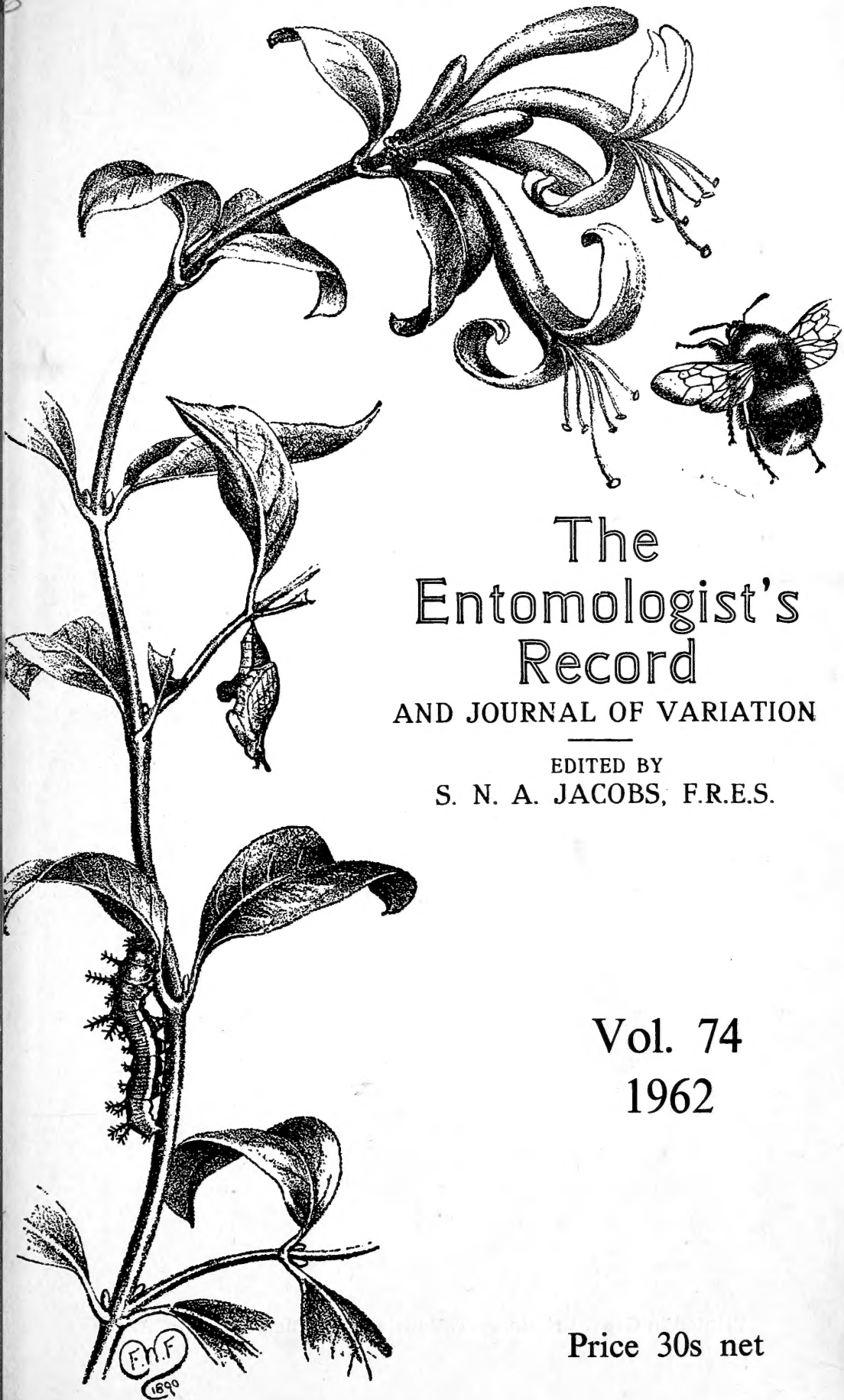


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The
Entomologist's
Record
AND JOURNAL OF VARIATION

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

Vol. 74
1962

Price 30s net

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Diasemia ramburialis Duponchel and *D. litterata* Scopoli in Britain

By R. F. BRETHERTON

The capture of two specimens of the attractive little Pyrale *Diasemia ramburialis* in 1961 in my light-trap at Ottershaw, Surrey, caused me to look into the history in Britain of this species and of its congener, *D. litterata*. The results seem to be worth setting out, particularly since they reveal in recent times a remarkable reversal of the Nineteenth Century experience of their relative frequencies here. Both species are only cursorarily dealt with in Beirne, "British Pyrales and Plume Moths". At first glance they are rather alike. When fresh, *D. ramburialis* stands out at once by virtue of its black and white contrasts, particularly on the hindwings, as compared with the grey and cream shades of *D. litterata*. But when it is worn (as was the first of my own captures), this effect is lost and one has to look closely at the pattern of the markings to make sure of its identity. It is, indeed, recorded that in a sale in 1894 a *D. ramburialis*, unlabelled and without data, was spotted standing in the middle of a row of *D. litterata*, which was then much the commoner species; and it is now thought that two specimens which were reported in 1950 as *D. litterata* were in fact *D. ramburialis*. The opposite mistake of identifying *D. litterata* as *D. ramburialis* would be less easy to make.

D. ramburialis was introduced to the British list by Thomas Boyd, who caught a single specimen flying at dusk in a swamp at Probus, Cornwall, on 16th June 1858. He reported it in the *Entomologist's Weekly Intelligencer*, and a good coloured figure of the moth was given in the *Entomologist's Annual* for 1859. It was eight years before another was found by G. H. Verrall near Lewes, according to one account in a railway waiting-room. When C. H. Barrett wrote the ninth volume, published in 1904, of his exhaustive work on British Lepidoptera he could still say: "This is one of our most rare species, and can only be looked upon as a casual immigrant". He could then cite only seven captures up to that time, though in the list attached to this article I have raised that total to eight or perhaps ten, including as the last a female caught by Eustace Banks at sugar on 14th September 1902 in a "remote part" of South Devon. Of these, five were found or disturbed by day, two were caught at sugar, and one flying at dusk. They were spread along the south coast from Cornwall to Kent, with possibly one in Lincolnshire. Only in 1878 is more than one specimen known to have been taken in a single year.

During the next forty-two years, from 1903 to 1944 inclusive, I have been able to find no recorded captures of *D. ramburialis* at all. This may at least partly reflect a decline in the amount of collecting, and particularly of interest in the Pyrales, rather than of greater real scarcity of the moth, which is, in any case, easy to overlook. On the other hand, a study of the tables of numbers attached to Dr. C. B. Williams' *Insect Migration* leaves me with a strong impression that several more popular and conspicuous immigrants were at a low ebb during much of this period.

The story begins again with the capture of one *D. ramburialis* by M. W. Harper in August 1945, near Littlehampton in Sussex. In each of the three succeeding years two were taken, and the moth has been noticed in ten of the seventeen years from 1945 to 1961, to a total of well over 30 examples. 1956 with nine, and 1961 with at least ten, were outstanding. The geographical range has also been widened by bringing in Hampshire, Wiltshire, Essex, Surrey, and even Hertfordshire, though South Devon still provides nearly a third of the British total. Since the war at least 27 are known to have been caught at lights of some kind, though not all in moth traps; only one has been definitely reported at sugar, and none as having been found during the day-time. It is therefore likely that much of the greater frequency of the species, as compared with the Nineteenth Century, is apparent rather than real, being due to the much greater use of light as a means of collecting in recent years. But whether this is the whole explanation is discussed later in connection with the very different pattern of the records of *D. litterata*.

Our *D. ramburialis* are clearly all, or almost all, primary migrants, arriving almost simultaneously on a wide front. In 1956, for example, eight out of nine were caught, from Devon to Essex, between 9th and 24th September; and the ninth, on 9th October, was so worn that its captor remarks that it might well have come in with the others. In 1961 there seem to have been two waves: the first yielded six records, from Dorset to Herts, between 3rd and 24th September, and the second four, from Devon to Surrey, between 4th and 22nd October. In some years there have been isolated arrivals much earlier in the year, but the only case where this causes even suspicion that a generation might have been bred in Britain is that of the Tresco records for 1957—one on 4th July and another in September. Taking the records as a whole, the distribution by months is as follows:—

June	1
July	3
August	6 or 8
September	19
October	11
November	1
Unstated	3

The records also show a fairly clear association of captures of *D. ramburialis* with the presence of other migratory species at the same time and place. This is clearest for *Nomophila noctuella* Schiff. and *Phlyctaenia ferrugalis* Hübn. (*martialis*) and, among the scarcer migrants, *Palpita unionalis* Hübn., *Rhodometra sacraria* L., *Nycterosia obstipata* F., *Leucania unipuncta* Haw., and *L. vitellina* Hübn. (The two last are perhaps suspect: though they are certainly migrants, most of their autumn generation may be locally bred.) *Cosymbia puppillaria* Hübn., *Herse convolvuli* L., *Leucania loreyi* Dup., and *Uresiphita gilvata* F. have also been taken along with *D. ramburialis*. Some of these associations fit very well with the fact that abroad it has an essentially tropical and sub-tropical distribution, very wide but reaching into North Africa. On the other hand, it does not seem that the abundance of *D. ramburialis* here is necessarily correlated with that of its closest associates. Both 1956 and 1961 were years of scarcity

for *N. noctuella* and of only moderate frequency for *P. ferrugalis*; *P. unionalis* was common in 1956 but scarce in 1961; *R. sacraria* and *N. obstipata*, though numerous in 1961, were scarce in 1956. There is still a long way to go before we can fit the British records of the migratory species into any tidy pattern.

Diasemia litterata has a very different history. It was already known as a British insect to the early Fathers. In 1802 Haworth mentioned it in his "*Prodromus*" under Schiffermuller's name, *literalsis*, which has been used by most English writers until after Barrett's time. The entry gave no details, but it was marked with the asterisk which denoted "such of the Insects as the Founder of the Aurelian Society has not yet absolutely seen alive"; as it was not also indicated as a "Desideratum for the Cabinet", he may have had a specimen. In his "*Lepidoptera Britannica*", the relevant part of which was published in 1806, he called it "The Lettered China Mark", described it briefly, and added: "Habitat in Anglia rarissime, tempore oblito". In 1834 J. F. Stephens wrote that it had been "once taken in the beginning of June at Darenth, on the borders of a small pond towards the middle of the wood; but found abundantly in the New Forest, somewhere in the vicinity of Brockenhurst". This may have been a continuing colony, for there are no less than 31 specimens labelled "Lyndhurst" (but not dated) in the Whittle Collection, which is now in the British Museum. When Stainton was preparing his "*Manual*" in 1857 he circulated an inquiry for localities for the moth, but in the end he was only able to cite Lyndhurst, Newnham, and Sanderstead, "generally occurring singly and in dry places". I have not traced any earlier mention of it at Sanderstead; the reference to Newnham represents one caught in October 1857 on a gas-lamp by the Severn. E. S. Norcombe reported his capture of it near Exeter at the end of July 1858 as the first in Devon, and it was later stated that for one or two seasons he had taken several on the wing early in the evening on the slopes of a very steep rough field.

But the first real description of its habits comes from a note by J. J. Reading in the "*Entomologist's Weekly Intelligencer*" in 1860. He said that he had in that year caught about two dozen specimens of the moth near Plymouth at two very distinct periods, June and September; and he therefore suggested that it was double brooded. Its habitat was a high, sloping down where furze and fern were dominant, with clumps of heather and thyme. There the moth made short flights in the sunshine, and was not easily approached in the shade. He criticised the idea, which may have been suggested by the moth's superficial resemblance to the "Water Pyrales", that it was in any way attached to ponds, and confirmed Stainton's recommendation to search for it in *dry* places.

Between 1860 and 1905 there were, as can be seen from the list below, over a dozen records of the occurrence of *D. litterata* in ones and twos; all, except for one in Suffolk, were scattered over the southern and south western coastal counties. But in May 1876 Barrett discovered a large and continuing colony in east Pembrokeshire on which he made several reports in the "*Entomologist's Monthly Magazine*". He disturbed the moths accidentally while on a business visit far from his home in Pembroke itself, but he was able to catch a few in pill-boxes.

He came back next day, after an early start for the 36-mile drive from Pembroke, but found the moths worn after rain. In 1877 he reported one worn, after storms, on 4th June, a few fine on 9th, and many on 13th. The second brood appeared about 16th August, rather later than in 1876; the moths were not scarce, but were smaller than those of the first brood. Later he noted that, after either disappearing or being overlooked for two years, it turned up again at the end of May 1880, and his son caught one eight or nine miles from the original locality. Later still he adduced the capture of casual specimens in two fresh localities as support for his view that, though the insect had become scarcer, it was not likely to die out. His last report, in 1884, recorded the capture of eight specimens on 7th August, after extremely hard work, and nine more on two later days. In several years in July he searched the short herbage for larvae, "even lying on my stomach to examine every green thing", but he did not find any. Nor, apparently, did he breed from captured females, for when he published his great work in 1904 he said that the larva and pupa were still unknown.

Barrett never published the exact locality of his colony, but his reference to a 36-mile drive to it from Pembroke and to the "dry pastures in the middle of the county" suggest that it was somewhere in the north east, in the direction of Cardigan. However this may be, the moth also occurred on the south coast, for W. F. H. Blandford, adding to the list of lepidoptera in the local "Tenby Guide", said that it had occurred in 1884 in low pastures near Saundersfoot and Wiseman's Bridge, though never commonly. It is possible, too, that the earlier record of it in 1870 from Laugharne, in west Carmarthenshire, represents a colonist rather than a casual immigrant. We do not know when these Pembrokeshire colonies died out. The last of Barrett's specimens I have seen are two dated 1886. Barrett in 1904 clearly thought that the colonies had gone, for, after describing his own discovery of the moth and citing many of the older records, he wrote: "I cannot say that it can now be found with certainty in any one of these localities. On the other hand, it seems worth while to look for it in any hilly district, of very poor pasturage, in the South-west". Unlike *D. ramburialis*, he did not clearly envisage *D. litterata* as an immigrant; and the concept of a "settler" species, becoming temporarily established from time to time after immigration, but then dying out, seems not to have been familiar to him. We can hardly doubt now that that was, in fact, the status of *D. litterata* during the Nineteenth Century. Because of these colonies, though it was always a good capture, it was not regarded as a really rare insect. There are plenty of specimens in old collections but, where their origin can be traced, they nearly all come from the New Forest or Plymouth captures, or from Barrett himself. Mr. H. C. Huggins tells me that he has 19 from that latter source, and estimates the total in Barrett's style of pins and setting at well over 100: I have myself accounted for over 50 in various collections now in the British Museum and elsewhere.

Between 1905 and 1947 I have found no records of *D. litterata* in Britain. On 4th August 1947, one came to A. G. B. Russell's lighted sheet in Yellowham Wood, near Dorchester, and there was another on 14th June 1949, at light at Rustington, Sussex. In 1950 A. J. Dewick reported two in his light trap at Bradwell-on-Sea, Essex, on 22nd

August; but he tells me that these may well have been really *D. ramburialis*, though another *D. litterata* caught on 25th May 1954 was certainly correctly identified. There were two in 1956, one on 31st May at light at Ham Street, Kent, and the other on 10th August at Clevedon, Somerset; and one at Brockenhurst, Hants, on 15th August 1958. This is the most recent I have found.

Apart from the colony specimens, most of the Nineteenth Century records of *D. litterata* do not give exact dates or indicate the association with other migratory species; and the recent captures have been too few to provide a basis for much analysis. But it may be noted that of 16 non-colony captures which can be dated by months, 2 were made in late May, 7 in June, 5 in August, and 2 in October. This is a very different time pattern from that of *D. ramburialis*. Abroad, *D. litterata* seems to occur almost everywhere in France and locally in Belgium, and to be generally a more northern and less tropical insect than its congener; its migration to Britain may be shorter-range and governed by different circumstances.

The gap in the records of *D. litterata* early in this Century is parallel to that for *D. ramburialis*. But for *D. litterata* the total for the sixteen most recent years is only six or eight, whereas that for *D. ramburialis* is over 30: the nineteenth century experience of their relative frequency has thus been decisively reversed, even if the "colony" numbers of *D. litterata* are left out of account. This requires explanation. Mr. Huggins tells me that Fassnidge, who collected both species in several places in France between the wars, thought that the apparent rarity of *D. ramburialis* was mainly due to its habits: it was such a skulker that you might be some days in a locality for it before you saw it; whereas *D. litterata* was easily put up by day and was immediately noticed. But if both species are equally active at night, the increased use of light as a means of collecting in recent years may have revealed what was always their true relative abundance. On the other hand it is remarkable that *none* of the post-war *D. litterata* appear to have been caught by day, and that no breeding colonies like those found by Reading and Barrett have come to light, even though there has been plenty of recent day-time collecting on downs and slopes near the south coast, and other disturbable scarce migrants, such as *Rhodometra sacraria* L. have thus been caught often enough at times and in places suitable for *D. litterata*. On the whole I conclude that *D. litterata* is, like some other migrants, such as *Hippotion celerio* L., really a good deal scarcer now than it was during most of the nineteenth century. As for *D. ramburialis*, though some of the rise in its frequency may be more apparent than real, I also suspect a change. Unlike *D. litterata*, which seems to be indigenous in most of France, it is clearly a long-distance migrant, usually arriving with north African and sub-tropical species such as *P. unionalis*, *R. sacraria* and *N. obstipata*, for whose increased abundance in recent years there seems to be pretty decisive evidence.

So far as I can discover neither of the *Diasemias* has yet been found in its earliest stages in Britain, or bred in captivity here; and those of *D. ramburialis* seem to be still unknown even abroad. In France l'Homme (1935), after remarking that *D. litterata* occurred almost everywhere, says: "larva under the lower leaves of *Plantago*, *Hieracium*, *Picris*, etc.; April to August in two generations; in a slight

web on the soil or under stones, eating the faded leaves''.

To sum up. *D. ramburialis* is a sub-tropical species, probably reaching Britain as a long-distance immigrant. It was extremely rare in the last century, was not seen for forty years in the present, but in some recent years has been fairly frequent. *D. litterata* is a more northerly insect which in the last century certainly established temporary colonies in Britain. It was not seen from 1906 to 1946 inclusive, and subsequent records have been very few and show no evidence of colonisation. The earlier stages of both species are unknown in Britain.

I am greatly indebted to those gentlemen, too numerous to name individually, who have answered my questions and have helped me with advice and information. I am very conscious, however, that the material brought together in this article is not exhaustive. I should be most grateful if any readers who know of other captures or labelled specimens of the *Diasemias*, whether ancient or modern, would inform me of them, with a view to their inclusion in a supplementary note.

EVIDENCE OF *DIASEMIA RAMBURIALIS* DUP. IN BRITAIN

- 1858 CORNWALL. Probus, 16.vi, a single specimen flying in a swamp at dusk. "Closely allied to *literalsis*, but more glossy, and the markings more irregular". (Thomas Boyd, *Ent. Weekly Intell.*, 4: 151; *Ent. Ann.*, 1859: 149 and plate.) Now in Whittle coll., B.M.
- 1866 SUSSEX. Landport, near Lewes, 29.x, one slightly worn, at the foot of a dry chalky bank bounded by low meadows. (G. H. Verrall, *Ent. mon. Mag.*, 3: 163.) In Verrall's obituary notice the scene is given as a railway waiting-room (*Ent. Rec.*, 67: 41).
- (1873 LINCOLNSHIRE. One labelled "Lincs, 1873" was found in the sale of the Clarke collection in 1910 (*Ent. Rec.*, 22: 94)).
- 1877 KENT. Near Ashford, ix, flying in the afternoon over brambles and dense undergrowth near the top of a chalk hill (W. R. Jeffreys, *Barrett*, 9: 258).
- 1878 DEVON. Teignmouth, at sugar on an apple tree (Dr. R. C. R. Jordan, *Barrett*, 9: 258).
KENT. Folkestone, 12.x, among long grass and rushes in very wet ground (W. Purdey, *Ent.*, 11: 273). Now in Whittle coll., B.M.
- 1880 KENT. Near Dover, 13.ix, one obtained by beating Hemp Agrimony (R. E. Salway, *Ent.*, 13: 283).
- 1889 DORSET. Portland, 11.vii, in a grassy hollow (C. R. Digby, *Ent. mon. Mag.*, 25: 381). Now in the Bankes coll., B.M.
- (ante 1894. No data. One noticed in J. Browning's collection, sold in 1894, standing with three Pembroke *D. litterata* (*Ent. Rec.*, 8: 192). Now in Bankes coll., B.M.)
- 1902 DEVON. In "a remote part of S. Devon" (probably near Strete), 14.ix., one female at sugar at 9 p.m. (E. R. Bankes, *Ent. mon. Mag.*, 40: 254). Now in Bankes coll. in B.M.
- 1945 SUSSEX. Littlehampton, one, viii (M. W. Harper, *in litt.*).
- 1946 DEVON. Maidencombe, one 21.x, one 4.xi, in light trap (F. (2) H. Lees, *in litt.*).
- 1947 CORNWALL. Manaccan, one, 13.ix, at a lighted window, with

- (2) *N. obstipata* (E. J. Hare, *Ent.*, **83**: 71, *et in litt.*); South Cornwall, 16.ix, one along with *Leucania l-album* L., *L. unipuncta* Haw. and *L. vitellina* Hübn. at sugar, and *Rhodometra sacraria* L. at light (B. W. Weddell, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1947/8: 40).
- 1948 ISLE OF WIGHT. Freshwater, two, 9.viii, at lighted windows, (2) with *Phlyctaenia ferrugalis* Hübn. and *Nomophila noctuella* Schiff. (K. G. Blair, *Ent. mon. Mag.*, **84**: 264).
- 1950 HANTS. Sway, one female, 24.vii, by Mr. Antram, Bourne-
(4 or mouth, one male, 26.viii, in house (S. C. S. Brown, *Ent.*, **84**:
6) 159); Burley, one, 14.x, in light-trap (C. W. Mackworth-Praed, *Ent.*, **84**: 24).
SURREY. Churt, one, 27.viii, in light-trap (R. M. Mere, *Ent.*, **84**: 84).
[ESSEX. Bradwell-on-Sea, two, 22.viii, in light-trap, associated with *H. convolvuli*, *L. albipuncta*, *N. obstipata*, *H. armigera*, *P. ferrugalis*, *N. noctuella*. (A. J. Dewick, *Ent.*, **84**: 103. Recorded as *D. litterata*, but the captor tells me *in litt.* that even at the time he suspected that they might be *D. ramburialis*, with which he was not then familiar. This now seems the more probable.)]
- 1952 SURREY. Chiddingfold, one, 15.viii, at light (R. M. Mere, *Ent.*, **85**: 248).
- 1956 DEVON. Maidencombe, two fresh 9.ix, one worn 15.ix in trap F. H. Lees, *Ent.*, **90**: 157, *et in litt.*); South Devon, one, 11.ix, in trap, with several *H. convolvuli* (E. J. Hare, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 31); Ashburton, one male 22.ix at 10.30 p.m. B.S.T. in trap, one female 24.ix: associated with *P. unionalis*, *P. ferrugalis*, *N. noctuella*, and *Cosymbia puppillaria* (A. R. Kennard, *Proc. S. Lond. ent. nat. hist. Soc.*, 1956: 41, *et in litt.*).
HANTS. Lymington, one, 15.ix, at light (*Ent.*, **90**: 236).
ESSEX. Bradwell-on-Sea, one male, 11.ix, in trap, with *H. convolvuli*, *N. noctuella*, *P. ferrugalis*, *P. unionalis*, *Uresiphita gilvata*; one male, very worn, 9.x (A. J. Dewick, *Ent.*, **90**: 235, *et in litt.*).
- 1957 SCILLY ISLES. Tresco, one, 4.vii, associated with *P. unionalis*,
(2) one, 20.ix, in trap, with *L. loreyi*, and *L. unipuncta* at sugar R. M. Mere and Austin Richardson, *Ent. Gaz.*, **9**: 140).
- 1958 SURREY. Ewell, one, 10.x, at ordinary electric light in house (H. G. Tunstall, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 42).
- 1961 DEVON. Torcross, one, 4.x, in trap, with *L. vitellina*, *L.*
(10) *unipuncta*, *R. sacraria*, *N. obstipata*, *P. unionalis*, *P. ferrugalis* (J. I. Messenger, *in litt.*). Maidencombe, one 18.x, one worn 22.x, in trap (F. H. Lees, *in litt.*).
DORSET. Thorncombe, two, 3.ix (J. Bradley: now in B.M. coll.).
WILTS. Downton, one, 3.ix, in trap: no other migrants except *P. gamma* (A. Richardson, *in litt.*).
HANTS. Freshwater, one, 24.ix (R. P. Knill-Jones, exhibited *S. Lond. ent. nat. Hist. Soc.*, '31.x.61).
SURREY. Ottershaw, one worn 16.ix, one fresh 4.x (R. F. Bretherton).

HERTS. Arkley, one worn male, 22.ix, in trap, with *R. sacraria* (T. G. Howarth, *Ent. Rec.*, **73**: 241).

EVIDENCE OF *DIASEMIA LITTERATA* IN BRITAIN

- 1802 Haworth, *Prodromus Lep. Brit.*, p. 30.
- 1806 Haworth, *Lep. Brit.*, p. 384: "Habitat in Anglia rarissime, tempore oblito".
- 1834 or earlier. KENT. Darenth, one taken early June on the borders of a small pond towards the middle of the wood. HANTS. Found very abundantly in the New Forest, somewhere in the vicinity of Brockenhurst (J. F. Stephens, *Illustrations, Haustellata IV*: 37).
- 1857 or earlier. HANTS. Lyndhurst (Stainton, *Manual*): there are also 31 specimens labelled "Lyndhurst" in the Whittle coll. in B.M.
SURREY. Sanderstead (Stainton, *Manual*).
GLOS. Newnham, one, x.57, on a gas-lamp by the Severn (S. Bingham, *Ent. Weekly Intell.*, **3**: 44).
- 1858 DEVON. Near Exeter, 3.viii—"I believe the first time it has been captured in Devonshire" (E. S. Norcombe, *Ent. Weekly Intell.*, **4**: 157); "Mr. Norcombe for one or two seasons took several on the wing early in the evening on the slopes of a very steep rough field" (J. Hellins, *Ent. mon. Mag.*, **13**: 93). Lower Exe Valley, 1857 or 1858, at light: "not knowing what I had taken, I peeped into the pillbox to see, and in shutting it quite spoiled the beauty of the specimen" (Talpa, *Ent. Weekly Intell.*, **5**: 133).
- 1860 DEVON. Near Plymouth, about two dozen in June and September (J. J. Reading, *Ent. Weekly Intell.*, **9**: 18).
- 1860 (about). SUFFOLK. Stowmarket, one (Harpur Crewe—Vinter, *Lep. Suff.*, 1937).
- 1865 SURREY. Epsom, 14.x, one beaten from a bush (W. Rogers, *in litt.*, quoted *Ent. Ann.*, 1866).
- 1870 CARMARTHEN. Laugharne, one at light (Kaye, *Ent. mon. Mag.*, **7**: 234).
- 1872 or earlier. SUSSEX. Arundel (F. O. Morris, 1872)—on Bury Hill, by Samuel Stevens (*V. C. H. Sussex*, **1**: 191).
- 1876 or earlier. DEVON. Exeter, one only, 9/10 p.m., at a gas-lamp in a railway station (J. Hellins, *Ent. mon. Mag.*, **13**: 93); High Bickington (E. Parfitt, *Fauna of Devon*, p. 133). HANTS. Between Winchester and Southampton (W. P. Watson, *Ent.*, **10**: 90).
- 1876/1886 PEMBROKESHIRE. Eastern side of the County, a colony found 2.vi.76, and accounts of its subsequent progress until 1884 (C. G. Barrett, *Ent. mon. Mag.*, **13**: 36; **14**: 159; **18**: 69; **19**: 8; **21**: 138). I have traced labelled specimens from this colony as follows:—British Museum, Bankes coll., 11 dated 1877; Whittle coll., 14; Adkin coll., 21. H. C. Huggins coll., 19 dated 1880. Oxford University Museum, Bazett coll., 2. B.M. Tring colls., 4 undated, 6 dated 1878, 2 dated 1886 (this is the latest date found). There are probably many others.

- 1884 PEMBROKESHIRE. Wiseman's Bridge and Saundersfoot in the past season, but never commonly (W. F. H. Blandford, *Ent. mon. Mag.*, **21**: 207).
- 1885 DORSET. Swanage coast, two, 3.vi, by E. R. Bankes (C. W. Dale, *Lep. Dorset*). One of these is now in Bankes coll., B.M.
- 1886 or earlier. GLAMORGAN. (J. H. Leech, *British Pyralides*, p. 45). GLOS. Bristol (Leech, p. 45). This probably refers to two caught on a gas-lamp at Baptists' Mills and recorded by G. Harding (see Fletcher and Clutterbuck, *Proc. Cott. Nat. Fld. Cl.*, **26**: 190).
- 1886 SUSSEX. Eastbourne, one, 18.viii (Adkin, *Ent.*, **19**: 278, and *Moths of Eastbourne*, p. 21).
- 1892 CORNWALL. Some exhibited among other Micros on behalf of Mrs. Hutchinson on 22.ix (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1892). This probably corresponds with "taken occasionally near Budock" (*V. C. H. Cornwall*, I: 218). HANTS. Brockenhurst, one, vi (now in B.M. coll. at Tring).
- 1904 HANTS. Christchurch, one in a moth-trap (R. B. Robertson, *Ent. Rec.*, **16**: 294).
- 1905 GLOS. Grange Court, two, 15 and 22.vi (Clutterbuck, *Proc. Cott. Nat. Fld. Cl.*, **26**: 190).
- 1947 DORSET. Yellowham Wood, near Dorchester, one, 4.viii, at light (A. G. B. Russell, *Ent.*, **81**: 227; *Proc. Dorset nat. Hist. Soc.*, **69**: 118, 132).
- 1949 SUSSEX. Rustington, one male, 14.vi, in light trap (G. W. Harper, *Ent.*, **83**: 96).
- 1950 (ESSEX. Bradwell-on-Sea, two, 22.viii, in light-trap (*Ent.*, **84**: 103). But these were probably *D. ramburialis*—*vide antea*.)
- 1954 ESSEX. Bradwell-on-Sea, one, 29.v, in light-trap, with over 3,000 *P. gamma*, one *N. noctuella* and, two days earlier, one *Actinotia polyodon* Clerck. Identification certain. (A. J. Dewick, *Ent.*, **88**: 128, *et in litt.*)
- 1956 SOMERSET. Clevedon, one, 10.viii (H. W. Bird, *Ent.*, **90**: 236). (2) KENT. Ham Street, one, 31.v, at light, with *P. stachydalis* (E. J. Hare, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 31).
- 1958 HANTS. Brockenhurst, 15.viii (*Ent.*, **92**: 176).

Breeding *Utetheisa pulchella* L.

By R. C. EDWARDS

Breeding from captured rare moths is neglected far too often. I know well enough that when a female is taken in good condition, the captor argues that the condition may suffer if she is kept for eggs, so the "bird in hand" goes into the bottle, and the chance is lost.

If two or three are collecting together, by breeding, all could have a good series in perfect condition and it would not be necessary to go on collecting all they find subsequently. Further, the full life cycle of the insect can be observed, and this is all the more interesting in the case of a rare species.

On 1st October 1961 I was lucky in capturing a female *Utetheisa pulchella* L. in my garden. I only noticed it was a female after chloroforming it prior to killing. In spite of the fact that as far as my knowledge went, nobody had bred this insect in England from an

English captured female, or at any rate, there was no reliable information or data available to me, I decided to let her come round from the chloroform and to keep her for eggs.

I kept her for a week in an unheated room, as the weather was warm for the time of year, I fed her every other day with drops of sugar water and saw her feeding, but she laid no eggs so I came to the conclusion she was not fertile and chloroformed her again prior to killing. Fortunately, I again had second thoughts and decided to give her another chance, and on the tenth day after capture she laid 29 eggs. I kept her for another day, but as there were no more eggs and I noticed some damage to a hindwing, I then killed and set her. I had a strong feeling that the eggs would not be fertile, but 22 were, and duly hatched.

One larva ceased feeding soon after the first instar; it appeared healthy for about a week, but then died. It probably had tried to hibernate. I gave six larvae (after the fourth and last instar) to Dr. Kettlewell for selective re-breeding leaving me with fifteen to-day, 14th November, when the last larva started spinning its flimsy cocoon, and several pupae were visible, so I can at least give a record of *pulchella* from the egg to pupa.

- October 1st 1961. female captured in my garden.
 10/11th. 29 pale yellow eggs produced.
 13/20th. fertile ova gradually turned to deep orange.
 20/21st. eggs turned blue-black.
 22/23rd. 22 eggs hatched. Fed larvae on forget-me-not (*Myosotis*) in a temperature of 60/65° F.
 28th. larvae commenced preparation for ecdysis.
 29/30th. completed first ecdysis. Temperature raised to 70° F.
- November 3rd. completed second ecdysis.
 7th. completed third ecdysis.
 12th. completed fourth and last ecdysis.
 18th. started to spin up.
 21st. pupae visible.

Observations: When young, the larvae seemed to prefer the somewhat withered leaves. I always left some old leaves when giving them fresh food. Later they fed mainly on the new leaves but were quite happy with the old ones as well. In the last instar I gave them some borage leaves, as they were more juicy and I thought they would produce a larger moth. They seemed to prefer this plant and ate the leaves furiously, but I think it would be safer when forcing, to keep to the forget-me-not.

The larvae had a very poor light all day, and practically no sunlight all through their life, but I did give them light from a 100 watt ordinary electric lamp for two or three hours after 4.0 p.m. They fed just as well during the night as they did in the day time, so I must conclude that as long as they have the necessary warmth, light is not important.

The question now is will the pupae hatch, and when? Also, will I be able to pair them and breed another lot, and if so, will their history conform to my first try. This will be another story.

Occurrence of *Stigmella pseudoplatanella* Skala in Britain

By S. WAKELY

For some years I have known that a species of Nepticulid occurred in leaves of sycamore (*Acer pseudoplatanus*) in Surrey. Unfortunately the few mines found from time to time were either empty or parasites emerged from the cocoons spun by the larvae.

I first came across a Nepticulid mine on sycamore by the roadside at Ockham Common in August 1957 when gathering leaves containing mines of *Lithocolletis geniculella* Rag. The larva was plainly visible and it duly spun a cocoon from which a parasite emerged later.

In 1959, together with J. M. Chalmers-Hunt and the late L. T. Ford, we were collecting sycamore seeds (*Ent. Rec.*, 1960: 34-5, 247) at Mickleham when we found several more of these mines. About half-a-dozen were found and we agreed then that there were two distinct types of mine. Once again no moths were bred, but we were very interested in the fact that the only record available of a sycamore-leaf feeding Nepticulid in Britain is that of *N. speciosa* Frey. mentioned by Meyrick—"Hants (Lyndhurst), local"—and recorded in the *Ent. mon. Mag.*, 1916: 159.

At the Druids Grove field meeting of the South London N.H.S. on 1st October 1960, a single tenanted mine was found on sycamore, but once again the larva was found to be parasitized.

In mid-September 1961 I made a special trip to Druids Grove, Mickleham, but in spite of a long search empty mines only were found, although more mines—empty again—were found by Burford Bridge and in the road leading to Boxhill railway station. These mines were sent to S. C. S. Brown of Bournemouth who is engaged in a study of this group, and I am indebted to him for the information which follows. He agreed that there were two distinct types of mine. To try and find out more about the species involved, he sent them to A. G. Carolsfeld-Krausé of Copenhagen who has contributed so much in recent years to our knowledge of this group of moths.

His reply to Mr. Brown is so interesting that it seems best to quote a portion of it in full:—

"The two mines enclosed in your letter are most interesting. The one with the very slender and regular line of excrements and with a dead larva is the mine of *Stigmella pseudoplatanella* Skala. This species is, as far as I know, at present occurring in Schweiz, Austria, i.e., Ober Donau, Germany, i.e., Sachsen and in eastern Czecho-Slovakia, i.e., Sudeten, Bohmen and Mahren, but it is no doubt distributed over most middle Europe. The species is new to G. B. and is a most interesting find in your country; it was at first published by Skala in *Entomologische Anzeiger*, Band 13, 1932, as *Stigmella aceris* var. nov. *pseudoplatanella*. In *Zeitschrift des Oesterr. Entomologen-Vereines*, 24 Jahrgang, 1939, p. 112, nr. 100, Skala makes mention of it as a species, but Hering always says: *St. pseudopl.* Skala (Weber). I am, however, not able at present to find a connection with Weber in my private notes, and as mention must have been made by the said author later than 1939, I think Skala must be the author. I shall, however, make close examination of the question and try to make the

facts out, which I shall tell you in a coming letter.

"The other mine does agree with neither *Nepticula speciosa* Frey. nor with the very insufficiently examined subspecies of this species on *Acer monspessulanum* L. from western Germany. Until the originator of this mine has been closely examined, I am inclined to say that the originator must be a British subspecies of *N. speciosa*; the possibility that it may be a nova species does exist, but I do not believe in it, I feel very sure that it is a geographical race, as mentioned, of the species in question".

I realise it is rather unsatisfactory to record a species new to Britain on the strength of larval mines only, but feel it is justified in the light of the foregoing letter.

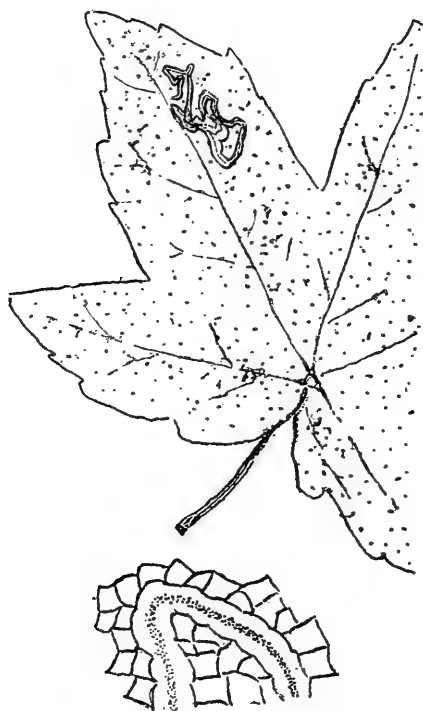


Fig. 1

Stigmella pseudoplatanella Skala



Fig. 2

Nepticula speciosa Frey
(? subspecies)

Larval mines of both species with enlarged portions of the mines to show distribution of the Frass.

Mr. Brown has drawn the excellent diagrams of the mines of the two species figured herewith.

Hering mentions *S. pseudoplatanella* in the supplement of his *Die Blatt-Minen*, 1937, and points out that the mine is distinct from *aceris* Frey.

It is hoped that after the publication of these notes some readers will find this species on sycamore in other localities and report on their

findings. Although most of my mines were found in September, I think the third and fourth week in August would be a more profitable time to look for them.

A. A. Allen tells me that he found a number of Nepticulid mines in sycamore in his garden at Blackheath, London, S.E., this year. It is hoped to hear more of this discovery next year. These mines have been identified as *N. speciosa* by Carolsfeld-Krausé.

I should like to express my thanks to Mr. Brown for all the trouble he has taken to get these mines identified and also to Mr. Carolsfeld-Krausé for his invaluable notes.

26 Finsen Road, London, S.E.5.

Collecting Notes, 1961

By Dr. NEVILLE L. BIRKETT

In this southern area on the edge of the Lake District the early months of 1961 were noted for their general mildness. We had little frost or snow and rainfall was not excessive. There was a little snow on the evening of 3rd February and, while visiting a country patient, I was interested to see many specimens of *Alsophila aescularia* Schiff. actually flying in the snow. I stopped to catch a few specimens to confirm the identity of the hardy species.

