surrey.

Some Observations on Long-horned Grasshoppers

By R. M. PAYNE

A holiday at Swanage in September 1957 provided a good opportunity for observing some of our long-horned grasshoppers or bush crickets

(Tettigoniidae), for which the Isle of Purbeck is undoubtedly one of the richest areas in Britain.

Tettigonia viridissima L., the great green grasshopper, is very plentiful here, coming right into the centre of busy Swanage, where it is to be found on waste ground and even in clipped hedges. It is widely distributed throughout the Swanage-Weymouth area, and I noticed it as far inland as Tolpuddle, eight miles from the sea. It occurs from sea-level up to at least 320 feet. Males could be heard singing at all hours from 9 a.m. to 10 p.m. (G.M.T.), though perhaps more continuously after dark; and they were certainly less prone after dark to stop singing on the approach of footsteps. Heavy rain usually silenced them, but otherwise they appeared to sing regardless of weather conditions. Amongst their song-posts were thistles, brambles, figwort, low-growing elder, *Buddleia*, *Euonymus japonicus* hedges, hawthorn (8 feet up), and elm and horse chestnut saplings (10 feet up). I would describe the stridulation as a very loud shrill burr, consisting of five chirps a second, all at the same high pitch, and continuing apparently indefinitely with momentary breaks at varying intervals. It can, of course, be heard without any difficulty from a fast car, so that it is an easy matter to plot the distribution of this fine insect along the roadside hedges—a favourite habitat.

Although *Tettigonia* is fully winged in both sexes it seems doubtful if it is capable of flight. On one occasion near Swanage a female, apparently quite undamaged, was pursued for several yards, and whilst she continually opened her wings when leaping, she certainly could not be said to fly; and indeed the distance covered by each leap was very short compared with the performance of some other British Orthoptera. W. J. Lucas in his monograph says of *Tettigonia* "it is also able to fly"; but has anyone ever seen it do so?*

Another very common long-horn in Purbeck is *Pholidoptera griseoaptera* (De Geer). This species could also be heard singing throughout the day, but it was undoubtedly more vociferous at night, when it thronged the brambles in the hedges above Swanage—it seems specially partial to brambles. The stridulation consists of a rough chirp made up of three separate notes in very quick succession (less than half a second over all) and repeated at intervals of about six seconds, though sometimes at much longer intervals. It is a highly gregarious insect, so that usually a number of males are heard together, after the manner of *Chorthippus brunneus* Thunb.

Metrioptera brachyptera L., here as elsewhere, was only found amongst heather. Like most of our long-horns, it could usually first be detected by its characteristic stridulation, a short thin sound repeated five or six times a second and continuing for several minutes. In dull weather this slowed down to three chirps a second, and each chirp is then heard to be made up of three separate notes, as in *Pholidoptera*.

Platycleis denticulata (Panz.) appears to be widely distributed along the Purbeck coast, but (although my opportunities for searching were

*[On 11th September 1897, while partridge shooting, I knocked one down with my hat in a stubble field at Wood's Farm, Basildon, Berkshire. But whether it was sustained flight or a long wing-aided leap I do not, at this distance of time, remember.—P.B.M.A.]

certainly limited) I did not come across it more than half a mile inland. It is catholic in its choice of habitat, occurring in such diverse places as chalk grassland on a very steep slope 350 feet above the sea, and flat Kimmeridge clay ledges only just above high tide level, among rushes, fleabane, and dwarf privet, with extensive patches of damp bare clay. (In this habitat *Tettigonia*, *Pholidoptera*, *Chorthippus brunneus* and *C. parallelus* (Zett.) were also seen). The stridulation of *Platycleis* I have described elsewhere.

Unfortunately, I was not successful in finding *Conocephalus discolor* (Thunb.), although I spent some hours, at different times of day, searching in two of its known localities. Each of these places proved to be rich in other Orthoptera, so that *C. discolor* would appear to be an elusive insect.

8 Hill Top, Loughton, Essex. 15.x.1957.

Notes on Some Coleoptera from Wales

By Bryan L. Sage, F.R.E.S.

During 1957 I received a few specimens of Coleoptera collected in Wales, some in Cardiganshire by F. Metcalf and the others in Pembrokeshire by Dr. and Mrs. L. Lloyd-Evans. Mr. Colin Matheson has very kindly checked the names against the excellent card index of Welsh Coleoptera that is maintained at the National Museum of Wales. By this standard there are some new records for both counties.

The species are listed below under the respective counties. Classification and nomenclature follow *A Practical Handbook of British Beetles* by N. H. Joy. The new county records are indicated by an asterisk.

Cardiganshire

Curculionidae

**Sitona hispidulus* F. On grass at Pont-rhyd-y-groes, 31.8.57.

Scarabaeidae

**Geotrupes stercorarius* L. On grass at Pont-rhyd-y-groes, 31.8.57. This species is probably quite widespread in the county.

Chrysomelidae

Chrysolina polita L. Two specimens taken on mint (*Mentha* sp.) at Pont-rhyd-y-groes, 31.8.57. The only other record of this species in the Museum index is from Tregaron Bog in June 1956 (*Ent. mon. Mag.*, **92**: 224).

Nitidulidae

**Meligethes flavipes* Sturm. On grass at Pont-rhyd-y-groes, 31.8.57.

Pembrokeshire

Curculionidae

Otiorrhynchus sulcatus F. Found under sea campion (*Silene maritima*) on the cliffs at Goultrop, 26.7.57. Recorded previously from Caldey Island (*Ent. Rec.*, **27**: 184) and Skokholm (*Ent. mon. Mag.*, **87**: 162 and 199).

Oedemeridae

Oedemera nobilis Scop. This species, recorded from Tenby in

Fowler's *British Coleoptera* **5**: 59, was taken from ragwort (*Senecio jacobaea*) on the cliffs at St. Brides, 24.7.57.

Carabidae

**Cychrus rostratus* L. Taken on a rotting tree stump at Goultrop, 26.7.57.

Blethisa multipunctata L. on bogbean (*Menyanthes trifoliata*) at Trefeiddan, 25.7.57. Recorded previously from Dowrog Moss, St. David's, by J. W. Allen (*Ent. Rec.*, **27**: 87).

**Elaphrus cupreus* Duft. Taken from mud by the side of one of the ponds on Skomer Island, 31.7.57.

Harpalus latus L. An example of the variety **erythrocephalus* F. was found on a path at Trelerw on 30.7.57. The typical form has been recorded from Skokholm (*Ent. mon. Mag.*, **87**: 162 and 197).

**Pterostichus nigrita* F. A specimen taken from the mud by a pond on Skomer Island, 31.7.57.

Ireland, Then and Now

By H. C. Huggins, F.R.E.S.

It is now well over forty years since I first collected in Ireland and as I am one of the few surviving collectors who visited the country before the 1914-18 war, it occurs to me that a few words on the changes there may prove of interest.

I visited Ireland every year from 1914-1919 inclusive, and then stopped going simply because the proprietrix of the hotel at Glengarriff, where I had stayed for the three previous years, refused to take my wife and myself on the ground that although we should be quite safe—being well known locally—we might see a lot of things that would not be pleasant. I did not go there again till 1938 and then to quite a different part of the country, when I stayed with the late Thomas Greer in Tyrone.

I first went to Ireland primarily to study the freshwater molluscs of the mountain lakes in Kerry and south-west Cork, though I did a good deal of work on the Lepidoptera and also trout fishing. I do not harbour regrets, having little use for such cattle, but if the same opportunities again occurred I should cut out the trout fishing and climb more hills after Lepidoptera. The snail research would still hold first place as it was probably the most important natural history work of my life and could only have been carried out in youth; few of the lakes I worked have been visited by any other collector.

In those early days communications were few; there were of course no motor-buses, and almost all localities involved long journeys in jaunting cars or on foot. I am stressing this, as to-day a good deal of doubt is being expressed on Birchall's capture of *Erebia epiphron* Knoch on Croagh Patrick. I should no more expect to see *epiphron* on Croagh Patrick to-day than in Trafalgar Square. The butterfly was taken in a grassy hollow near the hut (no longer existing) built to shelter pilgrims; in other words on the direct pilgrim ascent to the summit. In Birchall's time, with practically no means of communication, it is doubtful if pilgrims ever exceeded 500, mostly devout persons or those

under a vow. To-day of course the ascent of the mountain is a mass religious festival, with motor-coaches from all parts, and judging from accounts in the local papers a minimum of 50,000 annually take part. The date of the ascent would be shortly after *epiphron* had laid its eggs; what chance would such have of survival?

Birchall's capture was corroborated by Kane's taking of the Nephin specimens nearly fifty years later, and had I had the power of prophecy I should have visited that locality in June-July 1913 instead of Wicken. Unfortunately, I always thought the Irish *epiphron* an insect I could pick up when I wished to make the effort; moreover I expected to find it in the mountains of Kerry and West Cork. One final word on this interesting little butterfly seems advisable. Although it may yet be found it was, in my opinion, a dying species in Ireland, restricted to a few mountain peaks when discovered. The pilgrims no doubt accounted for it at Croagh Patrick, and the disastrous fire of which my friend Stelfox told me on Nephin, if indeed it still remained there at that time. But I have little doubt that in 1850 it would have been found on several other Connemara peaks. The oft repeated remark about Birchall's luck in hitting on the one mountain where it occurred seems to me pure twaddle; it was probably found on a dozen in his day. *E. epiphron* was probably dying out in Connemara as *Eilema caniola* Hübn. was at Howth or *Cleora arenaria* Hübn. in southern England.