During February I made efforts to confirm old records concerning the occurrence of *Apocheima hispidaria* Schiff. in the area at the southern end of Lake Windermere. The first trip in search of this species was on 12th February when I ran the mercury vapour lamp close by the shores of the lake in a well-wooded locality. I saw no sign of *A. hispidaria* but recorded numerous *Phigalia pilosaria* Schiff., *A. aescularia* Schiff., *Eupsilia transversa* Hufn., and a single *Erannis marginaria* Fab. I returned again to the same locality on the 16th, having meanwhile heard that Mr. J. Heath of Merlewood, Grange over Sands, had taken *hispidaria* in the traps run in the Roudsea Wood Nature Reserve—which is only a few miles from my site of operations. This time I was lucky enough to take two specimens in good condition, one of them being of dark hue approaching *ab. obscura* Kühne. Both the specimens arrived on the sheet within a minute of each other at 7 p.m. I stayed on until nearly 10 o'clock but saw no further specimens of that species. *Phigalia pilosaria* Schiff. was exceptionally plentiful on this occasion with many f. *monacharia* Staud. and a few apparently intermediate forms. There were hundreds of *Erannis marginaria* Fab. males sitting about on the bare trees, but a careful search did not produce any females.

The next note in my diary concerns a short stop in woods near Brigsteer in S. Westmorland on 8th March when there were many moths coming to the car headlights. This was not a serious collecting trip, but I was just interested to ascertain what species were about, it being a very mild evening. In only a few minutes I noted:—*Orthosia cruda* Schiff., *Earophila badiata* Schiff., *Achlya flavicornis* L., and *Biston strataria* Hufn. These few give an idea of the state of the season at the early date.

I operated the garden trap for a few nights during March but little of note was captured. Since the local authority equipped much of the town of Kendal with mercury vapour street lamps the numbers coming to my trap have fallen off markedly. I live more or less in the centre of the town and am now ringed by bright lights. On 28th March I joined Dr. Chas. Goodall at the Witherslack woods to beat sallow for *Gypsitea leucographa* Schiff. It was a still cold night with a full moon and we were really not surprised to get only one half-frozen *leucographa* and single *Orthosia cruda* Schiff., and *O. gothica* L. in like state.

I was not able to go out collecting again until 27th April when I joined Mr. and Mrs. Austin Richardson in the Witherslack Woods to seek out the f. *fusca* Ckne. of *Notodonta trepida* Esp. Dr. Goodall joined us later so that we had three sheets operating. In spite of the blaze of lights only two typical *trepida* turned up—although during their stay in the district Mr. and Mrs. Richardson did manage to take a few of the dark form. There was a goodly number of moths about at this date, and we noted the following:—*Phoesia gnoma* Fab., *Chaonia ruficornis* Hufn., *Drepana lacertinaria* L., various *Orthosias*, *Colostygia multistrigaria* Haw., *Trichopteryx carpinata* Borkh., *Aethaluria punctulata* Schiff., *Bapta temerata* Schiff., *Bapta bimaculata* Fab., *Selenia bilunaria* Esp., *Lampropteryx suffumata* Schiff., *Diataraxia oleracea* L. (a very early date for this common species), *Celama confusalis* Herr.-Schaff., and *Anticlea derivata* Schiff.

On 2nd May a nice *Cucullia chamomillae* Schiff. was taken in my trap in Kendal. This was the first time I have taken the species in the trap and I was glad to get a second specimen on the 4th.

During May, most of my collecting effort was devoted to Chironomidae and little attention was given to lepidoptera. While collecting midges by a tarn just to the north of Kendal I noticed that many plants of the Marsh Cinquefoil growing by the side of the tarn were affected by some larvae. I collected many of the rolled leaves and later bred a nice series of *Peronea comariana* Zell. The variation was quite interesting and might be worth recording:—f. *comparana* Sheld., 8 specimens; f. *brunneana* Sheld., 5 specs.; f. *proteana* Herr.-Schaff., 7 specs.; f. *potentillana* Morris, 8 specs.; and f. *comariana* Zell., 2 specs.

On Whit Sunday, 21st May, I joined Messrs. Michaelis and Fielding who were staying in south Westmorland, and together we worked light on the extensive area of carboniferous limestone near Hale (Westmorland). It was a warm cloudy night and insects came in good numbers to the sheet. We recorded over 40 species of macrolepidoptera before packing up at 12.30. Included in this total were *Deilephila elpenor* L., *Dasychira pudibunda* L., *Colocasia coryli* L., *Asphalia diluta* Schiff., *Lophopteryx capucina* L., *Notodonta ziczac* L., *Pterostoma palpina* Clerck, *Phoesia gnoma* Fab., *Thyatira batis* L., *Apatele alni* L., *Apatele menyanthidis* View., *Acasis viretata* Hübn., *Ligdia adustata* Schiff., *Mesoleuca albicillata* L., and *Drepana binaria* Hufn. This last species is now widespread throughout this north-western area—a fact not, apparently, realised by the revisers of the new "South".

1st June: one of the few really sunny days of the summer. I visited the Witherslack area in the afternoon to have a look over old haunts. Insects were amazingly scarce. In years gone by Black Tom's Lane at

this time of year was a seething mass of insects of all sorts. This year only a very few of the very common things were seen. *Inter alia* a single specimen of *Abraxas sylvata* Scop. was noted which is an early date for this species. On the evening of the same day I joined forces again with Dr. Goodall in the Newby Bridge area and we worked two sheets with very poor results. At dusk there was quite a little spurt of insect activity, but clear and cool conditions soon put a stop to all insect movement. The best capture was a nice little series of *Drymonia dodonea* Schiff. which came in very early before it had become dark. After this trip the weather broke down properly and we had a fortnight of wind and rain with cool conditions. However, I was able to go collecting again on the 15th, and again I joined Dr. Goodall in the Newby Bridge area when conditions were ideal and we had what proved to be the best night of the whole season. It was very warm and there was a misty drizzle most of the time. The temperature never fell below 55 degrees F. As soon as the lamps were put on insects started to arrive in large numbers, the leaders of the force being *Hepialus humuli* L. and *Hepialus fusconebulosa* de Geer. We recorded over 80 species of macros before packing up (with insects still coming but thoughts of work on the morrow dominating!) at about 2 a.m. I should perhaps add that our main quarry, *Hyppa rectilinea* Esp.—which Dr. Lowther used to take somewhere in the area we were working, did not turn up. However, we had adequate compensation with other things. *Smerinthus ocellata* L. turned up in good numbers and was coming freely at the time of our departure. *Deilephila elpenor* L., *D. porcellus* L., *Cerura vinula* L., *Pheosia tremula* Clerck, *P. gnoma* Clerck, *Notodonta ziczac* L., *N. dromedarius* L., *Pterostoma palpina* Clerck, *Lophopteryx capucina* L., *Phalera bucephala* L., *Thyatira batis* L., *Tethea fluctuosa* Hübn., *Dasychira pudibunda* L., *Drepana falcataria* L., *D. lacertinaria* L., *Celama confusalis* Herr.-Schaff., *Anaplectoides prasinana* Schiff., *Apatele leporina* L., *A. menyanthidis* View., *A. rumicis* var. *salicis* Curtis, *Craniophora ligustri* Schiff. f. *nigra* Tutt., *Bena fagana* Fab., *Hydrelia flammeolaria* Hufn., *H. testaceata* Don., were the most interesting species taken or seen. Microlepidoptera were few in numbers apart from *Scoparia* Spp. However, it is worth recording that three specimens of *Cryptoblades bistriga* Haw. were taken.

Undoubtedly the best insect taken and worthy of special note was *Atolmis rubricollis* L. Two specimens came to the light. Only a few days before this I had heard from Mr. John Heath that he had taken two specimens in his traps run in the Roudsea Wood Nature Reserve. Previous to these records there is a doubtful one from Witherslack many years ago and recorded in the record books kept by the late Dr. R. C. Lowther of Grange over Sands. I hazard a guess that the species will be found to be widespread in the area of woods to the south and west of Lake Windermere. *Tethea fluctuosa* was frequent. This species is also known from an extensive area lying south of the Ferry on Windermere and extending eastwards to Kendal. The distribution noted in the new edition of South gives no idea of this.

I should like to comment also on the *Craniophora ligustri* taken in this district. Most specimens taken in the district away from the carboniferous limestone show little evidence of the crown mark on the wings. However, at Hutton Roof Crag, this mark is quite evident.

On 21st June I saw *Vanessa atalanta* L. for the first time in a wood to the north of Kendal. Migrants this year were noteworthy for their absence—which is odd considering some of the species taken in the south of the country. During the whole year little of interest from the migratory aspect occurred in my immediate area.

I paid another visit to the Newby Bridge area on 24th June. Clear conditions, moon and heavy dew were not auspicious, so that I was not really disappointed when insects were very few—in marked contrast to my last visit to the area. While walking along a woodland ride in the failing light, I noted some curious objects on a plant of *Rumex*. At first I thought I had found some cones of a Gracilariid. Closer inspection with the light showed that they were pairs of the swift—*Hepialus hecta* L.—hanging from the plant. The female was holding on to the plant and the male was hanging below. The whole appearance in the half light was most curious. Nothing of note appeared at my sheet on this trip. On 25th June I had a trip to the Witherslack woods where I joined Mr. Savage, another visiting collector. In good conditions we saw virtually nothing worthy of record.

On 2nd July I visited Sandscale Warren situated on the Duddon estuary just north of Barrow in Furness. It was a warm night with intermittent heavy rain which rather restricted collecting activities. Apart from the moths there was a considerable concourse of entomologists—Dr. Goodall, Col. Rossel, Mr. Savage, and self. We worked three sheets on the sandhills and, in spite of rain, recorded a number of interesting species. *Leucoma salicis* L., *Dasychira fascelina* L., *Agrotis ripae* Hufn., *Procus strigilis* Clerck, *Euxoa tritici* L., *Philudorin potatoria* L., *Orthonama lignata* Hübn., *Deilephila elpenor* L. being the most noteworthy species. This was the first time that *fascelina* has been noted from this area of sand-dune, though there is an earlier record of it having been taken on the dunes on Walney Island which is separated from Sandscale by a narrow tidal channel only.

On 6th July I again visited the woods at Witherslack, this time in company with Admiral Torlesse and Col. Rossel. Conditions were good with cloud and warmth and a fairly good number of insects visited our two sheets. Sugar was a complete blank. The best insects we took were *Discoloxia blomeri* Curt., *Notodonta trepida* L. (late), *Apatele megacephala* Schiff. and *Geometra papilionaria* L. A number of common micros also were noted of which the best perhaps was *Borkhausenia flavifrontella* Hübn.

The week after this was very unsettled and I almost put off a trip arranged to the Goyt Valley in Derbyshire because of the inclement conditions. However, I made the trip on 13th July and joined Mr. Michaelis at his home before journeying into the Peak District. It was a very cool evening after heavy rain and we searched the rocks and trees for *Venusia cambrica* Curt. ab. *bradyi* Prout. We managed to take only three specimens and failed to catch one or two more which we disturbed. The terrain is very rough and chasing a disturbed insect is impossible. We ran a lamp for a short time but nothing of interest turned up and insects were extremely few.

Having somewhat recovered from my long trek to the Goyt, I joined Col. Rossel on the 15th to visit the marshy area near Silverdale in north Lancashire and in good conditions took quite a lot of insects.

Bombycia viminalis Fab. was common but we did not take any of the ab. *obscura* Staud. which is known to occur in this district. *Nola cucullatella* L., *Apatele leporina* L. and *A. psi* L. were the only other insects worth note in about thirty species of macros seen. A fair number of *Endothenia antiquana* Hübn. and *Epinotia capreana* Fab. were also noted.

On 16th July I took a small party of the Kendal Natural History Society to the Sandscale area for a day trip. It was a cool day with strong wind and little sunshine, and while the botanists of the party were delighted with some of the things seen the entomological side was uninteresting. The main insect of note was a nicely varied series of *Phthorimea marmorea* Haw. beaten from the tufts of over-hanging marrams. A full-grown larva of *Saturnia pavonia* L. was found on an escaped raspberry bush. I had another night trip with the Society to woods to the north of Kendal on 20th July, but though conditions were good nothing of great interest occurred except a nice lot of fresh *Venusia cambrica* Curt. of quite typical facies. After this I was away in Germany and Austria for nearly the whole of August, and the results of that trip I hope to write up in due course, though I found numbers of insects on the Continent disappointingly low.

On my return to this country family matters prevented much in the way of collecting for the rest of the season. During September I managed one or two visits to the Shap Fell area to try and confirm the record of *Coenocalpe lapidata* Hübn. given by Barrett. Most of the trips were ruined by severe weather conditions but once or twice conditions seemed ideal, but I saw no sign of *lapidata*. Muggy and mild conditions on 24th, for instance, gave many insects:—*Phlogophora meticulosa* L. in dozens, *Plusia gamma* L. in numbers, *Agrochola macilenta* Hübn., *Hydraecia lucens* Freyer, *H. crinanensis* Burrows (about six nice specimens), *Aporophyla nigra* Haw., *Celaena haworthii* Curt. and a few ubiquitous *Agrotids* made up the visitors to my sheet.

In a year in which so many exotic migrants have been taken it was a great disappointment to me not to see any of these nice things in this part of the country. The only regular migrant to be at all common was *Plusia gamma* L. A single *Pyrausta martialis* Guen. was taken in my trap in Kendal on 22nd September. I saw one *Plutella maculipennis* Curt. on the moors to the north of Kendal on 24th September. During the whole season I did not see a single specimen of *Nomophila noctuella* Schiff. which is usually a regular and common visitor to us. While immigrant insects were scarce immigrant collectors were a very welcome feature of the late June and mid-July period. I can only hope they enjoyed visiting this delightful area as much as the natives enjoyed having their company.

3 Thorny Hills, Kendal. 3.xii.1961.

Lepidopterous Larvae on Sea-Buckthorn

by I. R. P. HESLOP

I am prompted by my observation in 1960 of the sea-buckthorn (*Hippophaë rhamnoides*) in the south of Cornwall—a county in which I did not know that this plant occurred—to renew my acquaintance

with allusions in the literature to its status as a pabulum for lepidopterous larvae.

Mr. E. W. Groves has, I believe, used my previous published observations, supplemented by correspondence with me, for the purpose of summarising in *Proc. Bot. Soc. Brit. Is.*, 3: pt. 1, 6 (1958), the distribution of this plant in Great Britain. Since, however, I have never seen the paper, I am unaware whether he has included Cornwall as being within the range. The mature bushes that I found in September of last year were near the headland forming the Polruan portal to the estuary of the River Fowey. My only real reason for mentioning this botanical occurrence here is the fact that I saw, on the growth, larvae of *Dasychira pudibunda* L. (pale tussock)—a species new to me on this foodplant.

My own previously published notes on the subject are in *Entomologist*, 80: 221, and 88: 140; these gave certain references to other notes on the subject. I now wish to take the opportunity of adding references to other recorded observations, as follows.

S. J. Wilkinson (*British Tortrices*, 1859) records *Lozotaenia rosana* L. occurring on sea-buckthorn. Tutt (1899) records this plant (*vide* Sorhagen) as a pabulum of *Nepticula ignobilella* Stt.

In an interesting paper (*Entomologist*, 52: 169), F. V. Theobald describes infestations by brown-tail and gold-tail larvae (*Euproctis chrysorrhoea* L. and *E. similis* Fuessl. respectively) of sea-buckthorn in Kent; and mentions other lepidopterous species as feeding on the plant on the continent (quoting Kaltenbach, 1874). Incidentally, the two "unknown" species of lepidopterous larvae mentioned by Theobald as occurring in Kent on sea-buckthorn do not appear ever to have been identified. One of these may have been *Spilonota ocellana* Schiff. which, I am informed, is very common on this plant on the Kent coast by Deal, and which is considered there to constitute a distinct local race. Mr. Theobald's paper is illustrated by a photograph showing defoliation of sea-buckthorn by caterpillars.

In this country sea-buckthorn is a plant of the coast line, but abroad it may be found in regions of high mountain. Thus E. P. Wiltshire (*Entomologist*, 79: 71) notes its occurrence at 8000 feet in the Himalayas, and Mr. F. T. Vallins (*Proc. S. Lond. Ent. and Nat. Hist. Soc.*, 1955, 6 and 11) records it as the foodplant of *Lycaeides idas* Ob. at L'Argentiere on the department of Hautes-Alpes, France.

Finally there is the case of *Celerio hippophaes* Esper (seathorn hawk), which incidentally is also recorded from L'Argentiere by Mr. Vallins (*Proc. S. Lond. Ent. and Nat. Hist. Soc.*, 1954: 11). When I previously mentioned this species in connection with its foodplant I did not then know that the insect had occurred in Britain; but a specimen from South Devon, regarded by Dr. Cockayne as quite authentic, was subsequently brought to my notice from the Tring Museum. This may well have been an immigrant, but it would be interesting, all the same, to know whether *Hippophae rhamnoides* occurs in Devon.

"Belfield", Burnham-on-Sea, Somerset. 25.xi.1961.

Battery-run Mercury Vapour Light

By Rear Admiral A. D. TORLESSE

Dr. F. H. N. Smith, whose note on a battery-run mercury vapour light appeared in the November 1961 issue of the *Record* (73: 243), may be interested in the following remarks on seven years' experience of this method.

I bought a similar rotary converter in 1954, which has given good service ever since. Being satisfied with a rather shorter running time than Dr. Smith, and wishing to reduce battery humping to a minimum, my converter is run with a single car-type 60 or 72 ampere/hour battery. With an 80 watt lamp I get a running time of three hours plus, provided the battery is in good condition and fully charged. Finding that with a 125 watt lamp the single battery gave me a bare two hours' running, I early discarded any idea of using the larger lamp, the 80 watt lamp giving excellent results.

The battery seems to stand the racket for about three seasons, after which running time seems to fall off, and a new one is necessary. I keep a trickle charger at my garage or base, and invariably plug it in immediately on return from an expedition with the battery discharged.

Like Dr. Smith, I am no electrician, but theoretically a 60 ampere/hour battery should burn an 80 watt lamp for much longer than three to four hours. I can only assume that the efficiency of the rotary converter/choke system is not very high. I have found that it pays to put the choke as near to the lamp as possible so, in practice the battery and converter stay in the car, provided of course it is possible to drive the car near enough to the desired spot, and the choke, fitted with a wooden base, stands about ten feet from the lamp. During the past year I substituted 15 amp. rubber-insulated twin-core cable for the twin flex previously used and found that I got longer running time, presumably due to the lower resistance of the larger cable.

In addition to its complete reliability, provided of course that the connections etc. are well looked after, the charm of this method is, as Dr. Smith observes, its silence.—Rear Admiral A. D. TORLESSE, Trentham, Burton Joyce, Notts.

PORTABLE MERCURY VAPOUR LIGHTS.—Dr. F. H. N. Smith's note on battery-run equipment in the November *Record* gave me a distinct twinge of conscience for not publishing my early experiences in 1950 with rotary converters, and subsequently with other types, so perhaps a few brief comments on these fascinating, and at times infuriating, gadgets may be of interest.

At present there are three main types of equipment whereby our object, that of sampling and/or collecting insects in a wide variety of habitats by the use of m.v. light may be achieved. All have their respective advantages and disadvantages which should be weighed up before a choice is made, so here is a brief summary. (1) Rotary converter plus either extra batteries or else a petrol-driven battery charger for simultaneous use with the car battery. The car engine must *not* be used! The only real advantage of this system is quietness of operation when extra batteries are employed. Disadvantages are the inherent electro-mechanical inefficiency of the converter (about 50%), and the

consequential worries of either a noisy and temperamental charging generator, or the equally inconvenient heavy batteries with tricky care and maintenance, especially during the winter. Lastly the whole system is tied to the car, the only way of "loosening" which is by a long lead to the lamp. Dr. Smith may set his mind at rest here to the extent at any rate of two or three hundred yards of thin flexible cable which will not produce an excessive voltage (not current!) drop. The converter will take 120 watts, 10 amps. at 12 volts, to drive it *before* switching on the m.v. lamp; thereafter an extra 10 amps. for a 120 watt lamp, or 7 amps. for an 80 watt one. This load of 17-20 amps. is the great drawback, and with the tying to the car makes the system unattractive. (2) Large 200-300 watt petrol-driven A.C. generator. Advantages of this system are, first, comparative mechanical reliability of a large slow running engine; secondly, two or more lamps can be run simultaneously. Drawbacks are that the light is tied to the car by cables as with the converter system, the generators are very heavy and unwieldy, and the capital cost is likely to be high. (3) Small lightweight petrol-driven A.C. generators. The advantages are: first, freedom to take the equipment by hand away from the car, even up reasonably sized mountains (!); secondly, simplicity, and thirdly, reasonable cheapness. The drawbacks are: first, that the only supply of suitable machines is government surplus from the last war, and the stock is nearly, if not quite, exhausted. There may be other makes on the market, however. Secondly, the government surplus machines have to be electrically modified to operate m.v. lamps; I have done a good many, and so have other people. Thirdly, the small petrol engines, although quite excellent little 4-stroke jobs, are inclined to be a bit temperamental at times, and need to be kept scrupulously clean and in tune.

What of the future? With the advent of the transistor, I think this may turn out to be quite exciting. The possibility already exists technically of producing a transistorised converter with no moving parts and of high efficiency to operate from a battery, but a lower wattage m.v. lamp which will not damage the eyes is needed from the manufacturers, and a reduction in price of transistor equipment must be attained before this becomes a practical proposition.—Commander G. W. HARPER, R.N.(Retd.), F.R.E.S., Nedaich, Newtonmore, Inverness-shire.

DREANEPTERYX PHALAENOIDES L. (NEUROPTERA) AT WITHERSLACK.—A specimen of the above insect was beaten from hawthorn down Black Tom's Lane, Witherslack, on 20th May 1961. The species is said to frequent deciduous trees, mainly oak, and is sparingly distributed in the north of England.—M. J. LEECH, 25 Stoneygate Road, Leicester. 28.xi.1961.

LYCIA HIRTARIA CL. IN JUNE.—Whilst collecting at Holme Fen, Huntingdonshire, on 10th June 1961, I was surprised to find a perfect example of *L. hirtaria* Cl. in the trap. This date is approximately two months later than the normal time of emergence.—M. J. LEECH, 25 Stoneygate Road, Leicester. 28.xi.1961.

Some Notes on the Dixinae (Diptera: Culicidae) of East Sussex

By PATRICK ROPER

In Britain the subfamily Dixinae of the Culicidae contains one genus, divided into two subgenera, and some thirteen species. Freeman (1950) records one species, *Dixa* (*Paradixa*) *aestivalis* Meig., as being generally distributed, and one other species *D. (P) filicornis* Edwards, is noted from Sussex only. In the past two years I have found six species within half a mile of my home at Robertsbridge, five of these as far as I can discover, have not been previously recorded from Sussex.

Dixines are small, often yellow and black, nematocerous Diptera. Superficially they show more resemblance to Trichoceridae or some of the smaller Tipulidae, than to the heavily-scaled biting mosquitoes. The early stages are aquatic and the larvae, which are described in most books on freshwater biology, can be found near the edges of ponds and streams. They have the habit of resting on various objects with their bodies formed into an inverted 'u'-shape, and apparently just out of the water, although they always remain covered by the surface film. Adults are most frequently found at rest on waterside vegetation, where they often appear rather sluggish. Swarming sometimes can be observed in the evening, and I have taken one species at light. *D. (P) aestivalis* is often common in late summer, but several other species are found here more frequently during the winter months, which perhaps explains some of the lack of records.

Here then are some notes on the species taken:—

Dixa (s.str.) *nebulosa* Meigen. This is our most highly ornate species with attractively-marked wings. I have taken only 1 ♂ on 2.xi.1961 from beside a small woodland spring-stream near my house. It probably breeds in this stream.

D. (s.str.) nubilipennis Curtis. A common species near the numerous woodland spring-streams in the district. With us the adults begin to appear in July and continue right through the winter until the following April, although more than one generation is probably concerned here. In January I have seen it swarming in company with the Chironomid *Brillia modesta* Meigen, and only really hard weather keeps the species down. I have found the larvae in a stream near its source at a spring. The easiest way to collect them was to pull up a clump of the waterside Golden Saxifrage, *Chrysosplenium oppositifolium* L., when the dark brown larvae showed up clearly against the whitish stems and roots of the plant. Attempts at rearing these larvae failed, but the connection between them and the adults was demonstrated by placing an emergence trap over the stream at the spot where they occurred thus collecting emerged imagines. Twice during September 1961 males were attracted to our lighted house windows, these being the only *Dixa* species I have so far found in this fashion.

D. (s.str.) dilatata Strobl. A species that seems more widely distributed in the north than in the south, and at Robertsbridge it is only found sparingly. On 12.ii.1961 I took 3 ♂♂ by sweeping the dead vegetation of a strip of marshy ground beside a small canal here, and one further ♂ was taken whilst in evening flight by the same canal on 11.v.1961. The whitish patches that appear in wing cells Cu₁, M and Cu₂,

when viewed at an oblique angle are, as was pointed out by Edwards (1920), useful additional characters for determination.

D. (Paradixa) aestivalis Meigen. This species first appears here during August and soon becomes very abundant around the various ponds in which it breeds. On one occasion I found numerous examples resting on *Sparganium* reeds, and noticed that when approached, instead of immediately flying off, they would walk around to the back of the reed with their peculiar sluggish gait as though to hide there.

Earlier examples of this species are paler and brighter in colour, but as the season wears on they tend to become darker. Edwards (1920) mentions specimens with a faint cloud over the wing vein r-m, and others with dark pleurae, and I have taken some which agree with these to a greater or lesser degree. With these darker specimens there is a fairly constant tendency for the vein r-m to move away from the fork of the Rs, until in the most extreme examples, it is well basal to the fork, and when combined with the dark cloud that has appeared on the r-m the insect has the wings described for *D. (Paradixa) filicornis* Edwards. The last named insect was described by Edwards (1926) from a single female taken by Jenkinson on 8.i.1903 at Crowborough, only a few miles from here. In my most extreme example of this variation in *aestivalis*, a male taken on 22.x.1960, identity can be proven from the male genitalia, but if one were to take females of this variety, one could not be reasonably expected to separate them from *filicornis*, even by using Edward's extensive and thorough type description. Dr. P. Freeman, who kindly examined the above mentioned male for me, also showed me the type of *filicornis* from the collection in the British Museum (Natural History) and about the only difference between the two insects (other than their sex) is the greater size and distinctness of the r-m cloud in *filicornis*. As this character could be reasonably expected to be subject to a certain amount of variation, one is left with no reliable means of separating the variety of *aestivalis*, when taken in the female sex, from *filicornis*, and in my opinion, until genitally distinct males of *filicornis* are discovered within reasonable range of the type locality, its specific status should be viewed with caution.

D. (Paradixa) martinii Peus. Another rather infrequent species here, which with records from Carnarvon, Devon, and Cornwall, would seem to have a more westerly range than others. All my examples were taken by sweeping the vegetation of open marshy areas, and in this way I found 2 ♂♂ and 1 ♀ on 29.vii.1960, and a further 2 ♂♂ and 1 ♀ on 23.iii.1961.

D. (Paradixa) amphibia Degeer. Edwards considered this to be one of the least common species of *Dixa*, but here it occurs in some numbers around the margins of stagnant ponds, although I have noticed that it is easier to take in littoral emergence traps than by searching for it. I have found adults only from mid-August until the end of September, indicating a single generation a year. One curious habit of the adults is their use of the ability to walk backwards, sideways or forwards at will, and when confined in a tube they will adopt these methods for avoiding another insect, rather than use the wings to fly to a different position. It is the same sort of thing as was observed in *D. aestivalis* and its habit of hiding behind reeds.

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- . 1926. A new species of *Dixa* from Sussex. *Ibid.*, **62**: 35.
- Little Slides, Robertsbridge, Sussex. 3.xii.1961.

Notes on *Oxygastra curtisi* (Dale), Order Odonata, from the Dale Correspondence

By Lt. Col. F. C. FRASER, I.M.S.(Retd.)

I am indebted to Mr. Scarsdale Brown for drawing my attention to interesting notes in the Dale correspondence (Hope Museum, Oxford) relating to the British dragonfly *Oxygastra curtisi* (Dale).

Plate 616 in Curtis's *British Entomology*, **4** (*Hymen. Neur. Trichoptera*), 1831 (1843-1840), London, shows a coloured figure of a female Corduline dragonfly, whilst below it are seen some line figures of the head, anal appendages of both sexes, the base of the male hindwing and the tibiae and tarsus of a foreleg. The legend of the plate reads throughout as "*Cordulia curtisii*", without alluding to the line figures, so that at first sight it would appear that the plate, including the anatomical details, allude to only one species. However, after examining the plate critically, I was surprised to find that the line figures were actually those of *Cordulia linaenea* and not of *O. curtisi*.

A reference to the opposite page where Curtis has given a definition of the genus *Cordulia* shows that the line figures allude to the genus and not to any particular species; it is evident that Curtis was generalising and thought that the characters mentioned, and more particularly those of the anal appendages of the male, are similar in all species of the genus *Cordulia*. A further reference to the descriptions of the three species Curtis included in the genus, viz. *metallica* Van der Lind, *aenea* Curtis *nec* Lin (vide synonymy given below), and *curtisii* (Dale), shows that the anal appendages are described for *aenea* but not mentioned for the two others; those for the former are described as furcate, as in the description of the genus so that it is evident that Curtis was either ignorant of these two species or thought that their appendages were built similarly. As the appendages of both *metallica* and *aenea* are not furcate, there is no doubt that the line figures refer to *aenea* and that the author probably forgot to mention the fact.

The coloured figure closely resembles the females of both *curtisi* and *linaenea* but the short anal appendages and some of the venational details of the wings show that it is meant for the former.

The dates on which *curtisi* was taken are important, viz. 29th June 1820 by Dale on Parley Heath; 16th July, year ?, by Dale at Hurne, and 8th June 1831 by Curtis on Ramsdown and Heron Court. All these habitats refer to the same locality and all are in Hampshire, not Dorset. Curtis adds that: "I understand it has also been taken

at Braunton Burrows by Mr. Cocks of Barnstaple". This latter habitat has always been doubtful and has not been confirmed by collectors working in that locality since. Mr. John Cowley and I have made purposeful journeys for this purpose but without any success. Confirmation of the habitat now comes from an unexpected source after many years controversy. In one of Dale's letters received from Dr. Cocks, the latter says (date, 6th July 1820): "I remember a great variety of Libellules (Odonata) about the ditches at Braunton Burrows, Devon". Against this, Dale has put a marginal note which reads: "I had *Cordulia curtisii* from Dr. Cocks". There now seems to linger no doubt that *curtisi* was actually found at Braunton Burrows; when Dale made that simple annotation, he could not have dreamt that it would settle a controversy which has lasted for years!

It is of interest to note that a stable variation in the venation of the wings that exists between specimens from the Continent and Britain, suggests that *curtisi* was established and isolated in this country at a very remote period.

SYNONYMY AND REFERENCES

Somatochlora aenea (Lin), 1761.

Libellula aenea Lin, 1761. *Fauna Suec.*, ii: 373, No. 768.

Libellula flavomaculata Van der Lind, 1825. *Mon. Lib. Eur.*: 18.

Libellula aenea Charpentier, 1840. *Lib. Eur.*, 91: 96.

Somatochlora flavomaculata Selys, 1871. *Bull. Acad. Belg.* (2), 31: 304.

Somatochlora aenea McLachlan, 1898. *Ent. mon. Mag.*, 34: 229.

Id. Lucas, 1900. *British Dragonflies*, 141-142 (footnote).

Id. Fraser, 1956. *Ent. mon. Mag.*, 92: 20.

Cordulia linaenea Fraser, 1956.

Libellula 'B', 1761, Lin. 1761. *Fauna Suec.*, ii: 373, No. 769.

Cordulia aenea auct.

Cordulia linaenea Fraser, 1956. *Ent. mon. Mag.*, 92: 20.

Id. ibid., 1957, 93: 150.

Id. 1956, *Handbook for identification of Brit. Ins.*
R. ent. Soc. Lond., 1: 10, 37.

Notes and Observations

CYCNIA MENDICA.—On 12th May a female *Cycnia mendica* was seen ovipositing on the under surface of a rose leaf in my garden. Is this an unusual foodplant for this species? P. B. M. Allan does not mention it in his "Larval Foodplants".—Brig. H. WARRY, Eastbrook, Upwey, Dorset. 16.xii.1961.

HORNETS.—On October 14th I came across a nest of hornets (*Vespa crabro*) in the trunk of a tree by the River Yeo. This was the first time I had seen this insect in the county.—Brig. H. WARRY, Eastbrook, Upwey, Dorset. 16.xii.1961.

POLYGONIA c-ALBUM L.—Mr. Fraser in his note in the November *Record* (72: 242) states that the only food of this butterfly after hibernation is the blossom of sallows. In my garden I have seen this butterfly and other hibernators feeding freely on plum blossom and bergenias. I have also seen a sparrow take one while so engaged.—Brig. H. WARRY, Eastbrook, Upwey, Dorset. 16.xii.61.

MIGRATORY LEPIDOPTERA IN NORTH WEST SURREY.—The season being now presumably ended, I may sum up my experience of migratory lepidoptera in this inland locality. Besides the examples of *Celerio galii* Rott. and *Nycterosia obstipata* F. already recorded, I have had in my light trap three more of the latter species—a male on 2nd September, a female on the 3rd, from which some offspring were bred, and a male on 15th October. Of *Rhometra sacraria* L. there was a good male on 18th September. The greatest prize was *Diasemia ramburialis* Dup., of which a worn example appeared on 16th September and a very fair one on 4th October. They could easily have been missed, being both small and restless; indeed the first flew off the egg-trays and was only secured on the window of the room in which the trap was being examined. Perhaps the most curious visitor was a *Vanessa atalanta* L. which I saw fly up to and enter the trap at about 10.30 p.m. on 18th September, when the temperature was still about 59° F. after a hot day. There was no indication that it had been accidentally disturbed; it was pretty certainly migrating by night.

This is the best range of scarcer migrants I have had here during ten years' use of a standard trap. But it has not been a good year for the commoner migrants. *Plusia gamma* L. and *Peridroma porphyrea* Schiff. have been only just about the 10-year average; *Agrotis ipsilon* Rott. and *Hapalia ferrugalis* less than half the average; and *Nomophila noctuella* Schiff. has achieved a record score—nil! No *Colias* have been seen in the district, nor *Vanessa cardui* L., and only two or three *V. atalanta* besides the nocturnal visitor. I should also record the unusual appearance in the trap of *Orgyia antiqua* L. on 30th August. It is, of course, not a migrant, but is not very often seen here even in the daytime.

In the field, a noteworthy migrant was a fresh male *Leucania albipuncta* F. which came to light on 2nd September when Mr. J. L. Messenger and I were collecting near Thursley, further south in Surrey.—R. F. BRETHERTON, Ottershaw, Surrey. 27.xi.61.

AN ENTOMOLOGICAL PROBLEM.—I was interested in Mr. Huggins letter of the Nov. issue under this heading in his references to the late H. W. Head and Arthur Smith.

I have known both of them for several years and spent many a week-end with Head, but in spite of the friendly relationship with Head, he always struck me as one who wanted top prices for anything he had for disposal.

As a result he apparently preferred to sell a small quantity dear, to larger quantities at a reduction.

I had an example of this when I bought some *limbaria* in 1936.

Although he had about 3,500 pupae at the time, he stuck to his price of 2/- each. Later on I asked him what he had done with them

and he informed me that as he could not get his price, he had tipped the whole lot in his garden, and had decided not to breed any more of the species—he did assure me, however, that they all originated from Norfolk stock, and I have adopted that locality for the specimens I bred in 1937.

It would appear, therefore, that 1936 was the last year that Head had any *limbaria* for disposal.—L. G. F. WADDINGTON, 9 Greenleaf Avenue, Wheatley Hills, Doncaster. 26.xi.1961.

A DAY IN DORSET.—On 26th May I visited a wood in north Dorset with my cousin who wished to see how "beating" was carried out, and to identify butterflies that were on the wing, so that he could instruct his two small boys. In the morning we did some beating, and the following larvae fell into my tray:—three *Pseudoips prasinana*, two *Amphipyra pyramidea*, one *Phygalia pilosaria*, two *Orthosia incerta*, one *O. miniosa*, four *Zephyrus quercus*, and small loopers. A freshly emerged *Bena fagana* also fell into my tray.

After lunch we visited an open grassy area with a few small bushes on the edge of a wood. *Argynnis selene* L. and *Euphydryas aurinia* were well out. I took two nice vars. of the former, and one about half the size of a normal specimen; the *aurinia* were mostly darker than those I have seen at Hod Hill. A few male *Hemearis lucina* were seen but no females, although we found fifteen ova on the undersides of cowslip leaves. *Erynnis tages*, *Pyrgus malvae*, and *Ochlodes venata* were also on the wing, but the first two were past their best.—Brig. H. WARRY, Eastbrook, Upwey, Dorset. 16.xii.1961.

RHODOMETRA SACRARIA L. AND PLUSIA GAMMA L. MIGRATIONS IN INVERNESS-SHIRE.—The usual pattern of a few early common immigrants, *V. atalanta*, *P. gamma* and *N. noctuella*, in May and June was completely absent this year in Badenoch, and in consequence none of these species seem to have bred locally. In contrast, a very remarkable late wave of immigrant *R. sacraria* appeared suddenly at the end of August and in early September in Newtonmore, Kingussie and Aviemore, the moths being quite common in rough cornfields. This species seems to have occurred at almost the same date widely over the whole kingdom. Similarly, in early October, a sudden invasion of immigrant *P. gamma* occurred, both coming to m.v. light and feeding in large numbers on my late honeysuckle blossoms at dusk; they departed as suddenly as they had come after a stay of only a few days, in company with the only *V. atalanta* passing through on its way south to be seen here this year.—Commander G. W. HARPER, R.N.(Retd.), Neadaich, Newtonmore, Inverness-shire. 27.xi.61.

MIDLAND MIGRANTS DURING 1961.—This autumn has seen a good influx of migratory species of lepidoptera to this country. Basically the migrants recorded so far have been taken on or near the coast, but some have obviously made their way well inland. Whilst working m.v. light at the village of Countesthorpe, eight miles from the centre of Leicester, on 30th August 1961, a fresh specimen of *Herse convolvuli* L. was captured. Two nights later, at the same venue, two new county

records were established with the capture of a specimen of *Nycterosea obstipata* F. and a single *Rhodometra sacraria* L. The following night, again at Countesthorpe, another specimen of *obstipata* was recorded. Also, during September, a single specimen of *Utetheisa pulchella* L. was taken in the neighbouring county of Northamptonshire. The Oleander Hawkmoth, *Daphnis nerii* L., also arrived in Leicestershire during October. It was recorded from the village of Holwell. It is only the second record of this insect for the county.—M. J. LEECH, 25 Stoneygate Road, Leicester. 28.xi.1961.

Obituary

JOHN OLIVER TUNLEY HOWARD

The passing of Oliver Howard on 12th October 1961, at the age of only 56, has indeed left a gap in the number of ardent and eminent field collectors of our lepidoptera. The grievous news brought much sorrow to a wide circle of the entomological fraternity as it also did to many more of his friends in other spheres.

It was in quite early days that he first became interested in butterflies and moths, and he used to tell that while at Sandroyd School, near Esher, he and some of his companions were encouraged to chase the Fox Moth on Oxshott Common. When at Repton and later at Trinity College, Cambridge, this enthusiasm steadily increased, and thereafter for nearly every year he used to spend his holidays in selected parts of the British Isles likely to produce some choice local species. Before the last War several of these ventures were undertaken in collaboration with the late John Bowes, and the writer, who first met Oliver Howard in 1930, has many happy memories of such expeditions in his company. He made several very rewarding trips to the Highlands, from which on one occasion he brought back some of the most extreme *conversaria* forms of *Cleora repandata* L. ever recorded. Over the years his collection of the macrolepidoptera grew steadily. It contained some very fine series, many of them bred, and always meticulously set and arranged.