I have mentioned these last two species in particular as no reason has ever been assigned for their disappearance. In southern Ireland, however, in my own experience, many species, particularly woodland ones, have disappeared locally in the last fifty years. When I first visited Glengarriff the demesne was the home of many Geometers. To-day these are exceedingly scarce and some interesting species seem to have become extinct, though odd specimens might possibly be attracted by m.v. light. The only Irish record of *Boarmia punctinalis* Scop. is of two or three I saw sitting on tree-trunks there, one of which I still luckily have, and I totally failed to find it by the hardest searching in May-June 1948-9. *Asthena albulata* Hufn. was not uncommon in 1918-19; I saw two in 1949 and none later. The cause of this is obvious—the continuous neglect of the remaining Irish woodlands except in a few favoured cases. Till the "Troubles" most Irish landlords stayed in the house of their demesne for a part of the year, and the money obtained by the compulsory purchase of the more fertile parts of their estates was not yet spent; so the woods received a certain amount of attention. During the "Troubles" most of them cleared out, at least temporarily, and even if the house were not burnt gave no attention to the trees in future, which like those "administered" by the great Mr. Prettyfat, could either grow if they pleased or fall down and rot. I do not think any care whatever was bestowed on Glengarriff demesne between 1914 and 1950, and many insects seem to have been smothered out; the young trees I saw being planted in 1952 were mostly conifers.

The stimulus to cattle-rearing during the last war also reacted unfavourably on many insects. Such plants as sea-campion, formerly distributed all along the coast in Cork and Kerry, were grazed to the root in many places and could only be found in quantity on cliffs or islets to which cattle could not penetrate.

It will thus be seen that there are sound economic reasons why

many species are rarer to-day than in Birchall's time, and although he was a rather careless writer I do not think he deserves the sneers made at him by some recent visitors. Their attitude is rather like that of some of the young literary men who visit Ireland for a few weeks and come back and slang Somerville and Ross, whose Ireland I actually knew. I wonder if these ever reflect on the difference between England to-day and in the reign of Edward VII? Like England, Ireland has changed and the non-appearance of a recorded insect does not necessarily mean the recorder was a Dillon.

Present-day collectors may be interested to know that on my first visit I paid 25s. a week at a clean comfortable hotel with lashings of food, that porter was 8d. per quart (this was the country drink, not stout), and John Jameson's Three Star 4s. 6d. per bottle. No wonder Gogarty repented and declared the first years of the twentieth century Ireland's golden age.

An Entomologist in Jugoslavia

By Ralph L. Coe

My journey from Ostend in the Tauern Express had been quiet and uneventful until we reached Munich, where a jostling crowd of over sixty young Greek men and women invaded the train. Rapidly filling the carriages, they overflowed into the corridors, chattering vivaciously, a handsome and happy throng. Conversing with one or two who spoke some English, I learned that they were a company of actors who had been touring northern Europe performing the classical Grecian plays. They were now homeward bound via Jugoslavia, and with their high spirits they made excellent travelling companions.

Crossing the Austrian frontier at Salzburg, within a further six hours the train had traversed the bridge at Jesenice, and we were within the Federated People's Republic of Jugoslavia.

At the forlorn hour of one a.m. I alighted at the Croatian capital of Zagreb, and a sleepy porter carried my luggage across the tree-lined square opposite the station to the Hotel Esplanade. My mind went back to war-time days in Egypt as I saw sprawled in various postures of sleep on the grass under the trees groups of people in peasant garb. At dawn they would take their bundles of fruit, mushrooms, vegetables and other country produce to the straggling street-market nearby, proceeding home by train or bus later in the day.

After a good night's rest and a first-class breakfast at the hotel, the largest in the Balkans, I went by tram through the city to the suburb of Salata. Alighting, I asked a man passing by the way to the Medicinski Fakultet, where I had arranged to call on Doctor Lorkovic, the lepidopterist. Taking my arm, the kindly Croat took me along a busy street and indicated a steeply-rising series of stone steps. At the top, rather breathless, I found myself on a grassy plateau, richly covered with trees and flowers, and commanding a grand view of the plains beyond the city. Hurrying along a broad gravel path, I soon reached an imposing white building and was directed to Doctor Lorkovic's laboratory. The doctor, a most charming personality, greeted me effusively, and was soon engaged in showing me the breeding cages

in which he had managed to cross successfully some of the common species of white butterflies. Later, over lunch in an open-air cafe, we discussed entomology in a mixture of French, English and Serbo-Croat, the doctor's knowledge of our language being extremely limited.

The following morning I left Zagreb by train for the Croatian port of Rijeka (Fiume). In my carriage were two Jugoslav army officers of distinguished appearance, very friendly and jolly. We conversed with the aid of my Serb dictionary, and they insisted that I share their salami sandwiches. The guard of the train suddenly popped in from the corridor, and without by your leave took my two cases from the rack and signalled me to follow him. "Engleski!" he kept repeating, as he hurried me through the corridors of the swaying train. Pushing me into a carriage, the cause of his excitement proved to be a very corpulent gentleman from America. He was the most vulgarly attired character that I have ever set eyes upon, and explained that after twenty years in Chicago he was now on his way to visit his parents' little home in an obscure Croatian village. Now he was nearing home and viewing from the carriage windows the primitive and poor communities we were passing en route he was obviously becoming more and more embarrassed. This was not surprising, as he had dressed up in an extraordinary fashion to show his wealth. His fingers were literally covered with gold and diamond rings, broad gold band to gold wrist watch, gold braid round his very American trilby, and even a neck-tie edged with gold braid. He looked so like Al Capone that I almost imagined the bulge in his coat pocket to be a gold-plated revolver. However, this proved to be a bottle of spirits, from which he took a hearty swig and passed it to me. His conversation was limited to an unending eulogy of his acumen in amassing wads of dollars, and I was relieved when at long last he prepared to alight at a small halt. With the guard's help, his innumerable cases were deposited on the platform, and as the train drew out he made a forlorn picture standing amid a miniature mountain of luggage gazing around for a probably non-existent porter.

Towards dusk the train arrived at Rijeka, and I got off. My first thought was to find sleeping quarters for the night, and I made my way to a small Putnik office in the station. Putnik is the official tourist information bureau in Jugoslavia, with branches in most of the larger places. Although the staffs are always eager to help, language sometimes proves an almost insoluble problem. This time the official on duty spoke only German. However, he soon understood what I wanted, and gave me an address for private accommodation with a Croatian family. A lounger outside the station directed me to a narrow street almost opposite, but it was in darkness. Striking matches outside various doors, I tracked down No. 9, but there the houses ended in a large area of waste land. I tried the other side, but, no, these were even numbers, and I wanted No. 11. At last to my relief I saw the dim figure of a man approaching, and asked him for number 'jedanaest'. He hurried me to No. 9, and pointed upwards. I entered, climbed some stairs and found No. 10. Up another flight, and, lo and behold, No. 11.

An extremely good-looking young lady answered my knocks, and I handed her the piece of paper given me by the Putnik official. She

smiled, and beckoned me in. I followed her into a small but comfortable looking bedroom and deposited my cases. She then led me into a little kitchen, and I joined her at a simple but satisfying supper. My dictionary was soon on the table, for she spoke nothing but Serbo-Croat. I pointed to 'nuznik' (toilet), and she indicated a projecting cupboard within the room, which I had imagined to be the larder. A small book could be written on the unique disposition and internal arrangements of the 'smallest room in the house' in some Jugoslav homes.

Returning to my bedroom, I found two strange ladies engaged in turning over various items of clothing in a case that I had left open on the floor. Not at all embarrassed at my entry, they held up a pair of my socks and exclaimed "dobro" (good) in admiration. I nodded in agreement, and smiling friendlily, they left the room. The bedroom door was for the upper part clear glass, covered rather ineffectively by a thin muslin curtain, and somewhat furtively I undressed for bed. Just as I was about to turn out the light, to my surprise the lady of the house opened the door and came in without knocking. She stood still, gave me a dazzling smile, and started plucking at her blouse. Strange to local customs, I began to wonder. My look of bewilderment spurred her to further action, for she calmly took off a shoe, rolled down her stocking and fingered its folds, gazing earnestly at me as she did so. I handed her my dictionary, and she turned over the pages rapidly, then with an exclamation of delight grasped my arm and pointed to the Jugoslav word for 'silk'. I was still baffled, and with a frustrated air she bid me 'lakunoc' (good-night) and left the room. It was not until later on my journey that I was told of the tourists who bring silk underwear and stockings, prohibitively priced and of poor quality in Jugoslavia, to help pay for their accommodation. I received a letter of heartfelt thanks from the good lady for the pair of nylons that I later sent from England.