During the War he served as Squadron Leader in the R.A.F. Coastal Command, being based on Gibraltar before taking part in the North African landings in 1942. He was later posted to Ceylon, and then to one of the atolls in the Indian Ocean whence he brought back a very comprehensive collection of its lepidoptera, including some little-known species.

Soon after the War he went to live at Dorking where he and his wife became extremely keen gardeners, especially in the growing of rhododendrons. Here he used to run a mercury vapour trap regularly, recording many species new to the district. It was in 1955 that he had the good fortune to capture in it a *Celerio galii* Rott. from which he bred a splendid series, writing a most illuminating account of his success in the pages of this Journal, to which he so frequently contributed most interesting notes and articles about his collecting experiences.

He was a very keen and active member of the South London Entomological Society, which he joined in 1927. He served several times on the Council and was its President for the year 1949.

From quite an early age he became interested in old and fine books. He was for many years with the well-known firm of Bernard Quaritch, being a director at the time of his death. During this period he became a recognised authority, especially on works dealing with Natural History of which he had himself a very fine library.

With his usual keenness he was planning a trip to Shetland in the summer of 1961 when grave illness overtook him, and he only survived a serious operation by a few weeks. His tall figure will indeed be missed at many entomological gatherings. To all who came in contact with him he was always most kind, helpful and gracious. For five years he was a member of the governing body of the "Record". A good friend has passed from amongst us, and our sympathy goes out to his widow in her great loss which has touched so many others alike.

C. G. M. de W.

Current Literature

PROCEEDINGS AND TRANSACTIONS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, 1960: xxxix + 188 pp., with 8 plates (two in colour), 19/-.—The most popular item in this always-interesting publication will undoubtedly be Part V of Mr. Haggett's coloured plates and descriptions of larvae of British Macrolepidoptera which are not figured by Buckler. This part includes *Heliothis armigera* Hübn., *H. maritima* Graslin s.sp. *septentrionalis* Hoffmeyer, *Calophasia lunula* Hufn., and *Minucia lunaris* Schiff. The figures cover a very good range of variation and will be most useful for reference. The President's address has for its scientific part an account of recent colonisation of England by new species of Macrolepidoptera and gives historical accounts of many changes in the habits of species already resident here. This is followed by accounts of the season's field meetings, which are a very strong feature of this Society's annual programme. The account of the Annual Exhibition at Burlington House carries a plate illustrating eleven of the more striking exhibits of varieties.

J. F. D. Frazer writes on Butterfly Populations on the North Downs, Dennis Leston contributes a paper on the Miridae of Bedfordshire with a map showing the geological formations of the county. A paper read by A. E. Gardner deals with Odonata and Orthopteroid insects of Wood Walton Fen, and Dr. H. E. Hinton contributes an interesting paper illustrated by micro-photographs and enlarged drawings dealing with the subject of How some Insects, especially the Egg Stages, avoid drowning when it rains. Finally there is a collection of editorial notes on the thorny problems of Nomenclature.—S. N. A. J.

HETEROCERA
SPHINGIDAE

Mimas tiliae L.: Lime Hawk.

Native. Parks, gardens, roadsides, etc.; on lime, elm, birch. Recorded from all divisions. Apparently not generally a plentiful species in rural districts, but is sometimes common in towns, for which it shows a decided preference, and is perhaps most frequent in the urban areas of north-west Kent.

D. F. Owen (*in litt.*, 1947) wrote that it was "extremely abundant at Lewisham, Lee, Kidbrook, Blackheath, Greenwich; the larvae or pupae being found on nearly every elm and lime"; and added that he took with ease sixty pupae from beneath trees at Lewisham and Blackheath during the winter of 1946-47. West (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1918-19: 69) stated that many years previously, pupae were very common at the foot of oaks in Greenwich Park.

The larvae have been mostly found on lime and elm. At Petts Wood, A. M. Swain records that in addition to lime, he has also found it there on birch. Tutt (*Br. Lep.*, 3: 408) states that "the larvae appear usually to feed high up in large elm trees in Kent, and hence are rarely observed until they descend for pupation".

It is on record that the moth occasionally assembles in fair numbers; thus, Carter (*Entomologist*, 33: 202) wrote that he witnessed at Bexley Heath, in 1900, the assembling of twenty-one ♂♂ to a fresh ♀, between 9 and 9.30 p.m., on May 17-23.

VARIATION.—Very variable. Among my series from Kent are the following striking abs.: *brunnea* Bartel, ♀, 1925; *centripuncta* Clark, three; *pallida-centripuncta* Tutt, one, 1919 (C.-H.).

The following abs. from Kent (many of the examples of which are bred) are in R.C.K.:—*pallida* Tutt; *roseotincta* Schawerda; *atroviridis* Lenz; *virescens* Tutt, "with normal markings"; *clara* Closs; *suffusa* Clark; *rufobrunnea* Lenz; *brunnea* Bartel; *atrobrunnea* Gehlen *nec* Lenz; *brunnea* Bartel + *suffusa* Clark; *roseotincta* Schawerda, "with brown band"; *discifera* Closs; *discifera* Closs, with "orange hindwings"; *rubra* Cockayne, holotype (*Ent. Rec.*, 65: 33); *constricta* Gillmer; *brunnea* Bartel + *constricta* Gillmer; *constricta* Gillmer, with "red brown hindwings"; *constricta* Gillmer, with "orange hindwings"; *transversa* Jordan; *brunnea-transversa* Tutt; *pallida-transversa* Tutt; *bimaculata* Gillmer; *bipunctata* Clark; *pallida-bipunctata* Tutt; *colon* Gillmer; *bipunctata* Clark, with "orange hindwings"; *maculata* Wallengren; *costipuncta* Clark; *pallida-costipuncta* Clark; *centripuncta* Clark (= *ulmi* Bartel); *pallida-centripuncta* Tutt; *brunnea-centripuncta* Tutt; *semicentripuncta* Bünge-Billwarder; *semicentripuncta* Bünge-Billwarder + *brunnea* Bartel; *semiobsoleta* Tutt; *obsoleta* Clark; *pallida-obsoleta* Tutt; *virescens-obsoleta* Tutt; *brunnea-obsoleta* Tutt; *diluta* Cockayne, holotype, allotype, and paratypes (*Ent. Rec.*, 65: 33). Also the following:—one somatic mosaic; two pathological examples; one example with "symmetrical deficiency of nervures: 3 nervures missing in each wing"; one gynandromorph, "East Kent, v.1952, L. W. Newman"; and numerous examples with "asymmetrical markings".

A number of other abs. and abnormal specimens have been recorded (cf. Tutt, *Br. Lep.*, 3: 405; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1894:

50, 1911-12: 44, 1919-20: 62, 1942-43 (2): 37, 1955: 35).

FIRST RECORD, 1856: Ramsgate (Powell, *Ent. week. Int.*, 1: 196).

Laothoe populi L.: Poplar Hawk.

Native. Woods, gardens, lanes, marshes, etc.; on poplars, willow, alder. Found in all divisions, and in point of numbers, probably the commonest of the Hawkmoths.

What may be regarded as a partial second brood occurs fairly often in August, such specimens having been noted for example in 1868, 1873, 1886, 1887, 1898, 1899, 1917, 1918, 1933, 1937, 1938, 1949, 1952-57. The latest date is of one taken in an m.v. trap at Ham Street, on September 1, 1957 (de Worms, *Entomologist*, 91: 152). Stainton (*Zoologist*, 1089) records one at Lewisham, on April 30, 1845, an early appearance; but a much more extraordinary occurrence is of a ♀ taken at light near Shooters Hill, during the last week of January 1922 (Stanton, *Entomologist*, 55: 111).

The larva has mainly been found on various species of poplar. It has been noted on black and Lombardy poplar in the Rochester district (Chaney (1884-87)); on poplar, aspen, and willow, at Petts Wood (A. M. Swain); on aspen at Brasted (R. M. Prideaux), and Stansted (F. T. Grant); and on "most poplars, willows and willows" in the Lewisham district (D. F. Owen). Taylor (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 47) records the finding of a larva in Kent, feeding on willow.

VARIATION.—West (in Tutt, *Br. Lep.*, 3: 468) has noted ♂♂ "frequently very rosy in tint", in the Lewisham and Greenwich districts; and D. F. Owen states that at Lewisham, "decidedly pink ♀♀, are not uncommon".

Hawkins (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1925-26: 60) exhibited a ♀ ab. *pallida* Tutt, bred Herne Bay. I have a ♂ ab. *pallida* Tutt, bred New Cross, May 18, 1917, ex H. J. Turner coll.; also three ♀♀ ab. *rufescens* Selys, from Bexley (C.-H.).

The following abs. from Kent, of both sexes unless otherwise stated (many of which are bred specimens), are in R.C.K.:—*rufescens* Fuchs; *rufa* Gillmer, ♀♀; *rufo-diluta* Gillmer, ♀♀; *pallida* Newnham; *ferruginea-fasciata* Gillmer, ♂♂; *tremulae* Bork.; *violacea* Newnham; *salicis* Holle; *albida* Cockayne, holotype ♀ (*Ent. Rec.*, 65: 33); *angustata* Closs, ♂♂; *grisea* Gillmer, ♂; *depupilla* Silbernagel. Also, one pathological example, and numerous gynandromorphs.

Cardew (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1910-11: 96; *Entomologist*, 42: 159) records a halved gynandromorph, bred from Dover larva, 1909.

FIRST RECORD, 1834: Mr. Dale "observed one in Mr. Leplastrier's collection which had no red on the base of the underwings; it was found near Dover" (Curtis, *Br. Ent.*, 482).

Smerinthus ocellata L.: Eyed Hawk.

Native. Woods, marshes, orchards, gardens, osier beds, waste places, etc.; on apple, willow, willow, aspen, poplar, "wild plum". Found in all divisions.

A partial second generation may occasionally occur. W. L. Rudland took a single specimen in his m.v. trap, at Willesborough (div. 12), on September 10, 1954; and A. M. Morley has three, taken in the Folkestone district, August 17 and September 1 1952, August 22 1955.

In its early stages, the species has occasionally been noted in extreme abundance. For example, B. G. Chatfield states that in 1951, it was a pest on one farm at Hawkhurst (div. 14), where it completely defoliated young apple trees; D. F. Owen notes that in 1946, he found ova very numerous on willows growing on bombed sites at Lewisham; and Tutt (*Br. Lep.*, 3: 432) records that the larvae were exceedingly abundant on the sandhills at Deal, Harding alone having taken "26 dozen" there in 1860.

The larva most frequently occurs on apple (both crab and cultivated) and various *Salix* spp. It has also been found on aspen at Petts Wood (A. M. Swain); on poplar at Folkestone (A. M. Morley); and Fenn (*Diary*) records that in a lane at Lee, August 23, 1891, he found a full-grown larva feeding on "wild plum".

VARIATION.—A specimen from Lewisham "with the ground colour unusually pale, giving the insect a particularly bright appearance", is recorded by Adkin (Tutt, *Br. Lep.*, 3: 426). One, conforming to this description, taken by A. G. Peyton, at Ham Street, June 13, 1935, is in my coll. (C.-H.).

Tutt (*Ent. Rec.*, 13: 163) records a ♂ ab., bred by L. W. Newman, June 2, 1900, from Bexley Woods, which became the holotype of ab. *pallida* Tutt.

The following abs. are in R.C.K.:—*flavescens* Newman, ♂, bred 1899, from Bexley wild larva, L. W. Newman; *kainiti* Knop, ♂, bred Bexley, 1913; *trans. ad kainiti* Knop, several from Kent; *pallida* Tutt, numerous from Kent. Also several pathological examples.

HYBRIDISATION.—Hybr. *hybridus* Stephens (*S. ocellata* ♂ × *L. populi* ♀). There is no record of such a cross in nature in Kent to my knowledge, but in R.C.K. are numerous bred examples labelled from Kent, including several intersexes.

FIRST RECORD, 1857: Near Ashford (Russell, *Ent. week. Int.*, 3: 19).

Acherontia atropes L.: Death's-head Hawk.

Immigrant. Potato fields, gardens, etc.; on *Solanum tuberosum*, *Lycium barbarum*, *Jasminium* sp., *Ligustrum vulgare*, "scarlet runner beans". Recorded from all divisions, but mostly observed coastally in east and north-east Kent.

The species appears almost annually¹, but only in certain years has it been noted plentifully, and the great majority of those taken have been in either the larval or pupal stage. Very occasionally, it has occurred in great abundance, as was the case at Margate in 1846, when the larvae were so numerous that they were collected as food for chickens (Stevens, *Proc. ent. Soc. Lond.*, 1846: clvi). In 1858, at Ashford, "upwards of one hundred larvae" were found (Russell, *Ent. week. Int.*, 4: 157); and in 1933, over fifty pupae were received that had been dug up from one small potato field at Reculver (Bowes, *Entomologist*, 67: 59). In 1905, "one collector bought and sold over a thousand pupae, dug up in Thanet" (Barrett, *Entomologist*, 40: 14); and A. G. Peyton told A. M. Morley that in one year, in or about 1905, he himself collected some 300 larvae in the Ramsgate area.

¹The records for 1929-61, inclusive, show that the species was observed every year in Kent, except in 1936 and 1940.

Undoubtedly the chief foodplant in Kent is potato (*S. tuberosum*). The larva has also been found on Tea-tree (*L. barbarum*), at Folkestone (Ullyett, *Rambles of a Naturalist Round Folkestone*, 9); on "scarlet runner beans", at Wye (Efflatoun, *Entomologist*, **50**: 284); and on "wild privet" (*L. vulgare*), upon which one was found feeding on Romney Marsh, in 1945 (Sankey, *Ent. mon. Mag.*, **81**: 238). It has also been found on Jasmine; Miss Clements, of the Dene, Hythe, having found twenty larvae feeding on this in her garden in September 1938 (A. M. Morley).

The imago is occasionally observed at light and at rest on walls; and a boatman at Dover told A. M. Morley, c. 1935, that he often found them resting on the sails of boats drawn up by the harbour. There is a record, too, of one that had flown into a cottage bedroom at Hawkinge, one night in 1929, to the great alarm of the occupants, who thought it was a sign of death (W. O. W. Edwards, *teste* A. M. Morley). The insect has also been found "floating in on the tide", at Joss Bay, Broadstairs (H. C. Huggins); and a pair were noted *in cop.* at Reculver in June 1933 (A. J. L. Bowes). S. F. P. Blyth was shown one, which had been taken in a beehive, at Chislehurst, c. 1895; and H. E. Hammond mentions one that he found in his garden at Shoreham in 1912, "freshly emerged by a Tea-tree". A freshly emerged specimen with wings not yet expanded was found crawling up a sapling at Westwell in 1950 (P. Cue, *teste* E. Scott).

VARIATION.—The following abs. are in R.C.K.:—*intermedia* Tutt, one, E. Kent, and two, bred Herne Bay, 1933; *imperfecta* Tutt, two, bred Herne Bay, 1933. Also, one pathological example, N. Kent, 1902.

FIRST RECORD, 1811: October 11, 1811, "Death's-head moth found at Gravesend" (Arnold, *Robert Pocock*, 51).

Herse convolvuli L.: *Convolvulus* Hawk.

Immigrant. Potato fields, gardens, etc. [on *Convolvulus arvensis*]. Recorded from all divisions, though mainly from coastal areas.

The imago is noted most years¹, usually in small numbers, but occasionally plentifully. The vast majority have occurred in August and September, it is seldom noted in July, and still less often in June. In 1948, one was taken at Folkestone as early as May 20 (A. M. Morley), the only occurrence for this month that I can trace; and in 1926, one was taken at Gravesend on November 23 (Grant, *Ent. Rec.*, **39**: 12), a remarkably late date.

There are a few records of the moth having been witnessed in abundance by certain observers in the exceptionally good years. Thus, Westwood (*Proc. ent. Soc. Lond.*, 1847: vi) stated that near Canterbury (in 1846), it "had been so abundant that a friend of his had captured as many as five in his net at once"; and Stonestreet (*Ent. week. Int.*, **10**: 187) records that in 1859, at Dover, he himself observed as many as seventy imagines. In 1875, sixty were taken in one garden at Birchington (Bird, *Entomologist*, **10**: 20); and A. M. Morley (*in litt.*) writes that in 1929 or 1930, he met an entomologist at Sheerness, who told him that some years earlier he had in one evening seen eighteen

¹The records for 1930-61, inclusive, show that the species was observed every year in Kent, except in 1932, 1936-37, 1939-42, and 1954.

convolvuli flying along the Sheerness canal.

The habits of this species are quite different from those of *A. atropos*: it does not seem to breed here so often, and the larva and pupa are seldom found. Most of the larvae and pupae that have occurred were in potato fields. Newman (*Entomologist*, 8: 274) records that in 1875, a pupa was dug up at Deptford; and Bird (*Entomologist*, 10: 20) states that on October 17, 1876, a pupa was dug at Birchington, and that "wild convolvulus grew amongst the potatoes where it was found". A. M. Morley (*in litt.*) writes that a full-fed larva of the brown form was found on lettuce, though not presumably eating it, in Folkestone, on July 23, 1952. (For the few other records of the occurrence in nature in Kent of the larva and pupa of this species, cf. Tutt, *Br. Lep.*, 4: 343-345.)

As a fair indication that *convolvuli* occasionally survives here to produce a generation, Hawkins (*Entomologist*, 64: 162) records that in 1930, on the authority of W. H. Storey, a ♂ was found "clinging to herbage on rough ground above Broadstairs"; adding that there was a lot of convolvulus near the place of capture, and that the insect was observed to excrete its meconium.

FIRST RECORD, 1828: Dover; Margate (Stephens, *Haust.*, 1: 120).

Sphinx ligustri L.: Privet Hawk.

Native. Gardens, hedgerows, parks, bushy places on chalk downs, wood and copse borders, etc.; on privet, lilac, *Viburnum lantana*, *V. opulus*, ash, holly, snowberry, *Lonicera*, "*Spiraea van-houstii*". Found in all divisions.

"Generally distributed, common in some places" (*V.C.H.* (1908)).

This is not usually a very plentiful species, but appears to be well distributed, and of regular occurrence. B. G. Chatfield, however, states that at Hawkhurst, of all the Hawkmoths, it is only exceeded numerically by *L. populi*; and E. Evans observes that at Petts Wood, it is probably the commonest Hawkmoth at light. A. M. Morley writes that without looking for it especially, he has found the species in one stage or another in every year except 1941, from 1929 to 1961; and has noted the moth every year at light from 1951, but never more than two at a time in the trap. Owen (in de Worms, *Lond. Nat.*, 1953: 111) gives it as "scarcer in recent years in North Kent"; but no supporting evidence is included with this statement.

The larva has been frequently found on privet¹; and this is probably the principal foodplant, at least in Kent. At Broad Oak, I have twice taken full-grown larvae feeding on lilac, September 19, 1948, September 4, 1951 (C.-H.). It has been found on *Lonicera*, at Folkestone (Cross, *Entomologist*, 84: 23); on holly, at Folkestone, 1954 (A. M. Morley), and at Brasted (R. M. Prideaux); on *Spiraea van-houstii*, at Hartley (Welch, *Entomologist*, 64: 52); twice on *Viburnum lantana*, on Folkestone Downs (A. M. Morley); on *V. opulus* [at Wye] (Efflatoun, *Entomologist*, 50:

¹The larva seems mostly to have been found on *Ligustrum ovalifolium*, the introduced species with elliptic-oval to elliptic-oblong leaves, and only occasionally on *L. vulgare*, the native common privet with small lanceolate leaves, which is now nearly supplanted for hedging by the above. Indeed, at the present time the only positive evidence I have of it on the latter plant, is of one found on this in Folkestone Warren by A. M. Morley in 1948.

284); on ash, between Ebbsfleet and Minster, September 22, 1915 (H. G. Gomm); two on snowberry, at Folkestone, September 8, 1959 (A. M. Morley), and nine on this at Dartford, 1946 (B. K. West). A. M. Morley (*in litt.*) writes that on August 7, 1952, he visited a garden at Cheriton, where he saw a row of small ash trees about 5 ft. high, which were almost defoliated by the larva of this species; there were only four larvae still feeding, but he was told that there had been many more; the same correspondent states that, in 1960, a neighbour of his, Mrs. Chadwick, informed him that she recently found thirteen large *ligustri* larvae on her privet hedge, which is about 20 ft. long.

VARIATION.—The following abs. are in R.C.K.:—*intermedia* Tutt, two, Folkestone, 1924, one, N. Kent, 1939; *pallida* Tutt, N. Kent, one, 1927, one, 1939; *subpallida* Tutt, numerous from Bexley and "North Kent"; *rosacea* Rebel, N. Kent, one, 1920, one, 1922; *incerta* Tutt, Bexley, two bred 1912; *brunnea* Tutt, Bexley, one bred 1912; ab. "forewings normal hindwings pale", two from Kent; ab. "forewings pale hindwings normal", Bexley, one bred 1915; ab. "grey median area", Bexley, one bred 1912; ab. "median banding reaching costa", N. Kent, bred 1945. Also, two examples with spiral segmentation, one, N. Kent, 1939, one, Bexley, bred 1947.

A full-grown larva with two horns, "the second one directly beneath and about an eighth of an inch lower than the normal one, and only about a third as long", was found at Folkstone, in 1947 (Cross, *Entomologist*, 84: 23).

FIRST RECORD, 1828: Darenth (Stephens, *Haust.*, 1: 121).

***Hyloicus pinastri* L.: Pine Hawk.**

Suspected resident¹. Woods, etc.

The more recent records suggest that the species may be breeding in areas in Kent situated near the borders of Surrey and Sussex, consequent upon its gradual range extension eastwards from Dorset during the past thirty years².

1. West Wickham Wood, one taken off paling, May 26, 1884 (Watkins, *Ent. mon. Mag.*, 21: 34).

4. Deal*, one, sometime between 1874 and 1876, which had "graced a baker's pump" (Carrington, *Entomologist*, 10: 6).

5. Westerham, one taken by R. C. Edwards, at light at his house in 1952 (R. C. Edwards).

6. [Halling] one† in Rochester Mus., labelled "caught by Stephen Foreman of Halling about 1920. Rare in Kent" (C.-H.).

[8. Folkestone district.—Listed by Hills, in Walton, *Folkestone and the Country Around* (pub. 1925), but without particulars.]

12. Ham Street.—William Stickles, the keeper, showed me one† that he took off a pine trunk in Burnt Oak Wood, about 1930 (C.-H.)³.

¹Some of the older records, however, suggest that it may also be a casual adventive from abroad

²Since 1948, it has repeatedly occurred within a few miles of the county boundary, as for example at Croydon, in 1949 (*Ent. Rec.*, 61: 94), Shirley in 1951 (*Ent. Gaz.*, 2 (4): 267), Selsdon in 1953 (T. L. Barnett), all in Surrey; and at Camber, Sussex, in 1955 (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 24).

³This is the one mentioned in Scott (1950).

13. Tunbridge Wells, one taken by L. R. Tesch, off a sycamore trunk about 100 yards within the county boundary, end of June 1954 (L. R. Tesch).

[("Kent" (Reid, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 38) is erroneous (W. Reid, *in litt.*).]

FIRST RECORD, c. 1875: Deal (Carrington, *loc. cit.*).

Celerio euphorbiae L.: Spurge Hawk.

Immigrant. Gardens, waste places, etc.; [on *Euphorbia amygdaloides*].

Altogether, there are records of about a dozen examples alleged to have been taken in Kent, but it is suspected that several of these were importations, and that a few others were incorrectly determined. The number of apparently well authenticated captures is very small, and in not a single case are all the circumstances known.

The earliest reference¹ to *euphorbiae* in Kent appears to be that of Tylden (*Entomologist*, 1: 204), who states that he took a specimen at Sevenoaks, but does not give date of capture or circumstances. Subsequently, it was recorded as follows:—1889: Minster [Thanet], one bred from larva, taken July 10, 1889, imago emerged, June 12, 1890† (H. G. Gomm coll.). 1900: Dover, larva, 1900, imago emerged, 1901† (F. A. Small coll.). 1902: Sevenoaks, one†, labelled in E. A. Cockayne's handwriting, "Sevenoaks, 1902, C. Holmes". Bred from a larva found at Sevenoaks by Mrs. Holmes, wife of the President of the Pharmaceutical Society, and given by her to me, E.A.C." (R.C.K.). c. 1902: Greenhithe, one taken by A. B. Farn, "freshly emerged on his front door knob" (Kershaw, *Ent. Rec.*, 68: 154, and *in litt.*). 1937: Folkestone Warren.—"1937. Professor Whitehouse wrote to me saying that during the summer a visitor from Birmingham was attracted by his dog's barking at two caterpillars in the Warren. The visitor gave them to him, and from them he bred a ♀ *euphoribae*. Whitehouse did not say on what plant they were feeding, but I have no doubt that it was on a good sized spurge (presumably *Euphorbia amygdaloides*) that grows freely on the near end of the Warren" (A. M. Morley *in litt.*). This specimen, though the two statements disagree as to its sex, was apparently lot 164, described in Glendining's catalogue of the sale on November 16, 1943, of the B. Whitehouse coll. as, a "superb male, bred October 3, 1937, from a larva found at Folkestone, Kent, at the end of July (Beckwith Whitehouse)" (C.-H.).

[Deal (Coverdale, *teste* Tutt, *Br. Lep.*, 4: 241). Dover and Dartford (Tutt, *Br. Lep.*, 4: 241). Deal, two, 1888 (R.C.K.). Lamberhurst, one, taken June 1908 (E. Pitt-Pitts, *teste* E. D. Morgan in Given (1946)). Sandhurst, a larva found on a fir-tree, where spurge grows, autumn 1932, imago emerged April 16, 1933, but released before determination (G. V. Bull *per* Rothamsted; Dannreuther, *Entomologist*, 66: 233).]

FIRST RECORD, 1841: Sevenoaks (Tylden, *Entomologist*, 1: 204).

¹In 1778, Harris (*Aurelian*, 88) introduced the species as British, on the strength of a larva taken at Bainscray, near Crayford, Kent, but according to Stephens (*Haust.*, 1: 126) the larva was that of *C. galii* (q.v.).

C. galii Rott.: Bedstraw Hawk.

Immigrant. Coastal sandhills, gardens, shingle beach, waste places, etc.; on *Galium verum*, *G. mollugo*. Recorded from all divisions, except

5, 10, 14, but mostly from the east coast, and especially from the coast of div. 4.

The records show a total of some 450 *galii* found in Kent, of which about 400 were larvae. In 1888, approximately 270 individuals were taken (including some 23 imagines), the largest number ever recorded during any one year. During the present century, *galii* has been noted much less frequently, with a total of but nine specimens, including one only in 1928 for the whole period 1900 to 1948.

The earliest known occurrence appears to be that of a larva taken on "some marshy ground at Barnsclay near Crayford" (div. 2); and erroneously recorded by Harris (1778, *Aurelian*, 88) as *C. euphorbiae*.

The species has been subsequently noted as follows:—1846: Dunkirk, flying over *Verbena* in a garden (Horsley, *Zoologist*, 1514). 1847: Rainham, September 1 (Longley, *Zoologist*, 1985). 1854: Between Kingsdown and St. Margaret's Bay, July 22 (Thorne, *Zoologist*, 4526). 1855: Deal, three larvae (Harding, *Ent. week Int.*, 1: 116, 132, 151); two, bred from larvae found by F. Smith (Stevens, *Proc. ent. Soc. Lond.*, 1856: 22; Syme, *Ent. mon. Mag.*, 2: 6). 1856: Darenth Wood, August (Mercer, *Ent. week Int.*, 1: 166). Deal, about two dozen larvae, August-September (Syme, *Ent. mon. Mag.*, 2: 6). 1857: Lewisham, August 27 (Stainton, *Ent. week Int.*, 2: 182). Deal and Kingsdown, larvae, September-November, including one with some 20-30 whitish "ichneumon", ova attached to the skin (Syme, *Ent. week Int.*, 3: 172, *idem*, *Ent. mon. Mag.*, 2: 6). 1858: Deal, three larvae, early October (Syme, *Ent. mon. Mag.*, 2: 6). N.d.: Folkestone district (English's *Guide to Folkestone* (1859), edit. S. J. Mackie).

1859: Tunbridge Wells, July (Challis, *Ent. week Int.*, 6: 147). Gillingham, August 29 (Chaney (1884-87)). Charlton, a larva, September (Potter, *Ent. week Int.*, 7: 26). Near Dover, about 36 larvae, on *G. verum* (Rogers, *Ent. week Int.*, 6: 163). Deal, one "flying in hot sunshine", July; ten larvae (Harding, *Ent. week Int.*, 6: 140, 171, 196); about 40-50 larvae, August-September (Syme, *Ent. mon. Mag.*, 2: 6).

1862: Deal, three larvae, end of August (Syme, *Ent. mon. Mag.*, 2: 6). 1864: Folkestone, a larva, on *G. verum* (Meek, *Ent. mon. Mag.*, 1: 189) ("Larva on Bedstraw in Warren; September" (Knaggs (1870)), may be based on Meek's record). 1868: Deal, one (Harding, *Entomologist*, 4: 118). 1870: Gravesend neighbourhood, larvae (Button, *Entomologist*, 5: 221). Plumstead, one, August (Barns, *Entomologist*, 5: 265).

1888: Kingsdown, July 20, 24 (W. G. Sheldon, *teste* Tutt, *Br. Lep.*, 4: 198). Folkestone, July 29 (Austen, *Entomologist*, 21: 231). Ramsgate neighbourhood, two larvae, September 13, and an imago earlier (Buckmaster, *Entomologist*, 21: 257). Dartford, August 4 (Youens, *Entomologist*, 21: 231). Maidstone, a larva, September 8 (Foster, *Entomologist*, 21: 273). Gravesend, August (Gostling, *Entomologist*, 22: 112). St. Margaret's Bay, seventeen flying over *Echium vulgare*, July-August (Williams, *Entomologist*, 21: 230; *idem*, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1888-89: 61). St. Margaret's Bay to Pegwell Bay, being distributed over a considerable area, and not only near the sea line, but in places five or six miles inland, altogether between August 30 and the end of September, Gibb, Porritt, and Tugwell and his family took 196 larvae, mostly feeding on *G. verum*, but a few also on *G. mollugo* (Tugwell, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1888-89: 66).

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

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Although the Coleoptera are a clearly-defined and evidently a distinct order, the members comprising it nevertheless differ greatly from each other, and the varied complexity of anatomy is such that their classification has been—and continues to be—a matter of much difficulty. However, the usefulness of “keys” is not to be disputed when dealing with such a vast assemblage of species. A helpful simplification can be made by providing the greatest possible number of illustrations of as many species as possible, which, at the same time, will also serve as characteristic representatives of the families whereof they are members. Such illustrations consequently constitute a Pictorial Key to the families.

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Studies in the Geography of Lepidoptera,* VII: Theories of the origin of the West Palearctic and World Faunae

By E. P. WILTSHIRE, F.R.E.S.

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Introduction.

A provisional classification of lepidoptera exists, and although much work remains to be done in many families, their taxonomy and probably their phylogeny are, in principle, ascertainable. Their present distribution and ecology are likewise ascertainable, and they can be classed accordingly. In the third article in this series (1945) the range-categories of West Palearctic Lepidoptera were tabulated, and it was stressed that these should not be confounded with origin-categories, as origin is more speculative. The fossil record of lepidoptera is comparatively deficient, so that both place and period of origin are theoretical. By correlating geographical, taxonomic and geological data, however, writers have deduced both places and periods of origin. As further geological discoveries are made and new techniques applied, the truth or fallacy of these theories will become apparent; doubtless future zoogeographers will arrive at theories somewhat different from those now current. The present article endeavours to summarise the latter critically

Comparatively few British lepidopterists of the present generation are interested in zoogeography, and those few (see Beirne 1947 and Ford 1945) seem preoccupied with assessing the period in which species entered the British Isles. This point of history is less speculative, because less remote than the kind of origin with which this article deals, it is only the last step in a far longer story. The origin of the species, still more of the genera, of the British fauna is, of course, much older than their date of entry into Britain; no biogeographer has supposed that there is a centre of origin in the British Isles. Many European writers also look no further back than the periods envisaged by Beirne and Ford.

The fact that entomologists use "origin" in different senses has had a confusing effect on their writings about it.

*The previous article in this series was in 1956 (see References at end).

The origin of a migrant usually means the origin of a given example, or wave of immigrants.

Historical origin of a species or fauna, however, refers to both time and place, the time being always geological; phylogeny is often involved. Even migrants have a history involving these considerations, but harder to deduce than the history of more sedentary species.

The history of the components of a fauna, to be complete, should consist of a series of origins for progressively higher taxonomic groups and progressively remoter periods; the place of each origin may or may not have changed, but in most cases doubtless will have. Following this series back, the ultimate goal, for a lepidopterist, will be the ancestor for the whole order, and probably its place of evolution cannot convincingly be deduced from any data now available or likely to be found. The present review, however, will shew that at least one author has suggested both place and period for a whole family, while another has not shrunk from suggesting the period of origin of the ancestor of all lepidoptera.

This review endeavours, not only to summarise the substance but also to analyse the arguments and criteria that have appeared in the literature on West Palearctic lepidoptera of the past forty years; this may facilitate a later evaluation of the same. No attempt will be made here to judge finally between the theories. A North American writer on world faunae has been included, as his views are relevant to the above, and it is necessary, at least, to some extent, to see the West Palearctic in the wider perspective.

The theories: a selective bibliographical summary.

Although this article is primarily concerned with lepidoptera, it is not possible to overlook the writings of those dealings with other groups, as some of these have greatly influenced the lepidopterists, and there is a general assumption that terrestrial faunae and florae have had a similar history.

The authors here considered therefore are as follows, those in capitals writing on lepidoptera:

- (I) *Orthodox*: Scharff, VERITY, CARADJA, Peyerimhoff, BOURSIN, LATTIN, WAGENER.
- (II) *Mobilist*: HERING, Jeannel.
- (III) *Intermediate*: ALBERTI, CLEU, FORBES.

While the theories of the orthodox group are far from identical, the geological data of the mobilist group are radically different for certain areas of the world and the remoter periods.

I. *Orthodox theories, following Wallace and Scharff.*

Present Holarctic forms are derived from a N.E. Asian early-Tertiary centre of origin (Arcto-Tertiary fauna) (Wallace).

An Atlantic or Lusitanian element in Western Europe was the earliest to reach the British Isles; affinities between some of its components and the fauna of the Antilles must be explained by a transatlantic land-bridge, "Archatlantis". Oriental migrants into Europe were of mixed Central, Southern and Western Asian origin; their immigration continued through much of the Tertiary but they reached

the British Isles rather later than the Lusitanian; the Alpine element is probably of Central Asian origin; later immigrants were the Arctic and Siberian types, the latter being typified by the larger of two races of Red Deer (Scharff).

The present European fauna is: almost entirely of N.E. Asian (Verity), entirely of Angaran origin (Caradja).

There have been three successive waves of migration from this centre during the Tertiary and Pleistocene, conditioned by the presence or absence of inland seas; the first, or southern in the mid-Tertiary, advanced from China along the Altin Tag into Persia and Turkey, thence either into S. Greece, Italy, Sicily, Tunisia and Spain, or southwards via Egypt to the same goal; the second, or central, later in the Tertiary along the Tian Shan into Persia, thence into Europe via Greece and the Balkans; and the third, or northern, after the Pleistocene Glaciations, from Siberia via Russia. It is possible to detect races (Scharff), or "exerges" (Verity) in most of the present species of Europe or N. Africa corresponding to these three migrations. (An exerge is a group of local races characterised by common characters; Verity refused to use the term "subspecies" for such). (Verity's theory, of course, implies that during the Tertiary, except in few cases where he recognises closely related species as representing his exerges, evolution has only been infra-specific; he chooses to consider N.E. Asia as, in the main, a specific centre).

Petersen (1924) suggested that the post-glacial immigrants came not from Siberia but from a Ural refuge, which repopulated both Europe and Siberia; but this alternative, mentioned in Hering (1925), finds no later support.

The "widely extending uniformity of forms" not only of the typically European (Siberian) but of the Boreal, Mediterranean and Eremic faunae, is a sign of their common origin, this being Angaran. Although the late Tertiary Palearctic fauna of Eurasia was less differentiated than the Recent, the northern fringe was even then occupied by Boreal specialists and the southern by Eremic specialists. The Ice Age itself, however, is mainly responsible for the differentiations and speciations now observable (Caradja).

West Palearctic beetle genera are either (i) diffuse, (ii) Holarctic (iii) Eurasian, or (iv) endemic West Palearctic. The first are mostly of Tropical origin, the second Arcto-Tertiary, the third the results of the Oligo-Miocene desiccation of certain Eurasian lands, the fourth probably Paleo-tropical relicts; these inhabit Macaronesia, N.W. Africa, the Iberian peninsula, etc.; there is no transatlantic bridge, as the few related elements common to the Antilles and Macaronesia are Arcto-Tertiary forms driven south by climatic deterioration (Peyerimhoff).

The world distribution of the genus *Cucullia* resembles that of *Colias*; it is an Arcto-Tertiary genus but contains two Eurasian groups each with a characteristic distribution: (i) a Compositae-feeding group which contains 14 West-Chinese endemics, ("Angaran Paleo-endemisms"); and (ii) the Verbascum-feeding group in N. Africa, S. Europe and S.W. Asia; these patterns may indicate different centres of origin (Boursin 1941); altogether there are four recognisable Palearctic centres of origin: the Palearctic-Pacific, the Angaran from which the Euro-Siberian elements are derived, the Caucaso-Iranian and the

Atlantic-Mediterranean; each centre has produced several ecological types (Boursin, 1943).

The late Pliocene Eurasian fauna was, as Caradja said, comparatively uniform; it was sub-tropical, however, and was not entirely of Angaran origin, as certain genera, now concentrated in West Palearctic, indicate a Mediterranean centre of origin. The Eurasian glacial refuges are the most important centres of origin for the Palearctic fauna, and the Mediterranean ones for the European fauna; many widespread late Tertiary Eurasian species, however, had several Glacial refuges. (Lattin).

The genus *Melanargia* has more present forms in Western than Eastern Eurasia; its Far Eastern forms are more primitive, but its centre of origin (early Tertiary) was located in Fenno-Sarmatia; only one species, an ancestral form, inhabited this centre, which is a generic centre; most of the existing species have only evolved recently, under the stimulus of Pleistocene climatic changes. (Wagener). (Compare this with Verity).

II. *Mobilist theories, following Wegener and du Toit.*

Jeannel is the great entomological exponent of the Wegenerian theory; Hering was earlier but more reserved. These geological theories are of greater moment to world faunistic history, and the history of the higher categories, than to that of West Palearctic and its lower taxonomic groups. They contain two different concepts which are independent of each other, Continental Drift and Polar Shift. The former is more relevant to world theories, but the latter is of considerable importance to the history of the West Palearctic faunae, especially for the mid-Tertiary and earlier periods.

(a) Continental drift.

The present continents are themselves the centrifugal fragments of a single ancient continent, Gondwanaland; the first and most important rupture in this block was a fissure, beginning between South Africa and Antarctica, extending between South Africa and South America, and gradually widening, and ending in the Pliocene in the formation of the Arctic Ocean between Greenland and North Eurasia. The fact that the Brazilian and West African coastlines correspond like pieces in a jigsaw puzzle probably inspired this theory, for which there is other evidence too. During the Mesozoic Period, when the process of drift was half completed, three great centres of origin existed: Laurentia (in N. America), Angara (in E. Asia), and Gondwanaland (principally Africa, with a detached fragment in South America).