The next morning I explored the town, which proved to have little of interest to the traveller, and towards mid-day returned to my lodgings to collect my cases. Making my way to the fine modern docks, I soon found the imposing steamer 'Dalmacija', by which I was to proceed on the next stage of my journey, down the Adriatic to the island of Korčula. At fifteen hours the anchor was shipped, and we glided smoothly southward along the Dalmatian seaboard, the bows effortlessly cleaving the blue-green and unruffled waters. With the sun shining in a perfect blue sky, the ship weaved in and out of the almost countless islands, mainly conical and shrub-covered, which are a feature of these coastal waters. After the stars had added their quota of romanticism, we stopped for a brief spell at the important naval port of Šibenik.

Our next place of call was Split, some further fifty miles south, which we reached soon after dawn. Ascertaining that the ship would stay there for an hour, I obtained permission to go ashore, in order to explore the fabulous Palace of Diocletian, built by the Roman Emperor of that name over 1600 years ago. After a short walk inland along palm-lined pavements, I arrived at the imposing outside walls, which are in a marvellous state of preservation. Wandering up and down narrow steps, hemmed in by the high buildings, I passed pitch-dark passages, from many of which came the most appalling stenches.

Herded together like a hive of bees in these ancient chambers live over three thousand citizens. In one courtyard a miniature Sphinx brought from Egypt over a thousand years ago looks down with the same impassive air as the Sphinx of the Nile.

I returned to the steamer, with scant time to spare before she resumed her voyage. Sweeping round the eastern extremity of the island of Hvar, the ship rapidly changed course from south-east to south-west, then almost described a semi-circle to pass the tip of the long, narrow peninsula of Peljesac, which projects from the mainland for nearly forty miles. The picturesque island of Korčula now came into view on the right, and we were soon steaming past its wooded hills and innumerable bays towards the port of the town of that name.

As we approached the quay, it seemed as if the whole population had turned out in welcome. The hubbub and commotion was astonishing as we tied up. Stepping ashore with a handful of Jugoslavs, I put down my cases and with a peculiar feeling of isolation looked around to get my bearings. Dominating the quay rose the high walls of an old fort, and in front of it I saw a plain-looking building rejoicing in the name of the Hotel Korčula. Standing about by its entrance were numbers of sailors in the smart uniform of the Jugoslav Navy, which happened to be on manœuvres in the vicinity just then. From the interior came the strains of a patriotic air, amplified to an almost ear-splitting degree. Stepping into the reception hall, I approached the enquiry desk, but the youth in charge could not understand a word that I said. Soon I was surrounded by a small group of would-be helpers, but no progress was made. Suddenly to my relief I heard a voice behind me say in English, "Can I help you" Turning round, I saw a fine looking man of middle age, with a mass of curly white hair. When I explained that I wished to find accommodation for a week's stay, he grabbed my arm and took me outside. "This hotel is filled with sailors", he said. "They drink and sing all night long, and you won't like *that*!" He called to an old man, and gave him some instructions in Jugoslav. He then explained that he had told him to take me to the "Beograd", one of two other hotels in the place. There he said I would be happy and comfortable. The old man returned with an antique trolley, on which he piled my two cases. My kindly helper said he would call and see me later in the afternoon. I set off behind the trolley pusher, and we proceeded at a slow pace through the winding cobbled streets of the small town. At last the buildings thinned out, and we reached a tree-lined avenue, at the end of which stood the Hotel Beograd.

The manageress, a pleasant, matronly woman, showed me into a neat bedroom, and I then followed her down to the separate restaurant. Seating myself at a table on a balcony overlooking the bay, I ordered lunch from the olive-skinned Italian waiter. Then I saw approaching me with two other men my English-speaking friend of the morning. Depositing a flask of red wine on the table, he introduced his companions as fellow partisans of the war, in which he had held the rank of colonel. They all sat down, and my meal was enlivened by stories of the exciting days when the Germans occupied the opposite mainland, and Marshal (then plain) Tito was a hunted man, concealed in a cave at nearby Dubrovnik. As the colonel's friends spoke no English, and

he had to leave the island on business the following day, he had arranged to introduce me that evening to one Georgiv Damjanovic, a local English-speaking schoolmaster. The flask of excellent Dalmatian wine was soon empty, refilled and emptied again, and the afternoon was well advanced before I was able to adjourn to my room and unpack my bags.

When I returned for the evening meal, I saw at the head of a line of small tables pushed together and covered with a large white cloth the curly-haired colonel. Seated with him were his friends of mid-day and several other people. He beckoned me over and made the necessary introductions. Two of the party were a middle-aged German couple. In an aside the colonel told me that the latter were tourists, who had innocently joined the company, although uninvited. He hoped that there would be no trouble when Damjanovic arrived, as that worthy had a hatred of all Germans as a result of some unfortunate war experiences.

A chair beside me was left vacant for the missing Damjanovic, who ultimately turned up when the meal was well advanced. An earnest, black-moustached man in his forties, he was obviously somewhat inebriated when he arrived, and immediately started making up for lost time by consuming large quantities of wine. In extremely bad English he told me that he had served under Brigadier Fitzroy Maclean when the latter was acting as liason officer between Sir Winston Churchill and the fugitive Tito.

Soon the company was joined by the hotel chef, who entertained us by singing national airs in a really beautiful voice. The people of Korčula are outstanding even among Jugoslavs for their lovely voices, and it was a delight to hear the hotel workers, men and women alike, singing as they went about their tasks in the adjacent kitchens. Song followed song as the evening wore on. Georgiv tried to annoy the German couple by bursting every now and then into the nostalgic strains of "Tipperary," grasping my arm and compelling me to stand up and join him more or less in harmony. When the Germans courageously began to sing pleasantly one of *their* national songs, Georgiv became livid, and shot to his feet shouting, "Meester Ralph, ve will now again sing 'Tipperary'!" As he became more inebriated, his command of the English army swear-words became more magnificent, and I prayed that his recurring insults to the Germans really fell on uncomprehending ears. At 1 a.m. the party abruptly finished in complete darkness, the electric light having failed, and two by two the guests waltzed their respective ways homeward.

The following morning I rose early for my first full day's collecting. Alas, during breakfast a terrific rainstorm broke, and soaked all the foliage. It was still cloudy and cold as I climbed the shrub-covered hill above the hotel. Sweeping proved impossible, but I managed to fill a collecting box with several interesting species of *Sarcophaga*, which were obligingly sitting about on exposed stones on the hill-side. Next day the weather gods were kind, for the sun shone in a cloudless sky, and I enjoyed some excellent sweeping on the same shrubby slopes. Every now and then I came across a roughly excavated dugout, evidence of the partisans' desperate resistance as they contested yard by yard the advance of first the invading Italians and later the Germans. The fin

of an unexploded bomb nearly snagged my net as I swept among some undergrowth. Rough wooden crosses here and there were mute evidence of heroic stands by the defenders.

At supper that evening I found a sobered Georgiv waiting to tell me that he had to visit the mainland unexpectedly. Alas! he knew nobody else on Korčula who spoke English, and hoped that I would manage on my own. Before bidding me good-bye, this remarkable character made me promise to let Brigadier Maclean know of my meeting with him, and that he was now married and had a lovely baby girl. This undertaking was duly carried out on my return home, and I received a reply from the Brigadier expressing pleasure at hearing news of his war-time ally.

(To be continued.)

54 Crossways, Addington, Surrey.

'The Trade' in the 'Nineties

By P. B. M. Allan

To the July/August issue of the *Record* for 1953 I contributed an article on 'Collecting in the 'Nineties' which dealt chiefly with the rural state of England at that time and, consequently, with the conditions surrounding the field entomologist. A friend has asked me to write something about the 'home trade' in insects, that is to say, the dealers who plied their trade among the entomologists during those years. The following matter is culled from the advertisement pages of the principal entomological magazines between 1890 and 1900.

I recorded in the above-mentioned article that during the decade in question some 1,099 entomologists were contributing, regularly or irregularly, to the three principal magazines and that 346 collectors were advertising in the "Exchanges and Wants" pages of the *Record*. In 1950 the number of contributors was 292 and the "wanters" only 26.

The dealers who advertised entomological apparatus numbered 20 and those who offered live insects for sale amounted to 25, in addition to some of the apparatus dealers. The corresponding figures in 1950 were 3 and 4.

But there were 'professional collectors' too. Reid of Pitcaple, McArthur, Austen and Russ announced their intention of going on collecting trips and asked for subscribers. Russ was going to investigate an "unexplored" district of Co. Sligo, and, being an Irishman, went on to say that the "unexplored" district "is an especially good one for Plusidae, Dianthoeciae and vars of Noctuae, also for Eupitheciae, Emmelesiae (including *E. taeniata*), etc." He required 15 subscribers at £4 each. "All insects well set on black pins." Priddey of Toronto (who intended to collect Lepidoptera in Florida and the West Indies), Durloo of Copenhagen (going to Lapland) and Hunt of Ceylon made similar announcements. The Salvage brothers were about to collect macros and micros in the Channel Islands, North Wales, the Orkneys, Shetlands, etc. C. Livingstone of Vancouver gave notice that he intended "collecting this season in this almost unworked island" and invited applications for terms. Aich of Elberfeld offered living California pupae; Farren of Cambridge had "fine healthy pupae" of *Perizoma*

sagittata Fab. at 5s. a dozen. Voelschow of Mecklenburg supplied eggs, larvae and pupae (Continental stock) of all the rarer British Lepidoptera, both butterflies and moths.