(b) Polar Shift.

The earth's poles have in successive geological periods changed their position relative to the continental masses; no other explanation is required to account for the presence of sub-tropical or tropical fossil types in what is now sub-arctic territory and which the orthodox doctrine explains by postulating a wider sub-tropical zone than the present. Former periods had ice caps, temperate zones, arid zones, tropical zones as to-day, concentric on shifting poles and often oblique to present latitudinal zones.

The first of these two concepts made it no longer necessary to invoke,

as Scharff had done, improbable inter-continental land-bridges to explain distributional anomalies.

The second, however, if accepted, will necessitate more thorough geological explorations over a great part of the globe's surface before assumptions, made under the orthodox doctrine, can continue to be accepted; under the latter, with Poles not moving through the ages, a thorough geological investigation of a small sector of a latitudinal zone (e.g. Europe) provided evidence of climates, fauna and flora which could be accepted as indicating similar conditions for the same periods over the whole latitude.

One can, of course, accept the first, without accepting the second of these two theories or concepts.

Wegenerian doctrine, as expounded by Jeannel, also stresses that orthodox geologists' classifications are based principally on marine deposits which are insignificant during geocratic periods such as the Montian and Pontian; such periods, however, are those of supreme importance in the history of terrestrial faunae, as the transcontinental seas were then at their lowest and smallest, permitting freer interchanges of faunae and flora.

Europe was not a Mesozoic centre but began to receive the faunae of Gondwanaland and Angara in the Montian (end of Cretaceous) after a long submersion. The Angaran elements entered Europe via the Northern Aegeis (Balkans); but access to Europe for the Angaran fauna was again interrupted in the Eocene and Oligocene by inland seas. The African (Gondwanaland) elements entered Europe via the Southern Aegeis (Anatolia). Approaching more recent times, the Wegenerian doctrine, as expounded by Jeannel, approximates to the orthodox; the next geocratic period was the Pontian (Upper Miocene); during this the Sahara was a sea, but a single land-block ("Mesogeis") united the Iberian Peninsula with the Caucasus; in this period, however, Macaronesia became finally separated from Morocco, and the straits of Gibraltar came into existence. The later geological history of Europe consists of a succession of marine transgressions and minor geocratic periods followed by the Pleistocene glaciations (Jeannel).

Hering considered that Wegener's theory of Continental Drift provided the best explanation hitherto offered for the distribution of related Hepialid genera peculiar to S. Africa and Australia, of *Castniid* genera, peculiar to S. America (*Castnia*) and Australia (*Synemon*), and *Megalopygid* genera, two of which are found in Africa and the rest, much more richly developed, in S. America only; one of the African genera is *Somabrachys* which has but three species, all distributed along the N. African coast, i.e. a West Palearctic range. (Hering, & Wiltshire, 1949).

Counter-argument: these disjunct patterns may be explained by an ancestor of world-wide distribution which has died out everywhere else. (Forbes 1926).

III. *Intermediate theories.*

Theories which are not vitally affected by whether Wegenerian doctrine is correct or not, may be termed "intermediate". Alberti may be classed here, though in fact his only mobilism is to suggest that the equator passed through N. Egypt in the Middle Tertiary. Cleu can

also be classed here, though a staunch follower of Jeannel because his particular field of study is the rather limited one of the West Mediterranean, and certain bioncenoses of southern France. The theories of Forbes, though in 1926 he was critical of Wegenerian doctrine, dealt with period rather than place, and so are unaffected by the controversy.

Alberti is the only lepidopterist to base his theories on a revision of a whole family on a world-wide basis; in scope he comes nearest to doing for this order what Jeannel did for Coleoptera. The Indo-Chinese area was, in the earliest Tertiary, perhaps earlier, the centre of origin of the *Zygaenidae*, as its most primitive types are now found there. Less advanced types, ancestral to the West Palearctic, are found in Ethiopia which was therefore a secondary centre of origin; from there the ancestors of the *Zygaeninae* and *Procridinae* (sub-families characteristic of Western Palearctic) probably underwent a further development in the Middle Tertiary in the Egyptian-Arabian area, which has since become dessicated and uninhabitable by their descendants. The generic centres of origin of both *Zygaena* and *Procris* are in the Anatolian-Iranian area, which is still inhabited by fairly primitive relict-species of both. From this centre they spread east and west, but the westward branch speciated particularly richly. (Alberti).

A study of the specific range-patterns of South French lepidoptera indicates six main types: a fauna with headquarters in the Iberian peninsula, to be explained by an Atlanto-Mediterranean centre of origin ("an ecological area of refuge and evolution"); a second with an East Mediterranean or Antolian-Iranian centre corresponding to Verity's central migration; thirdly, a Eurasian montane group, with a somewhat similar history to the second; fourthly, a purely European, Alpine group (*Erebia*, etc.) which is doubtless an archaic endemic element, perhaps with a Balkan centre of origin; fifthly a Boreo-Alpine group; and sixthly, a majority group of Euro-Siberian species. The two Mediterranean centres date from the middle and early Tertiary, when they received not only Arcto-Tertiary stocks (e.g. *Lithophane*) but also a few African ones (e.g. *Pachypasa*). (Cleu).

We must now take a big leap into the remoter past with our final theorist, who postulates no place for his beginnings: the most primitive Rhopalocera family, the Papilionidae, originated in the Jurassic Age; the Micropterygidae, in the Permian; Lepidoptera as an order, in the Carboniferous. (Forbes).

CRITICAL DISCUSSION

A. *Old and new theories; factual data*

A lepidopterist writing on the geography and history of his subject matter will have before him the factual data of his own science, and the historical theories and factual data of geologists, paleontologists and biogeographers; these theories are here termed "old"; his own may be new.

An old theory is often accepted as doctrine or data, and the taxonomic and distributional facts are interpreted in that light, or even made to fit it. Thus Verity and Caradja follow Wallace and Scharff's theory of the origin of the Holarctic Arcto-Tertiary forms. Thus, too, Jeannel follows Wegener and du Toit, accepting mobilism as a working hypothesis. Their theories are not new though doubtless

they were the first to apply them to certain insects.

The lepidopterist, on the other hand, may only accept, as his data, the less controversial and less speculative of paleontological doctrine; correlating these with the distributional and taxonomic facts of his own science he may, as it were, sit in judgment on the more controversial and more speculative. Thus Hering finds the Wegenerian theory the best available explanation for the disjunct distribution of certain related groups; thus, too, Wagener suggests an early Tertiary Fenno-Sarmatian centre of origin for the genus *Melanargia*; in the first case the lepidopterist after a critical judgment has approved an old theory, in second he has proposed a new and original theory.

Whether his theory is, in the above sense, new or old, he will usually employ a procedure, and mention certain criteria or evidence, in support of the theory he puts forward; where he offers no evidence, his theory is "purely hypothetical" or even arbitrary.

B *Scope of theories and points at issue*

A complete historical theory about a (i) species, (ii) genus or sub-genus, (iii) tribe, (iv) sub-family, (v) family, (vi) sub-order, (vii) order, should state:

- (a) the length of time it has occupied its present distribution;
- (b) length of time it has been specifically (if a species, etc.) identical with its present (or original) form;
- (c) period and centre where it speciated or evolved.

If the history is carried back to stage (v) a remote geological era will doubtless have been reached where the paleontological data available do not permit the centres of origin to be deduced at all precisely. Many authors, aware that their theories are increasingly speculative as they proceed from stage (i) to (ii), and so on, have confined their theories to local races (Beirne, Ford) and do not even look as far back as (i): such authors are those especially interested in a local fauna. A history of West Palearctic species or faunae will be principally concerned with stages (i)-(v); of world faunae with (iii)-(vii).

The points at issue, when we come to compare different theories, are, not the scope, which it may be wise to limit, but: time, place, migration, extinction, and rate of evolution.

C. *Procedure and criteria: pure hypothesis*

Perhaps dissatisfied at the variance in theories offered, some authors have laid down principles for reconstructing histories of faunae, species, genera, etc.; these principles usually include procedure, sometimes recommend criteria too. If we summarise these, we find a conflict between some:—

1. If considering a local fauna, one should first eliminate from the list:
 - (i) species that human agency has favoured (unless very recent history is being reconstructed) (Beirne, Wiltshire);
 - (ii) migrants;
 - (iii) vagrants and ecologically plastic species;
 - (iv) those whose biology is obscure (Wiltshire, Daniel & Wolfsberger).

2. Distribution-patterns of unrelated species of a given local fauna fall into a few types; these range-categories of species have a common history and centre of origin, at least to some extent. (Cleu, Boursin, Lattin).
3. Centres of origin can be deduced or confirmed by the following criteria:
 - (i) concentrations of related forms (Lattin, Boursin, Wiltshire);
 - (ii) richness and diversity of genera (Jeannel);
 - (iii) presence of endemic genera (Boursin).
4. Discontinuity of range indicates antiquity (Scharff, and most authors, including Hering and Forbes, despite their different views (see p. 6 above); both those views accept high antiquity as explaining the cases discussed).
5. The present location of the most primitive forms of a group indicates its centre or origin (Caradja, Alberti). Counter-argument:—Most primitive forms now existing have descended from a more primitive ancestor which has died out and may have originated elsewhere (Wagner, Jeannel).
6. Secondary and tertiary (not in the geological sense of these words) centres of origin can be deduced from the present geographical location of phylogenetically derived forms (Alberti). (N.B.—The counter-argument of extinction of an ancestor may be met by postulating a centre of origin for the extinct ancestor different from the present location of the next most primitive, extant, form.) (Alberti, Wagner.)
7. The central point of a species' range is its centre of origin. (Hering.) (The counter-argument of extinction at some points might be invoked against this.)
8. "A wide uniformity of forms" in different ecofaunae indicates the common origin of these ecofaunae. (Caradja, Boursin.)
9. Generic range-patterns are more important than specific; taxonomic revision of the group studied is necessary. (Peyerimhoff.) Revisions for this purpose should be phylogenetic; some old classifications are practical rather than phylogenetic. (Alberti).
10. (a) Ecofaunae rather than specific range-categories are the units for which a common history may be inferred. (Stegmann, Uvarov.)
 (b) Both range-categories and ecofaunae contain elements with different histories; both require closer analysis. For lepidoptera, a unit, lower than the ecofauna which is useful, is the foodplant-group; but even these groups contain some elements which, on phylogenetic and geographical grounds, appear to have had different histories. (Wiltshire, Cleu.)
11. Ecology, especially diet, may be used in deducing period of origin. (Forbes.)

It is now necessary to say something of the theories unsupported by criteria such as the above.

These should not have been advanced without a discussion of the point at issue, preferably showing that there is no other acceptable alternative for the unsupported theory.

A striking example of such a theory is the slow rate of speciation which Verity, compared with later writers, proposed for nearly all the Rhopalocera of Europe. It seems likely that the reason why Verity did not discuss this point was that he accepted as doctrine Scharff's similar theory of the origin of European races of red deer. The rather different theories of Lattin and Wagener, that the origin of many of the European species is later in the Tertiary or even as recent as the Pleistocene, were published very much later.

In most other cases where a writer advances no criteria to support his theory it is also because it is an old theory, which he accepts as doctrine; but Jeannel differs from these, as he expounds the arguments in favour of the mobilist theories before using them as a working hypothesis.

It is almost impossible for a lepidopterist to verify or assess all the relevant geological data. Much of what we all accept as factual data may be no more than false theory due to mistaken interpretation of fossils, etc., by geologists.

D. *Provisional conclusions*

We are still far from the day when paleogeographers can provide us with a detailed and accepted account of the climatic and topographical changes of all the regions of the world for all periods relevant to our purpose, with maps showing lands, seas, mountains and vegetation zones; but such alone will furnish a firm basis with which to correlate the present distributional and taxonomic data. At present, on the contrary, one often reads works in which the entomologist offers his conclusions as evidence for or against the theories of paleogeographers.

The earlier lepidopterists, of those here reviewed, tended to accept the old theories of Wallace and Scharff uncritically; later writers have been more critical and some have proposed new theories. Some have deduced, from similar facts, conflicting theories; different conclusions for different groups of lepidoptera are, however, perfectly compatible, unless there is a very close analogy between the groups concerned. A uniform rate of evolution and speciation between different groups, or even between different members of one group, is not necessary; but criteria justifying a given rate have not been given, and some of the conflicting theories on the subject seem arbitrary. Conflicts of opinion regarding centres of origin are partly due to doubt or confidence in the criterion of the present location of representative species. Basic conflicts of opinion are inevitable when authors accept as doctrine irreconcilably opposed theories. No synthesis is possible between the concept of a stable and that of a shifting pole, except for the later Tertiary and Pleistocene periods. The theory of continental drift is now widely accepted as preferable to that of trans-oceanic land-bridges; but some authors consider that there is a third theory, more satisfactory as long as the Wegenerian theory is not fully established, to account for continental disjunct distributions, namely the extinction of a more widespread ancestor.

Many criteria used can, as shown, be countered by similar arguments to this third theory; a theory should therefore be supported by other criteria also, before it can be considered probable. A theory supported by no criterion is purely hypothetical and cannot be considered as probable unless no alternative explanation exists.

The present survey is not the place for the exhaustive evaluation of the procedure, criteria and theories summarised; even were one to sift them and select what seem the best conclusions, these would still have to be considered provisional, since probably future geologists, and perhaps even entomologists phylogeneticists too, will revise the data which current authors have had to accept.

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*CORRIGENDA to above article (Wiltshire, 1945).

The following corrections, to be made to the above article, may conveniently be mentioned here. For two range-categories I now prefer to cite different type-species: for the ETHIOPIAN, instead of *C. florella*, which also inhabits Ceylon, *Papilio demodocus* L. should be substituted; and for the EURO-SIBERIAN, instead of *Papilio machaon*, which also inhabits N. America, *Vanessa io* L. should be substituted.

Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

Argyroproce schulziana Fabr. Mr. E. S. A. Baynes recently sent me a specimen of this moth to be checked, which was taken on Achill Island on July 21st 1961. So far as I know, it represents a new range of colour in the moth. Although the markings are identical in pattern with others in my possession and the silvery ground is the same, their colour is a dark chocolate. My Yorkshire and Scottish specimens are a bright crimson-brown and those from Wolmer Forest (where I hope it still occurs, as I do not know of any recent search for it there) are almost pure crimson in tint. It is rather curious that these extreme western Irish specimens are of a comparatively dull colour, as most insects of the genus found there are rather brilliant. This is particularly the case with *A. cespitana* Hübn. Where this insect is found on the edge of the sea in west Cork and Kerry it is a bright red-gold and looks most beautiful when sitting on the cushions of thrift on the rocks by the beach.

Argyroproce doubledayana Barr. I wonder whether anyone has taken this moth recently. It is one of the few for which I have searched really hard that has completely baffled me. Barrett says that in 1871 it was tolerably common at Ranworth, and that more recently it had been found at Wicken. I have never met anyone who has taken it at Wicken, and the only capture I have heard of in this century was by the Rev. J. W. Metcalfe, who found it not uncommon at Ranworth in 1920. He gave me the exact locality, which was the piece of marsh at the angle where the Ranworth cut (or dyke) turns into the Bure when approaching it from Horning. Here the moth was taken flitting over the sedge and marsh fern in the late afternoon and early evening. I visited the place at least a dozen times in late July and early August in 1922 and 1924, and did not see a single specimen, and W. G. Sheldon was equally unsuccessful. Sheldon, however, gave me two examples from Charles Fenn's series, which he had purchased.

Insect Movements in 1961

By H. C. HUGGINS, F.R.E.S.

I have advisedly used the title "insect movements", as I wish to note a few which were probably not visitors from abroad

Butterflies of the immigrant class were very scarce during the whole season, we had a few *Vanessa atalanta* L. in May and early June, and it became common as usual from late August until October. *V cardui* L. was a complete absentee until October 8th, when my wife drew my attention to a very battered specimen on Michaelmas daisies in the garden. This was probably an immigrant as I have had reports of others turning up for the first time this year during the first days of October in other parts of the country. During May I saw a few *Plusia gamma* L., *Nomophila noctuella* Schiff. and *Hapalia martialis* Guen. and the *gamma* continued in equally small numbers through June. I was absent in Ireland in July, and on my return *gamma* continued to be equally scarce until September 18th, when the trap was completely choked with them; there were over 500 and as I do not use an anaesthetic, I have no doubt many more got away. When I came down to the trap in the early morning, the scales of the jostling insects were going up like a column of steam. This phenomenon was exactly repeated on September 20th. On the 18th there were no insects of merit in the trap, only a number of *Amathes c-nigrum* L. and *A. xanthographa* Fabr., but on the 20th there was a very small male *Aporophylla nigra* Haw. This is, so far as I am aware, a completely new record for Essex; the moth, which was no bigger than *A. lutulenta* Borkh. was fresh but had rather badly damaged ciliae, probably due to the ructions going on in the trap. Its appearance with this huge swarm of *gamma* and its very small expanse, much below that of my series from various places on the south coast, suggest it may possibly have been an immigrant.

I saw no more *martialis* excepting one perfect specimen on October 5th.

The feature of the year here, as elsewhere, was the number of *Nycterosia obstipata* Fabr. These began on September 11th and continued until December 4th, when, after a gap since October 12th, I counted the thirty-first specimen. These were in all conditions from perfect to almost unrecognisable, and were not confined to the trap; I saw two on fences in the town and caught another beaten out of a hedge. This moth provided my greatest disappointment of the year; on September 3rd I found sitting on a trellis in my garden a very large perfect female ab. *olivacea* Mathew. When I tried to box it, it slipped into my neighbour's garden, and although I went round, I saw it no more. I have never heard of ab. *olivacea* being found wild, or, indeed of any specimens since those bred by Mathew.

The immigrant wainscots mostly passed me by; I took a damaged male *Leucania albipuncta* Fabr. on August 6th, and a worse male *L. vitellina* Hübn. on 29th September. Both were in my garden trap and both were released.

On September 17th Mr. David More telephoned me that he had found a *Rhodometra sacraria* L. in his trap. I suggested he should look at the stubble field surrounding his house for more, and two hours

later he rang up to tell me he had taken another, and fetched me over to try for more. We worked this and a neighbouring field for a couple of hours; Mr. More saw no others, but I was lucky enough to net one. The field had been rough ploughed so that most of the pupae had probably perished. I visited it and all the neighbouring stubbles on the 18th without result, and on 19th the field was burnt off. However, on the 20th Mr. More found another in the trap which had probably survived in the grass verge. All four were males, pale yellow with a light brown streak.

On September 21st Dr. Morley of Woodgrange Drive, Southend, told me at a meeting of our local Natural History Society that there was a white moth with crimson and black speckles in his bathroom which had probably flown in on the previous night. I said, of course, that I should much like to see it, and on the 22nd he brought it to me, squeezed into a very small waistcoat-pocket sized Bryant and May match box, a superb female *Utetheisa pulchella* L. which was luckily quite perfect. I kept her for 24 hours, and as she did not attempt to lay, I then killed and set her. It seems odd how often these immigrant *pulchella* are perfect females, and also how rarely they lay. Mr. Austin Richardson tells me that he kept the one he netted on St. Agnes in 1959 for 24 hours without result, and that taken at Dungeness by Mr. Alan Kennard in 1960 laid only a few infertile eggs.

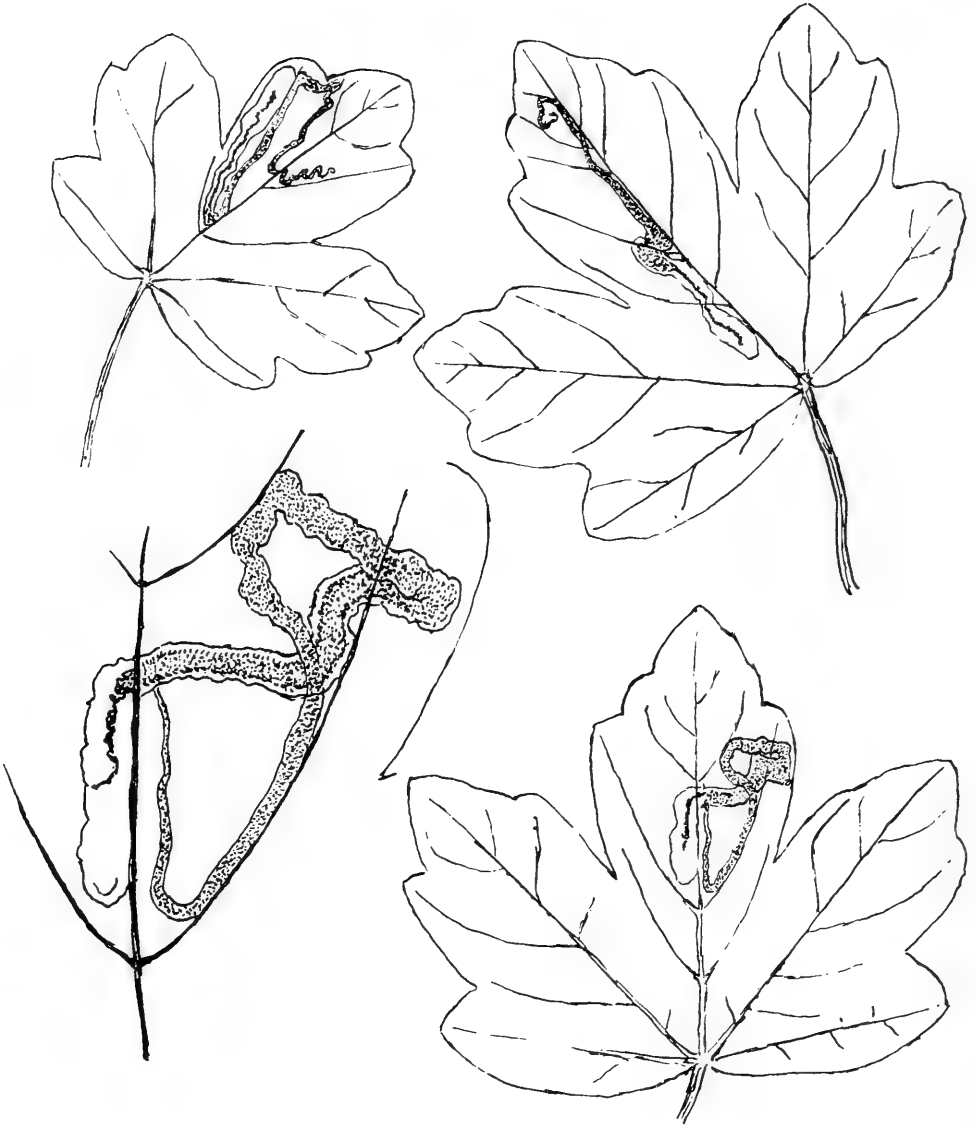
In addition to the *nigra* already mentioned, I have had two other insect occurrences in the town which are difficult to account for. On June 24 I took a perfect male *Ptycholomoides aeriferana* H.-S. in my garden trap and on June 23rd Mr. D. Down took an equally perfect *Lozotaeniodes formosana* Frol. at light in his garden in the heart of Westcliff. There are, for all practical purposes, no larches or pines in the district, only a few odd ones in gardens, and there seems no doubt that a lot of these pine insects do a bit of cruising round "on spec".

Stigmella aceris Frey. A Species New to Britain

By S. N. A. JACOBS

Finding myself in the strange state of having a few spare moments, I sat down to make an attempt at bringing some order to the many *Nepticula* mines which had accumulated since I first took an interest in the Nepticulidae under the stimulus of my friend Joseph Klimesch of Linz in 1930. These mines were pressed, one species to a page, of two blank specimen novel bindings, such as are supplied by binders to publishers, the serial number and history of each culture being pencilled on the appropriate page.

I set to work, putting the best specimens from each culture in transparent envelopes $2\frac{1}{4}$ " square, on which full data had been written, and filing them in card boxes made to fit the envelopes in an upright position, thus acting in the way of a card index. Having filled the first box, I sent it to my old friend A. G. Carolsfeld-Krause of Copenhagen for his comments, though it may have been rather cruel to impose yet another task on so busy a man. I was exceedingly pleased, on hearing from him, to learn that culture 1/49 was undoubtedly *Stigmella aceris* Frey a species previously unrecorded from Britain.



Mines of *Stigmella aceris* Frey. Natural size and enlarged.

Five mines, all empty, were found on 20th August 1949, on a well-grown maple (*Acer campestre*) in a wind-break wood bordering a strawberry field on Comp Farm, at Malling, Kent. From the accounts given by Spuler, Schutze and Hering, it would seem that I was about three weeks or a month late for finding the larvae in occupation. Four of the mines were fairly strongly contorted, the fifth was almost straight, running along the side of the midrib of the leaf. They all seemed to commence from the outer regions of the leaf, and work towards the base. At first the mines showed sharp contortions, after which the larva seemed to work reasonably straight, following one direction for some time before turning to another. The outline of the mine was somewhat irregular, but steadily widening. For the first half of the mine's length, the frass is green, evenly distributed in rather loose, small pellets, and for about another quarter, the frass line, still green, almost fills the mine, but shows a very narrow clear margin on each side, and

the frass is slightly thicker at the sides of the frass line, giving the impression of a dipterous mine, but the spread frass between the margins is sufficient to confirm the lepidopterous character of the insect. Towards the final quarter of the mine, the side lines come sharply together, and the frass continues in a narrow, black, somewhat irregular central line, the larva leaving the final chamber by means of the conventional semicircular cut.

Dictionary translations of the three references to this species in continental books in my possession are as under:

Spuler: *Die Schmetterlinge Europas II.* (1910) p. 475. 30. *aceris* Frey., Pl. 91, Fig. 61: Golden brown shot with steel blue at the base, the band is wide, pale or golden yellow, the apex violet purple and the fringes almost white at the tips. Antennae black. Expanse 3.5 to 4.25 mm. In Germany, North Switzerland, Belgium and southern Holland, in May-June and again in August. Larva green, end June-July and late August-September in a long contorted mine in *Acer campestre* and *A. platanoides*.

K. T. Schutze: *Die Biologie der Kleinschmetterlinge* (1931) p. 134, under *Acer* key 8 in a gallery mine *Nepticula aceris* Frey. Larva 6, 9, flight 5, 7. All *Acer* species. Gallery mine, long and winding with dark brown frass, finally wide with central frass line. Cocoon smooth, brown (Sorhaugen). Mine when fresh is filled with green frass and is difficult to see. (Schm.). Note: The summer mines of *Lithocolletis* and *Nepticula* species are very much scarcer than the autumn mines; continuous hot and dry weather is fatal to most mining larvae.

Hering: *Die Blattminen* (1935-37) p. 27: *Nepticula aceris* Frey. Mine very long, occasionally very straight. In the part with green frass it is completely filled and therefore is hardly visible. Larva green. The latter part of the mine widening, with fine black frass line, different from the remainder.

While it may not be wholly commendable to report a species on the strength of its mine alone, I would point out that apart from the expert testimony of Carolsfeld-Krause, the arrangement of the frass in the mine is sufficient to distinguish this species from any other of the *Acer* feeding Nepticuloid species.

CELERIO EUPHORBIAE LINNAEUS (THE SPURGE HAWK) IN NORFOLK.—There appear to be very few authentic accounts of the discovery of the larva in Britain of this, one of our rarest immigrant moths. It is therefore of interest to record that at the end of August 1952, a full-grown larva of this species was found crossing a towing-path adjoining a marsh at Martham, Norfolk, by Mr. Bret Elphicke and Mr. D. J. S. Pugh, neither of whom are entomologists. Mr. Pugh, who lives at 1, Knole Paddock, Sevenoaks, and has kindly presented me with the specimen, tells me that the moth emerged in 1954 after being in the pupal stage for two years, and that soon after hatching, it deposited a few ova. The specimen has unfortunately been damaged by the larva of the carpet beetle (*Anthrenus* sp.), with the result that much of the abdomen is missing as well as a part of the inner marginal portion of hindwings nearest the base.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent. 20.1.1962.

Drepana curvatula Borkh.—A Hook-tip New to Britain

PART I. By G. H. YOUNDEN, F.R.E.S.

On 13th August 1960, I found in my m.v. trap in my garden in Dover a female hook-tip, which I took to be a dark form of *Drepana falcataria* Linn. As I was about to leave for America, I handed the insect to Mr. Dudley G. Marsh, with the comment, that there was a nice dark *falcataria* female and he might like to breed from it and let me have a few of the pupae when I returned. This he kindly agreed to do.

PART II. By DUDLEY G. MARSH

I obtained ova from the female handed to me by Mr. Youden and had no difficulty in rearing the larvae on *Betula*—birch. At the end of October 1960 I had some 20 pupae. During mid-November 1960 I noticed three insects had emerged in the breeding cage. Two were considerably rubbed, the third was in very fair order. The former, though alive, had, no doubt, emerged some days before I made the discovery.

These three insects were shown alive at a meeting of the Folkestone Natural History Society. I handed the remaining pupae to Mr. Youden and these emerged between 17th and 25th April 1961.

Unfortunately, the parent became badly worn during egg-laying and was not kept, as it was thought to be *falcataria*. The total number to reach the moth stage was fifteen, two of which were males.

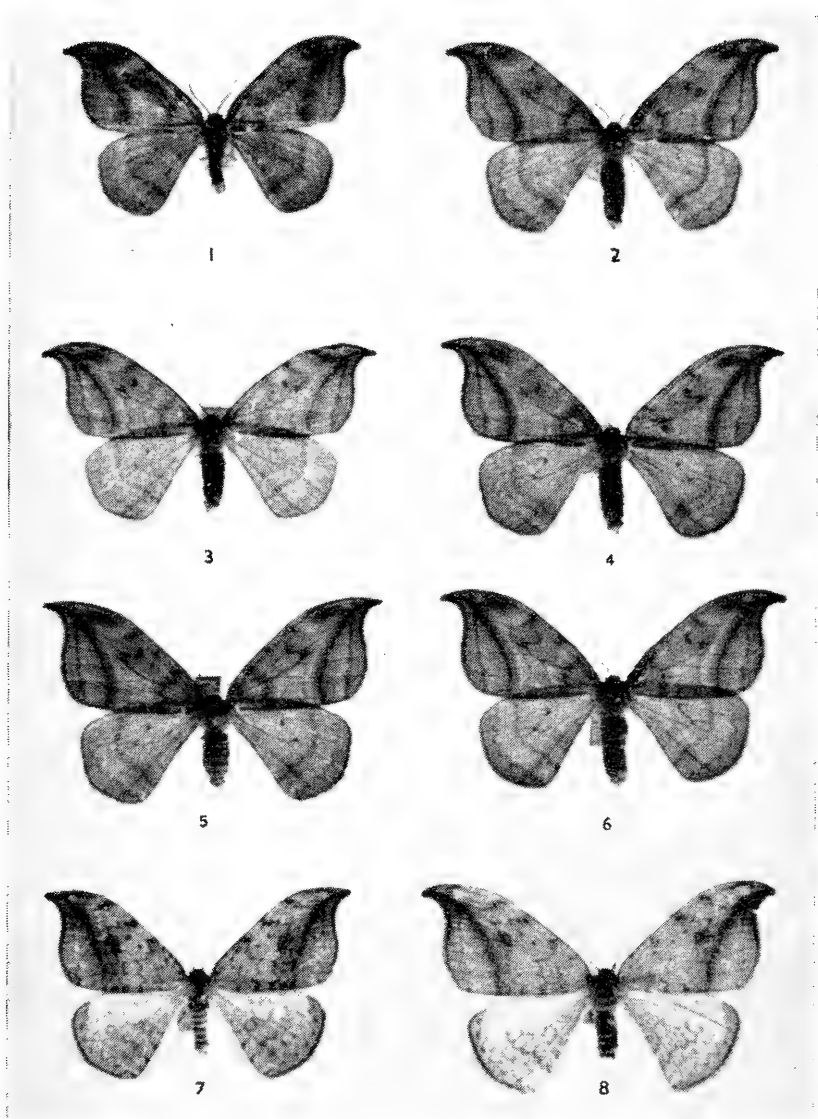
PART III. By G. H. YOUNDEN

These insects have now been identified by several distinguished Entomologists at the South London Exhibition in October 1961 as *Drepana curvatula* Borkh. the only continental hook-tip not previously taken in England. As will be seen from Plate I, there are two central black spots on the forewing as in *D. binaria* Hufn., whereas *D. falcataria* has only one large spot. The cross line from the apex of the wing is distinctly continued through the hindwing. The general colour is of a deep violet-brown and the cross lines are red-brown. I wonder, now, when these differences have been pointed out, why I did not recognise the original moth as a foreigner!

Seitz Vol. II, p. 199, comments that light specimens are similar to *falcataria* but usually are a good deal darker. Length of forewing is given as 15 to 17 mm. The largest of the bred specimens has a wingspan of 36 mm. The insect occurs in north and central Europe to central and southern Finland. Leon Lhomme, the leading French authority, mentions its presence in the Pas de Calais, but it is never so common as *D. falcataria*.

This species has been crossed with *falcataria* and details are given in Seitz, who says the food plants are alder and oak, but it appears also to feed on birch. There are two broods, in May and August.

Plate I shows 1 ♂ and 5 ♀♀ *D. curvatula* Borkh. and a ♂ and ♀ *D. falcataria* Linn. for comparison.



1. *Drepana curvatula* Borkh, ♂. 2 6. ♀♀. 7-8. *Drepana falcataria*, ♂. ♀.

Butterflies in the Cranleigh District, 1961

By Major A. E. COLLIER

From the beginning of April until the end of September the past season, in this part of Surrey, was one of the most equable I have known. With moderate rainfall, usually at night; temperatures normal or above; two hot spells in June and August, and very little wind, there was hardly a day which was other than friendly to the lepidopterist. Unfortunately these splendid months were almost entirely unrewarding owing to the disastrous effect on most species of the excessively wet period in the preceding autumn and winter, when hibernating larvae in low herbage must have suffered very heavy casualties. In addition to such natural calamities we have the continual encroachment of agriculture or buildings on land that has been untouched for generations, and an ever-increasing tempo in the destruction of the local oak forests, for agriculture rather than for afforestation, which latter would at least give some species a chance of survival.

In spite of everything there were still butterflies to be looked at, occasionally even in large numbers.

The Pieridae are never very strong in this locality, and this year *Pieris napi* L. were almost rare, whereas *P. rapae* L. were more plentiful. *P. brassicae* L. was seen occasionally, but for the second year in succession neither eggs nor larvae appeared on my winter greens.

Leptidea sinapis L. started well on 10th May when half-a-dozen males were seen in a small wood, but subsequently it was unusual to come across more than one or two specimens in a day. *Euchloe cardamines* L. was much rarer than usual and its eggs were few and far between. *Gonepteryx rhamni* L. were very plentiful throughout the summer, but not a single specimen of *Coleas croceus* Fourcroy came my way. The Satyridae were, as usual, the most consistent and most rewarding family. *Pararge aegeria* L. were found in good numbers from 12th April onwards, and were particularly good late in the season on the mammoth blackberry crop. *P. megera* L. was uncommon in this neighbourhood, although it was noticeably plentiful on the South Downs in August.

Eumenis semele L. was rarely seen, and my experience in attempting to breed it seems to show that its larva is very susceptible to excessive humidity. *Maniola tithonus* L. gave a good account of itself right up to the end of August, and *M. jurtina* L. were flying in greater numbers in fields and on the downs than I have ever known them. Surprisingly, *Ceononympha pamphilus* L., usually such a stand-by, were greatly down in numbers, particularly late in the season.

Aphantopus hyperantus L. did not quite approach their usual numbers, partly due to destruction of some of their habitats. The Nymphalidae were the greatest disappointment. Out of seven localities for *Clossiana euphrosyne* L., only three produced more than an occasional insect. In one of these places twenty males were counted on 16th May, two days later the number had dropped to three, and no females and no more males were seen in subsequent visits. In the other two localities it was never possible to count more than forty with

males and females in their normal proportions.

Argynnis selene Schiff. were even more disappointing, only two out of eight localities carrying moderately worth while numbers. Both *euphrosyne* and *selene* appeared to have survived best in those places which were open and exposed, and rather above the surrounding country, although it was apparent from the burnt up condition of the bracken and the ash trees that these open parts had suffered very severely from the air frost on 27th May. *Mesoacidalia charlotta* Haw. and *Fabriciana cydippe* L. were not seen locally this year, and only six males and one female of *A. paphia* L. came my way. Strangely enough the female was a very dark *valezina* but quite unapproachable.

The most disastrous situation arose with *Euphydryas aurinia* Rott. In my best field I counted 45 webs of larvae on 20th February; and on 31st March a careful count showed 1,200 larvae, partly separated and partly still in groups. There was very heavy rain from 20th to 26th April, and, judging by the silt on the vegetation, the marsh must, for a few hours, have been under water.

On 23rd May four male *aurinia* were seen, but on subsequent visits no more of either sex were found. This marsh also carried a nice colony of *selene*, but these also failed to make their usual appearance. Presumably both *aurinia* and *selene* were destroyed by the temporary flooding of the field.

Vanessa atalanta L. was rarely seen until the autumn when three of them frequented my Michaelmas daisies until the end of October. *V. cardui* L. was only seen once locally on 16th May. *Aglais urticae* L. continues to disappear with the nettles in this part of Surrey; no larvae were encountered and only occasional single specimens were seen throughout the summer. *Nymphalis io* L. were even more rare, and none were seen in late summer.

Polygonia C. album L., though not plentiful, is now more frequently seen than any of the preceding three in this part of Surrey, particularly in September on the ripe blackberries, and early in the season on the sallows. *Apatura iris* L. seems to have received its marching orders. Many habitats are now completely destroyed and in the best and most extensive area, where, at the end of June on a perfect morning, I released two males and three females, not a single egg or larva was found during many hours of searching. Careful search in twenty-four other localities produced a total of five larvae only, where for many years over sixty could confidently be expected.

Limenitis camilla L. continued on the downward path. No hibernacula were seen either locally or in the Chiddingfold woods, and only one undersized insect was seen near Cranleigh on 19th June. For the second year in succession I did not come across *Hamearis lucina* L., but one of its old haunts has recently been cleared, which may encourage its recovery.

The Lycaenidae have been very disappointing. *Aricia agestis* Schiff. was rarely seen, and *Polyommatus icarus* Rott. never became at all common even on the local downs. *Lysandra coridon* Poda failed to improve on 1960, largely on account of increased grazing, and *L. bellargus* Rott. only just held its own against the never ending stream of collectors of type. *Lycaenopsis argrolus* L. remained discreetly out of sight and neither larvae nor eggs could be found in the autumn. Incidentally it is very difficult in this over-tidy part of Surrey to

find buildings or walls which are ivy-covered.

Lycaena phloea L. was represented by half a dozen specimens in the course of the year, none at all being seen in the late summer.

Callophrys rubi L. and *Thecla betulae* L. continued in small numbers, apparently unaffected by weather conditions, although eggs of the latter have been much harder to find this winter.

Neither *Quercusia quercus* L. nor *Strymon w. album* Knock. were seen locally this year, but *Strymonidea pruni* L. celebrated its ninth and regrettably its last season in Surrey by being well out on 8th June. The place which I chose for its release in 1952 was a small clearing of about two acres in the heart of an oak forest quite unfrequented by anyone, well provided with banks of blackthorn, and with ashes and buckthorn round the perimeter. The place was an oasis of quiet beauty with thriving populations of *selene*, *euphrosyne*, *aurinia*, *hyperantus*, *betulae* and, up to a few years ago, *paphia*, *cydippe*, *camilla* and *quercus*.