Solomon Bailey, the well known Wicken collector, announced that "Gentlemen visiting the above locality during the season can be provided with attracting lamps, and all requisites for collecting on the same. Terms on application." The petrol lamp had not been invented then and groups of two or three bulky paraffin lamps could be more conveniently hired than transported. Bullman of Wicken, who owned part of the fen, was offering "Comfortable apartments within ten minutes' walk of the Fen." Farren of Cambridge wanted to let a furnished house in the village, by the month or longer. There was also "A widow lady", Mrs. Phillips of Wicken, who was "desirous of receiving Entomologists during the season, living within five minutes' walk of Wicken Fen. Terms 30s. per week. References required."

As for those who required living insects, Edmonds of Windsor, whose speciality was supplying genuine British insects bred from Continental stock, adorned his full-page advertisements with coats-of-arms of Her Majesty (complete with the Order of the Garter) and Eton College, announcing in italics that he was "MANUFACTURER OF ENTOMOLOGICAL APPARATUS AND CABINETS TO THE ROYAL FAMILY AND ETON COLLEGE", and that no one in Europe had a larger stock of living ova, larvae and pupae than he. Among the "British Species" which he offered were pupae of *Epicnaptera ilicifolia*, the Small Lappet, at 1s. 9d. each. Six months earlier he was asking 2s. 6d. each, so apparently they were hanging fire; later he had eggs at 5s. a dozen—four dozen for the price of three dozen. A year or so later Karlinger of Vienna was advertising, in the same magazine, pupae of *ilicifolia* at about a shilling each. Edmonds also had pupae of *Drepana sicula* at 2s. each, later reduced to 1s. 6d., and "true" *Cucullia scrophulariae* at 6d., with "mixed Dug-pupae" at 8d. per dozen. In a later issue these anonymities were described as "splendid value" and their price reduced to 6d. But his high lights were undoubtedly eggs of *Notodonta tritophus* at 1s. per dozen, of *Leucodonta bicoloria* at 1s. 6d. and of *Minucia lunaris* at a ha'penny each. The year 1891 seems to have been a remarkable one at Windsor, where Mr. Edmonds had his 'nurseries'. In addition to the above rarities he was so lucky as to find, in his own breeding-ground, a whole brood of Oleander Hawkmoths—so many in fact that he was able to offer them to his customers at only three shillings apiece. Nothing succeeds like success, and Mr. Edmonds was successful for many years. It was in fact not for nothing that he was purveyor to the Royal Family.

Among the Continental species which Edmonds offered were pupae of *G. podalirius* at 2½d., *Thais cerisyi* at 1s. 3d., *Thais polyxena* at 1½d., and *Araschnia levana* at 1d. (fourteen for the price of twelve). Other dealers also were offering these showy species, so there must have been a demand for them in England.

Head of Scarborough also had his strong suits. In 1891 he was offering pupae of *L. bicoloria*, the White Prominent, for 8d. each, larvae of *H. pinastri* at 2s. a dozen, and eggs of *Catocala electa* at 9d. a dozen —Clifden Nonpareils were a ha'penny each. But "many of the rare species can only be supplied when ordered in advance". Which perhaps

was quite reasonable; naturally it took a little time for these desirable species to acquire British nationality, per Her Majesty's Post Office.

Sumner's Naturalists' Stores at 135 Oxford Street, London, also indulged in full-page advertisements. This firm announced that their business was divided into the following departments: Ornithological, Reptilian, Amphibian, Piscatorial, Oological, Entomological, Conchological, and Etc., and requested customers to "address all communications to their respective departments, each of which is under the control of a specialist". Sumner's, like so many others, had eggs of the Gipsy Moth for sale at 3d. a dozen and of *C. fraxini* at 1s. a dozen.

Edmonds of Windsor, after Sumner's advertisement first appeared, prompty reduced the price of his *fraxini* to 9d., and Davis of Dartford, to meet this price-cutting, knocked down his Gipsy Moth eggs to tuppence, reducing them next year to a shilling a hundred. Apparently by this time *Lymantria dispar* had become a drug on the market, for in 1892 a reader of the *Record* was asking others to send boxes and stamped addressed labels for 120 pupae of this species which he was anxious to get rid of. Sumner's also announced, with suitable woodcut, a "most ingenious invention" called "The Kensington Insectarium" which was "designed for the rearing of all living objects of Natural History". This was our old friend the glass cylinder with tin bottom and perforated zinc top.

So many of the dealers in live insects were offering pupae of *P. machaon* at 3d. each throughout the 'nineties that one cannot help wondering how many larvae of this species were collected in Norfolk every year. The total must have run into hundredweights. In no instance were eggs offered, so it would seem that the dealers did not trouble to obtain pairings from bred imagines. Be it remembered that in addition to the inroads which the dealers' men made upon *machaon* no amateur collector considered himself a proficient lepidopterist until he had made a pilgrimage to Norfolk and taken the larva with his own hands.—But perhaps many bushels of these pupae came by mail across the Channel; for the difference between Continental and British *machaon* was not yet recognised.

Set specimens were being offered in the three magazines during this decade by 24 English and foreign dealers. For instance Augustin of Doubes was offering species of *Thais*, *Erebia*, *Parnassius*, *Papilio*, etc., at prices ranging from 3d. for *Thais medesicaste* to 6d. for *Papilio alexanor*. It would cost one rather more than sixpence a specimen to go and catch either of these species today. Engelhard of Allersberg had for sale Coleoptera and Lepidoptera, "rarities, faultless, at cheapest prices", from Turkestan and Transcaspia. Reed offered "Fine Lepidoptera" from India, Polynesian Islands, Africa, and N. and S. America. A Viennese dealer, Leopold Karlinger, was advertising *Thais polyxena (hypermnestra* Scop.) for one-tenth of a shilling. William Downing, another advertiser, was one of the old-time professionals who knew and collected in the Epping Forest of Henry Doubleday's era. He died at Whip's Cross, Walthamstow, on the 19th January 1892 "at a great age", after a short but severe illness, leaving a large collection of Lepidoptera which his widow was endeavouring to sell. Hoffman of Cologne was advertising for sale a "local var. (no artificial produce) of *Arctia caja* L. Body and hind wings *yellow*

instead of red. Ex larva at 12s. each; £1 per pair. Gentlemen who are not known to me will please send the money in advance".

The same year (1895) T. Phillipson of Newport, Mon., offered "Three or four dozen *Aporia crataegi*, captured or bred by myself previous to 1872. Price 40s. a dozen". This was the butterfly of which Tutt—who knew what was going on in the butterfly world of England if anybody did—wrote "several hundreds of pupae were bought on purpose to restock the old haunts of this species. Two excellent lepidopterists, having bred some dozens of this species, set them free . . . Hundreds of this particular species have been set free in Surrey, Essex, and Kent. These instances might be increased tenfold without trouble". And indeed Edmonds of Windsor told F. Merrifield in 1893 that he had "for some years past imported *Aporia crataegi* from the Continent and had allowed numbers of them to escape". Tutt himself allowed "two large broods" to escape from his garden. No wonder "British" specimens of this butterfly are so frequent in collections today.

Then there were also the "amateur dealers", such as Mr. Phipps of Tunbridge Wells who offered "Fine, bred, and well-set *Plusia moneta* from this season's larvae. Price 5s. each". In 1896 Mr. R. Waddiman decided to sell his aberration of *Arctia caja* which had been figured in the *Entomologist* of January 1892 for 70s. Alexander McLean of Bolton took advantage of a paper by J. Arkle in the same magazine, mentioning that *Plusia festucae* occurred freely at Bolton, to proffer pupae and imagines of that species at 3s. per dozen. H. Abdy Collins of Saxmundham asked for offers for "Good and genuine English *Sphinx pinastri*".

As for those private collectors who made use of the *Exchanges & Wants* pages the chief impression one obtains from their announcements is the fairness of the offers. For instance a collector offers "*P. geryon* (fine)" and all he wishes in exchange are *machaon, edusa, selene, euphrosyne, hyperantus,* etc. The optimist who wanted to barter *Maniola jurtina* and *M. tithonus* for *A. iris* (bred), *L. boeticus* and *A. lathonia* was not much in evidence—though at the beginning of the decade a London collector was offering *G. rhamni, A. selene, A. euphrosyne, A. paphia* and *L. camilla* for *M. arion, C. palaemon, C. hyale* and *H. acteon*, which seems good business, if it came off. Another suggested bred *O. potatoria, P. bucephala, M. typica, C. trapezina, E. caeruleocephala, N. c-nigrum, A. segetum, P. meticulosa,* etc., in exchange for *Z. meliloti, L. quadra, S. irrorella, S. urticae, H. asellus, M. turca*, and certain other none too common species. Some people never give up hope . . . But these offers were in a very small minority.

A Good Year

By An Old Moth-Hunter

On the 19th May, 1898, I went to stay at a house in the New Forest, and the first thing I did was to unpack my butterfly net. Next morning I started to explore the neighbourhood and in the evening recorded in my diary "Lots of *G. rhamni* about and a few *A. cardamines*; but only a few *A. euphrosyne* are out yet". It was not until the beginning

of June that *euphrosyne* was fully out, and I proceeded to take a series. On 5th June, coming home from church, my host drew my attention to two *H. bombyliformis* hovering at an immense rhododendron bush in full bloom. After lunch I took up my stance in front of the bush, and when one of the luckless bee-hawks came within reach, netted it. That evening, I recorded, "was perfection for moths", and at 9 p.m. I saw a hawkmoth, probably *D. elpenor*, hovering at honeysuckle in the garden. Happily for the moth it kept out of reach of my net; for I was out for blood.

On the 7th June I caught and selected 12 *euphrosyne* and a number of *B. piniaria*, boxing females of this species under the young pine-trees in a plantation and netting the males as they came within reach. *A. plagiata* was also taken and several *M. rubi* males seen. Apparently I had not yet caught a Fox-moth, for the next day I went out to do battle with them on a small heath near the house. Thus my diary records this stirring day: "On the way back I turned aside and crossed over the top of a slope which was a mass of heather. I came this way because on the previous day I had seen three or four large moths flying over the heather in the sun and did not know what they were. They flew terrificly (*sic*) swiftly and it was impossible to catch them while flying. The only chance one had was to catch them whilst they were hovering round ferns, etc. As I reached the top of the slope I saw one flying hard towards me. As it approached me it quickened its speed and dashed past, leaving me in bewilderment as to what it was. A minute afterwards I saw one hovering over a large bracken. I rushed up and succeeded in capturing it, to my great joy. It turned out to be a magnificent specimen of *Bombyx rubi*. After that I caught 7 more, one of which I gave to the boy with me, as he caught none. The day was broiling hot. Time from 3-6".

After that notable event I must have become blasé, for the succeeding entries in my diary for that month are distressingly brief. During the succeeding days I went out after fox-moths again, and having discovered the technique netted, on the 11th, three, and on the 12th, four, bringing the total bag of fox-moths up to 16. *H. bombyliformis* was still flying on 18th June and I bagged several, also more *plagiata*. *A. selene* is first recorded on 15th June and on the 19th "one of the servants here caught a good specimen of *S. ligustri* in her bedroom".

Towards the end of June I returned to my home in Berkshire and *D. elpenor* was taken hovering at carnation on the 23rd and *S. ligustri* at honeysuckle on the 26th. A visit to Burghfield Common on the 28th enabled me to take six *D. sannio* ("Euthemonia russula" as we then called it), 5 ♂♂, 1♀. "Lots of *Hesperia sylvanus* about on the heath," I noted, referring of course to *Ochlodes venata*.

During the first week in July I seemed to have bicycled to Burghfield Common every day; for on the 2nd I recorded a female *D. sannio*, some *A. selene*, and, again, "lots of *H. sylvanus*"—with *M. stellatarum* at carnations at home in the evening. On the 1st I had boxed *B. roboraria* from an oak trunk. The 5th and 7th were red-letter days, for on the former I netted a "pure white E. russula" and on the latter a var of *Z. filipendulae*: "Lots of 6-spot Burnets in a field near here. I caught 7 in a few minutes and a lovely one with cream spots and cream underwings."

A. paphia, *A. cydippe* ("adippe" we called it) and *L. camilla* ("sibylla") were now out and I caught several of each. In the middle of the month (July) I returned to the New Forest, where these three butterflies were now (14th onwards) in profusion. On the 18th my diary records: "One perfect specimen of var. *valezina* in a pinewood. It was paired with an ordinary male, but as I know that Fritillaries never breed in confinement I killed and set her". Plainly I had a lot to learn about fritillaries at that time! Three days later, 21st, I recorded "a magnificent specimen of *V. polychloros*, 1 var. *valezina*, 3 *sibylla*", besides several *S. semele*, female *paphia* and one *Arctia caja*. "I caught the *polychloros* in a pinewood enclosure with a broad stretch of road covered with grass and heather at the sides. The boy with me suddenly rushed ahead and came back with a lovely *polychloros*. He assured me that he had seen two. We went on for about ten yards when up got a lovely specimen of *V. polychloros*. I rushed after it and much to my delight succeeded in catching it. There was hardly any sun out at the time, and the day was sultry. Both these *polychloros* were sitting on wet clay on the ground."

Back in Berkshire on the 30th I went to Burghfield Common and found *A. aglaia* on the wing, netting a ♀ and two *cydippe*. "Lots of *semele* and *phlaeas*, and I got two *L. aegon* and two *semele* paired."

In August a new butterfly was added to my collection, *Thecla quercus*. "12th August, Friday. Went to Stoke Row, three miles from Peppard (Oxfordshire), with father, and caught 14 Thecla Querci (*sic*). Two of them were torn. We took a 6-ft. pole, lashed my net and handle to it, and so caught them while flying round a large wild cherry tree. They were sucking the honey off the curled up leaves which Aphides had been on. They were caught from 12 a.m. (*sic*) to 2.30 p.m. When we left there were yet 2 or 3 on the tree. The day was broiling hot and not a cloud in the sky."

Early in September I went to Eastbourne and on the 14th found 5 *S. ligustri* larvae, two full grown and three 'small', on a privet hedge facing the sea in front of the hotel. Next day I found another; but by the 11th I was home again and on that and the succeeding three days caught *M. stellatarum* flying at a bed of geraniums, all after teatime. Those were the last entries for 1898 and I don't remember where I spent the rest of the year; presumably I returned to school or tutor. It seems to have been a good year for a youngster.

Current Notes

The recently issued 1956 volume of *Proc. S. Lond. ent. nat. Hist. Soc.* contains an interesting paper by C. F. Rivers on 'Advances in Insect Virus Research'. So far as the Order Insecta is concerned virus diseases are known at present to occur only in the Lepidoptera, Hymenoptera and Diptera. Normally it is the larval stage which is affected, though occasionally pupae are killed. With the viruses which affect humans certain other mammals can be infected; but in the case of insects the viruses appear to be highly specific. Thus there would seem to be a wide field for using these bodies as biological controls of insect pests. It is interesting to note that natural control has been demon-

strated on the Continent in the case of *Lymantria monacha* Linn. "Whenever the population of larvae of this species becomes abnormally high, there is usually an outbreak of a nuclear polyhedrosis which rapidly restores the situation." It is unlikely that *L. monacha* is the only species subject to this form of natural control. In California a virus disease has been artificially and successfully used to control *Colias philodice eurytheme* Htg., a fodder crop pest, and in Canada similar measures are now used against the European spruce sawfly.

Rivers suggests the possibility that virus diseases may be a contributory factor in the elimination of certain species of Lepidoptera which have become extinct in this country, such as the Gipsy Moth and *Aporia crataegi* Linn. "Latent virus," he writes, "is ever present and it is sometimes activated by adverse humidity. At Cambridge we have found that *Tineola bisselliella* Hum. larvae bred for generations without virus outbreaks can be made to come down with such a disease if they are kept for any length of time at 50° Relative Humidity or below. With these ideas in mind, it is not difficult to imagine that the draining of the Fens could have produced a state of insufficient humidity for the health of *Lymantria dispar* L., whilst the change to the Atlantic climate, which is now said to predominate in Britain, made conditions too wet for *Aporia crataegi* L." Mr. Rivers concludes his paper with some suggestions for keeping viruses at bay in our larva-cages.

We have recently received a copy of Catalogue No. 766 issued by Messrs. Bernard Quaritch Ltd. of Grafton Street. As usual with this firm's catalogues there are several items of considerable interest to the collector of entomological books. The work of Boisduval, Rambur and Graslin on the larvae of European lepidoptera, royal octavo with 126 coloured plates, 1832-43, is not dear at £18 seeing that this is a complete copy of a very scarce, and desirable, book. Another work, not entomological but of interest to all of us who are fond of birds, is C. R. Bree's 'Birds of Europe not observed in the British Isles', 4 vols. with 238 coloured plates, 1863-4. This too is not at all dear at five guineas, for it is not an easy book to come by nowadays. Bree was a son of that great lepidopterist Archdeacon W. T. Bree of Polebrook, Northants, whose name occurs so frequently in entomological literature during the first three decades of the nineteenth century. Like his father, C. R. Bree was an ardent lepidopterist before he turned his attention to birds.

Buckton's monograph on the Membracidae, a quarto with 60 hand-coloured plates issued between 1901 and 1903, has gone up in price steadily these last few years and Messrs. Quaritch's copy is offered at nine guineas. But £2 5s. for Captain T. Brown's *Book of Butterflies, Sphinges and Moths* is a high price to pay for a useless small octavo book with 144 not very good plates. However, coloured plates are the rage nowadays and almost any book containing them, no matter how poor they are, fetches more than its intrinsic value. Frohawk's *British Butterflies*, the two folio volumes, 1914, has been stationary for some years at round about six pounds, his *Varieties* being now priced at £2 15s. We notice that Thomas Martyn's *English Entomologist*, 1792—which is confined to the Coleoptera—now sells at £7 10s. It is by no means a scarce book, but desirable for all that as a collector's item.