It was here that I was twice able to watch the courtship flight of *paphia*; in each case the female was a *valezina*, which flew steadily back and forth at a height of about twenty feet, while the male performed its series of characteristic loops under and over the female. Last month I found all the oaks round the clearing uprooted and the clearing itself a bulldozed mass of blackthorn and mud. From a few small bushes still standing I was able to rescue twenty *betulae* eggs, but everything else has gone forever, or until the cessation of subsidies, or competition from the Common Market, makes the cultivation of such marginal land unprofitable.

There is not much to say about the HesperIIDae, but I did notice a marked drop in numbers of *Thymelicus sylvestris* Poda and of *Ochlodes venata* B. and G. The winter quarters of both these butterflies are particularly vulnerable when the grass is flattened into a dense mat, and remains sodden with rain for many months on end. *Syrichtus malvae* L. came through better, in its normal numbers, and *Erynnis tages* L. appeared to have survived reasonably well.

The generally equable six months will have been very favourable for egg-laying to all species, and the comparatively dry autumn and early winter should be helpful to the hibernating larvae. Where stocks exist at all it is pleasant, and perhaps reasonable, to look forward to some increase in the butterfly population in 1962.

BREEDING UTETHEISA PULCHELLA L.—In my last note (*Ent. Rec.*, 73: 9) the pupae were just appearing on 23rd November. Fourteen days later they were hatching: all the larvae (15) pupated and 13 hatched, of which one was crippled, two pupae being damaged, probably by other larvae trying to share the same web for pupation. Five female moths appeared first, followed by eight males. I tried to pair two females with various males, but saw no signs of mating. However, I kept one female for nearly three weeks until she died after laying 25 eggs on 26th December. On 1st January 1962 they showed no signs of being fertile.

I hear that Dr. Kettlewell was successful in mating one female from the six larvae I gave him, and his story of the new generation should be interesting.—R. C. EDWARDS, Arlesey, Pilgrims Way, Westerham, Kent. 1.i.1962.

The International Code of Zoological Nomenclature, 1961

BY FRANK BALFOUR-BROWNE

I have just received, as a Christmas present, the International Code of Zoological Nomenclature as approved by the International Congress of Zoology, held in London in 1958 and just published. It is a very interesting volume, and although some of the workers' points have been noted, other defects are still left in the much more numerous pages. In the 1936 edition of the Code, there are 36 Articles occupying 11 pages while Articles have now increased to 87 and cover 43 pages.

I agree with Dr. Chester Bradley who, in the Preface, writes that it is doubtful if the zoological public will ever fully comprehend the full extent of the labours of the members of the Editorial Committee in bringing the present revision of the Code to completion; although my reason for believing this is probably different from that of the President of the Commission.

I am sure that the workers have wondered how any committee could have published such nonsense in Article 36 as appeared in the previous editions. The workers actually had to point it out to the Commission!

But has the revision cleared up any of the rules other than those on priority and homonyms which, I am glad to see, Dr. Bradley recognises as the most important ones? The history of the behaviour of the Commission with regard to priority is illuminating. It was not until 1933 when I brought before the Association of British Zoologists the necessity for more use of the power to create *nomina conservanda*, especially in connection with teaching departments. A list of laboratory species was produced by workers and received the approval of the Commissioners.

In the 1936 Code a recommendation was added to Article 36 that the introduction of new generic or specific names differing only in suffix . . . should be avoided, but that any such names then in use should not be rejected. Of course this should have been nipped in the bud, if for no other reason than that the grammarians were admitting, if not yet officially, the changing of the suffix of a species-name if its gender differed from that of the genus-name. But to permit the publication of names so alike as *Picus* and *Pica* or *reactor* and *reactrix*, examples named in the Code, was very liable to lead to confusion. Now, however, the grammarians have siezed their opportunity and in the new edition of the Code, Article 30, which occupies three pages, state definitely that the gender of the species must agree with that of the genus and the species-suffix must be changed if a species is moved into a genus with a different gender. This is deliberate impertinence since nomenclature to the worker has nothing whatever to do with sex. I pointed out in 1958, as Dr. Sharp had done in 1872, that we are not dealing with grammar and that the species name, even if the latin word is adjectival, does not affect us as the species-name stands as a noun and the qualification of the generic-name by that of the species is of no interest whatever.

We must get rid of this perpetual interference, and, in my opinion, the only way to do that is to break up the International Commission. It covers too many interests and its incapability of carrying out the

work for which it was created is increasing the confusion. Instead of reducing the number of Articles (and simplifying the system), it is multiplying them. It would be better if each country or group of countries had its own committee, and if each committee had sub-committees under it to deal with the different branches of zoology. Except for a few fundamental rules covering the whole nomenclature, each committee should make its own rules. It may be that some branches of zoology will accept much of the system now laid down, but other branches, such as entomology with its dozens of amateurs, will want a working system constructed according to its own requirements.

27.xii.1961.

On Battery-powered Mercury Vapour Light

By ALAN KENNARD

I was most interested in Dr. F. H. N. Smith's note concerning a battery-run mercury vapour light (*Ent. Rec.*, 73: 243). Although I have a portable generator, I have been looking for an alternative method of portable equipment for some time in an attempt to try and cut out the weight and size of a generator and the cost of running it.

In May this year my generator was temperamental and so I decided to "plug in" at a power point at Dawlish Warren. Due to my own negligence, I burnt out the choke and lost the bulb as the voltage was in excess of 240 volts. This expensive mistake prompted me to get cracking and find an alternative portable system.

While on a trip to Denmark in 1959 I was very kindly entertained by Mr. Neils Wolff for a day. I was particularly interested in his moth traps, which involved using small ultra-violet fluorescent tubes. The ones I saw were operated off mains voltage and each trap had two 20 watt units as an attraction. He also showed me a single 15 watt unit which could be used off a 110 volt dry battery.

I decided to set about getting something on the lines of the latter. The result is interesting and useful and, although possibly not ideal, it is not a failure. I have not used it sufficiently yet to assess its virtues and disappointments but it is hoped the notes below and my first impressions of the results may be of interest. It would also be very interesting to hear of readers' comments and suggestions.

The apparatus consists of a 15-watt Mazda ultra-violet fluorescent bulb placed on a tripod, so that the base of the lamp is about six inches off the ground. The lamp itself is two feet high and stands upright with a conducting rod to support it. It requires a capacitor and choke and is to be used off a 13-volt supply D.C.

Unfortunately, there is insufficient power to operate it off 12 volts from dry batteries, but a 12 volt accumulator, such as a car battery, is sufficient. At present, I have found the following difficulties with regard to its operation.

1. Only about ten yards of copper flex can be used when the supply is a 12 volt car battery. More flex causes a drop in the voltage to a level which is insufficient to strike the fluorescent light initially.

2. Accumulators are heavy. I have not yet been able to find one that can be easily "slung over one's shoulder". So far, I have only used the apparatus off my car battery and hence have been tied to where the car can go.

Points in its favour are:—

1. Very mobile. Apart from the accumulator, the bulb and choke, etc., only weigh a pound or two and can be picked up in one hand. If I find one site unsuitable after setting up the apparatus, it is no difficulty in packing up and moving a quarter mile down the road. When searching for a particular species, and time is limited, this can be useful.
2. The bulb runs cold; there is no trouble from rain and it can be stowed away immediately after use. The bulb also costs approximately 15/- and so an accident is less expensive than with mercury vapour.
3. Little space is taken up in the car.
4. Accumulators can be recharged.

Since the light produced is at the blue end of the spectrum, moths come to it readily and, on an average night between August and October, I found myself busily occupied on the sheet. However, the moths behave in an active way and do not stay still for long. Also they are liable to come up to the lamp and go away again or, alternatively, stay some few yards from the source. Lack of brilliance, with resulting lack of dazzle, is a possible cause of their energetic activity, while the two feet of strip lighting as opposed to Robinson's "point source" would account for them being more widely scattered.

The numbers of moths which come to the light is, naturally, less than with mercury vapour light; however, on favourable nights, the number of species that come to the sheet is probably not far short of the number that might arrive with mercury vapour light. Considering that the bulb is less powerful, the comparison is probably very favourable.

All in all, the apparatus is very useful and once a suitable accumulator can be found I will be even more mobile. A little "do-it-yourself" to make the stand (mine is made from a few bits of scrap iron), and the whole apparatus costs no more than £5. Add to this the cost of accumulator and charger (if necessary) and you have something that is competitive with the generator.

Notes and Observations

THE BURNING OF GORSE AND BRACKEN IN THE NEW FOREST.—In getting out my records for 1961 of lepidoptera taken here in a M.V. trap, I noticed a substantial drop in the numbers of *Lithina chlorosata* Scop. These read 1959, 110; 1960, 165; 1961, 23.

It occurred to me that this might be due to the fact that the Forestry Commission burnt the bracken (*Pteris aquilina*) and gorse (*Ulex europaeus* and *U. gallii*) in March. (This is done every six years.) If the pupae lie in the debris at the bottom of the plants, they might well come to grief when the bracken is burnt. Neither South nor Stokoe mention the pupa. Newman and Leeds say "Pupates in earth". Has any reader found the pupa in the wild?

Ceramica pisi Linn., too, showed a drop. 1959, 61; 1960, 45; 1961, 23. Broom (*Sarothamnus scoparius*) does not occur here and *pisi* may be feeding on bracken, although it could equally well feed on willow or some other pabulum.

On the other hand, there was no drop in the numbers of *Pseudoterpna pruinata* Hufn. 1959, 42; 1960, 20; 1961, 29. One would have expected wholesale slaughter from the burning of the gorse, or do the larvae burrow deeply to hibernate?—L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants. 3.i.62.

CROCIDOSEMA PLEBEJANA ZELLER, IN HAMPSHIRE AND DORSET.—I had the good fortune to take two specimens of *Crocidosema plebejana* Zell. at mercury vapour light in 1961. The first, a male, was taken in my garden here on 8th August, and the second, a female, at Swanage on 11th October. I understand from Mr. J. D. Bradley, who identified the specimens, that the former is probably the first record for Hampshire, and almost certainly the farthest inland capture of a normally maritime species.—D. W. H. FFENNELL, Martyr Worthy Place, Nr. Winchester, Hants.—11.i.1962.

SEMIOTHISA ALTERNARIA HUBN. (SHARP-ANGLED PEACOCK) ON SEA BUCKTHORN.—Reading Mr. C. I. Rutherford's note (in *Ent. Rec.*, 73: 261) reminds me that there has been no published record to knowledge of sea buckthorn as a natural foodplant of *S. alternaria*. It may therefore be of interest to mention that on 31st May 1958, Mr. S. Wakely and I observed numbers of this moth among sea buckthorn in Kent (cf. Wakely, *Ent. Rec.*, 71: 93); they were easily disturbed from it during the day, and flew naturally about the bushes at dusk. At the time, we suspected, though were by no means sure, that this local shrub might be its natural pabulum. Our suspicions, however, were well founded, for since then, by beating the sea buckthorn there and at a locality in East Sussex in July and again in September, the larva occurred in numbers to Messrs P. Cue, G. Haggett, and myself, and from them the moths reared.

This is the only known foodplant of *alternaria* in Kent, so far as I am aware, though the records indicate that it may not be the species' sole pabulum in the county; the moth having been repeatedly taken in localities from which the shrub is absent, and indeed far from its nearest known station. Nevertheless, it is only amongst sea buckthorn that *alternaria* has occurred at all plentifully in Kent, and since the shrub ranges as a native coastally from Yorkshire to Sussex, and is sometimes locally dominant, it is reasonable to expect that the larva may be found to be fairly widely distributed on it.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent. 20.i.1962.

ADOPOEA LINEOLA IN SURREY.—On 29th July and subsequently on several dates this year I have found *A. lineola* on and near Farthing Downs, Coulsdon. The proportion of *A. lineola* to *A. sylvestris* appeared to be about one in six on 30th July when I netted about 40 specimens for identification purposes. Bearing in mind that *A. sylvestris* appeared to have emerged some while earlier, the relative numbers might well be closer than the count indicated. I understand the species has been taken in Surrey before but this is the first time I have recognised it within the border.—A. S. WHEELER. 12.x.1961.

This replaces the note incorrectly printed *antea* 73:242. Ed.

INVASION OF *PLUSIA GAMMA* LINN. IN KENT.—On the night 18th-19th September, 1961, a most incredible invasion occurred of *Plusia gamma*—silver Y—in my garden at Littlebourne, Parish of Ickham, near Canterbury, Kent.

At 11.30 p.m. B.S.T. the sky was clear with a heavy dew with a warm south-south-east wind. The moon was half full. There were very few moths at the trap up to 11.30 p.m. Next morning at about 7 a.m. I turned off the light and went out to cover over the trap. I usually do this until I can deal with the catch, in order to stop birds getting to the trap.

I was astounded to find the lawn literally black with *P. gamma* within a radius of 25 yards from the trap. A conservative estimate would be 250 to 300 moths to each square yard. All foliage was completely covered with moths. About 8 a.m., and the sun was then shining but not in the area of the trap, which was in the shadow of the house. I brought the trap into the Winter Garden and lifted the lid. A huge swarm of moths, mostly in perfect condition, flew out, blotting out the light from the glass screen. It was so bewildering that it was impossible to examine the contents of the trap until I had more time. I had no alternative but to put a pad of wool, with some tetrachlorethane in the trap, and postpone examination until lunch time, when I counted 3,500 gamma but made no impression on the masses in the trap. They were about 4" deep all over the bottom of the trap, which is the size of a tea chest. A modest estimate of the number of gamma in the trap would be 10,000.

I am sure I would not be exaggerating in saying that the total number of insects in the trap and flying in huge clouds in the garden would be 25,000-30,000. The Michaelmas daisies and other flowers and foliage were smothered.

By late afternoon practically all the moths had disappeared and only half a dozen came to the lamp and sheet during the evening of the 19th-20th September.—DUDLEY G. MARSH, White Gate, Wingham Road, Littlebourne, nr. Canterbury.

ARISTOTELIA LUTULENTELLA ZELL.—Whilst collecting at Ham Street, Kent, with a mercury vapour lamp and sheet on 24th June, 1960, I was fortunate to take a specimen of *Aristotelia lutulentella* Zell. This is an extremely local moth which is said to occur in dry fields. This was taken in a particularly wet wood! It was kindly identified for me by Mr. J. D. Bradley.—GEORGE H. YODEN, F.R.E.S., 18 Castle Avenue, Dover. 31.xii.1961.

EUBLEMMA OSTRINA HÜBN. IN KENT.—I wish to record having taken a female *Eublemma ostrina* Hübn. var. *carthami* H.-S., the purple marbled, in mercury vapour trap in my garden at Littlebourne, Parish of Ickham, Kent.—DUDLEY G. MARSH, White Gate, Wingham Road, Littlebourne, nr. Canterbury. 31.xii.1961.

Deal [Kingsdown], larvae very plentiful. "I found fifty one morning in about a couple of hours on a bank not more than a hundred yards long" (Meek, *Ent. mon. Mag.*, **25**: 111). 1889: Dover, a larva (Webb, *Young Nat.*, **10**: 231). 1890: Dover area (Webb (1891)). 1891: Swanley (Milton, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1892: 23). [1892?]: Deal, two, bred, 1893, Tugwell, ex H. J. Turner coll. (C.-H. coll.). (There is no mention of the date of the finding of the larvae from which they were presumably bred (C.-H.)) [1897?]: Deal, two bred by J. W. Tutt, January 1, 28, 1898 (Br. Mus. (S. Kensington)). N.d.: One taken in Maidstone, and given to H. Lamb by S. Brent in 18— (Maidstone Mus.).

1928: Gillingham, July 5 (Jones, *Entomologist*, **61**: 234). 1949: Tonbridge, a dead ♂ found on the pavement in the town in August (H. E. Hammond). 1955: Otford, two at m.v., July 28, 29 (Manley, *Entomologist*, **88**: 210). Ham Street, July 29 (Richardson, *Entomologist*, **88**: 262). Sandgate, near Folkstone, August 15 (Fuller, *Ent. Rec.*, **67**: 235). Pinden, near Dartford, ♀, August 20 (E. J. Hare). Greatstone, near Dungeness, August 20 (G. Bransby, *teste* French, *Entomologist*, **89**: 177). 1957: Ashford, ♀, at m.v., July 24 (P. Cue).

VARIATION.—Tugwell (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1888-89: 128-129) exhibited two specimens bred from Deal larvae, which formed the basis of Tutt's ab. *grisea*, and are chiefly characterised by having much of the normal colouration, especially the dark olive-green markings, replaced by dull grey. Tutt (*Br. Lep.*, **4**: 172) stated that the scales in these examples appeared to be wanting in the ordinary pigment, and the scales themselves suggested immaturity; he added that other semidiaphanous examples appeared among the later-bred of Tugwell's specimens, and that these were even more extreme.

In R.C.K. is the holotype of ab. *lata* Tutt; it is labelled 'larvae Walmer and Deal, Sept. 11.20.1888, imagines forced Jan.-Feb. 1889'.

Tugwell (*Ent. mon. Mag.*, **25**: 284) mentioned that one of those, a ♀, taken at St. Margaret's Bay by Williams and Oswald in 1888, measured $3\frac{3}{8}$ inches.

FIRST RECORD, 1778: Barnscray, near Crayford (Harris, *Aurelian*, **88**; as *C. euphorbiae*, in error (Stephens, *Haust.*, **1**: 126)).

C. livornica Esp. (*lineata* Fab.): Striped Hawk.

Immigrant. Gardens, shingle beach, mangel-wurzel and potato fields, etc.; on *Galium mollugo*, *Antirrhinum majus*. Recorded from all divisions, except 5, 14; but has mostly occurred in east and north-east Kent.

Altogether about a hundred *livornica* have been noted in the county, of which some 30 were larvae. The largest number recorded for any one year was 30 in 1931, of which 26 were larvae.

1831: Bromley, one taken in July (Penny, *Mag. nat. Hist. J. Zool.*, **7**: 260). 1860: Lewisham, May 20 (Stainton, *Ent. week. Int.*, **8**: 58). 1862: Deal, May 6 (Harding, *Zoologist*, 8204). 1868: Deal, two; Walmer Castle, one (Leslie, *Entomologist*, **4**: 162). Dover, one in Br. Mus. S. Kensington, labelled "Gray, Dover, 1868, set by P.H.H.'" (C.-H.). 1869: Folkestone Warren, May 7 (Ullyett, *Qtly. J. Folkestone nat. Hist. Soc.*, 1869 (3), 71). 1870: Folkestone Warren, May 26¹ (Knaggs, *Ent. mon. Mag.*, **7**: 40); Strood, August 20 (Farrow, *teste* Tutt, *Br. Lep.*, **4**: 164); Hunton, near Maidstone, August 23 (Greville,

Ent. mon. Mag., **7**: 10); Sydenham, August (Etheridge, *Entomologist*, **6**: 196); Dover, October 2 (Eedle, *Entomologist*, **5**: 199). 1872: Ashford (Chittenden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1899: 107). 1878: Strood, June 15 (Farrow, *teste* Tutt, *Br. Lep.*, **4**: 164). 1880: Greenwich (West, *Ent. Rec.*, **18**: 143). 1884: Sandwich, July 26 (Harbour, *Entomologist*, **17**: 272); Dover, September 18 (Webb, *Ent. mon. Mag.*, **21**: 109). 1887: Dover district (Webb (1891)). 1888: Dover district (Webb (1891)). 1892: Rochester, June 6 (Ovenden, *teste* Tutt, *Br. Lep.*, **4**: 164). 1895: Dover, September 14 (Webb, *teste* Tutt, *Br. Lep.*, **4**: 165). 1901: Northfleet, one "flew into a friend's window" (H. C. Huggins). 1904: Between Ashford and Wye, July 12 (Parry, *Entomologist*, **37**: 214); Dover, September 5 (Abbott, *Entomologist*, **37**: 265). 1906: Canterbury, June 5 (Small, *Entomologist*, **39**: 162); Sheerness, June 13 (Jacobs, *Entomologist*, **39**: 162); Dover, August 20 (South, *Entomologist*, **39**: 211), September 8 (Webb, *Entomologist*, **39**: 234). 1912: Dover, May 17 (Abbott, *Entomologist*, **45**: 183). N.d.: Southborough (div. 13) (Knipe (1916)). 1920: Dover, a larva found on some allotments, June 24, imago emerged September 28 (Abbott, *Entomologist*, **53**: 285). Sidcup, May 23 (Sutton, *Entomologist*, **53**: 190).

1931: Sittingbourne, May 27 (Philpott, *teste* Riley, *Entomologist*, **64**: 163). Kennington, near Ashford, ♀ and ♂ found on a fence, June 1 (Scott (1936)). Knockholt, one found in a hedge, June 6, by Miss Ruth Edwards (Gingell, *teste* Riley, *Entomologist*, **64**: 163). Ospringe, a larva found in a mangel-wurzel field, July 27 (Edmonds, *Entomologist*, **64**: 237). Monkton (div. 9), "in late July 1931, a lady living at Monkton found eleven larvae devouring her snap-dragons. She drowned six, but her son saved five and gave them to A. G. Peyton, who bred three or four moths" (A. M. Morley *in litt.*); one of these is in my coll. and is labelled as having emerged in September of that year (C.-H.). Dungeness, ten larvae found on *G. mollugo*, on July 23, by G. W. Wynn and A. J. Wightman (Wightman, *Ent. Rec.*, **43**: 143); a larva at night at rest on a tall grass stem, July 31 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 91); three larvae on bedstraw (Kettlewell, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1943-44: 17).

1943: Eythorne, some six or seven specimens at *Kentranthus rubra*, May 31-June 10 (Lipscomb, *Entomologist*, **76**: 172). Tonbridge, June 3 (Featherstone, *Entomologist*, **76**: 189). Bexley, ♀, at honeysuckle, June 8 (E. Dale, *per* Rothamsted). Gravesend, one on a boat, September (F. T. Grant). Tankerton, September 21 (Atkinson, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 26). Folkestone, a larva found by D. Smith, in mid-August, crawling along in Dolphins Road, imago emerged September 27, recorded by D. Smith in Folkestone Herald (A. M. Morley) (the date 1945, given in *Entomologist*, **80**: 175, is erroneous (A. M. Morley)); an imago found under the grating of a street drain in September by J. Wilson (A. M. Morley).

1945: Littlestone, July 12, six, flying along foreshore just above high tide mark, between 11 and 12 a.m. (N. H. Joy, *in litt.* to W. Dannreuther). 1946: Folkestone, ♂, put up from grass by the Lower Sandgate Road, and taken by A. Millar, July 26 (A. M. Morley). Folkestone Warren, one at light, July 30 (R. Fairclough, *teste* A. M. Morley). 1947: Tonbridge and Southborough (div. 13), mid-May, seven at flowers at dusk, including a ♂ which was captured (Tonbridge School Nat. Hist. Soc., *fide* Dannreuther, *Entomologist*, **81**:

112). Tunbridge Wells, a full-fed larva found in a garden, September 30, which successfully pupated (Tonbridge School Nat. Hist. Soc., *vide* Dannreuther, *loc. cit.*). 1949: Brook, June 5, one seen by C. A. W. Duffield (E. Scott, *per* Rothamsted). Ashurst near Tunbridge Wells, ♀, June 12 (Tubbs, *Entomologist*, **82**: 204). Hythe, one at light, August 21 (Cardew, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1949-50: 54). Pinden, one taken August 31 (E. J. Hare). Gillingham, ♀ in Rochester Mus., labelled in F. D. Welch's handwriting, "Found alive by W. E. Edwards of Gillingham, September 5, 1949, and presented by F.D.W." (C.-H.). 1950: Folkestone, ♂, May 10 (Morley, *Entomologist*, **83**: 166). 1951: Folkestone Downs, ♂, taken on grass by Binfield, September 12 (Binfield, *vide* A. M. Morley). 1952: Kingsnorth, ♀, March 9 (Sankey, *Ent. mon. Mag.*, **88**: 132). Sidcup, *livornica* "had recently been taken" (Anon., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 13, communicated August 13, 1952). 1955: Sevenoaks, July 29 (Greenwood, *Ent. Rec.*, **67**: 234). 1958: Shorne Ridgeway, one taken in m.v. trap, September 1 (Trundell, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958, 18).

FIRST RECORD, 1831: Bromley, Kent, one taken in a garden in July 1831 (Penny, *Mag. nat. Hist. J. Zool.*, **7**: 260).

¹This specimen, a ♂, was observed flying out at sea, and to drop directly it reached the shore. A somewhat similar instance of diurnal immigration in *livornica*, though even more remarkable is that witnessed by Norman H. Joy in 1945 (*q.v.*).

Hippotion celerio L.: Silver-striped Hawk.

Immigrant. Gardens, etc.; on *Vitis vinifera*.

Altogether there are records of some forty *celerio* for Kent, mostly from the east and north-east of the County. During the present century, the species has been much less frequent, and since 1900, only nine individuals have been noted. In 1884, a number of larvae were found, and it is possible that in that year *celerio* survived here to produce a generation.

The earliest reference to *celerio* in Kent is that of Donovan (*Nat. Hist. Br. Insects*, **6**: 26), who gives Eltham (div. 1) as a locality. Over fifty years then elapsed before the next record, and the following is a chronological account of its subsequent occurrence.

1849: Folkestone, one found by a child in a garden on October 23, and exhibited (Douglas, *Proc. ent. Soc. Lond.*, 1849: lxxxvi) (listed, but without date or details, in *English's Guide to Folkestone* (1859), edit. S. J. Mackie, which may refer to this record): 1852: Tenterden, September 16 (Beale, *Zoologist*, 3624). 1864: Canterbury, taken flying in a garden, by Mrs. Parry (B.P[iffard], *teste* Knaggs, *Ent. Ann.*, 1865: 109). 1865: Greenwich (West, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1910-11: 103). Dover, September (Harding, *Entomologist*, **4**: 163). 1869: Selling (Stowell, *Ent. Mon. Mag.*, **7**: 85, *Entomologist*, **5**: 165). 1872: Margate, September (Duncan, *Entomologist*, **6**: 412); Strood, September 12 (Farrow, *teste* Tutt, *Br. Lep.*, **4**: 132); Strood, September 13 (Stapleton, *teste* Tutt, *Br. Lep.*, **4**: 132). 1880: Sheerness, October 10 (Darley, *Entomologist*, **13**: 279); Faversham, December 1 (Yearsley, *Entomologist*, **14**: 115). 1884: Dover, seven or eight, also a lot of larvae found on vine by a man who thought they were *D. elpenor* and only kept two—these he bred (S. Webb, *teste* Fenn, *Diary*,

19.xi.1884). 1885: Folkestone Town, September (Cooper, *Entomologist*, **18**: 294); Near Ramsgate, two (Wood, *Entomologist*, **18**: 261) (Willson, *Entomologist*, **23**: 139, may refer). 1889: one, "St. Peters, 1889"†; one, "Ramsgate, 1889"†; both in J. P. Barrett coll. (C.-H.). 1892: Ashford, October 21 (Viggers, *Entomologist*, **25**: 289, *Ent. Rec.*, **3**: 256). 1894: S. Foreland Lighthouse, August (Fremlin, *Entomologist*, **27**: 349, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1894: 80). 1895: Dover, September (Webb, *Ent. Mon. Mag.*, **31**: 241, *Ent. Rec.*, **7**: 62). 1898: Southborough (div. 13), October (Shepherd-Walwyn, *Entomologist*, **32**: 95). 1903: Maidstone, November 9† (in Maidstone Mus.)¹. 1913: Teston near Maidstone, October 6, Mr. Page† (Rowland-Brown, *Entomologist*, **52**: 277; in Maidstone Mus.). 1922: Chestnut Street near Sittingbourne (H. C. Huggins). 1923: Herne Bay, at light, September, Ian Harman (in R.C.K.). 1926: Longport Street, Canterbury, October 23† (F. A. Small coll.). 1935: Maidstone, October 10† (in Maidstone Mus.). 1938: West Wickham, September (Dale, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 18); Maidstone, November 22, 1938, Miss Harris† (in Maidstone Mus.). 1952: Winget Wood, Strood, October 16 (Hamblar, *Ent. mon. Mag.*, **89**: 3).

FIRST RECORD, 1797: "Mr. Latham, formerly of Dartford, . . . has a specimen which was taken at Eltham, in Kent" (Donovan, *Nat. Hist. Br. Insects*, **6**: 26).

¹It appears that this specimen was referred to in *S.E. Nat.*, 1904: 50, and *Entomologist*, **52**: 277, but the particulars given in each case are at variance.

Daphnis nerii L.: Oleander Hawk.

Immigrant. Gardens, etc.

Altogether there are records of eleven specimens, of which four require confirmation.

1833: Dover, one captured by a lady in her drawing-room about September 6 (Stephens, *Ent. Mag.*, **1**: 525). 1834: Curtis (1837, *Br Ent.*, 626) figures a ♀, which he states Mr. Leplastrier informed him was taken "by a poor man the latter end of September, 1834, near the pier at Dover". 1896: Stowting, one taken towards the end of July (Upton, *Entomologist*, **29**: 316). 1900: Yalding, ♀, taken by G. Wickham, September 18 (Reid, *Entomologist*, **33**: 305, *idem*, *Ent. Rec.*, **12**: 303). 1911: Chilmington near Ashford, one taken in autumn, by J. Diamond (Viggers, *Entomologist*, **45**: 209). 1916: Folkestone, one taken, August 30, by G. B. Oliver, at rest on a small poplar trunk, on the Lees undercliff (Oliver, *Entomologist*, **49**: 259). 1926: Chislehurst, one taken September 14, by S. F. P. Blyth, hovering over *Nicotiana affinis* (Blyth, *Entomologist*, **59**: 301).

[♂, in Dale coll., labelled as taken at Dover by Leplastrier in 1828 (Walker, *Ent. mon. Mag.*, **46**: 156). Dover, 1857 (Lucas, *The Book of British Hawk-Moths*, 117). Sydenham, one taken on a lamp, September 10, 1910, A. Noakes; in Joicey coll. (*Ent. mon. Mag.*, **46**: 263). Swanley, one, 1958 (Joseph, *Entomologist*, **91**: 191).]

FIRST RECORD, 1833: Dover (Stephens, *Ent. Mag.*, **1**: 525).

Deilephila porcellus L.: Small Elephant Hawk.

Native. Chalk downs and cliffs, heathland, shingle beach, coast sandhills, etc.; on *Galium verum*, *G. mollugo*, *Genista tinctoria*, *Chamaenerion angustifolium*. Recorded from all divisions; apparently seldom abundant.

The moth is mostly observed at flowers, particularly those of *Kentranthus ruber* and *Rhododendron*. It has also been noted at *Echium vulgare* at Folkestone (Knaggs (1870)), and St. Margaret's Bay (Reid, *teste* Tutt, *Br. Lep.*, 4: 107); on *Silene nutans*, in Folkestone Warren, June 16, 1929 (A. M. Morley); and at Campion, at Sarre, 1941-44 (T. W. Gomm). It sometimes comes to sugar, and occasionally to light; at Dungeness, however, about forty were noted by me at m.v., by the Pilot Inn, on May 31, 1952, an abnormally large number (C.-H.).

The usual foodplant seems to be *Galium*. J. A. Parry found twelve larvae on *G. verum*, at Old Park, Canterbury (div. 3), 1947-48; F. T. Grant used to find it on this at Detling Hill (div. 7), c. 1895; and A. M. Morley found one in 1938, on Dover Hill, Folkestone, on *G. mollugo*. At Herne, in 1941, P. F. Harris found several larvae on Dyer's Greenweed (*Genista tinctoria*), from which he bred a number of specimens; at Petts Wood, the larva has been noted on "Willow Herb", by A. M. Swain; and a full-grown larva was taken by J. F. Burton, on a bombed site at Blackheath, on Rosebay Willow-herb (*C. angustifolium*), September 16, 1946.

VARIATION.—Tutt (*Br. Lep.*, 4: 92) points out that Kent and Sussex examples "often have the transverse markings obsolete, the crimson-red, however, being well marked".

One of those that I have from Dungeness, May 31, 1952, appears to be an example of homoeosis. The pink band on the right forewing of this specimen extends from the apex for only half its normal length, the portion where it fails to the tornus being replaced by the normal deep yellow-ochreous ground (C.-H.).

The following abs. are in R.C.K.:—*indistincta* Tutt, three from Kent, including one bred one; *decolor* Cockayne, holotype, ♂, Sandwich, bred 1889, W. H. Tugwell (this appears to be the one recorded by Tugwell (in *Young Nat.*, 10: 43, and *Proc. S. Lond. ent. nat. Hist. Soc.*, 1888-89: 129); the date, however, in *Ent. Rec.*, 65: 81, is wrong); one, "costa bright crimson well developed", bred Kent, 1918.

FIRST RECORD, 1828: Birch Wood (Stephens, *Haust.*, 1: 132).

D. elpenor L.: Elephant Hawk.

Native. Ditches, riverbanks, wet meadows, gardens, marshy places, bombed sites, etc.; on *Epilobium hirsutum*, *Chamaenerion angustifolium*, *Circaea lutetiana*, *Galium*, *Viola*, *Godetia*, *Fuchsia*, Vine, *Impatiens glandulifera*, *I. capensis*, *Menyanthes trifoliata*. Found in all divisions; fairly numerous.

A partial second generation may occasionally occur. Thus, Fenn (*Lep. Data* MS.) records one at light at Erith, August 13, 1879; A. M. Morley noted a ♀ at light at Hythe, August 8, 1956; and W. L. Rudland had one at m.v., at Wye, August 11, 1955.

The moth is perhaps most frequently observed at light; it has also been noted at *Kentranthus* and other flowers, at sugar, and on one occasion P. Cue saw it at exudation from an oak tree in Hoads Wood (div. 11).

The larva has mostly been found on Willow Herb (*Epilobium* and *Chamaenerion*) and *Fuchsia*. It has also been noted on *Viola*, in gardens at Faversham and Perry Wood (H. C. Huggins); commonly on Enchanter's Nightshade (*C. lutetiana*), in the City of Canterbury (J. A. Parry); on *Godetia*, at Maidstone (Morris, *Entomologist*, **74**: 70), and Petts Wood (A. M. Swain); on Vine, in gardens in the Rochester district (Chaney (1884-87)); often on *I. glandulifera*, in gardens at Tunbridge Wells (Given (1946)); three on *I. capensis* at Tonbridge (Beaufoy, *Bull. Amat. ent. Soc.*, 1955: **14** (178) 83); one on *Galium*, on Deal Marshes (Fenn, *Diary*, 6.viii.1867); and on *M. trifoliata*, at Angley Wood, Cranbrook, October 21, 1956 (D. Rabarts). Occasionally it is extremely plentiful, D. F. Owen having seen about 200 full-grown larvae on *E. hirsutum* and *C. angustifolium*, on a bombed site at Lewisham in July 1945 (Owen, *Ent. Rec.*, **61**: 55).

VARIATION.—Riley (*Entomologist*, **55**: 278) describes an ab., bred by C. H. Hards, from a larva taken at East Farleigh in 1910, as "remarkable in that the areas usually green are chocolate-coloured, the normal pink areas are pale dirty brown, and the basal and hind marginal areas of the hindwing are a darker dirty brown".

The following abs. are in R.C.K.:—*obsoleta* Tutt, one, Dartford, 1904; *clara* Tutt, one "Ex larva Deal, x.09, P. A. Cardew"; *cinerescens* Newnham, two, N. Kent, 1921, 1944; *pallida* Tutt, several, from various Kentish localities.

FIRST RECORD, 1856: Near Dover (Harding, *Ent. week. Int.*, **1**: 108).

Macroglossum stellatarum L.: Humming-bird Hawk.

Immigrant, appearing almost every year¹. Rough flowery banks, gardens, waste places, etc.; on *Galium verum*, *G. mollugo*. Recorded from all divisions. Not uncommon most years in east coastal districts, and occasionally abundant as for example in 1928, 1934, 1945-47.

The larva usually occurs in small numbers; but in 1947, J. A. Parry found a phenomenal number during three weeks search in the neighbourhood of Canterbury, Bridge, and Barham, amounting altogether to some 200 examples, mostly at Old Park, Canterbury, and all on *G. verum*.

The larva has been repeatedly found on both *G. verum* and *G. mollugo* in East Kent, but apparently very seldom at all in West Kent. In 1947, however, I found a half grown larva on July 6 on *G. mollugo* at West Wickham (div. 1) (C.-H.); and Carr (*Entomologist*, **34**: 108) records that in 1900, at Lee (div. 1), thirteen larvae were taken on a small patch of *G. verum*.

It has been stated that the imago sometimes hibernates here. This may be so, but it is difficult to obtain actual proof, and the evidence in support of it is somewhat meagre. Barrett (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1916-17: 56) stated that at Margate, when *stellatarum* had been common there, he always expected to find a few hibernated in a large heated building; the same observer also records (in *Entomologist*, **34**: 21) that at Margate during October 1900, "six or seven fresh imagos have come into the house to hibernate". Marshall (*Entomologist*, **34**: 56) records one observed at Cranbrook, November 27, 1900; Scott (1950) notes that in the Ashford district, it "occasionally succeeds in hiber-

nating, if the weather is unusually warm"; and there is a record of the imago having been seen flying at Gravesend in December, January and February (Clifford, *teste* Tutt, *Br. Lep.*, 4: 20, 27), but the year (or years) when this occurred is not given. A. M. Morley saw one on January 21, 1929, which was flying around the main room in a school at Whitstable; and on November 13, 1947, he saw one flying against the window of his study in Folkestone, which was still there on December 19, but was not seen subsequently.

VARIATION.—In ab. *subnubila* Schultz, the tawny colour of the hind-wing is replaced by deep brown. I have seen three such examples: Canterbury, bred August 1946, Sandwich, bred 1928 (R.C.K.); Ramsgate, taken by J. W. C. Hunt (C.-H.).

Bower (*Ent. Rec.*, 11: 344) records one taken at Sandgate, with alar expanse only 30 mm.

FIRST RECORD, 1818: "During two short visits at Dover, in August, 1818 and 1819, I observed it in great abundance in the winged state, and in June of the latter year, accompanied by the late Mr. Blunt, we found the larvae in profusion beneath the cliffs" (Stephens, *Haust.*, 1: 134).

¹The records show that *stellatarum* was observed annually in Kent from 1928 to 1961 inclusive, except in 1941, in which year it was perhaps absent.

Hemaris fuciformis L.: Broad-bordered Bee Hawk.

Native. Wood borders and clearings, parks; on *Lonicera periclymenum*. Local.

1. Birch Wood (Douglas, *Entomologist*, 1: 66). West Wickham (Douglas, *Entomologist*, 1: 66); 1856 (Simson, *Ent. week. Int.*, 1: 116); 1857 (Healy, *Ent. week. Int.*, 2: 75); 1859 (Tibbs, *Ent. week. Int.*, 6: 90); ♀, June 12, 1858, two ♀♀, four ♂♂, June 1, 1859 (H. Tompkins MS.). Shooters Hill, larva on honeysuckle, 1856 (Crewe, *Ent. week. Int.*, 1: 123). West Wood, Shooters Hill, 1866 (W. West, in *Wool. Surv.* (1909)). Bexley district, common some years (L. W. Newman, in *Wool. Surv.* (1909)). Joydens Wood (C. Fenn, in *Wool. Surv.* (1909)). Sparrow Common, common, 1927 (W. V. D. Bolt) (F. D. Greenwood); [c.1938] (W. A. Cope). Keston, 1947-48, imagines and larvae numerous; June 21, 1947, thirty-seven larvae were noted, mostly young (D. F. Owen); one seen at Bugle flowers by E. I. M. Bird, in his garden, c.1948 (C.-H.).

3. West Blean Wood, one, May 29, 1866 (Fenn, *Diary*). West Blean and Church Woods, occasionally, c.1924 (D. G. Marsh). Blean Woods, not uncommon [c.1935] (A. J. L. Bowes).