These eighteenth century entomological books, especially if illustrated, are bound to go up in value as the years advance. They are a good investment.

H. E. Knowles, of 23 Hemberton Road, London, S.W.9, is a second-hand bookseller who deals in natural history books and papers. He does not issue catalogues but every so often he sends to his customers some half a dozen typewritten foolscap sheets listing some 250 books which he has for sale. His speciality is the literature which has largely been forgotten, interesting books which were important in their day but have been relegated to limbo by the march of science. We know of no dealer in books who is more likely to have a copy of some neglected natural history volume published about a hundred years ago to which one is anxious to refer.

Knowles' List No. 78 came to hand a few weeks ago. It contained modern books as well as old ones and among the very first items was a copy of the extremely rare first edition of Miss Laetitia Jermyn's *Butterfly Collector's Vade-Mecum* (Ipswich, 1824), bound in the original boards for, yes, six shillings! A snip for someone. We know of only two copies. His latest list, which has come to hand as we write, offers, for five shillings, another rare little entomological item, Abel Ingpen's *Instructions for collecting, rearing and preserving British Insects*, 12mo. with the coloured plate and in the original boards, 1827. So the age of bargains is not yet past.

Notes on Microlepidoptera

By H. C. Huggins, F.R.E.S.

Oak galls. With the approach of the dead season a certain amount may be done in collecting larvae and pupae, particularly of Tortrices. The galls on oak trees are a fruitful source of these if collected in sufficient quantity, and December is a good month to obtain them, directly the boughs are bare enough to make it easy to see them. If they are left till a later date a good many blow down, and, further, the tits pick most of them to pieces by the spring. Those found on the ground after a wind are just as good, but are more difficult to find and are also apt to harbour pests such as spiders and predaceous insects.

The population of the galls varies with districts. I have bred *Pammene splendidulana* Guen. and *P. fimbriana* Haw. wherever I have collected, though the latter is usually uncommon. *P. argyrana* Hübn., which is common here (East Essex) and in West Kent, was absent in north-east Kent when I collected there. Both *splendidulana* and *argyrana* vary considerably and are worth breeding in quantity as each has a whitish form with only a few cloudy markings. *P. gallicolana* Zell. is usually considered a rare insect, but I bred it not uncommonly in the Sittingbourne district and have also done so here. As I have netted two or three at Ham Street, Kent, the only place where I have taken the perfect insect, it should prove not uncommon from galls collected there.

Other odds and ends that do not feed in the galls but select them for pupation occasionally turn up, such as *Pammene juliana* Curt., and Barrett records a single example of the enigmatic *Spatalistis bifasciana* Hübn. from this source. The galls should be tied up in cloth bags and hung out in the garden till the beginning of March to prevent the larvae from drying up. They may then be placed in a breeding-cage in the house, and it is helpful to sprinkle them with water occasionally. In collecting galls the spongy ones are best, and a quantity, two or three quarts, is desirable.

Pammene aurantiana Staud. The recent discovery of this insect in Britain reinforces what I wrote last month as to the desirability of younger collectors beginning the micros as early as possible. These smaller Tortrices are apt to be passed over by people like myself who can no longer identify the small fry on the wing with the same certainty as twenty years ago, owing to less perfect vision. *P. aurantiana* is almost certainly an old established insect that has been overlooked, and both this and another Tortrix, practically new to the country, on which I do not feel free to write till its discoverers have published their paper, owe little to the m.v. lamp.

Heterographis oblitella Zell. I shall be very glad if any collector who has taken this moth in 1957 will record it, as so far I have only heard of two, one by Mr. David More at Hockley, Essex, at m.v., and one, also at m.v., at the other end of England. I fear that the big colony found at Pitsea in 1956 is in a bad way, as I saw none in seven visits which I made at dates covering all three broods. The character of the rubbish dump has changed: it is much more settled and overgrown, and less hot. The moth is evidently an immigrant which on rare occasions establishes itself here, but I did not expect so large a colony to disappear so suddenly.

Notes and Observations

ARCTIA CAJA LINN. PUPATING IN AUTUMN.—I was much interested in Mr. C. M. R. Pitman's note on his larvae of this species pupating in the autumn (*Ent. Rec.*, **69**: 220). In April 1938 I collected a few larvae of *A. caja* at Aviemore, and brought them down to Hampshire. Moths emerged at the normal time and a pairing took place. Of the resultant larvae a few fed up rapidly and pupated in September. I did not give them special treatment of any kind. I have no record of the exact number, but think it was about a dozen. Anyhow, eight moths emerged during the autumn, the first on 9th October and the last on 1st November. This is the only time I have ever had any larvae of *A. caja* feed up rapidly and produce an autumn brood, and I have often wondered whether it was due, in part at any rate, to the transfer of stock from the Scottish Highlands to the warmer climate of Hampshire.—H. SYMES, 52 Lowther Road, Bournemouth. 19.x.57.

MACROGLOSSUM STELLATARUM LINN. IN BOURNEMOUTH.—On 11th October, at 12.30 p.m., I saw two *M. stellatarum* at lavender flowers in

my garden. This equalled the total number of this species that I had seen during the whole of this season.—H. Symes, 52 Lowther Road, Bournemouth. 17.x.57

Volucella zonaria Poda in Bournemouth.—This dipteron made its usual appearance in my garden, but I saw it only twice, on Buddleia on 4th August and on *Eupatorium cannabinum* L. on 1st September.—H. Symes, 52 Lowther Road, Bournemouth. 17.x.57.

Danaus plexippus Linn. in Norway.—On the 24th August a perfect dead specimen of *D. plexippus* L. was brought to me. It was found lying dead on top of a cupboard in a warehouse office of the Norsk-Amerika Line at Vippetangen docks, Oslo. Was this a migrant? I think it was a stowaway and that it died as a result of the cold weather. —H. Lee, Sons Gate 7iii Opg. I., Oslo, Norway. 14.x.57.

Saturnia pavonia Linn. Overwintering for Three Years in the Pupal Stage.—In May 1951 I received from Mr. Barbrook a batch of eggs of *S. pavonia* L. from Wilmslow, Cheshire, which hatched on 1st June that year. The resulting imagines emerged in April 1952 and the supposedly empty cocoons were left in the breeding cage and forgotten. In March 1954, when preparing to move house from Southampton to Bournemouth, the now lidless cage was brought from its resting place and left out of doors in an empty and open brick coal-bunker. One day during the latter part of April my wife discovered a female *S. pavonia* resting on the inside of the coal-bunker quite close to the cage of empty cocoons and a few minutes later found a male a few feet away. Both specimens were boxed and the female laid some 100 or so eggs, all of which hatched in about ten days. It seems therefore that a female *pavonia* had remained in the pupal stage over the winters of 1951, 1952 and 1953; but the question is, did the male also remain in the pupal stage for the same length of time and by coincidence emerge at the same time as the female, or was he 'assembled'? The latter seems the more probable, although I doubt if anyone has ever suspected that this species occurs in the built-up area of Bitterne, Southampton, where I was then living.—A. C. R. Redgrave, 47 Swanmore Road, Boscombe East, Bournemouth.

A Postscript from Cornwall.—Bodinnick has exceeded its *Leucania unipuncta* ration this year (one annually since 1954). No less than four arrived, on 13th, 15th, 16th and 17th October respectively. Mr. Puckey had three at Polperro during the same period. I hope he will contribute a note presently about these and other records.—Colonel H. G. Rossel, Bodinnick, Lanteglos-by-Fowey. 21.x.57.

A September Visit to Portland.—I always try to have a night's collecting on the Isle of Portland in late September. This year the weather seemed reasonably suitable and Mr. Symes and I decided at the last minute that we would go there on the 28th of the month. We arrived at our destination, the coast a little beyond Church Ope Cove, at about 7 p.m., accompanied by Brigadier H. E. Warry. There was a moderate wind from the West, but we found a sheltered spot at a bend in a zig-zag path leading down to the beach and there we set up

the m.v. lamp. We switched on at about 7.15, and our first visitor, *Plusia gamma* L., arrived very shortly afterwards. The next to appear was *Amathes xanthographa* Schf., followed by *Leucania l-album* L. At this point we were joined by a police constable who, on seeing the purpose of our light, explained somewhat ambiguously, we thought, that he knew a man was "doing a job" down there and that he thought at first that we might be that man. We were glad to see specimens of *Antitype flavicincta* Schf. as we had not taken this species since 1953. Brig. Warry told us that he thought it must be a good year for it as he had taken numbers at m.v. in his garden at Upwey. Other desirable species included *Aporophyla nigra* Haw., *A. australis* Bdv., as well as the locally abundant *Leucochlaena hispida* Geyer which arrived in considerable numbers in beautiful condition after about 10 p.m. when we had moved further down the path because of a change in the direction of the wind. In all, we recorded only 15 species compared with 17 in 1955 and at least twice as many in 1953, but saw many more moths of the rarer species than in 1955. Apart from the species mentioned already all were commoners, viz.:—*Agrotis segetum* Schf., *A. ipsilon* Hufn., *Diarsia rubi* View., *Amathes c-nigrum* L., *Omphaloscelis lunosa* Haw. (both light and dark forms), *Phlogophora meticulosa* L., and *Caradrina ambigua* Schf. We were rather disappointed not to secure any *Ammogrotis lucernea* L. or *Rhyacia simulans* Hufn., but this was to some extent minimised by the fact we have since secured eggs of *nigra*, *australis* and *lichenea*.—A. C. R. REDGRAVE, 47 Swanmore Road, Boscombe East, Bournemouth.

BUTTERFLY NOTES.—This season must have been the worst within living memory for butterflies. Reports received from a number of places in the south of England all reveal the scarcity of many species. Buddleia, usually so attractive to Vanessids, has been singularly free from them. Immigrants have been very scarce: one *Colias croceus* Fourc. was seen at Tintagel on 6th July and four were seen, singly, on the cliffs at Bournemouth, three of them between 22nd and 28th September and one on 12th October. But a report from West Sussex indicated that this species was not seen in the clover fields there.

Of the fritillaries, *Argynnis selene* Schiff. and *Euphydryas aurinia* Rott. were locally abundant in south Hampshire, but *A. aglaia* L. was less plentiful in some of its haunts than in 1956. Of the Satyridae, *Satyrus semele* L. was unusually abundant in South Devon, and *Melanargia galathea* L. was as plentiful as usual in south Dorset. *Lysandra coridon* Poda was in large numbers on the Wiltshire downs, but there were no varieties: on the Purbeck coast the type was plentiful at the end of July, but varieties were very scarce, although one of *fowleri* was taken on 30th July. On this day *Colias croceus* was conspicuous by its absence, and *Thymelicus acteon* Rott. was less numerous than usual.

Butterflies were scarce in mid-Devon at the end of July, except for *Pieris brassicae* L. and *P. napi* L. In Bournemouth *P. brassicae* and *P. rapae* L. were much in evidence on Buddleia, although they have been seen in greater numbers in many years. This was also the case at Godalming in Surrey.

Vanessids, as was the case last year, were very scarce. Larvae of

Aglais urticae L. were abundant at Bude in July, but in most localities the imago was not common. One *Vanessa atalanta* L. was seen at Upwey, Dorset, on 25th August, two at Slapton, Devon, on 26th August, one in Bournemouth on 29th August, and one at michaelmas daisies in Bishop's Stortford, Herts., on 11th October. One *Nymphalis io* L. and three *A. urticae* were actually seen together on Buddleia at Bournemouth on 25th August: one *V. cardui* L. was seen at Bournemouth on 30th August and one at Rye on 17th September.

During the fine, sunny spell in early October one has not noticed butterflies on michaelmas daisies, which in some seasons are almost as much visited as Buddleia, and along the country lanes, ivy blooms and over-ripe blackberries in the hedgerows have not attracted their usual visitors.—H. Symes, 52 Lowther Road, Bournemouth. 19.x.57.

Acherontia atropos Linn. in Dorset.—About 10th July a specimen of this moth was found among some sacks left outside in a trailer in Upwey. On 19th August two larvae were brought to me which had been found in a potato field about a hundred yards from my home in Upwey. I put them in separate cages in a window of my stable facing south. They fed well until 24th August when one (A) began rampaging round the cage. I realised that it wanted to pupate but as it had plenty of earth I thought it would duly go under ground. The next day it was still rampaging and the other (B) had started to do the same. I thought perhaps more sun was required so I took (A) outside and placed it on the ground in the sun with a bottomless glass jar over it. It went underground within half an hour. I then brought (B) out and stood the cage in the full sunlight, and that too went underground within half an hour.

On 23rd September I dug up (A), 2½ inches deep, and placed it on some peat and sand in a large box. Both containers were then placed in a cool greenhouse, temp. 45° to 70° F. On 30th September both containers were brought into the house and kept at an even temperature of 70° F. (A) emerged on 15th October and (B) on the 17th. They were sprayed twice a week with warm water during the whole time in the pupal stage.—Brigadier H. E. Warry, Eastbrook, Upwey, Dorset. 27.x.57.

City of London Bombed Site Lepidoptera.—During August and September this year in the open spaces about St. Paul's cathedral larvae of *Ceramica pisi* L. were plentiful. They were mostly on bracken and mugwort, and occasionally on sallow, hollyhock, and coltsfoot. I was interested to find several larvae of *Mompha raschkiella* Zell. on *Epilobium angustifolium*. Mr. S. Wakely informed me that he had found this larva at Moorgate this year and had looked for it in vain in the past. So possibly the species is a recent arrival to the City.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 27.x.57.

Gracillaria falconipennella Hub. at Cosford Mill, Surrey.—From larvae collected in leaves of alder on 25th August 1957 I reared among *G. elongella* a single specimen of the local and very desirable *G. falconipennella*. Unfortunately I was unaware at the time that I was taking anything other than *elongella* (which was common) or should have taken

particular note of the larva of *falconipennella* and its habitation. Messrs. L. T. Ford and S. Wakely inform me that *falconipennella* must be very local in S.E. England and that neither of them has ever taken this species in Britain.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 27.x.57.

LEPTIDEA SINAPIS LINN. IN SURREY IN APRIL.—With reference to my note on this species (*antea*, p. 196) Mr. J. M. K. Saunders has kindly written to me saying that *sinapis* was seen on 21st April while he and Mr. Stockley were in some woods in the neighbourhood of Chiddingfold. He adds moreover that he has once before seen the insect in April, in 1949, at Durfold Woods, Surrey.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 27.x.57.

ARICIA AGESTIS SCHIFF. AB. GRAAFII IN WILTSHIRE.—I was interested to read (*Ent. Rev.*, **69**: 220) of Mr. C. M. R. Pitman's capture of a white-lunuled *A. agestis*. Tutt, in his *British Butterflies* quotes the name *graafii* for this form and states that ver Huell was the first to give it a name. Several specimens have occurred, mostly on the Continent (Netherlands), though, strangely enough, it has also been taken in the Grange-over-Sands area in 1940, 1941 and 1942. These latter specimens were taken by Mr. A. E. Wright, who died seven years ago, and they are now in my collection. A yellow-lunuled aberration is similarly *a priori* named ab. *pallidior* (Oberthür, 1910). I do not know where Frohawk got the name *straminia-marginalis* for the "in-between" colour.

I feel certain that the straw and white lunules are not genetical in character and for this reason I would look upon these specimens as probably aberrational. They are very rare and maybe are due to some kind of bleaching influence in the pupal stage of the insect. Asymmetrical bleaching is of commoner occurrence than this—as it is in other butterflies.—T. W. JEFFERSON, 37 Riversdale Terrace, Sunderland.

——.—I was interested to read Mr. C. M. R. Pitman's note on butterflies in Wiltshire this season. Wiltshire must have been unfortunate with *Lysandra coridon* as this species has been very abundant in certain parts of Surrey and Sussex this year. But Mr. Pitman certainly deserves congratulations on having taken probably the rarest of the border vars. of *Aricia agestis*, known as ab. *graafii*. This aberration gets its name from de Graaf, a Hollander who took it in the Netherlands in June 1851; apparently this was the first specimen taken. It has also occurred in this country and was recorded some twenty or thirty years ago in the north of England; but Mr. Pitman's is the first I have heard of from the south of England.—A. E. STAFFORD, 83 Colborne Way, Worcester Park, Surrey. 20.x.57.

CRAMBUS MARGARITELLUS HÜBN. IN SOUTH WALES.—Whilst holidaying in South Wales this year I visited Cardiff on 31st July to meet again Mr. A. D. Lewis. During the afternoon, on a small boggy area of Bwlch-y-cwm near Tongwynlais, we disturbed a few *Crambus margaritellus* Hb.

This moth was found a long time ago at Llantrisant by the late Evan

John (1839-1931), the record of it being published by H. M. Hallett in the Transactions of the Cardiff Naturalists' Society, Vol. 50, p. 82. In Vol. 1 of the Glamorgan County History (1936) this moth is included in the lepidoptera list with a reference to Llantrisant, presumably a repetition of Evan John's record.

As this moth is also found in North Wales and in Devon (apart from other areas) it is possible that it is more common in South Wales than has been realised. Professor Beirne in *British Pyralid and Plume Moths* (1952) fails to give South Wales at all.

I am very grateful to Mr. Colin Matheson, Keeper of Zoology at the National Museum of Wales, for information from the Museum's bibliographical card-index.—D. Ollevant, 3 Salcombe Drive, Morden, Surrey. 15.x.1957.

Pholidoptera griseoaptera (Degeer) in Yorkshire.—While staying in Yorkshire recently I found, and captured, a ♂ *Pholidoptera griseoaptera* (Degeer) near Robin Hood's Bay on 9th October 1957. I understand that this is the first record of this grasshopper for this part of the country.—Christine McDermott, The Dene, Borough Green, Sevenoaks, Kent. 3.xi.57.