6. Stanstead, larva on Honeysuckle, August 20, 1923 (F. T. Grant).

6a. Darenth Wood (Stephens, *Haust.*, 1: 136); 1859 (Harding, *Ent. week. Int.*, 6: 75); 3 ♂♂, 2 ♀♀, May 29, ♀, June 8, 1859 (H. Tompkins, MS.); three, May 29, 1869 (Fenn, *Diary*); 1875 (West, *Ent. Rec.*, 18: 143); formerly common, now rare (Tutt, in *Wool. Surv.* (1909)); several, 1912 (H. C. Huggins); one, May 11, 1912 (F. T. Grant); ova, larvae, imagines, in felled woodland, 1947-48 (D. F. Owen); one, May 17, 1948 (E. J. Hare). Greenhithe*, May 31, 1859 (Fenn, *Diary*). Stone Woods, Greenhithe, June 25, 1863 (Fenn, *Diary*). Chattenden, 1899 (James, *Ent. Rec.*, 12: 102); uncommon, 1902-06 (H. C. Huggins); May 26, 1923 (F. T. Grant).

7. Park Woods*; Wigmore, not common (Chaney (1884-87)). Bredhurst Wood, never more than two or three on any one visit, first noted June 19, 1938, and again June 10, 1939, observed annually since, to 1954; Walderslade, June 1, 1940, June 10, 1944 (A. J. Woodcock). Westwell, two, c.1950 (E. Scott).

8. Folkestone* (Ullyett (1880)). Dover (Webb (1899)). Wye*, several, May 25, 1904, J. P. Barrett (J. P. Barrett coll.). Near Canterbury*, three, 1920-21 (F. A. Small coll.). Brook* (C. A. W. Duffield). Bridge, c.1946 (R. Gorer). West Wood, one, taken by David Smith in 1947 (A. M. Morley). Penny Pot Wood, common, 1948 (J. A. Parry).

10. Sevenoaks, 1857 (Farren, *Ent. week. Int.*, 2: 17). Seal Chart, July 15, 1897 (Watts, *teste* Tutt, *Br. Lep.*, 3: 523).

11. Maidstone Cemetery, one, June 12, 1894, H. Lamb, in Maidstone Mus. (C.-H.). Maidstone (*V.C.H.* (1908)). Wateringbury, one, 1900, several, 1906 (E. Goodwin coll.). Mereworth, plentiful (W. A. Cope). Tonbridge, a larva, 1940 (H. E. Hammond). Hoads Wood, larvae and imagines, c.1953 (P. Cue); imagines, 1956 (W. V. D. Bolt).

12. Ham Street.—Sixty-three at Rhododendron and one at *Lychnis*, seen by A. W. Hughes, c.1930; two, May 25, 1929, ♀, June 8, 1930, one, June 6, 1932, two larvae on Honeysuckle, 1933-34, four imagines at Bugle, 1935; all in Orlestone Woods (A. M. Morley); May 20, 1940 (Bull, *Diary*). Birchett Wood, two, May 30, 1948; May 30-June 2, 1950, plentiful at Bugle at the sides of the road where the undergrowth had been cut back between Long Rope and Birchett Wood, roughly fifty seen, including two taken in the net at once (C.-H.); May 16, 1959 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 76). Bourne Wood, May 28, 1955 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 73).

13. Groombridge, July 9, 1888 (Blaber, *teste* Tutt, *Br. Lep.*, 3: 525). High Rocks, Tunbridge Wells, one or two (E. D. Morgan). Bedgebury Wood, one taken, c.1950 (B. G. Chatfield). Goudhurst, several in the garden at Mrs. Sinkins pinks, 1954-1955 (W. V. D. Bolt).

14. Tenterden, May 15, 1943 (Bull, *Diary*).

16. Park and Priory Woods, c.1952 (E. Scott). Sandling Park, stated by A. Hardy to have been seen by him here in 1947 (A. M. Morley).

FIRST RECORD, 1828: Darenth Wood (Stephens, *Haust.*, 1: 136).

H. tityus L. (bombyliformis Esp.): Narrow-bordered Bee Hawk.

Native. Woods, marshes; on *Succisa pratensis*. Local. The records indicate that it is now mainly, if not entirely, restricted to div. 12.

1. Birch Wood (Anon., *Ent. Mag.*, 3: 309); pre. 1841 (Douglas, *Entomologist*, 1: 66). West Wickham, pre. 1841, "more abundant here than at Darenth or Birch Wood" (Douglas, *loc. cit.*); ♂, June 1859 (H. Tompkins MS.). Sparrow Common, one, taken 1927† (W. V. D. Bolt).

3. West Blean Wood, one, June 1926 (D. G. Marsh).

4. Near Sandwich, a few in a marsh, 1865 (Harding, *Entomologist*, 3: 24). Sandwich, common (H. J. Harding, *teste* Tutt, *Br. Lep.*, 3: 538). Ham Marshes, Sandwich; very local (*V.C.H.* (1908)).

6. Cuxton*, one, June 5, 1908 (Ovenden, *Ent. Rec.*, 21: 32).

6a. Darenth Wood, taken in 1836 (Norman, *Ent. Mag.*, 4: 155); pre. 1841 (Douglas, *Entomologist*, 1: 66).

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IRISH LEPIDOPTERA RECORDS.—No comprehensive catalogue of Irish macrolepidoptera has been published since Lt. Col. C. Donovan's List in 1936. I am now engaged in the preparation of a revised List, and in order that it may be as up to date as possible, I should be most grateful for any records from lepidopterists who have collected in Ireland since the date of Col. Donovan's publication. Full acknowledgment will be made.

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AND JOURNAL OF VARIATION

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

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Some Overlooked Details from Hohenwarth's Description of his *Papilio cassioides*. (Lep. Satyridae)

By B. C. S. WARREN, F.R.E.S.

Few names in entomological literature have been subject to so much misrepresentation as Hohenwarth's *cassioides*. It may seem waste of time to refer to it again, but an important paper by Herr Erik von Mentzer (1961) has thrown fresh light on the subject.

Von Mentzer went to the Glockner district to study the insects, and starts by giving a detailed account of what must be considered the type locality of Hohenwarth's *cassioides*. With that thoroughness and attention to detail which characterizes his work he, fortunately, examined Reiner and Hohenwarth's book for himself, and brought to light the incredible fact that much that has been written on the subject of "*cassioides*" during the past few years, has rested on false premises; namely, the supposition that Hohenwarth's work left it uncertain which of the two known species of the Glockner district was the one to which he gave the name. As is known, these two species are very distinct and easily separable; one has pointed wings, the other rounded, resembling *E. tyndarus*, but the underside of the round-winged species is also very distinctive in coloration, especially marked being the beautiful silvery-blue colour of the hindwing of the male, and the white outlining of the nervures of the hindwings in the females; a feature that can be well-marked in some males also.

On reading the extracts from the book given by von Mentzer, it became obvious that the most important part of Hohenwarth's work, a long description in German, had to all intents and purposes been ignored in the past, doubtless because the short Latin diagnosis was known to many and the book was not readily accessible. The German description proved conclusively that there was not the least uncertainty as to which species was described as *cassioides*. The name was given to the *round-winged* species; von Mentzer quotes the words used "runden . . . Flügeln". This vital characteristic is emphasized again a second time further on in the description by the statement that all four wings are perfectly and completely rounded ("die vier Flügel vollkommen ganz, zugerundet" . . .). Further, the colour of the underside of the hindwings of his insect is said by Hohenwarth to be "weisslich und aschengrau". The "weisslich" can only refer to the beautiful pale, silvery-blue colour of the male underside, which I have so often emphasized in the past as one of the most important characteristics of *cassioides*. This colour-effect is caused by a dense superscaling of glossy scales that are seen to be white when examined with a lens. The contrast between this colour and the dark, dull underside of the pointed-winged species is most marked. The "aschengrau" doubtless refers to the pale colour of the underside in many females.

Hohenwarth's description of the shape and colour of his insect are definite, and no further details could minimise their importance or finality, for all other features that could be described (excepting the white outlining of the nervures on the underside of the round-winged

species), are common in varying degrees to both species and subject to much variation in each. I dealt with such features of spots and band-like markings in detail (1936, pp. 291, 292 and 293, under *dolomitensis*), and von Mentzer refers to some such details (1961), noting that in his specimens these features are often the same in both species.

The uncertainty about *cassioides* was not the result of Hohenwarth's work, but was caused by those who failed to study it, or intentionally disregarded it.

It is now irrefutable that the species described as *cassioides* in my Monograph (1936, p. 291), is the one described as *cassioides* by Hohenwarth. I was led to making this separation of the two species simply by following the principle of priority in nomenclature. Von der Goltz was the first to name one of the two Glockner races. Why he did so one cannot say. He had already illustrated as "*cassioides*" the one he now named "*dolomitana*". Earlier he had been under the impression that *E. tyndarus* existed in the Glockner district. Perhaps he had realized this was not the case. The name "*dolomitana*" was a homonym, so I replaced it with "*dolomitensis*". My assumption that both species were included under Hohenwarth's "*cassioides*" was wrong; but there were two species and only one name. In such circumstances, *failing real proof* as to which species was the original "*cassioides*", the first valid name given to either of the insects had priority. So the Dolomite species was named *dolomitensis* and *cassioides* could only be used for the other Glockner species. This was the accepted procedure of nomenclature. The fact is recognised by von Mentzer; unfortunately, others have tried to shut their eyes to it.

In an effort to justify the changing of two valid names that had been established 18 years before, Lorkovic claimed that he and de Lesse had taken the trouble to study Reiner and Hohenwarth's book themselves, and that this study had revealed that my use of the name "*cassioides*" had been incorrect. So far from this being the case however, it now becomes apparent that they had disregarded Hohenwarth's work when it ran counter to their views, just as they had mine. Their averment that the name "*cassioides*" had been intended to apply to the pointed-winged species (the one with the dull, dark-coloured underside in the male), was made in direct opposition to Hohenwarth's words: it rested solely on the pointed wings of the altogether unnatural figure, which could not really be said to portray any known *Erebia*. Further, in the copy of the book in Stockholm, von Mentzer notes that the figure distinctly shows the remarkable white outlining of the nervures on the under side of the hindwing. The photo of the figure given by Lorkovic also shows indications of this characteristic; but he disregards the fact. Considering this feature is restricted to the round-winged species and therefore accords with the described characters of shape and colour, and that it is the only characteristic that could *not* be the result of poor work by the artist, for he must have seen it as he tried to reproduce it, such disregard was no more justified than the disregard of Hohenwarth's clear statements.

Considering the difficulty many collectors will have in trying to consult Reiner and Hohenwarth's book, I may add that the first accurate description of Hohenwarth's *cassioides* in recent times is that given in my Monograph (1936, p. 291), also that von Mentzer notes (1961), that no doubt could exist as to which species my description refers to.

It may help readers who are bewildered by the hap-hazard use of the name "*cassioides*" in the past, to note that only three of the known forms have any true connection with it. These are the typical form of the Glockner, which occurs from a little above Heiliglenbut, about 5,500 feet altitude, to the highest levels of the Pass and down the other side for a considerable distance; the low level form *campestris* from both the eastern and western regions of the Glockner range, and the high-level, Swiss form *warreniana* from the Faulhorn. All other *tyndarus*-like named forms, belong to other species. This applies to the unfortunate name "*subcassioides*" also, which I can only regard as a synonym of *aquitania*. The original descriptions of both these names are very faulty, probably taken from one or two selected specimens, but the more material one gets from the southern Alps, the more evident it is they cannot be separated.

I may emphasize again that without definite proof (i.e. Hohenwarth's full description), the names used for the Glockner insects in my Monograph (1936), were valid; with the proof they are shown to be the correct ones; the name "*nivalis*" was a synonym from the moment of its publication.

I took specimens from the Lienz district of the Dolomites as types of *dolomitensis*, for von der Goltz had not cited or marked a type of his *dolomitana*. My selection was invalid, for the Lienz district is outside the area mentioned in the description of *dolomitana*. I have since taken specimens from the Karer Pass as types of *dolomitensis*. This is important for von Mentzer has now separated from *dolomitensis* another race under the name *noricana*, which he attaches to *E. neleus*. I have included specimens of this race in my *dolomitensis* in the past. My descriptions and his may therefore not accord in some respects, but the selection of the Karer Pass specimens as typical of *dolomitensis* should keep the question clear. I have long been familiar with *noricana* which is remarkable for the absolutely straight outer margin of the forewings, and the extremely dark underside of the hindwings. It occurs far east and south of the Glockner range, and in the Carnic and Karawanken Alps. My material is very limited and from widely separated localities, but the remarkable colour and marking of the under side seems to become more extreme as one passes eastwards. This apparent constancy suggests a strain that is specifically distinct from the variable *dolomitensis*. The few examples I have dissected exhibit considerable structural variation, but all the same it may well prove to be a western offshoot of *E. neleus* as von Mentzer suggests. The problems presented by these eastern races are very complex. The discovery that *dolomitensis* and *noricana* exist in proximity, and may even hybridise, and yet maintain the two types as they appear in widely separated districts, strongly suggests the presence of two species. But we still do not know how far east *dolomitensis* may extend, and if it penetrates this eastern region whether it retains its typical aspect. Considering the wing-shape, the probability is that it would, but recalling the ecological fact that in this group of species proximity of different forms seems to check their range of distribution, it is unlikely that *dolomitensis* has penetrated much east of the Hohe Tauern range.

It has been demonstrated in various ways that a species is a continually developing entity (Warren, 1956). The recognizable structural

or genetic manifestations of a species are therefore not immutable: they have passed through many stages and most probably the degree of their evolution has seldom been contemporaneous. Cases in which the visible indications are difficult to apprehend with any certainty, must therefore be expected. This emphasizes the vital importance of distributional data. Our knowledge of these insects even in frequently visited localities has been shown by von Mentzer to be very incomplete; it is to be hoped he will continue his researches in the eastern Hohe Tauern and far to the south-east of that range in the future.

I am much indebted to von Mentzer for a very complete transcription of Hohenwarth's description.

In conclusion it may be of interest to note that two among the early authors were guided by Hohenwarth's description and not the fanciful figure. Ochsenheimer, the only one to mention Reiner and Hohenwarth by name, places "*P. cassioides* Reiner and Hohenwarth" as a synonym of the round-winged *tyndarus* Esp. (1807). Meyer Dür (1851), describes *cassioides* as "small with rounded wings", adding that he had it from the Gemmi Pass. The race of the Gemmi is *E. tyndarus semmurina*, which actually bears more resemblance to true *cassiodides* than any of the other races that have been connected with the name.

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Inverness-shire in 1961

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

The 1960-61 winter in the Highlands was quite uncharacteristically mild, with virtually no snow at all, and no stormy weather until the early Spring. Fortunately, the lack of snow was not accompanied by severe frost or our plight with the plumbing might well have been pitiable. Nevertheless, moderate daily frosts persisted throughout December and January and penetrated deeply into the ground, so that an even milder February was needed to cause the first *Phigalia pedaria* Fab. to emerge and grace my local wooden electricity poles on the 8th of that month. February continued very mild, so much so that a real dawn chorus of birds caused me to start my m.v. light trap on the 20th, earlier than usual. *Achlyia flavicornis* L. began emerging on 21st, four weeks earlier than in 1960.

March emergence began on the 6th, with *Orthosia incerta* Hufn. and *Colostygia multistrigaria* Haw., and these were soon followed by all the usual early species including *Brachyonica nubeculosa* Esp. on the 16th, which was a fortnight earlier than normal. Peak numbers for early spring species were reached on the 17th, with 117 moths in my m.v. trap! Hibernating imagines were in rather small numbers, probably due to increased predation in a mild winter, as also were the noctuid larvae, though these were well advanced by the 23rd, when some were over half grown already. The month went out like the proverbial

lion with a considerable snow storm!

April continued the early season, the shallows being quite over and the young birches in leaf by the middle of the month, while *Odontotia carmelita* Esp. appeared in my m.v. trap on the 21st, the earliest date I have seen it. Females of *Orthosia gracilis* Schiff. were found ovipositing on catkins of Bog Myrtle on the 23rd, and other late Spring species appeared early also.

May began very wet and windy, but even so *Pieris napi* L. and *Anthracis cardamines* L. appeared on the 2nd, continued the early trend of the season. However, the nights were very cold and numbers of insects on the wing small, emergence being spread over a long period. This chilly spell culminated in a most disastrous frost on the night of the 26th, when the temperature fell to 18 deg. F. The resulting injury to almost all trees was quite lamentable to behold, especially oaks, beeches, limes, spruce and larch. Many of them never recovered, though a few succeeded in producing a second leaf growth later in the year. It is not really possible to estimate the effect on the population of Lepidoptera, but I think the mortality was not very high nor very lasting, as trap catches later in the year were much as usual. The month ended with the pleasure of the discovery of two new species for my Badenoch list, namely, *Eupithecia distinctaria* H.-S., by my son, Dr. M. W. Harper, at Newtonmore, and *Lithina chlorosata* Scop. at Aviemore by Mr. P. Le Masurier. The former is a good colony and had clearly been overlooked, while the latter is an example of penetration from outside the district which I had been hoping for.

June began with cool, dry, but pleasant collecting weather, but numbers of insects appeared rather small, though the usual early summer insects continued to emerge steadily and still early. For example, *Argynnis selene* Schf. appeared on the 8th, and *Aricia agestis artaxerxes* Fab. on the 12th, the night of which also produced quite a sharp frost. A noteworthy fact about the early summer of this year was the complete absence of any common migrants such as *Vanessa atalanta* L., *Plusia gamma* L., or *Nomophila noctuella* Schf., and this observation was confirmed later in the year by the absence of any local breeding of these species which usually occurs. The rest of the month I spent in Devon, and recorded it in *Ent. Rec.*, 73: 186.

Returning to Badenoch at the beginning of July, the weather was found to be atrociously cold, wet, and windy as it had been for most of June, and so it continued through all July. The usual summer species made their appearance, in rather small numbers; notably thin was *Plusia pulchrina* Haw. usually our most reliable commoner after *Apamea monoglypha* Hufn., and even this species was not quite such a pest in the trap as usual. On 21st July, Mr. A. J. Wightman added a new scarce immigrant to my Badenoch list by capturing a good male specimen of *Celerio galii* Schf. feeding at dusk on Melancholy Thistles at Aviemore; the latter blossoms were quite heavily infested at Newtonmore by the beautiful beetle *Trichius fasciatus* Fab. This is an interesting mimetic species, closely resembling a Bumble Bee, and it is always quite common in various parts of the Highlands of Scotland, but this year I found no less than four on one thistle, and many other singletons, the patches of thistle blossoms being badly ravaged by them. On the last night of the month a quite inexplicable occurrence was a mint female *Macrothylacia rubi* L., but I will hazard a guess that the

great frost of 26th May, when on the point of normal emergence, may perhaps have caused two months delay.

The stormy, cold weather continued through August, and several species were now late! Temperatures, however, warmed up during the last few days of the month, accompanied by continuous Southerly winds and thunderstorms and a very considerable immigrant wave of *Rhodometra sacraria* L. On 31st August, while I was investigating a mixed clover and oat field at Kingussie for possible immigrants, I flushed a male *R. sacraria* and four more during the following few days, and a sixth appeared in my m.v. trap on 5th September. Meanwhile, having warned Mr. Le Masurier, he also took several at Aviemore, and I believe others were taken about the same date in widely dispersed places, many of which have been recorded.

September was even stormier than August, but the warmer, thundery conditions continued almost to the end of the month, resulting in large m.v. trap catches which deserve some comment. First, an all-time record size catch of 462 moths occurred on 2nd September, admittedly mostly *A. monoglypha* and *T. pronuba*, but it also included a male *Amathes alpicola* Zett., further evidence of the belated discovery that this species does, in fact, emerge in the odd-numbered years, though more commonly in the even ones. Next, further heavy catches on 4th and 8th included fine specimens of *Rhyacia simulans* Hufn. of the very dark northern form. This is the first time I have seen this fine species. Lastly, a few common species appeared in quite unusually large numbers, *Amathes agathina* Dup. being especially noteworthy since this seems to have been a country-wide phenomenon recorded also by others in the South. Other autumn species unusually abundant were *Amphipyra tragopogonis* Cl., *Leucania pallens* L., *Triphaena comes* Hb., and *Diarsia dahlii* Hb., while in contrast *Amathes xanthographa* Schf. usually quite a pest, was really scarce! A welcome wanderer from the nearest colony I know about four miles away was a male *Coenocalpe lapidata* Hb. in rather worn condition, on 13th September, and the month ended with a pronounced drop in temperature, and very autumnal conditions.

October began with a fine sunny week but cold nights. A sudden and quite remarkable wave of immigrant *Plusia gamma* L. arrived on the 4th, and for the next four days they were abundant in the m.v. trap and also at late honeysuckle blossom in my garden. They all disappeared on the 9th with equally dramatic suddenness. Many were in rather poor condition, and I am quite certain that they had not bred locally. The only *Vanessa atalanta* L. seen this year I found at rest on a fern frond on the 2nd. About dusk I saw it take wing and disappear in a southerly direction; it, too, was slightly damaged, and was undoubtedly a returning migrant. By the 17th, cold North winds and snow on the hills virtually ended the season rather earlier than usual. A very short mild interlude early in November brought an emergence of *Operophtera fagata* Scharf., and on the 22nd winter closed in properly and very early. So ended a rather disappointing year in Scotland, with continuous stormy summer collecting weather, but also with a few redeeming features towards the end of it.

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; **68**: 91; **69**: 52; **71**: 115; **72**: 14;
and **73**: 60, 61)

SUPPLEMENT No. 7

Yet again it is a great pleasure for me to record further new species of Macrolepidoptera occurring in Badenoch to be added to my Badenoch List, the definition of the area being contained in my main list in *Ent. Rec.*, **66**.

This year, 1961, four new species have been discovered, of which only one is a rare migrant. One species is undoubtedly a genuine endemic which had been previously overlooked, one possibly so or perhaps an infiltrator from surrounding lowlands, and the last undoubtedly an infiltrator which I have been expecting for some time.

SPHINGIDAE

Celerio galii Schf. A male of this rare immigrant Hawkmoth was captured by Mr A. J. Wightman at dusk feeding at Melancholy Thistles at Aviemore on 21st July 1961. The moth was in very fair condition. This fine species has in earlier years penetrated as far North as Unst in Shetland, but I know of none from the central Highlands.

AGROTIDAE

AMPHIPYRINAE

Rhizedra lutosa Hb. A very fine large male specimen of the form *ab crassicornis* Haw. in splendid condition entered my m.v. light trap at Newtonmore on 10th October 1961. The nearest beds of Common Reed are about five miles distant, and do not seem to be very suitable habitats as they grow in very waterlogged marshes; but although considerable work in previous years has failed to reveal the species, I still think that there is a colony somewhere in the district. Alternatively the moth may have been a vagrant from the surrounding lowlands.

GEOMETRIDAE

LARENTIINAE

Eupithecia distinctaria H.-S. A colony of this interesting Pug was discovered in a very rocky habitat near Newtonmore on 31st May, 1961, by my son Dr. M. W. Harper. The locality is associated with one of the few outcrops of limestone in the district, and bears a rich growth of Wild Thyme. The moth is a not uncommon coastal species in the West of Scotland, but as it prefers very rocky habitats it may easily have been overlooked elsewhere as here in Badenoch.

BOARMIINAE

Lithina chlorosata Scop. A male specimen of this Bracken feeding species was taken at m.v. light at Aviemore by Mr. P. Le Masurier

on 21st May 1961. Bracken has been slowly but steadily increasing in Badenoch during the ten years I have lived here, and I have been expecting this moth to appear for some time. It will be interesting to see if it establishes itself here; it is quite common in the Great Glen and Western Inverness-shire generally.

This supplement further increases the total number of Badenoch Macrolepidoptera at the present date, January 1962, to 369 species.

Neadaich, Newtonmore, Inverness-shire. 21.i.1962.

Queries from the Journal of a Tyro — 1961

By J. H. REDFERN, M.A.

14th May: I am in the famous Oxford hunting ground, the Hell Coppice area, looking for *Euphidryas aurinia* L., where I had been told to look for it. (*Aurinia* does not show up, either then or at any other date.) However, at the far end of the field, I observe a web of black larvæ positioned, as far as I can remember, about seven feet up on a post, on or adjacent to blackthorn—the web being perhaps a foot in diameter, and the larvæ each about $\frac{3}{4}$ " long. It is about 4 p.m. and sunny.

The larvæ, some forty or fifty of them, are all engaged in a sort of game of perpetual motion: each is waving its head from side to side in a jerky, clockwork fashion, and each gives in this way an impression of extreme irritation and annoyance. The composite effect of this group is quite awe-inspiring, and if the purpose of the exercise is to scare off hungry birds, there is no doubt that this would be achieved, as I cannot imagine a bird of ordinary proportions daring to touch them with a barge-pole!

Apart from their identity (which I admit I could not place, for I was only there a moment or two), I wondered afterwards if these larvæ kept this up day and night, or only during daylight hours: when would they take time off to feed, and how, on what, and where? If this is a form of self-preservation, is it peculiar to one species or common to many?

Visiting the spot about three weeks later I found all gone—post, web, larvæ, the lot. Perhaps a well-wisher had taken them into "protective custody"? If so, he may even be reading this now, and could give me the answers.

Any comment, whether by the Editor or by subsequent readers, would be noted by the writer with interest and thanks.

7th July: I found myself in the centre of the Forest of Dean, at 6.30 p.m., hunting *Argynnis cydippe* L. which, in spite of the late hour, I knew to be there. (Every large fritillary I saw last year proved to be *cydippe*, from the Lake District to South Wales to Oxford and back, so that I begin to wonder whether *A. aglaia* L. really exists any more anywhere—and for critics, I do know the difference between them!)

Well, the *cydippe* are there, but at that late hour, and with the going down of the sun, they seemed to have become wilder than ever (if that were possible), and would on no account permit capture from a newcomer such as I.

Eventually, after falling headlong into sundry bramble bushes, I gave up the unequal struggle, and decided to watch. In the open clearing were numerous young oak trees about 20 feet tall. The *cydippe* were repeatedly making for these, after each sally of mine, and having approached the upper branches, far out of reach of my net, were fluttering continuously in and out of them, never settling, but, on the other hand, never giving any signs of wanting to come away.

Was this yet another example of honey-dew feeding, or was it simply 'bed-time', and they were picking, like the birds, a roosting place for the night?

When I left the spot in disgust, they were still steadily fluttering round the oak tops, silhouetted by the last rays of the sun.

(Footnote.—If they had been *aglaia*, I might have waited for the dawn!)

Brackens, 78 Park View Road, Lytham, Lancs. 16.i.1962.

I have been looking into the books with reference to the social larvae on the web. My belief is that they were *Euproctis chrysorrhoea* L. (brown tail). They feed on blackthorn and I bred a series in 1961. Lots of larvae, especially when in a colony, jerk their heads, but I think it is to drive away ichneumonids and other predators. If the web was a very white one, the larvae could possibly have been *Eriogaster lanestris* L. (small eggar). I have bred it and have notes of larvae seen between 12th May and 7th June in Sussex.

As far as your second note is concerned, I have not seen *cydippe* very often since July 1922 when I saw it emerging in enormous numbers in the New Forest. Your insects were, I am sure, settling on the leaves on the oak branches for the night. I have often seen *paphia*, *camilla*, *aglaia* and *cydippe* doing this at 8 p.m. in the New Forest.

Aglaia:—I have taken in Cornwall, Castor Hanglands, Lower Bad-dow, Royston, Fleam Dyke, New Forest, Plaistow (Sussex), Clandon, Woollacombe, and last but not least, Aviemore. At Aviemore, both males and females were darker than the southern ones, and the females are especially dark. I have taken them there between 4th July and 9th August, but between 20th July and August bank holiday is a good time, in an average season.

I have been collecting for sixty years (I am now 79) and realize that I have a tremendous amount to learn. I find that the man or boy who has been at the game two or three years seems to be certain of everything. I never shall be.—CLIFFORD CRAUFURD, Denny, Galloway Road, Bishop's Stortford, Herts.

PHLOGOPHORA METICULOSA L. IN JANUARY.—On 27th January I saw a freshly squashed specimen of this moth on the footway in the centre of Bromley. The wings were in good condition and the mild spell following the cold period would apparently have stimulated this early appearance.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent. 5.ii.1962.

THE CANARY ISLANDS AND CENTRAL SPAIN (Vol. 73: 245).—Baron de Worms was quite right in his spelling of the foodplant of *Danaus plexippus* as *Asclepias curassavica*; Mr. Sevastopulo's amendment is therefore uncalled for.—KENNETH J. HAYWARD, Tucuman, Argentina.

To the Editor,
The Entomologist's Record.

29th December 1961.

Dear Sir,

I was delighted to read Mr. J. F. Burton's letter in the December issue of the *Record*, in which he suggested that a Field Guide to the butterflies of Europe would be a boon to lepidopterists. Those who, like myself, spend their spare time in studying and, whenever possible, collecting the butterflies and moths of Europe, will know the difficulties involved in searching through literature in many languages. Some of the revisions of Genera carried out by such workers as Boursin are very difficult to trace, and the poor amateur, confronted with a nondescript Noctuid or a worn specimen of one of the fritillaries of the *athalia* group, is compelled either to look up all sorts of references which are often contradictory, or else he ends up (as I usually do) by lamely trotting off to Kensington or Tring and settling the matter with Messrs. Howarth, Bradley, Goodson, Tite and Co.

Recent correspondence on the defects and merits of the new "South" show how much work has yet to be done on British lepidoptera alone. The amount of co-ordination necessary to reduce the tangle of European Papers to any form of order is enormous, but it is high time that the job was undertaken by competent persons. There is little doubt that all your readers who are working in this field would gladly co-operate, and I should be grateful for permission to count myself amongst their number. The views of other readers are awaited with great interest.

Yours faithfully,

DENNIS SMITH, F.R.E.S.

From Major General C. G. LIPSCOMB, C.B., D.S.O.

28th December 1961.

Dear Sir,

I was most interested in Mr. Burton's letter published in the December number of the *Record* (73: 265). Having recently returned to this country after several years in Germany, I know something of the problems of collecting on the continent, particularly as my efforts to obtain an illustrated pocket guide on the continental butterflies in English drew a complete blank. In the end, I have used as my bible a German publication, *Die Schmetterlinge Mitteleuropas*, by Drs. Forster and Wohlfahrt. This is an excellent publication, very well illustrated, with brief but adequate text and not so large that it cannot conveniently accompany one on one's travels. With the exception of Spain, Scandinavia and Greece, it virtually covers all the parts of Europe one is likely to visit.

While supporting very strongly nearly all that Mr. Burton says, I personally doubt whether the idea of distribution maps on the same lines as those in the *Field Guide to the Birds of Britain and Europe*, with which I am very familiar, is really practical. Many of the worthwhile species are very local, so that to be effective the maps would have to be on a large scale and in considerable detail.

I thoroughly agree that there is a real requirement amongst entomologists for a well-illustrated English pocket guide to European butterflies and this might well be on the lines of the German publication to which I have already referred.

I would be glad to give what assistance I can from my own limited experience to any team of entomologists that undertook a publication of this nature.

Yours faithfully,

Crockerton House, nr. Warminster.

C. G. LIPSCOMB.

Mr. Raddon and his Spurge Hawks

By S. C. S. BROWN

Judging by a recent review of the New Edition of South's "Moths of the British Isles" (Ent. Rec. 73: 220) it appears that Raddon's discovery of *Celerio euphorbiae* (Linn.) on Braunton Burrows in North Devon in 1806 is now largely discredited. Raddon claimed to have found the larvae in considerable numbers up to 1814 and to have bred a few moths. It is now argued that as no one else but Raddon found the larvae he must have been a cheat and a liar, and that he imported the species from the Continent and sold the moths as genuine British stock. How was this species imported, as ova, larvae, pupae or as set specimens? The Napoleonic War was on, and France had been engaged in hostilities with this country since 1793, yet we are asked to believe by the prosecution that ova or larvae of *euphorbiae* were obtained every year between 1806 and 1814 from a continental dealer, brought across the channel by sailing vessel through the blockade, and delivered to Barnstaple in North Devon before the ova hatched or the larvae died! Could the pupae have been imported and a stock raised? Possibly, but but Mr. P. B. M. Allan himself declares in his *Talking of Moths* that Raddon was too much of a bungler to have raised a brood, and that he had to rely on a fresh importation each year. What is the evidence in support of Raddon's claim? The Spurge Hawk occurred, or was at least recorded in Devon, both before 1806 and after 1814. A. H. Haworth, in his *Prodromus Lepidopterorum Britannicorum* 1802, against *Sphinx euphorbiae*, writes "Devon". This record is most certainly referable to E. Donovan in his *Natural History of British Insects*, Vol. III, 1794, pp. 51-53. Donovan says: "Mr. Curtis, author of the *Flora Londinensis* etc., found four of the caterpillars last summer in Devonshire." This would date the discovery of the larvae to the year 1793. William Curtis (1746-1799) was a noted botanist, and besides being the author of the classical *Flora Londensis* founded the *Botanical Magazine* which is still in existence. He was also interested in entomology, and was the author of *Instructions for Collecting and Preserving Insects*, 1771. The moth, together with the larva and its food-plant is figured in John Curtis' *British Entomology*. The plate is No. 3 and is dated 1st Jan. 1824. It was Curtis' custom only to figure species which he himself had seen, hence he must have been in possession of a living larva of *euphorbiae* in order to have figured it. He says in the text: "*Deilephila euphorbiae* is eminently beautiful both in its larva and imago states, and although it has been met with by the earlier collectors, I am indebted to the assiduity and liberality of my friend Mr. Raddon for being able to give its history, as well as figures of the larva, and the plants upon which it feeds." Curtis gives figures of a full-grown larva, the moth, and two larvae in the first instar which are placed in the cup-shaped involucre of the flower-head and are easily overlooked if the plate is not examined carefully. The fact

that Curtis was able to figure two larvae soon after the emergence from the egg, definitely strengthens Raddon's claim that he found the very young larvae in abundance at Braunton Burrows.

The first part of his *British Entomology* appeared on 1st January 1824. We know from the correspondence which passed between Curtis and Dale that he had been engaged on this work for some fifteen years. As the plate No. 3 was presumably one of the earliest made, it would date its construction not earlier than 1809, but well within the years up to 1814. The Curtis collection is now in Melbourne. In 1903 J. J. Walker visited Melbourne and examined the collection. His observations were published in the *Ent. mon. Mag.* 1904, 187-194. Walker said that there were three specimens of *euphorbiae*, evidently bred. In the MS. Register there was the following: "*Deilephila euphorbiae* 6th June. 1st cat found. Appledore and Braunton Burrows. 1814, abundt. 3rd October 1819, one—." There are six examples in the Dale collection from Raddon. One worn male is labelled: "Barnstable (*sic*) Mr. Raddon", and at the side, "1815". Mr. W. H. T. Tams has been kind enough to look at the Stephen's collection for me in the British Museum (Nat. Hist.). He says that there are five specimens of *euphorbiae*, all without data, but from what Stephens says about this species in his *British Entomology* 1828, they are most probably from Raddon. The Raddon collection was sold in 1848 at Stephens. There were four specimens, which fetched 38/- to 40/- each.

For some years I have been engaged on a projected biography of James Charles Dale (1791-1872) of Glanville's Wootton, Dorset. Through the kindness of Prof. Varley I have been given facilities for examining the collections and MS. catalogues as well as the correspondence of Dale which are in the Hope Dept., University Museum, Oxford. The correspondence consists of more than 5,000 letters to Dale, and are entirely from entomologists. Many of these letters are of considerable historic interest. Raddon wrote 18 letters to Dale, the first being dated 18.3.1825, and the last, 23.12.1835. There is nothing contained in them of any particular interest. Curtis wrote 351 letters to J. C. Dale. The first is dated 26.10.1819, and the last, 6.7.1862. In 1822 Curtis wrote to Dale to say that he had heard from Dr. Cocks, a physician practising at Barnstaple, that he had been to Braunton Burrows and found 7 larvae. A fortnight later, Curtis joined Dr. Cocks and they both went to the sandhills but failed to find any. Dr. Cocks wrote 51 letters to Dale. The first dated 3.9.1830, and the last, 18.4.1856. He told Dale that he had discovered *euphorbiae* only in one year (not stated), and that the larvae were in one spot and close to the shore. Later, in 1843, he (Cocks) had heard that Raddon had found one larva, which pupated but died before it emerged.

Meyrick, (*Revised Handbook* 1928), suggests that *euphorbiae* is only an occasional resident here. Its distribution is Central and South Europe to India and Turkestan. Britain, therefore, would be well beyond its normal range. The foodplant, *Euphorbia paralias* L. is confined to the coasts. It is possible that the species could exist for a few years and then be wiped out by adverse climatic conditions. The winter of 1813-14 was extremely severe, and the summers of 1815, 1816 and 1817 unceasingly cold and wet. It may be of some significance that *Papilio machaon* L. and *Aporia crataegi* (L) both disappeared in 1815 from Glanville's Wootton, Dorset, where they had been not uncommon.

S. C. S. BROWN, 454 Christchurch Rd., Bournemouth.

Butterflies in the Oxford District, 1961

By Dr. R. G. AINLEY

These observations are based on expeditions undertaken weekly, or more frequently, to a variety of localities within a ten-mile radius of Oxford, throughout the period April to September 1961. Species here recorded as "not seen" were specifically searched for, but not found.

The immigrant species may be rapidly dismissed. *Vanessa atalanta* L., was seen very infrequently, *V. cardui* L., and *Colias croceus* Fourc., were not seen at all. The immigrant "Whites", after a poor start, became common from July onwards, *Pieris napi* L., predominating.

The Satyridae were of average incidence, with two exceptions. *Melanargia galathea* L., usually a common roadside butterfly in many parts of the region, was unusually scarce. For many years a large colony of this species has flourished in the Waterperry area. In 1960 the territory covered by the colony had diminished markedly, though specimens were moderately common. In 1961, an afternoon's search in this locality produced three specimens. By contrast, *Pararge aegeria* L. has been commoner in this area in 1961 than I have ever known it to be. It is, of course, well known that this species has been extending its range in many parts of the country during the last twenty years (Ford, 1945). Mr. R. F. Bretherton (Bretherton, 1939) in his survey of this region records it as being "very scarce". I began to collect Lepidoptera in 1944, and within a few years I came to regard *aegeria* as a rare species confined to the thickest parts of a few large woods, and even these being few and far between. My impression is that since 1947 it has shown a steady increase and, at the same time, a change of habitat. Its headquarters are still the larger woodlands, especially up till the end of May, but the second and third generations are found in all types of habitat. In August and September 1961 it was common in riverside meadows, along open hedgerows, and in suburban gardens.

All the Nymphalidae were well below average in numbers. In three localities in which *Argynnis euphrosyne* L. has in the past been common, not one specimen was seen, although there are signs of a revival of this species among the tree-stumps of the now-mutilated Hell Coppice. Ten years ago *Argynnis paphia* L. was fairly common hereabouts. In 1961 I was unable to find a single specimen. I have also been unable to find *Euphydryas aurinia* Rott. in any of its usual localities in the region. *Aglais urticae* L. was very common, as always, but *Nymphalis io* L. was scarce, and has been so for the past three years. *Limenitis camilla* L. seems also to have undergone a partial eclipse. I have seen only one specimen during the whole season, and this in a wood where, in 1960, I was able to take six perfect specimens within forty minutes (not to mention the ones that got away, and those I released because of damage). The numbers of *Polygonia c-album* L. seen were well below average, and *Apatura iris* L. was not seen at all, though it must be admitted that in Oxfordshire this species is seldom seen in great numbers at the best of times.