A Note on Lycaena chryseis Bergs.—The notes on *Lycaena virgaureae* in the October *Record* (pp. 217-218) prompted me to look again at two coppers (both males) that I took off roadside flowers on a windy day in June 1956 on the main Luxembourg-Brussels road north of Arlon in Belgium. These were *hippothoe*, or perhaps it is now called *chryseis*, and I see both Seitz and South refer to previous possible occurrence in England. This locality would be about 150 miles from the Channel coast.—H. W. Mackworth-Praed, Tunbarr, Headley, Epsom, Surrey. 23.x.57.

Pammene aurantiaria Staud. in Britain.—I expect that one result of Mr. S. Wakely's article on the discovery of this species in England (*Ent. Rec.* **69**: 205) will be a number of further records of this pretty moth. An inspection of my collection showed two specimens mixed with other insects. The earlier was taken during the daytime in Ham Street woods on 21st July 1953. I have no record of the exact place or how it was found. The later was taken flying in the daytime near Tresco Abbey, Isles of Scilly, on 29th July 1957.—R. M. Mere, Mill House, Chiddingfold, Surrey. 4.xi.57.

Current Literature

Handbooks for the Identification of British Insects, Vol. IV, Part 9. Coleoptera, Pselaphidae, by E. J. Pearce. 1957 (Royal Entomological Society of London). Pp. 32. Price 6s.

This little volume forms a most welcome addition to a deservedly popular series. It is, in fact, the first booklet ever published dealing exclusively with the British Pselaphidae, and its coming is most opportune, in view of the very considerable advances made in recent years, concerning the nomenclature and taxonomy of the group. Much of this progress has resulted from the author's own researches in what has

always been regarded as a difficult but none-the-less interesting family of beetles, and he is now to be congratulated upon his concise and up-to-date account of our native species. No general coleopterist can afford to be without a copy.

The work opens with a brief account of the British history, phylogeny and life-history of the family, and there follow some useful hints concerning the killing, cleaning and mounting of specimens. The preparation of the aedeagus (male genital organ) is dealt with at some length, in view of its importance as an aid to identification in critical genera. Notes on hosts of myrmecophilous species and on typical habitats for the others are also given.

The British Pselaphidae are stated to number some fifty species and these are distributed between two subfamilies, Clavigerinae and Pselaphinae. The first division includes our two species of the exclusively myrmecophilous genus *Claviger* Preys., formerly accorded separate family rank, but now generally regarded as highly specialised Pselaphidae. The remaining species are all placed in the Pselaphinae and are there distributed between two tribes and fifteen genera. More complicated tribal classifications have been proposed in Continental works but they lead to unnecessary subdivision when applied to our restricted fauna and are wisely excluded from the present handbook.

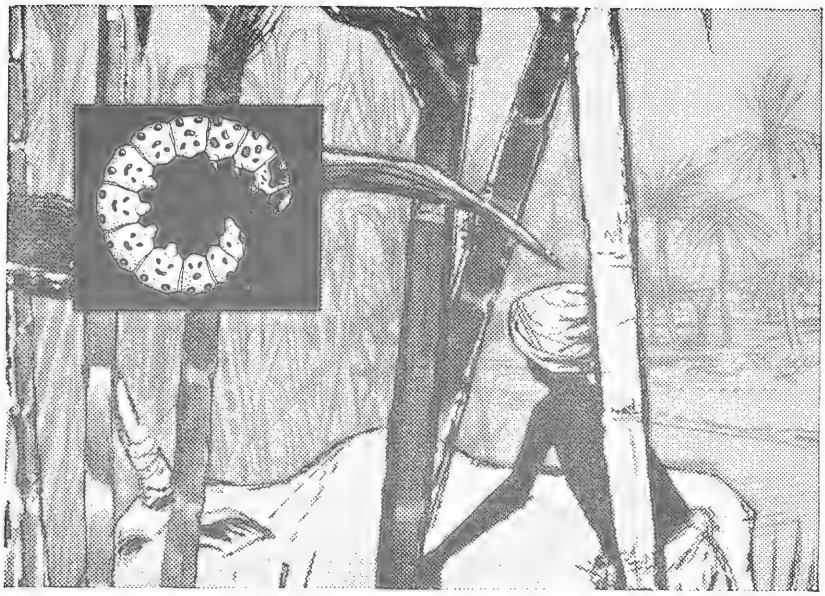
The keys have evidently been constructed with great care and, within the limitations imposed by present incomplete data, they work well. The critical genera are treated with refreshing frankness, thus enabling the reader to appreciate at once just how far he may expect to name material without reference to authentic specimens. Many excellent figures of whole beetles (the work of Mrs. C. A. O'Brien) are provided but, in the opinion of the reviewer, the line drawings of key characters could be augmented with advantage. The work closes with a small but adequate systematic index.

B. P. M.

In *Entomologische Zeitschrift* 67: 20 (15th October 1957) Werner Marten continues his interesting paper on the localities and bionomics of *Zygaena sarpedon sarpedon* in Spain.

OPUSCULA ENTOMOLOGICA, 22 (1957), Nos. 2-3, contains the conclusion of K. Princi's paper (in German) on the Blattidae types of Kirby, Walker, Shelford and others. There are papers in English by M. W. R. de V. Graham, who describes two new genera of Pteromalidae (Hym. Chalcidoidea) based on material in C. G. Thomson's collection, and by C. H. Lindroth on 'The Principal Terms used for Male and Female Genitalia in Coleoptera', a table setting out the terms (which are defined) in English, German, French and Latin. Eleven new species of Opius (Hym. Braconidae) are described (in German) by M. Fischer of Vienna.

COLONEL S. H. KERSHAW has now completed his Memoir of the late Sydney George Castle Russell and we hope to print the first instalment of it in our January number.



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EXCHANGES AND WANTS

Wanted.—Named Set Specimens of all insect orders (with data) wanted for cash.—*Davidson, 9 Castlegate, Penrith, Cumb.*

Cambridgeshire Lepidoptera.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

Wanted.—Second-hand Robinson type mercury vapour lamp trap.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—Pieris napi Varieties. There is need to share with others the work, responsibility, and opportunity of maintaining British and other stocks of these species-group, for experiment on inheritance, sexual mosaic, diapause, etc. Foreign as well as British. Academic as well as amateur co-operation is invited. Stocks derived from those of W. H. Head, J. A. Thompson and others.—*S. R. Bowden, 53 Crouch Hall Lane, Redbourn, Herts.*

Wanted.—I am anxious to trace the books from the library of J. C. Dale, who died in 1872. Information, please, to: *S. C. S. Brown, 454 Christchurch Road, Boscombe, Bournemouth.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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EXCHANGES and ADVERTISEMENTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

CHANGES of ADDRESS should be sent to the *Hon. Treasurer*.

We must earnestly request our contributors NOT to send us communications IDENTICAL with those they are sending to OTHER MAGAZINES.

If REPRINTS of articles are required, please mention this IN YOUR COVERING LETTER.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

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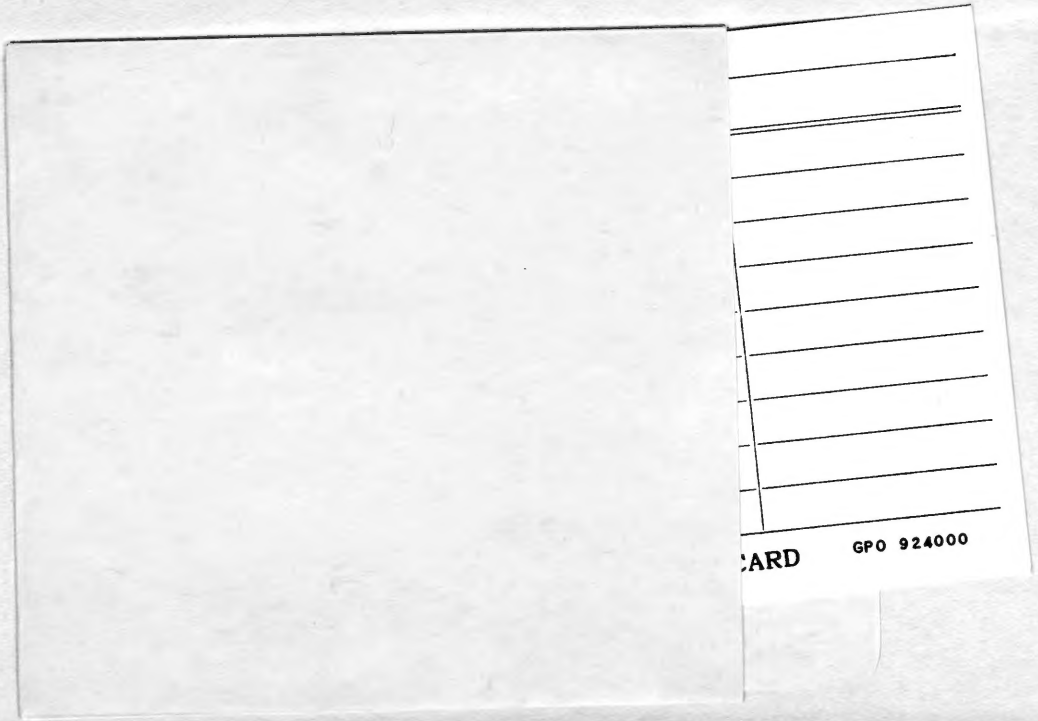
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