All those species of Pieridae and Hesperidae found in this district were seen in average numbers. Of the local Lycaenidae the two Oxonian blues (*Polyommatus icarus* Rott., and *Celastrina argiolus* L.) were well below strength. *Thecla quercus* L. was abundant in most of its localities

in July, and *Strymonidia pruni* L. was seen in average numbers, though I saw none at Hell Coppice, its best-known locality in the area.

To what do these superficial observations add up, assuming that they represent an approximation to the true incidence of the butterflies of this region in 1961? With one or two exceptions, 1961 was undoubtedly a poor year for most species. It is too easy to lay the blame for this at the door of the Local Authorities who spray the roadsides with poisons, and the Forestry Commission who are busily converting the local mixed woods into acres of sterile conifer plantations. Factors such as these undoubtedly play a part, but since, in 1960 and 1961, species in all types of habitat have shown a general decline in numbers, it may well be that we are witnessing what is partly a "natural" fluctuation in numbers, possibly of climatic origin. It is easy to say this, and impossible to gain any good evidence in favour of it. Time will tell, and in other parts of the country the picture may be less gloomy.

Finally, I must agree wholeheartedly with Mr. P. C. Quin (*Record*, p. 244, November 1961) that, as regards some species, over-collecting is hastening their extinction. We all know what happened to Hell Coppice a few years ago. Nevertheless, in what remains of that once-celebrated hunting-ground, *Thecla betulae* L. and *Strymonidia pruni* L. have somehow managed to survive, though in greatly reduced numbers. In 1960 I found there three larvae of *betulae*, and saw a few imagines of each species. However, in 1961, despite repeated visits neither species was seen in any stage. Every weekend in May and June, the local blackthorn was belaboured by visiting collectors, and by July every accessible branch must have been beaten several scores of times. Most of those to whom I spoke had found neither *pruni* nor *betulae*. If this sort of thing continues, both species will soon be extinct in this locality, if they are not so already.

May I conclude by asking readers of the *Record* for some practical advice? One of the Oxfordshire localities of *Strymonidia pruni* L. is, I believe, little known even to local entomologists. It originally consisted of two long rows of old Sloe bushes separated by a small wood. In 1948 I found *pruni* there in abundance on both these banks of Sloe. In July 1961 I re-visited the wood, to find that the Forestry Commission had razed one bank of Sloe to the ground, along with most of the wood itself. Nevertheless, on the remaining bank of Sloe, I saw ten specimens of *pruni* within twenty minutes. The problem is as follows: since it seems very probable that a bulldozer will shortly be driven through the remaining Sloe bushes, can any reader of the *Record* suggest a course of action that could be taken by an individual to avert the final destruction of this habitat for a rare butterfly?

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 Bretherton, R. F. 1939. A List of the Macro-Lepidoptera of the Oxford District.
Proc. Ashm. Nat. Hist. Soc.
 11 St Margaret's Road, Oxford.

MR. C. HOLMES.—I was much interested to read the note about the *Celerio euphorbiae* L. bred by Mr. C. Holmes at Sevenoaks in 1902 (Lepidoptera of Kent, II (7). Supplement to the January "Record").

In those days I was living not far from Mr. Holmes and knew him quite well. I still have in my collection two specimens of *Clostera anachoreta* Schiff. that he gave me. They had both been bred by him, one in 1907 from a larva found at Romney and the other in 1908 from a larva found at Hythe. I always found Mr. Holmes very kind and helpful to a young entomologist.—H. SYMES, 52 Lowther Road, Bournemouth. 2.ii.1962.

Lepidoptera Observed at Dulwich in 1961

By ALASDAIR ASTON, B.A., F.L.S., F.R.E.S.

The following thirty-eight species have been added to my list of Dulwich Lepidoptera observed from 1957 to 1960.—

Deilephila elpenor L. emerged 22.vi.61; *Euproctis chrysorrhoea* Hübn. 1.vii.61; *Cyenia mendica* Clerck. at Belair, 13.v.61; *Apatele leporina* L. 23.vi.61; *Hadena serena* Fabr., *Rivula sericealis* Scop., *Alsophila aescularia* Schiff., *Sterrha dimidiata* Hufn., *Eupithecia pulchellata* Steph., 23.vi.61; *Erannis aurantiaria* Esp., *E. defoliaria* Clerck, *Colotois pennaria* L., *Acentropus nivea* Ol., *Dioryctria fusca* Haw., *Ephestia sericarium* Scott, *Homoesoma binaevella* Hübn., *Myelois cribrella* Hübn., *Crambus perlellus* Scop., *Stenoptilia pterodactyla* L., *Pandemis ribeana* Hübn., *Tortrix loeflingiana* L., *Argyroplote pruniana* Hübn., *Eucosma griseana* Hübn., *E. trimaculana* Don., *Laspeyresia funebrana* Treits., *Batachedra praeangusta* Haw., *Elachista rufocinerea* Haw., *Scythris chenopodiella* Hübn., *Argyresthia brockeella* Hübn., *Coleophora spissicornis* Haw., *C. deauratella* Zell., *C. anatipennella* Hübn., *Ornix guttea* Haw., *Gracillaria stigmatella* Fabr., *Scardia boleti* Fabr., *Tineola infimella* H.-S., *T. cloacella* Haw., *Nepticula subbimaculella* Haw.

Of the above, *E. chrysorrhoea* was an unexpected wanderer, but I hear that it was very common in 1961 on the coast. Mr. Wakely thinks that *A. leporina* probably feeds on poplar in London. I might have passed over *E. pulchellata* but that very day I noticed *Digitalis purpurea* in Dulwich. *D. fusca* is supposed to feed on *Erica*, of which there are cultivated varieties in Dulwich Park, but I suspect that *fusca* either ranges very far in flight or else has alternative pabulum. This brings my Dulwich total to 324 species.

15 Pickwick Road, Dulwich Village, S.E.21.

Notes on Reviews of the New "South"

By Its EDITORS

Now that several reviews of the recent edition of South's "Moths of the British Isles" have appeared, it is perhaps opportune to comment on some of the criticisms that have been made.

A major and quite understandable source of irritation is the errors in the legends to the plates and their lack of page references. Had the editors been given the opportunity of reading the proofs of the legends and inserting the page references, these faults could have been avoided. Despite repeated requests for copies of these proofs, none was received. The responsibility for these errors and omissions must therefore rest with the publishers.

The alteration by the publishers of the original sequence of the plates was made without all the corresponding references in the text being altered and the absence of legend-proofs allowed these alterations to be published unchecked. Some of the species figured on plate 49 in volume two have references to plate 48.

It has been suggested that figure 14 on plate 70 in volume two is wrongly labelled; in the copies that we have so far examined, the figure illustrates the species intended.

Errors of commission and omission in the distribution lists are much regretted by the editors and every effort is being made to correct these, together with any other errata, including out-of-date botanical and geographical terms, before the next impression is printed.

Mr. Wightman's paper on *Aporophyla lutulenta* Schiffermüller and *Aporophyla lunebergensis* Freyer was not overlooked, as has been suggested; the conclusions reached, however, were contrary to those held by Monsieur Ch. Boursin, and the editors decided to maintain, for the present, the previously published status of the two names.

The inclusion of line drawings to illustrate the genitalia of closely related species was considered, but as few collectors have the facilities for making genitalia preparations, references to published figures in the literature were thought to be adequate. For those who have such facilities (a stereoscopic dissecting microscope is essential), there are several publications: for example, F. N. Pierce's volumes illustrating the genitalia of both sexes of most of the British Lepidoptera, W. H. T. Tams' "Some British Moths Reviewed" (1941, *Amateur Entomologist*, 5: 1-20, figs. 1-73), and more recently, E. W. Classey's well-illustrated Presidential Address to the South London Entomological and Natural History Society published in March 1954. Whilst copies of most of Pierce's volumes are difficult to purchase, these and other works are available for study in, or on loan from, institution and Society libraries. For those who wish to make genitalia preparations and want to know something of the techniques involved, there is a clear and concise paper entitled "The Genitalia of Lepidoptera" by A. F. O'Farrell published in the *Amateur Entomologist* (1941, 5: 33-38).

The original prints that were supplied for the text figures were far from "wishy-washy", but the excellence of their quality has been lost by poor reproduction.

To ensure that errors are corrected before further impressions are printed, the editors have had for some months a copy of the first impression marked and prepared for the printers; in this copy, notes from reviews and other sources have been correlated. We should appreciate the co-operation of any reader who would care to send us any notes or comments.

D. S. FLETCHER.

14 Warren Park, Warlingham, Surrey.

R. J. COLLINS.

Current Literature

THE NIGERIAN BUTTERFLIES. Part VI. Acraeidae. 1961. Boorman, J. & Roche, P. Ibadan University Press. Part I. Papilionidae, 1957, and Part V, Nymphalidae, section 3 (Hamanumida to Issoria) 1959, have appeared and have been reviewed. The whole of this work is being published in 9 parts.

This is another very welcome addition to the very scanty literature concerning the *Rhopalocera* of West Africa. It is extremely well described and illustrated and easy to use for identification of Acraeidae.

I would advise also a study of the Acraeinae section of "The Butterflies of Kenya and Uganda" by St. Aubyn Rogers and Van Someren, as it is obvious that a number of new species and sub-species will be discovered.

Individual variability is combined with a strongly-marked general resemblance, and apart from certain Nymphalidae and Lycaenidae mimicking Acraeids, some *Acraea* directly mimic species of the same genus, or in the closely-allied genus *Planema*.

It should be noted that all the species are very resistant to cyanide, and it is difficult to kill them by pressure on the thorax without mutilating them.

Although it is noted that many are characteristic of the rain forest belts, it should be realised that though many species inhabit forests, on the whole they are more characteristic of the open country.

I associate *Acraea* with grassland, and *Planema* with gaps in forests, up to 2,500 ft. in Togoland.

Acraea fly about slowly, and float about, sometimes in large numbers.

The range of many of these species extends from Nigeria to the Congo. The genus *Acraea* is the richest in species of all Ethiopian butterfly genera, and is represented everywhere in the region. Outside Africa, only a few species occur in South Asia and Australia.

It is hoped that Lepidopterists in West Africa will make a special study of this neglected family, and will be inspired by this most useful book.

F. L. JOHNSON, M.B.E., F.R.E.S.

25 Fermoy Road, Thorpe Bay, Essex. 15.iii.62.

North America and the Extreme South of Spain

(August to October 1961 and April 1961)

By J. A. C. GREENWOOD, O.B.E., F.R.E.S.

Almost every year I spend from four to six weeks in North America, usually between the end of September and the end of November. In 1961 I went across on the 28th August, and lepidoptera were naturally more numerous than on visits later in the season. As these are business trips, and practically confined to the major cities, the opportunities for collecting are limited, but even so the hauls are quite interesting and reasonably large. Most of the moths were taken at night on lighted shop windows, others at rest by day. My butterflying consisted of odd hours with a pocket net at weekends on any piece of handy open ground.

Towards the middle of September 1961 the monarch butterfly, *Danaus plexippus* L. was quite numerous around Toronto, even in the centre of the city. The insects were in ones and twos, obviously not migrating. I saw the same damaged specimen in a small garden on three successive evenings, while a very fine one spent over an hour on the 18th green of the Toronto Golf Club, quite undisturbed by some excellent approach shots and moving only a few yards when it was in the line of a putt. I could have captured a long series but, in fact, took only one. This was caught with a nylon landing net with one-inch mesh

(my host was a keen fisherman). It proved an ideal weapon for such a large butterfly.

In Montreal on the 15th September there were no monarchs to be seen. Fifty miles north, at Ste. Marguerite, the milkweed was growing in profusion, there were many butterflies including several *Colias* species, *Chrysophanus hypophlaeas*, some Whites and a *Pyrameis atalanta* L. There were no monarchs.

On the 23rd September I motored from Toronto 225 miles westwards to Sarnia. All the way there were many monarchs flying towards the south-west. I counted over 200 actually crossing in front of the moving car. Most of them were between 3 and 5 feet from the ground, very few above 10 feet. Almost all were flying steadily and in the same direction, although an occasional specimen would pause on a head of golden rod or clump of clover. It was a very hot day, well over 90° F., with a strong sun and a light wind from the west.

At Sarnia there is only a narrow water crossing to the U.S.A. shore, to the north of which is the wide expanse of Lake Huron, to the south the St. Clair river is over half a mile wide and soon opens into the St. Clair lake and Lake Erie. The butterflies gave the impression that they were heading, as though drawn through a funnel, towards this easy crossing.

The monarchs were flying in company with at least two, and probably more, species of *Colias* and some whites, but these seemed to be moving quite aimlessly with no indication of being part of a migration.

From St. Clair I drove on next day westwards 375 miles to Chicago and, as soon as a very heavy thunderstorm ceased about noon, again saw large numbers of monarchs, still flying towards the south or south-west.

In Chicago itself the monarchs were more numerous than ever. About 100 spent the night in a clump of bushes outside my hotel. There was a very strong wind during the two days of my stay, and it was most impressive to watch the butterflies battling their way from street level to the roofs of the skyscrapers, never attempting to find an easier way round. From my bedroom on the 6th floor I had an excellent view and could watch them tacking from side to side in the angle of the building, gradually gaining height until they could sweep away over the roofs. My office is on the 19th floor and from the windows there were often as many as a dozen butterflies in sight at about this level or above. Their power was most evident as was their determination to keep to their course.

None were to be seen in New York at the end of the month, although migrating streams pass down the eastern seaboard.

In Toronto my richest hunting ground was near the Park Plaza Hotel, where I found many moths, including four of the five species of *Catocala* which I saw in Canada, at rest on trees or on walls or windows. There were only single specimens of *C. unijuga* Wkr., *C. neogama* and *C. parta* Guen. but *C. relictata* Walker with its handsome black and white hindwings, was common and very variable in the markings of its forewings. It often rests 10 or 12 feet from the ground, but can sometimes be dislodged by an accurately aimed handkerchief (always a source of amusement to passers-by) when it is inclined to flutter down to the pavement and seems less skittish than its British relative, *C. nupta* L.

Autographa simplex Guen. was flying freely in the sunshine, particularly round flowers on the Toronto golf courses. Its darting flight is very like that of its cousin, *Plusia gamma* L., and it is just as difficult to box when on the wing.

At midnight, returning to the Park Plaza, I saw a large insect flying in the beam of a flood-lamp trained on a nearby church. It settled on the ground as I approached and I was surprised to find that it was, in fact, another monarch butterfly.

During a fortnight in Canada I came across some 12 species of butterflies and 40 of moths. One of these, taken in the centre of Toronto, close to the Museum, was identified (as were many of the other moths) by Dr. de Worms as *Brachylomia discinigra* Hampson. The British Museum have only one specimen, the type taken over 100 years ago. The Ottawa Museum have a short series, but none taken near Toronto.

Of the shop windows, far the richest was "Honest Ed's", a large store, selling almost everything at cut prices, whose splendid bargains, and exceptionally well-lit windows, attracted many moths; there were almost always half a dozen or more.

This was my only source of the delicately marked *Erastria carneola* Guen.

My highest capture in Canada was on the roof of an 11-storey building where a Plume, *Pterophorus monodactylus* L. was sitting on the bris-soleil camouflaging the water tanks.

In Chicago moths were much less numerous, but I found several *Leucania unipuncta* Haworth and *Heliothis armigera* Hübn. A *Pyrameis cardui* L. was sunning itself on a shop window. Perhaps it was natural that the display within was a most expensive line in mink bikinis for, as my companion remarked, American Painted Ladies have extravagant tastes.

New York always produces quite a good selection of moths. A hot-dog stand near Times Square was a reliable stand-by, but boxing was sometimes difficult when trade was brisk.

Central Park I have always found disappointing. My theory is that the immense population of squirrels enjoy an hors d'oeuvres of cocoons and resting moths as spice to the simple meals provided for them by the doting multitude of New Yorkers.

The Hanover Bank, near Fifth Avenue, produced several species, including *Autographa precatationis* Guen. and *Feltia venerabilis* Wkr. On the newspaper offices at 42nd Street I found one example of the gaily coloured *Attea aurea* Fitch.

In central New York moths seem to fly at least to the 18th floor, specimens at that height included *Prodenia ornithogalli* Guen. and *Amathes c-nigrum* L. Also *Peridroma porphyrea* Schiff., which is very common in New York as is *Agrotis ipsilon* Hufn.

Perhaps the commonest species I saw in Central New York was *Plathypena scabra* Fab., of which I often came across up to a dozen examples in an evening stroll. *Alabama argillicea* Hübn. is also abundant in October. A species of Vapourer, *Orgyia leucostigma* A. & S., is a plague on some trees and the cocoons and egg masses abound on trunks and ledges of walls, particularly in the gardens of the Library on 5th Avenue at 42nd Street.

In New York and Toronto I was pleased to find specimens of that

remarkable little moth *Nycterosia obstipata* Fabr. which appears in this country as a common migrant.

During my stay in New York a large number of praying mantids emerged in the area of Park Avenue; they even merited a paragraph in the paper. A fine specimen passed two days doing obeisance to the passers-by while it perched on a piece of ornamental driftwood in the window of a most expensive florist on 5th Avenue at 12th Street.

At St. Clair I found a dozen specimens of a magnificent large thorn, *Ennomos magnarius* Guen., very like our *E. autumnaria* Verb. They looked most attractive in the breakfast sunlight, still resting on the illuminated windows of a motor saleroom.

In April 1961, we enjoyed a family holiday at Calahonde in the extreme south of Spain, some 45 miles north-east of Gibraltar. This is an area I can recommend for delightful scenery, good weather and a large and varied insect population.

We flew to Gibraltar, and there collected a car, which we had hired for our stay.

The hotel has extensive grounds running down to the sea and is ringed by powerful lights which are kept on until dawn. By rising at, or soon after, 6 a.m., I was able to collect quite a rich haul of moths, which included *Celerio euphorbiae* L., *Celerio livornica* Esp., *Laothoe populi* L., *Smerinthus ocellata* L., *Marumba quercus* Schiff., *Macroglossum stellatarum* L., *Cossus cossus* L., *Arctia villica* L., *Taragama repanda* Hübn., *Cucullia chamomillae* Schiff., *Malacosoma loti*, *Cerura vinula* L., and a "kitten", also a very fine *Saturnia pyri* W.V., the largest European moth. *Hoplitis milhauseri* Fab., was quite numerous, though generally scarce where it occurs elsewhere in Europe. I took five and could have collected several more. The uncommon little *Bryophila pineta* Stau. and *Nola subchlamydula* Stau. were quite abundant.

Although early in the season, we left in the fourth week of April, butterflies were in enormous numbers, although the range of species was less impressive. *Colias croceus* was ubiquitous, with many *helice*. The little tailed blue *Syntharucus telicanus* Hübn., was locally very common. Usually it flew around a mimosa-like shrub near the sea or around a patch of purple vetch. I found it very elusive and almost always damaged.

Larvae did not seem to be numerous, though a full-fed *Papilio machaon* L. larva pupated at 20,000 feet on the return journey and produced a normal imago a few weeks later. A larva of *Thais rumina* L. took an unconscionable time to pupate after ceasing to feed but, having finally pupated, failed to emerge.

We spent a few days in Gibraltar, where the delightful gardens above the Rock Hotel produced a number of butterflies, including many *Gonepteryx cleopatra* L., particularly beautiful on the wing; *Thais rumina* L., which looks so very foreign in flight, and a few *Pyrameis atalanta* L. I did not, however, see any species which were not on the mainland. Moths, on the whole, seemed much less numerous than in Spain,

I did not add any new species during a day trip to Cadiz, but *Maniola pasiphæe* Esp., was locally abundant. Its flight, in this area at least, is particularly secretive, as it was usually less than 18 inches from the ground and preferred shade, often flying inside bushes, where it bobbed

slowly up and down rather like a "yo-yo". *G. cleopatra* L. was fairly common in this area, although I had not seen it on the east coast.

From Spain I brought back some 400 specimens, including 24 species of butterfly and 86 of moths. The latter included, in addition to those already mentioned, *Heliothis incarnata* Freyer, green with a pink edging to its wings which makes it an admirable match with the geranium leaves on which it was resting, *Thera firmata* Hübn. (very abundant), *Metoptria monogramma* Hübn., a large and handsomely marked Pug, *Eupithecia gratiosata* H.-S., and several species of Footman.

I repeat my recommendation of this unspoilt area with its attractive mixture of pine forests, cork and gum trees, watercourses and cultivated areas. I had time only to sample the fringe of the country at that time of the year. I am sure that it would repay other visits and, as sea bathing is pleasant even in December and January, there is, presumably, no close season. In April, the day temperature was in the seventies and we had only one or two light showers.

The following is a list of the butterflies recorded in S. Spain:—

<i>Pararge aegeria</i> L.	<i>Glaucopsyche cyllarus</i> L.
<i>Pararge megera</i> L.	<i>Syntharucus telicanus</i> Hübn.
<i>Melangargia inez</i> Hffsg.	<i>Lycaena phlaeas</i> L.
<i>Maniola ida</i> Esp.	<i>Papilio machaon</i> L. (larva only)
<i>Maniola pasiphae</i> Esp.	<i>Pieris brassicae</i> L.
<i>Maniola jurtina</i> L.	<i>Pieris rapae</i> L.
<i>Coenonympha pamphilus</i> L.	<i>Euchloe ausonia</i> Hübn.
<i>Pyrameis atalanta</i> L.	<i>Euchloe euphenoides</i> Stg.
<i>Aricia montensis</i>	<i>Zegris eupheme</i> Esp.
<i>Polyommatus icarus</i> Rott.	<i>Colias croceus</i> Fourcr. and var.
<i>Lysandra bellargus</i> Rott.	<i>helice</i>
<i>Lampides boeticus</i> L.	<i>Gonepteryx cleopatra</i> L.
<i>Celastrina argiolus</i> L.	<i>Thais rumina</i> L.

Notes and Observations

UTETHEISA PULCHELLA L. IN MALTA.—I read with great interest the note by C. G. M. de Worms on *Utetheisa pulchella* L. in South Devon, which appeared in the *Ent. Record*, 73: 241. To me also, this moth has attracted special attention this last season, and I dare say that it has been, undoubtedly, very common indeed during late July and August.

Going through my notes on this particular species, I found out that for the last 30 years I have never taken this moth during these months, but year in and year out, during April-May and October-November.

Count Caruana Gatto, however, records in the *Mediterranean Naturalist* of September 1892 that "this species was seen in hundreds in August flying in fields, roads and even on the sea not far away from the shore".

This summer, my nephew, who is just a boy of 12 years, came along

with a match-box containing six specimens. I was surprised to see this moth at this time of the year, and he went on saying that the box could not hold more! This was on the 21st July. Later in the month I saw many more at light.

I had a surprise on the 14th and 15th August when I visited the sister island, Gozo, for the annual Agricultural Show. The walls were smothered with this species, and in the evening whilst having the dinner in the garden of the hotel it was again in great profusion visiting all the lights and circling down on the tables and plates. Besides being a migrant, this moth breeds on the island. Its foodplant is the *Heliotropium europaeum* which is a common weed from May onwards. I have also found caterpillars feeding on the *Echium parviflorum* early in October, which pupated on the 20th October and the moths emerged on the 2nd November.—ANTHONY VALLETTA, F.R.E.S., 257 Msida Street, B'Kara, Malta, G.C. 22.xii.1961.

A NOTE ON *CRYPHIA MURALIS* FORST. IN IRELAND.—Mr. H. C. Huggins, in his interesting article in the December number of *The Entomologist's Record* entitled "The Dingle Peninsular in July 1961", states that *Cryphia muralis* Forst. visited his mercury vapour trap and adds that this species is new to Kerry.

I should respectfully like to draw his attention to the fact that although most certainly it has not previously been recorded from Dingle, yet the moth is *not* new to Kerry as it has already been taken at Killarney, which is, of course, in the county of Kerry. My authority is derived from an article on Irish lepidoptera by B. P. Beirne in *The Entomologist*, 1942, Vol. LXXV, p. 84; the reference reads as follows:—

C. muralis: On a wall near Killarney town (Halbert).

To put the matter beyond all doubt, I have myself seen actual Killarney specimens. Mr E. Bullock, a coleopterist of no mean repute, who has lived most of his life at Killarney; also possesses a fairly representative collection of lepidoptera, mostly formed from insects caught locally. He kindly allowed me to examine his collection whilst I was staying in Killarney during last August (1961), and I was pleased to find three examples of *C. muralis* labelled in the captor's own handwriting, the data being Flesk., Aug. 1927. The name Flesk refers to that district about $\frac{3}{4}$ mile south of Killarney, in which Mr. Bullock's home (Flesk House) is situated.

During my holiday I searched likely looking lichen-covered walls for this small moth, but was not fortunate enough to find a specimen. It occurs to me that as Mr. Huggins' holiday at Dingle took place in the first fortnight of July, and during that period he took *C. muralis*, then surely its appearance in this locality is somewhat earlier than in other places, both in Ireland and England. I have only one Irish specimen of this local moth, which I found on a fence in Galway City in 1950 as late as 4th September, in spotless condition.—RAYMOND F. HAYNES, 29 Fairfield Drive, Dorking, Surrey. 28.xii.1961.

ECTROPIS BISTORTATA IN JANUARY.—While admiring the giant Douglas firs in the Boulderwood Enclosure of the New Forest on 24th January 1962, I came across a female engrailed moth sitting on the bole of one of the trees. This is a species which in West Sussex is of regular March appearance, and this early example, being at so considerable a distance from the nearest dwelling, is hardly likely to have been forced. Barrett VII, 182, says of this species: "in very forward years, even at the end of February".—G. HAGGETT, 1 Torton Hill, Arundel, Sussex.

THE DUCHESS OF PORTLAND.—May I crave space to correct a mistake in my book *A Moth-Hunter's Gossip*? In Chapter 8 I referred to the Duchess of Portland whose name is said to have been given to the Portland Moth, *Actebia praecox* Linn. It was there stated that she was the wife of the third Duke of Portland, was married in 1766 and died in 1794. This is wrong. The Duchess who collected insects was wife of the second Duke, was born in 1715, married in 1734 and died in 1785, being buried in Westminster Abbey. She spent the best part of her life at Bulstrode in Buckinghamshire and it was there, not at Welbeck, that her collections and her menagerie were housed.

A few years ago I began to collect material for a biography of her and this plan has been brought to an end by a long illness. But happily, Mr. E. B. Basden, of the Institute of Genetics at Edinburgh, being interested in Bulstrode, has also been delving into the history of that place and of its cultured chatelaine. I have sent to Mr. Basden such scraps of material as I can lay my hands on and it is greatly to be hoped that he will complete this much needed work. The Duchess not only employed John Lightfoot (one of the original members of the Linnean Society) to collect insects and plants for her, sending him as far afield as Cornwall and the Hebrides, but herself made natural history expeditions about the country.

It is astonishing that no biography has yet appeared of this remarkable woman so famous in her day, the friend of Horace Walpole, Garrick, Boswell, Joseph Banks, Solander and most of the cognoscenti of her time, who came to Bulstrode to inspect her art treasures and collections. It was she who acquired the Barberini vase (now known as the Portland vase) and countless other treasures of art and natural science.—P. B. M. ALLAN.

CATERPILLARS ON SEA BUCKTHORN.—I was much interested in Mr. Heslop's reference to Theobald's note in the *Entomologist* (52: 169) as it referred to a day I had cause to remember.

I feel pretty certain now that the other larvae mentioned were those of *Semiothisa alternaria* Hb. They were small green loopers with reddish markings on the back. They were not *Eupithecia innotata* Hufn. to the best of my memory, and they were certainly not *Spilonota ocellana* Schiff.

Unfortunately, the limited amount of buckthorn brought back for the *Psylla* was allowed to wither after they had matured, and the caterpillars refused all other food offered to them and they gradually died.—C. W. A. DUFFIELD, Pickersdane Brook, nr. Ashford, Kent. 25.ii.1962.

THE SPURGE HAWKMOTH IN NORFOLK.—I have read with interest the account of a *Celerio euphorbiae* (Linn.) larva reported to have been

found in 1952 "crossing a towing-path adjoining a marsh at Martham, Norfolk", at page 43 of the February number of the *Record*, and before our entomological friends in East Anglia enter this record in their lists I think we ought to know something more definite about this capture. Martham is three miles from the sea, and a marsh beside a towing-path seems an unlikely place for either *Euphorbia paralias* L. or *E. portlandica* L., the two customary foodplants, to grow since they appear to be confined to maritime sands. (We can leave *E. cyparissias* L. out of account as this is a Continental plant and its occurrence in our island is said to be confined to "the chalk downs south of the Thames" (B. & H.)).

May we please have further and more detailed information from the captor? In what kind of receptacle was the larva kept, and was sand provided for it in which to spin its cocoon since it pupates below the surface of the sand?

Of course no question of the *bona fides* of the captor arises; but if memory can take us for delightful rides she can be a treacherous jade at times, and entomological events recorded by non-entomologists nine years after they took place do not always find favour in the eyes of historians. Time and again reported captures in England of Continental and other species have been found to be due to either a mistake in identity or to some inadvertent substitution after a number of years.

It is to be hoped that Mr. Chalmers-Hunt will lose no time in obtaining from the captor every possible detail of his reported capture. The larva of *C. euphorbiae* has a green form not unlike the larva of *C. galii* L.—a much more likely insect to occur beside a towing-path adjoining a marsh three miles from the sea in Norfolk, where *Galium* spp. would most likely occur.

Meanwhile and until a search has revealed the presence of the food-plant beside the towing-path at the spot where the larva was found, I would suggest that we should keep an open mind on the subject.—
P. B. M. ALLAN.

8. Dover district* (Webb (1899)). Near Canterbury*, one, 1920, three, 1921, seven, 1922, two, 1924 (F. A. Small coll.)†. [Penny Pot Wood, 1948, seen but not taken (J. A. Parry).]

10. Near Sevenoaks, 1857 (Farren, *Ent. week. Int.*, 2: 171).

11. Watlington, one, bred 1909 (Goodwin coll.). Hoads Wood (Scott (1936)).

12. Ashford (Jeffery, *teste* Tutt, *Br. Lep.*, 3: 538). Ham Street.—Larvae found by H. B. D. Kettlewell on Devil's-bit Scabious (*S. pratensis*), c. 1931 (A. M. Morley); "Ham Street Woods" (Scott (1936)); one, May 18, 1940, one, May 13, 1947 (A. M. Morley); in Long Rope and Birchett Woods, May 30 to June 1, 1950, saw about twenty at Bugle and Rhododendron blossoms, and one at blossom of *Veronica chamaedrys* (C.-H.); May 17, 1954 (P. Cue); Faggs Wood, June 14, 1958 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 72).

16. Folkestone*, "a few in gardens" (Knaggs (1870)). Sandling Park, A. Hardy said that he took this species here in 1947 at Rhododendron along with *H. fuciformis* (A. M. Morley). Park Wood, c. 1952 (E. Scott).

FIRST RECORD, 1836: Birch Wood (Anon., *Ent. Mag.*, 3: 309).

NOTODONTIDAE

Harpia bicuspis Borkh.: Alder Kitten.

Native. Woods, carr; on birch, alder. Very scarce and mainly Wealden.

2. Davington Hall Farm, near Faversham, 1913, a larva in alder carr, not reared (H. C. Huggins).

6. Otford, ♂, at m.v.l., June 22, 1955 (W. B. L. Manley).

6a. Darenth Wood (Curtis, *Br. Ent.*, 193); taken occasionally in July (Stephens, *Haust.*, 2: 16).

10. Seal Chart; Wilderness Park, Sevenoaks (Carrington, *Entomologist*, 13: 80). Seal Chart, an imago, c.1940 (J. L. Fuller). Brasted Chart, a larva on birch (R. M. Prideaux).

11. Mereworth Woods, a larva on birch, c.1895, not reared (H. S. Fremlin); an imago taken by T. Blest (W. A. Cope); W. A. Cope told me he once tethered with cotton around its waist, a fresh ♀ from Mereworth, in the hope of obtaining a pairing, but that on his return he was dismayed to find the insect had been eaten, presumably by a bird (C.-H.). [Mereworth Woods], one, labelled "Mid. Kent, 7.1907. Goodwin" (E. Goodwin coll.). Sevenoaks Weald, ♂ taken at m.v.l., June 18, 1960 (E. A. Sadler).

13. Gouldhurst, one taken at m.v.l., May 1955 (W. V. D. Bolt). Tunbridge Wells, two at m.v., 1958 (L. R. Tesch).

FIRST RECORD, 1827: "Birch-trees, Darent Wood, Kent" (Curtis, *Br. Ent.*, 193).

H. bifida Brahm (*hermelina* auct.): Poplar Kitten.

Native. Woods, plantations, gardens, hedgerows; on poplar, aspen, sallow. "Scarce" (*V.C.H.* (1908)).

1. Blackheath (West, *Entomologist*, 4: 131). Bexley (Fenn, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1892-93: 114); June 11, 1934 (B. K. West). Lee; Sydenham (Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 62). Chislehurst; Lewisham; Greenwich; Mottingham

(*Wool. Surv.* (1909)). Chislehurst, larvae fairly common (S. F. P. Blyth). Charlton (*V.C.H.* (1908)). Abbey Wood, between 1914 and 1918 (St. J. Marriott, in Juby & Hards (1925)). Sidcup, few larvae, July 26, 1925; St. Paul's Cray Common, two larvae, August 26, 1922, one, August 25, 1923, several, July 28, 1925 (A. R. Kidner, *Diary*). West Wickham (Kershaw, *Entomologist*, 51: 66). Dartford, May 9, 1947 (B. K. West). Petts Wood, two, at light, 1948 (E. Evans). Bromley, larva on aspen, August 24, 1949, reared June 1, 1950 (D. Lanktree). Orpington, 1954 (L. W. Siggs). St. Mary's Cray, one, 1957 (R. G. Chatelain).

2. Brompton* (Chaney (1884-87)). Ospringe* (G. V. Bull). Gravesend; Faversham; at street lamps (H. C. Huggins).

4. [Sandwich, six empty cocoons on large Lombardy Poplars, March 31, 1930 (A. M. Morley).] Ickham, one August 6, 1954 (D. G. Marsh).

3. Herne Bay, larva on poplar, 1922 (A. J. L. Bowes).

5. Farnborough* (*Wool. Surv.* (1909)). Chevening, ova on aspen, 1918, imagines reared (Lort-Phillips, *Diary*). Westerham (R. C. Edwards).

6. Greenhithe (A. B. Farn MS.). Gravesend, 1913, 1915; Stansted, larva on aspen, August 28, 1923 (F. T. Grant). Horton Kirby Wood; Pinden (E. J. Hare).

6a. Darenth Wood (Curtis, *Br. Ent.*, 193); larvae on aspen (Carrington, *Entomologist*, 12: 213) (H. C. Huggins).

7. Westwell, larva (Scott (1950)). One May 24, 1952 (D. G. Marsh).

8. Folkestone* (Fellows, *Entomologist*, 25: 322). Dover, ♂, June 5, 1895 (Stockwell, *Diary*). Selsted, a larva found by A. G. Riddell, 1930 (A. M. Morley). Stowting, a broken twig on which was a cocoon, found on the road under large Black Poplars, September 6, 1931, from which imago emerged June 22, 1932 (A. M. Morley). Eastry, one taken by A. M. Morley (E. & Y. (1949)).

9. Ramsgate (Willson, *Entomologist*, 23: 139). Margate, one, 1902, one, 1906 (J. P. Barrett coll.). Manston, ova on poplar, c.1912 (J. W. C. Hunt). Margate, one, 1915; Westgate, pupa, September 16, 1922, reared June 8, 1923; pupa, November 21, 1924, reared May 25, 1925 (H. G. Gomm).

10. Brasted, ova common on sallow (R. M. Prideaux). Sevenoaks, larva, 1949 (F. D. Greenwood).

11. Watlingbury (*V.C.H.* (1908)) (E. Goodwin coll.). Edenbridge, larva, 1934 (F. D. Greenwood). Aylesford, c.1953 (G. A. N. Davis). Hoads Wood, larvae and imagines (P. Cue, *teste* E. Scott). Sevenoaks Weald, two, May 16, 24, 1959 (E. A. Sadler). Bethersden, four, August 14-20, 1960 (C. R. Haxby and J. Briggs).

12. Ashford, four pupae under poplar bark (Russell, *Ent. week. Int.*, 3: 19); c.1953, in the town (P. Cue). Ham Street.—several ova on aspen, May 31, June 8, 1930; single larvae, August 16, 1931, August 12, 1933, August 17, 1936; five imagines, June 1, 8, 14, 1934, one, May 18, 1936 (A. M. Morley); May 24, 1935, A. G. Peyton; August 18, 1936 (Bull, *Diary*); three ♂♂, one ♀ at light, June 17, 1934, ♂ at light June 1, 1935 (A. J. L. Bowes); 1934, 1936 (de Worms, *Entomologist*, 68: 103, 70: 55); Orlestone Woods, two ♂♂, one ♀, July 15, 1939, several, June 1948, six ♂♂, May 25, 1951, four ♂♂, June 15-16, 1951, three including one freshly emerged ♂ on oak trunk, July 6, 1951, all others at light (C.-H.); 1958 (de Worms, *Entomologist*, 92: 69, 71); Faggs Wood, larva on sallow (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*,

1960: 84). Brook, larvae (Scott (1936)); larvae, 1938 (C. A. W. Duffield, *teste* E. Scott). Willesborough, one, July 7, one, July 29, 1954; Wye, one, June 22, 1953, one, June 26, 1955 (W. L. Rudland).

13. Goudhurst, c.1950 (B. G. Chatfield); frequent at light annually (W. V. D. Bolt, *verbal communication*, 1961).

14. Sandhurst, bred May 23, 1943 (Bull, *Diary*). Hawkhurst, c.1950; Benenden, c.1950 (B. G. Chatfield). Iden Green, one at light, 1950 (H. Boxall). Tenterden, one June 15, 1960 (C. G. Orpin).

15. Dungeness, dead imago at lighthouse, August 14, 1954 (C.-H.).

16. Lower Sandgate Road, Folkestone, larvae (Knaggs (1870)). Folkestone, a larva on Black Poplar, July 1949, ♀ emerged June 12, 1950; one, August 22, 1955, ♂ July 5, 1957 (A. M. Morley).

VARIATION.—The following abs. are in R.C.K.:—*arcuata* Stephens, one, Bexley, bred 1909, one, Kent, 190—; *integra* Stephens, three, Bexley, bred.

FIRST RECORD, 1827 "Poplars, Darenth Wood" (Curtis, *Br. Ent.*, 193),

H. furcula Clerck: Sallow Kitten.

Native. Woods, marshy places etc.; on *Salix caprea*, *S. viminalis*, *Populus tremula*, *P. alba*.

Note: The records indicate two broods, imagines of the first appearing in May and early June, those of the second in July and August, with maximum numbers in the second generation¹.

¹Barrett (*Br. Lep.*, 3: 88-89) gives the imago as appearing at the end of May and in June, and adds curiously that it is single brooded but for very rare exceptions. None of the other textbooks that I have at hand mention a second brood.

1. Lewisham, one, August 12, 1847 (Stainton, *Zoologist*, 1915); larva on white poplar, July 25, 1858 (Perkins, *Ent. week, Int.*, 6: 82). Lee, one, July 10, 1866 (West, *Entomologist*, 3: 167). Sydenham, July 20, 1901 (Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 62). Farnborough*, 1901 (Lawrence, *Entomologist*, 34: 355). Bromley, a larva (W. A. Cope). Blackheath; Lewisham (West, *Ent. Rec.*, 18: 200), Forest Hill; Bexley district; Keston; Eltham (*Wool. Surv.* (1909)). Dartford, ♂, July 14, 1950 (B. K. West). Petts Wood, bred 1947, from larva on *S. caprea*, August 1946 (A. M. Swain. Orpington, at light, one, 1955, one 1958 (R. G. Chatelain).

2. Greenhithe* (*V.C.H.* (1908)). Dartford, ova (B. K. West). Graveney, one, July 5, 1958 (D. G. Marsh).

3. Herne Bay; Blean Woods; occasionally at light (D. G. Marsh). Canterbury, one, c.1948 (A. G. Maconochie). Broad Oak, ♂, at light, August 5, 1951 (C.-H.).

4. Ickham, one, August 19, 1955, one, August 7, 1959 (D. G. Marsh).

5. Chevening, ova, imago emerged August 21, 1917 (Lort-Phillips, *Diary*). Westerham (R. C. Edwards).

6. Ridley Wood, larva, August 30, 1912, two larvae on sallow, August 31, 1915 (F. T. Grant). Ryarsh, larvae, 1932-34, imagines reared (H. S. Fremlin). Dartford district, ova (B. K. West).

6a. Darenth Wood (Stephens, *Haust.*, 2: 17); larvae on aspen

(Carrington, *Entomologist*, **12**: 213); larvae and imagines, 1902-10 (H. C. Huggins).

7. Faversham (H. C. Huggins). Westwell, one, August 9, 1938 (Scott (1950)), two, August 8, 1956 (D. G. Marsh).

8. Folkestone* (Ullyett (1880)). Hawkinge, pair *in cop.*, July 14, 1929 (W. O. W. Edwards, *teste* Morley ((1931))). Brook, larvae, 1938 (Scott (1950)). Near Barham; Kearsney (E. & Y. (1949)). Dover, one, 1954 (B. O. C. Gardiner).

9. Margate, four, 1904 (J. P. Barrett coll.).

10. Brasted, ova common on aspen (R. M. Prideaux).

11. Watlington (E. Goodwin coll.) (*V.C.H.* (1908)). Tonbridge (Rattray, *Entomologist*, **45**: 80). Shipborne; Tonbridge; at light, 1939 (H. E. Hammond). East Malling, one, 1951; Aylesford, 1954-55 (G. A. N. Davis). Hoads Wood, c.1953 (P. Cue); two ♂♂ at m.v., August 11, 1955 (C.-H.). Sevenoaks Weald, one, July 21, 1959 (E. A. Sadler).

12. Ashford, six pupae under bark of willow (Russell, *Ent. week. Int.*, **3**: 19). Gibbons Brook, cocoon under bark of sallow, September 14, 1929, from which ♂ reared, June 22, 1930 (Morley (1931)). Ham Street, July 8, 1935 (Bull, *Diary*); several at light, August 5, 1935 (A. J. L. Bowes); one, July 25, 1952 (E. H. Wild); 1953 (R. Lovell, *vide* A. M. Morley), one, May 10, 1954 (D. G. Marsh). Ashford, c.1953 (P. Cue). Chartham, one, 1953 (P. B. Wachter). Willesborough, two, May 25, 30, 1954, four, July 9-August 9, 1956; Wye, one, August 5, 1953, two, May 12, 27, 1954, four, July 27-August 23, 1954, two, August 15, 1956 (W. L. Rudland). Willesborough, one, August 1959 (M. Enfield).

13. Groombridge (Morgan, *Lepidoptera of Tunbridge Wells MS.*). Goudhurst, frequent at light annually (W. V. D. Bolt, *verbal communication*, 1961).

14. Benenden Government Forest*, at light, August 13, 1937, August 26, 1941 (Bull, *Diary*). Tenterden (1960) (C. G. Orpin).

15. Appledore, larva on osier, July 1898 (Heitland, *Entomologist*, **31**: 221). Dungeness, ♂, at light, August 14, 1934 (A. J. L. Bowes); one, on post, May 30, 1936 (H. King); two ♂♂, at m.v., June 1, 1956 (C.H.), a few, August 18, 1958 (E. C. Pelham-Clinton).

16. Folkestone district*, one taken, c.1898 (J. W. Walton, *teste* A. M. Morley). Folkestone, one, July 15, 1955 (R. W. Fawthrop, *teste* A. M. Morley); one, August 27, 1955, one, August 16, 1958 (A. M. Morley).

FIRST RECORD, 1828: Darenth Wood (Stephens *Haust.*, **2**: 17).

Cerura vinula L.: Puss.

Native. Woods, gardens, plantations, marshes, etc.; on *Populus* and *Salix*. Found in all divisions, and apparently fairly generally distributed throughout the county. "Generally common" (*V.C.H.* (1908)).

The moth normally appears from about the middle of May to about the middle of June. It has been noted perhaps mostly at light, and the ♀ seems to come as often as the ♂. In 1952, one was taken in Folkestone by A. M. Morley on April 19; and in 1955. W. L. Rudland took one at Wye as late as July 14.

The pupal stage sometimes occupies more than one season; thus Bull (*Entomologist*, **64**: 281) records one that emerged May 25, 1930 from a larva taken at Sandhurst in 1928.

Larvae and ova have perhaps mostly been noted on Black Poplar, but are also found fairly frequently on aspen and willow sp. For example, West (*Ent. Rec.*, **13**: 200) recorded larvae on sallows, willows, and poplars at Brockley, Lewisham, and Greenwich Marshes; R. M. Prideaux found ova very commonly at Brasted on sallow; and A. M. Swain noted larvae on aspen and willow sp. at Petts Wood. H. C. Huggins states that he has especially noted the larvae in Kent on poplars growing round hop gardens. Sometimes they have been found in considerable abundance; thus, G. G. E. Scudder writes that "enormous numbers" of ova and larvae were found on Black Poplar trees at Fawkham (div. 6), in 1952; and in a lecture to the Folkestone Nat. Hist. Soc., in 1874, Ulyett said of the larvae:—"Here in Folkestone, you may gather them by the dozen all the season through, whenever you come across willow or poplar trees" (Ulyett (1880), 97).

VARIATION.—The following abs. are in R.C.K.:—*zickerti* Frings, one, Sidcup; *minax* Hübn., one, N. Kent; *fasciata* Schultz, one, Folkestone.

FIRST RECORD, 1828: Birch Wood (Stephens, *Haust.*, **2**: 20).

Stauropus fagi L.: Lobster.

Native. Woods, parkland; on birch, hazel [beech]. Notably absent from the Blean area, and apparently scarce except in the Weald and in parts of Mid and West Kent. "Scarce" (*V.C.H.* (1908)).

1. Birch Wood, taken annually (Stephens, *Haust.*, **2**: 22). Bexley Wood (Curtis, *Br. Ent.*, 674). West Wickham (Linton, *Ent. week. Int.*, **2**: 91) (Wood, *Ent. week. Int.*, **2**: 109) (Carrington, *Entomologist*, **13**: 165) (Eedle, *Entomologist*, **14**: 181) (Bloomfield, *Ent. Rec.*, **2**: 116) (West, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1899: 85) (Wells, *Entomologist*, **25**: 193); two, bred 1902-03 (J. P. Barrett coll.); ♂, ab. *obscura* Rebel, 1951 (C.-H.). Holwood Park*; Shooters Hill; Joydens Wood (*Wool. Surv.* (1909)). Petts Wood, larva (S. F. P. Blyth); ♂, 1946 (E. Evans); larva on birch, 1955 (R. G. Chatelain). Beckenham, one, typical example, at light, c. 1927 (W. J. Watts). Keston (de Worms, *Lond. Nat.*, 1953: 116). Orpington, 1954 (A. J. Showler). Bromley, one at m.v., 1961 (D. R. M. Long).

2. Chatham Dockyard, larva (Chaney (1884-87)).

5. Farnborough (Alderson, *Ent. Rec.* **12**: 248). Westerham, 1959, both *obscura* and typical forms (R. C. Edwards).

6. Shoreham, larva on hazel (Line, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1934-35: 36). Otford, about eight at m.v., 1955-56, all *obscura* (W. B. L. Manley). Eynsford, three, June 21, 1959 (R. G. Chatelain).

6a. Darenth Wood, two, 1862 (Fenn, *Diary*) (Standish, *Entomologist*, **4**: 99, **5**: 147). Cobham Woods, one, 1912, on birch trunk (F. T. Grant).

7. Wigmore Wood, larva (Chaney (1884-87)). Westwell, two, July 5, 1932 (Bull, *Diary*); three at car lights, June 3, 1933 (A. M. Morley); beech woods (Scott (1936)); July 20, 26, 1946 (Bull, *Proc. S. Lond. ent. Nat. Hist. Soc.*, 1946-47: 168). Kings Wood (Scott (1936)). White Hill, June 22, 1935 (Bull, *Diary*). Bluebell Hill, one, c. 1953 (G. A. N. Davis). Boxley, 1953 (A. H. Harbottle).

8. Wye.—♂, on beech trunk (Jeffrey, *Ent. mon. Mag.*, **5**: 223) (C. A. W. Duffield); Crown Pit, June 10, 1951 (E. H. Wild). Folkestone* (Ulyett (1880)). Elham, ♀, June 27, 1930 (W. E. Busbridge);

1959 (de Worms, *Entomologist*, **93**: 177). Atchester Wood, one, June 22, 1930 (E. & Y. (1949)). Gorsley Wood, four, 1938, including one *trans. ad obscura* (P. B. Wachter).

10. Knole Park (Biggs, *Entomologist*, **11**: 160). Seal Chart (Carrington, *Entomologist*, **13**: 79). Brasted, ♀, 1916 (Lort-Phillips, *Diary*). Westerham (Jacobs, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 59); six at light, mostly *obscura*, 1951 (R. C. Edwards). Sevenoaks, one, 1951 (F. D. Greenwood).

11. Mereworth (V.C.H. (1908)) (Fremlin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 171). Tonbridge, ♂♂ common at light, 1939 (H. E. Hammond). Aylesford, one, 1954 (G. A. N. Davis). Hoads Wood (P. Cue, *teste* E. Scott). Sevenoaks Weald, four, June 21-July 3, 1959 (E. A. Sadler).

12. Charing*, two, 1906 (J. P. Barrett coll.). Lenham (H. C. Huggins). Willesborough, two, 1956; Wye, six, 1953, one fresh specimen, August 2, 1954, three, 1955, ten, 1956 (W. L. Rudland). Ham Street.—♂, *obscura*, June 8, 1934, A. G. Peyton (C.-H. coll.); several at light, June 19, 1934, July 6, 1938 (A. J. L. Bowes); three, May 20, two, June 1, 1934 (A. M. Morley); larva, July 28, 1945 (Bull, *Diary*); noted fairly frequently at light in Long Rope and adjacent woods from time to time since 1939; single examples of *obscura* in 1948, 1951, 1952 (C.-H.); one, May 15, 1956 (W. L. Rudland); June 10, 1960 (R. G. Chatelain).

13. Near Tunbridge Wells, larva, 1827, W. Raddon (Stephens, *loc. cit.*). Southborough, M. M. Phipps; Wood near High Rocks (Knipe (1916)). Goudhurst, ♂♂ fairly common at light during the 1950's to 1961, all typical (W. V. D. Bolt). Tunbridge Wells, one, 1957 (L. R. Tesch, *teste* C. A. Stace); one, 1959 (C. A. Stace).

14. Hawkhurst, at light, one 1951, one 1952; Benenden, one 1952 (B. G. Chatfield). Iden Green, one at light, 1951 (H. Boxall).

VARIATION.—It would appear that ab. *obscura* Rebel is now as frequent as the type in West Kent. The earliest record I have of the occurrence of *obscura* in Kent, is that of one taken by Peyton at Ham Street in 1934 (C.-H.).

FIRST RECORD, 1828: Stephens, *Haust.*, **2**: 22.

Drymonia dodonaea Schiff. (*trimacula* Esp.): Marbled Brown.

Native. Woods, parkland; on oak, beech. Unrecorded from div. 14, but doubtless present. Probably casual in 15.

Obs.—A partial second generation may occasionally occur, as is suggested by the appearance of the moth at light at Ham Street in 1934, on July 20, and at Willesborough in 1954, on August 2,

1. Birch Wood (Stephens, *Haust.*, **2**: 31). Eltham, one, 1875; Bexley district (*Wool. Surv.* (1909)). West Wickham (*Wool. Surv.* (1909)); 1910 (Mannering, *Entomologist*, **43**: 204); 1951 (E. Trundell). Chislehurst (S. F. P. Blyth). Petts Wood, two or three annually, 1948-50 (E. Evans). Orpington, 1953 (L. W. Siggs). St. Mary Cray, one, June 13, 1959 (R. G. Chatelain). Bromley, one, 1960, one, 1961 (D. R. M. Long).

3. Herne Bay, one, 1947 (D. G. Marsh). Broad Oak, one, 1952 (C.-H.).

5. Westerham (R. C. Edwards).

6. Greenhithe (Farn MS.). Gravesend, 1913 (F. T. Grant). Pinden

(E. J. Hare). Eynsford, two, June 21, 1959, three May 24, 1960 (R. G. Chatelain).

6a. Darenth Wood (Stephens, *loc. cit.*); larvae on oak, imago reared June 2, 1861 (Huckett, *Ent. week. Int.*, **10**: 117); uncommon (E. J. Hare); fairly common (B. K. West). Chattenden (Chaney (1884-87)).

7. Wigmore Wood (Chaney (1884-87)). Westwell, one, May 27, about forty at light, June 3, 1933 (A. M. Morley); twelve or more on the sheet, June 9, 1934 (Bull, *Diary*). White Hill, June 22, 1935 (Bull, *Diary*); one, June 20, 1936 (A. M. Morley). Boxley, 1953 (A. H. Harbottle).

8. Folkestone* (Ullyett (1880)). Covert Wood, June 22, 1935 (J. H. B. Lowe); June 13, 1949 (G. H. Youden). Barfreston (E. & Y. (1949)).

10. Westerham (Gorham, *Ent. week. Int.*, **7**: 28). Sevenoaks (Carrington, *Entomologist*, **13**: 80). Dunton Green, one, June 26, 1908 (A. R. Kidner).

11. Tonbridge (Raynor, *Entomologist*, **6**: 79). Yalding (*V.C.H.* (1908)). Hoads Wood, 1938 (E. Scott); at m.v., ♀, June 23, 1956 (C.-H.). Aylesford (G. A. N. Davis). Sevenoaks Weald, two, May 24-27, 1959 (E. A. Sadler).

12. Ashford neighbourhood*, larva on beech (Viggers, *teste* Jeffrey, *Ent. mon. Mag.*, **26**: 256). Ashford Town, 1952, 1954 (P. Cue). Willesborough, one, May 26, one, August 2, 1954; Wye, one, June 9, 1953, one, May 25, 1954, five, May 30-June 23, 1956 (W. L. Rudland). W. Ashford, ♂ (1959) (M. Singleton). Ham Street, May 22, 1934 (A. M. Morley); common at light, June 17, 1934; June 1, 1935 (A. J. L. Bowes); noted in fair numbers at light, 1939, 1948, 1951, 1954, 1956, in Orlestone Woods (C.-H.); numerous, at m.v., May 1961 (B. K. West). Hockley, near Warehorne, six at light, June 8, 1936 (A. M. Morley). Ham Street Village, 1960 (de Worms, *Entomologist*, **94**: 159).

13. Southborough (M. M. Phipps, in Knipe (1916)). Lamberhurst, May 25, 1938; Bedgebury, June 22, 1938 (Bull. *Diary*). Goudhurst, fairly common at m.v. annually, 1955-59, scarcer, 1960-61 (W. V. D. Bolt).

15. Lydd-on-Sea, one, on a lamp-post, June 19, 1936 (*fide* A. M. Morley).

16. Folkestone Town, one, May 26, 1954 (R. W. Fawthrop, *teste* A. M. Morley).

VARIATION.—The following abs. are in R.C.K.:— *intermedia* Schawerda, several, Ashford; *trimacula* Esp., one, Ashford, 1934.

A ♂ that I have, taken Ham Street, 1939; and a ♂ taken by A. M. Morley at Westwell, appear referable to ab. *albida* Rebel (C.-H.).

FIRST RECORD, 1828: Stephens, *Haust.*, **2**: 31.

¹"Barham" (E. & Y. (1949)), may refer.

Chaonia ruficornis Hufn. (*chaonia* Hübn.): Lunar Marbled Brown.

Native. Woods, parkland; on oak. Fairly plentiful some years, particularly in 1952 and 1954, and evidently more frequent and widespread since about 1947.

1. Birch Wood (Stephens, *Haust.*, **2**: 30). Shooters Hill, larvae (Crewe, *Ent. week. Int.*, **1**: 123); larva, July 19, 1862 (Fenn, *Diary*). Lee, one at rest on an oak, May 31, 1886 (Fenn, *Lep. Data* MS.). Bexley, larva, July 10, 1898 (Carr, *Entomologist*, **32**: 40); one, May 3, 1952 (A. Heselden). Keston; Eltham; Black Fen; Horn Park; Lee (*Wool. Surv.*

(1909)). Bromley (Lawrence, *Ent. Rec.*, **13**: 221). Chislehurst, ten on street lamps, 1907; only seen once or twice since; Petts Wood, one on oak trunk, April 17, 1945 (S. F. P. Blyth). Bromley Common, several (W. A. Cope). Chislehurst, one, May 9, 1915 (A. R. Kidner). Petts Wood, four, 1947, one 1948 (E. Evans); larvae, c. 1959 (R. G. Chatelain). West Wickham; Orpington (de Worms, *Lond. Nat.*, 1953: 117). Orpington, 1954 (L. W. Siggs). Bromley, March 30, 1961 (Long, *Ent. Rec.*, **73**: 133); plentiful, 1960-61, averaging about six per night at m.v. (D. R. M. Long).

3. Blean, two, 1904, 1906, both bred (J. P. Barrett coll.). Canterbury, ♂, May 12, 1934 (A. G. Peyton). Pine Wood, one on an oak tree, 1947 (J. A. Parry). Eddington, two ♂♂, two ♀♀, May 19-23, 1951, two ♂♂, April 30, three ♀♀, two ♂♂, May 7, 1952, several, 1953; all at light (D. G. Marsh).

5. Chevening, ♀, May 16, 1914 (Lort-Phillips, *Diary*). Westerham, occasionally (R. C. Edwards).

6. Longfield (Jennings, *Entomologist*, **4** (54), ii). Gravesend, at street lamps, May 5, 1921, May 4, 1923, May 1934 (F. T. Grant). Pinden, rather common (E. J. Hare). Wrotham, larvae, June 23, 1957 (McDermott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1957: 70). Meopham, May 4, 7-8, 1960, April 30, May 3, 1961; six to ten per annum (J. Ellerton).

6a. Darenth Wood (Stephens, *loc. cit.*); two larvae, June 22, 1862 (Fenn, *Diary*) (H. C. Huggins); fairly common (B. K. West). Cobham (H. C. Huggins).

7. Westwell, several, 1952 (E. Scott).

8. Folkestone* (Ulyett (1880)). Dover, ♂, May 5, 1900 (Stockwell, *Entomologist*, **34**: 26). Near Woolwich Wood (E. & Y. (1949)). Brook, two, April 14, 1952, about twenty, early May 1954 (C. A. W. Duffield, *teste* A. M. Morley); 1953 (W. L. Rudland).

10. Wilderness Park (Carrington, *Entomologist*, **13**: 80). Sevenoaks (Hill, *Entomologist*, **19**: 185). Seal Chart (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1905-06: 39, 1937-38: 45, 1948-49: 71). Brasted (R. M. Prideaux). Westerham (R. C. Edwards).

11. Mereworth Wood, ♀, c. 1885 (H. S. Fremlin). Watlington (V.C.H. (1908)). Hoads Wood, larvae (Scott (1936)); 1953-54 (P. Cue); three, April 29, 1955, three, May 14, 1956 (W. L. Rudland). Tonbridge, several larvae, 1949-51 (H. E. Hammond). Aylesford, common at m.v., 1951, 1954 (G. A. N. Davis). Sevenoaks Weald, three, May 10-12, 1959 (E. A. Sadler).

12. Ham Street.—May 5, 1934, April 26, May 6, 1935 (A. G. Peyton, *teste* A. M. Morley); May 12, 1934, May 9, 1936, April 28, 1937, April 24, May 17, 1939 (Bull, *Diary*); about twelve, 1935 (Scott (1936)); a larva on oak at night, June 25, 1938 (A. M. Morley); Long Rope, two worn, at light, April 14, 1939, five ♂♂, five ♀♀, in good condition, at m.v., May 12-13, 1951 (C.-H.); numerous at m.v., 1954 (P. B. Wachter); 1959 (de Worms, *Entomologist*, **93**: 158); three, May 6, 1960 (R. G. Chatelain). Willesborough, four, May 10-11, 1954, one, May 24, 1955, four, May 11-22, 1956 (W. L. Rudland); ♂, 1959 (D. Youngs). Wye, one, April 24, 1953, ten, May 7-14, 1954, two, April 29-May 26, 1955, thirteen, May 5-16, 1956 (W. L. Rudland). Ashford, about thirty, May 10, 1954 (P. Cue, *teste* A. M. Morley); 1960 (de Worms, *Entomologist*, **94**: 159).

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Wanted.—Living pupae or ova of *Pieris brassicae wollastoni* and *P. b. cheiranthi*, for experimental breeding. I should be very grateful to anyone holidaying in Madeira or the Canary Islands who can obtain even a few specimens. Will be glad to refund expenses of airmail and to supply specimens of any interesting crosses obtained.—Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.

IRISH LEPIDOPTERA RECORDS.—No comprehensive catalogue of Irish macrolepidoptera has been published since Lt. Col. C. Donovan's List in 1936. I am now engaged in the preparation of a revised List, and in order that it may be as up to date as possible, I should be most grateful for any records from lepidopterists who have collected in Ireland since the date of Col. Donovan's publication. Full acknowledgment will be made.

E. S. A. BAYNES

2 Arkendale Road, Glengary, Co. Dublin, Eire

LEPIDOPTERA OF KENT, Vol. 1: RHOPALOCERA.—A limited number of reprints of this list is available, unbound with heavy paper cover, at 15/- per copy post free, from the EDITOR.

OFFERED: LIVING LARVAE.—Japanese Owl Moth (*Brah. japonica*), Robin Moth (*S. cecropia*), Bull's Eye Moth (*Aut. illustris*), all feeding on privet; Chinese Silk Moth (*Anth. perynii*), feeding on Holly Oak. Prices: 4/6d per doz., small larvae (March); 6/6d per doz., larger (April).—T. H. FOX, 28 Boxwell Road, Berkhamsted.

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HIMALAYA AND OTHER MOUNTAIN REGIONS

M. S. MANI

Entomological literature contains no general work on insect life at high altitudes. The author has unique qualifications to write such a book, being both a founder of the School of Entomology at St John's College, Agra, and a keen mountaineer who has led three major scientific expeditions in the Himalayas.

This book is largely concerned with the insect life in the Himalayas at elevations of more than 6,000 feet, but most of the evidence and results apply to high altitude life anywhere in the world.

Descriptions are given of environmental conditions, ecological specializations, the interrelations, characteristic communities, peculiarities of distribution, zoogeographical affinities and the evolution of high altitude insects, as well as reference to other terrestrial arthropods which are associated with them. The outstanding feature of the book is the ecological approach to the problems of high altitude—in the synthesis of the environment above timber-line and of the specialized insect life into an integrated unit. **42s.**

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THE FRESHWATER LIFE OF THE BRITISH ISLES

JOHN CLEGG

In preparing the second edition of this work, full advantage has been taken of the opportunity to make corrections, particularly to the nomenclature, and to add a little new matter to bring the book up to date.

This guide to the plants and invertebrate animals of ponds, lakes, streams and rivers, is intended for those generally interested in the subject, as well as for the serious student. It is one of the very few books to be published in recent years which deals with every aspect of freshwater life in a systematic manner.

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Derbyshire Lepidoptera — First Supplement

Compiled by D. C. HULME

The revised *Derbyshire Lepidoptera* closed on 31st December 1958. The list, though complete in three foolscap lever-arch files, is likely to remain in manuscript form for a number of years. It may be inspected at the compiler's home by anyone interested, and information on distribution and status extracted if required. Rather than hold up the publication of the important Lepidoptera records of the years subsequent to the closing date, it was thought that it would be a useful scheme—if a somewhat unusual one—to prepare and publish supplements every year or so *prior* to the publication of the main work. These supplements will give all the additions to the 1829-1958 County List, confirmation of species entered in the "Doubtful Species" section, all new Area and Peak District National Park records, noteworthy records of aberrations and previously listed rarities and also brief summaries on the occurrence of selected common butterflies and moths.

This *First Supplement* covers the years 1959, 1960 and 1961. A number of specimens taken in this period have yet to be critically examined, or require expert determination. If these include County or Area additions full details will be given in later supplements. The presentation of the records follows the style adopted in the main work. The numbering and nomenclature used is that of I. R. P. Heslop's *Revised Index Check-list of the British Lepidoptera* (1959/61) as published in Volumes 10, 11 and 12 of *Entomologist's Gazette*. Localities within the Derbyshire portion of the Peak District National Park (abbreviated P.D.N.P.) are italicized. The botanist's symbol ! is used to indicate that the specimen was shown to the compiler and/or, in some cases, determined by him.

A sketch map of the Areas of Derbyshire appeared in the November 1957 issue of *The Entomologist's Record*. It was discovered in 1958 that a quarter of the county's 289 parishes lacked Lepidoptera records and an effort was made to improve the coverage of the county. This was successful on only a limited scale as most contributors continued to work their favourite localities. A number of the new Area records of generally distributed insects will, no doubt, cause surprise. Obviously, many of these species have been encountered previously in the Areas concerned, but dismissed as too common to note; hence no accounts of them have been submitted to Messrs. Payne, Jourdain, Hayward, Blackwell Wood and the present co-ordinator of local entomological records or sent to the national journals. A point in favour of mercury vapour light traps is that both common and rare species are counted by the operators.

The coverage for 1959/61 can be summarized as follows:—

Area 1—South of Trent. Well covered by a band of Derby-based naturalists undertaking an ecological survey of Robin Wood, with visits to nearby Repton Shrubs, Hartshorne and Ticknall. A few observations were made in the neglected parishes of Derby Hills, Rosliston and Smisby.

Area 2—Sandstone Belt. The county town and the surrounding district was fully covered. Outlying parishes including Egginton, Shirley and Sudbury were visited and the first records received from Dalbury Lees and Marston Montgomery.

Area 3—Southern Grit. The compiler made a few trips to Alderwasley and Little Eaton, and a resident botanist supplied some observations.

Area 4—Mountain Limestone. The *Youlgrave* district was covered by two resident naturalists in 1959 and 1960. Excursions to *Dovedale*, *Over Haddon* and *Wirksworth* were made by Derbyshire Entomological Society members.

Area 5—Central Grit. The *Matlock* and *Beeley* districts were covered by residents and visitors. A m.v.l. was used for the first time in *Beeley* village in 1959 and 1960 and attracted many interesting moths. *Baslow*, *Eyam Moor* and *Stanton Moor* also examined.

Area 6—Coal Measures. The best covered Area over this period. Lists sent in from seven resident lepidopterists and a visitor in the *Chesterfield*, *Clay Cross*, *Codnor*, *Heath*, *North Wingfield* and *Wingerworth* districts. At least five m.v.l. traps were operated. *Morton* and *Pilsley* received a little attention in 1959.

Area 7—Permian. This corner of the county, east of the *Rivers Rother* and *Doe Lea*, apparently still shunned by entomologists. The six Lepidoptera records submitted in the three years, resulted in four new species for the area.

Area 8—Peak Grit. A few specimens from *Hope Woodlands* and *New Mills* in 1959 with several notes from *Hathersage*, *Glossop* and the *Dale of Goyt*.

The number of new species added for each Area in the period under review is given in the table below. The figures in brackets refer to the species new to the County List included in the Area tally.

AREA	1	2	3	4	5	6	7	8	P.D.N.P.
ADDITIONS	4(1)	9(2)	4	4(1)	26	27(3)	4	4	14(1)

The list of contributors for this supplement includes several who sent in very detailed reports:

R. H. Appleby, A. J. Beresford, W. Bilbie, N. L. Birkett, K. Bradbury, C. E. Brown, W. A. C. Bullock, Camden Clarke, B. Elliott, T. D. Fearnough, B. S. Fletcher, A. E. Hale, A. Hepworth, S. Hilton, Miss K. M. Hollick, D. C. Hulme, J. H. Johnson, J. F. C. Kent, N. A. Kerridge, S. G. King, H. N. Michaelis, Mrs. M. H. Mills, R. E. Morris, J. Newton, J. Parkin, J. Peacock, B. C. Potter, R. F. W. Redman, R. G. Warren, A. B. Wassell, G. S. Wheeldon, Mrs. G. W. Wheeldon, C. N. Whipple, D. S. Whitaker, S. Whitaker, R. Woodbridge and C. A. Woollacott.

The compiler is indebted to all the above naturalists for their observations, and in addition to Misses June Fell and Doris S. Horne, late of Repton School, and Desmond G. C. Jackson, of Dalbury Lees, for collecting numerous specimens on his behalf. Criticisms of this production and Derbyshire records of *all* species for any year, with particulars of precise locality, date and number, will be received with interest at the compiler's address.

Important information relating to Lepidoptera in Derbyshire published during this period includes the following papers.

FEARNEHOUGH: T. D. Notes on some Carpet Moths in Derbyshire. *Ent. Rec.*, **71**: 204-208.

JOHNSON, J. H. Muslin Footman and Marbled Beauty in 1959. *Bull. amat. Ent. Soc.*, **18**: 90.

- . The effect of the 1959 summer on the First Appearance Dates of Moths in a Light Trap. *Bull. amat. Ent. Soc.*, **19**: 53-55.
- . Comparisons of Captures of Moths at M.V. Light Traps at Lancing and Chesterfield. *Bull. amat. Ent. Soc.*, **20**: 23.
- . Migration of *Bupalus piniaria* L. (LEP.). *Entomologist*, **93**: 53.
- . Further observations on the Egg-laying Capacity of Melanic and Typical Forms of *Gonodontis bidentata* Cl. (LEP.). *Entomologist*, **94**: 173-178
- . Melanism in *Gonodontis bidentata* Cl. (LEP.) at Chesterfield. *Entomologist*, **94**: 235.

AMENDMENTS TO DERBYSHIRE LEPIDOPTERA INDICES

CONTRIBUTORS. 12 names to be added.

A. J. Beresford of Alvaston; Dr. Neville L. Birkett, F.R.E.S., of Kendal, Westmorland; Stanley Hilton of Alvaston; Norman A. Kerridge of Alvaston; S. G. King of North Wingfield; J. Newton of Tetbury, Gloucester; John Parkin of Chaddesden; John Peacock of Doveridge; Anthony B. Wassell of Derby; Conrad N. Whipple of Etwall; David S. Whitaker of Derby, and R. Woodbridge (A.E.S member).

LOCALITIES. There are no new localities to add to this index but the following Class "c" category parishes (neglected parishes with no known Lepidoptera records) require changing to Class "b" category parishes (parishes with under 100 Lepidoptera records).

Derby Hills, Rosliston and Smisby in Area 1.

Dalbury Lees and Marston Montgomery in Area 2.

Morton and Pilsley in Area 6.

SPECIFIC NAMES. This supplement adds seven species to the County List: particulars of which will be found under Heslop reference numbers 626, 1086, 1317, 1380, 1402, 1782 and 2099. No. 2099 previously appeared in the "Doubtful species" section and already figures in the main "Index of Specific Names". Authors are given here only in cases where a similar specific name occurs in the index.

<i>albersana</i>	1402	<i>internana</i>	1380
<i>allisella</i>	1782	<i>permutana</i>	1317
<i>bractea</i>	626	<i>rheediana</i>	1402
<i>erectana</i>	1380	<i>sinuella</i>	1086
<i>gemina</i> Haw.	1086		

SYSTEMATIC LIST

- 7 *Pieris napi* L. First Area 7 record—Hardwick Park, 22nd May 1959 (S.G.K.).
- 13 *Colias croceus* Fourc. The only evidence of this species in the three years was a ♂ seen at rest on *Persicaria* in Robin Wood (Area 1) on 5th September 1959 (D.C.H.).
- 17 *Pararge aegeria* L. First Area 5 record—Beeley, 19th September 1959, a worn specimen in the recorder's orchard (B.S.F.).

- 26 *Aphantopus hyperantus* L. First Area 6 record—Clay Cross, 28th June and 12th July 1959, singletons taken at Holmgate! (W.B.). Also the first recorded in the present century.
- 31 *Vanessa cardui* L. Only two specimens sighted in 1959-61. Area 6—Clay Cross, 13th August 1960 (W.B.), and Area 2—Derby, 13th October 1961, one at the Cathedral (D.S.W.).
- 68 *Celastrina argiolus* L. Area 4—*Hartington*, 6th April 1960—see *Bull. amat. Ent. Soc.*, 19: 55 (R. Woodbridge). The only record for 1959-61.
- 79 *Mimas tiliae* L. First Area 5 and P.D.N.P. record—*Beeley*, 11th May 1959, a ♂ at m.v.l. (B.S.F.).
- 83 *Herse convolvuli* L. Two specimens taken in the period 1959-61. Area 6—*Codnor*, 6th and 13th October 1961 (C.A.W.).
- 100 *Harpya bicuspis* Borkh. First Area 5 records—*Beeley*, 22nd May 1959 and 26th May 1960, singletons at m.v.l. (B.S.F.).
- 106 *Drymonia dodonaea* Schiff. First Area 6 record—*Heath*, 14th June 1959, one (W.B.).
- 109 *Pheosia gnoma* F. First Area 8 record—*Dale of Goyt*, 13th July 1961, one at m.v.l. (N.L.B.).
- 110 *Notodonta ziczac* L. First Area 5 record—*Beeley*, 8th May 1959, a ♀ at m.v.l. (B.S.F.).
- 161 *Drepana binaria* Hufn. First Area 7 record—*Langwith Wood*, 13th May 1961, two (A.H.).
- 166 *Nola cucullatella* L. First Area 5 record—*Beeley*, 2-21 July 1959, fourteen at m.v.l. (B.S.F.).
- 195 *Cynia mendica* Clerck. First Area 2 record—*Littleover*, 16th May 1959, one at e.l. (R.E.M.).
- 234 *Aegeria culiciformis* L. First Area 5 and P.D.N.P. records—*Beeley Moor*, 24th May 1959, over 40 imagines seen in a birch copse; 28th May 1960, a single ♀ captured in the presence of J.H.J. (B.S.F.).
- 269 *Hepialus lupulina* L. Area 2—*Littleover*, 20th August 1959, two ♂♂ at e.l. (D.C.H.). The latest recorded Derbys. date.
- 270 *H. hecta* L. Surprisingly the first Area 2 record—*Littleover*, 31st May and 13th June 1959, singletons (D.C.H.). First Area 8 record—*New Mills*, July 1959, one! (G.W.W.).
- 277 *Agrotis segetum* Schiff. First Area 5 and P.D.N.P. records—*Beeley*, 12th June and 3rd July 1959, singletons at m.v.l. (B.S.F.).
- 282 *A. puta* Hübn. First Area 6 records—Clay Cross, 17th May 1960, one at m.v.l.—specimen seen by J.H.J. (W.B.), and *Hepthorne Lane*, 6th June 1960, one at m.v.l. (J.H.J.).
- 311 *Amathes baja* Schiff. First Area 8 record—*Dale of Goyt*, 13th July 1961, one at m.v.l. (N.L.B.).
- 315 *A. triangulum* Hufn. First Area 5 record—*Beeley*, 22nd June-15th July 1959, seven at m.v.l. (B.S.F.).
- 319 *Axyليا putris* L. First Area 5 and P.D.N.P. records—*Beeley*, 21st June-15th July 1959, 29 at m.v.l. (B.S.F.).
- 323 *Cerastis rubricosa* Schiff. Area 5—*Beeley*, 1st March 1960, one at m.v.l. (B.S.F.). The earliest recorded Derbyshire date.
- 385 *Orthosia stabilis* Schiff. First Area 2 record—*Littleover*, 17th May 1959, one at e.l. (R.E.M.).
- 391 *Panolis flammea* Schiff. First Area 6 record—*Hepthorn Lane*, 12th and 13th May 1959, singletons at m.v.l. (J.H.J.).

- 411 *Rhizedra lutosa* Hübn. First Area 6 record—Hepthorn Lane, 5th and 8th October 1959, singletons at m.v.l. (J.H.J.).
- 435 *Caradrina clavipalpis* Scop. First Area 2 record—Littleover, 14th July 1961, one (R.H.A., D.C.H.).
- 488 *Gortyna micacea* Esp. First Area 7 record—Bolsover, 13th June 1960, larvae on strawberries (R.F.W.R.).
- 500 *Zenobia subtusa* Schiff. First Area 6 records—Clay Cross, 25th July and 16th August 1960, singletons at m.v.l. (W.B.), and Hepthorne Lane, 4th August 1960, one at m.v.l. (J.H.J.).
- 515 *Apatele alni* L. First Area 5 record—Beeley, 28th May 1959, one at m.v.l. (B.S.F.).
- 531 *Cucullia absinthii* L. Well established since 1953 in Area 6, but not elsewhere in the county though many larvae were noted at Doveridge (Area 2) on 22nd August 1959 by J. Peacock—see *Entomologist*, **92**: 243.
- 533 *C. verbasci* L. First Area 6 record—Codnor, 18-24 July 1961, four at m.v.l. (C.A.W.).
- 567 *Dasypolia templi* Thunb. First Area 5 and P.D.N.P. records—Beeley, 13th April 1959, one at a street lamp; 5th April 1960, one at m.v.l. (B.S.F.). See also J.H.J.'s note in *Ent. Rec.*, **72**: 20.
- 583 *Tiliacea aurago* Schiff. See J.H.J.'s note in *Ent. Rec.*, **72**: 20, and the comments which followed on pages 72 and 73.
- 617 *Colocasia coryli* L. First Area 5 records—Beeley, 13th and 14th May 1959, singletons; 4th/26th May 1960, four at m.v.l. (B.S.F.).
- 626 *Plusia bractea* Schiff. (Gold Spangle). Ref., South (1961), 1: 368. An addition to the County List. Area 6—Hepthorne Lane, 10th and 27th July 1959, singletons at m.v.l. (one!) — see *Entomologist*, **93**: 48 (J.H.J.), and Dronfield, 16th July 1960, a fresh ♀ taken at willow-herb flowers—see *Ent. Rec.*, **72**: 249 (T.D.F.).
- 667 *Archiearis parthenias* L. First Area 2 record—Shirley, 25th March 1959, a forewing (!) recovered from a specimen captured in flight by a Marsh Tit (R.H.A.).
- 671 *Pseudoterpna pruinata* Hufn. ssp. *atropunctaria* Walker. First Area 5 and P.D.N.P. record—Eyam Moor, 7th August 1961, common (W.B.).
- 680 *Jodis lactearia* L. First Area 5 and P.D.N.P. record—Harthill, 12th July 1959, one (G.W.W.).
- 725 *Xanthorhoe ferrugata* Clerck. First Area 5 record—Beeley, 11th July and 12th August 1959, singletons (B.S.F.).
- 730 *X. fluctuata* L. Of 1,393 taken at Hepthorne Lane (Area 6) between 23rd Apr.-2nd October 1959, two specimens were *ab. costovata* Haw.—see *Ent. Rec.*, **71**: 270 (J.H.J.).
- 731 *Nycterosea obstipata* F. First Area 6 record—Hepthorne Lane, 6th June 1960, one at m.v.l. (J.H.J.). Also the first Derbyshire record this century.
- 802 *Odezia atrata* L. Area 2—Littleover, 31st May 1959, three or more on a covered reservoir (R.H.A.). The first May record for the county.
- 815 *Orthonama lignata* Hübn. First Area 6 record—Hepthorne Lane, 12th August 1959, one at m.v.l. (J.H.J.).

- 822 *Larentia clavaria* Haw. First Area 5 record—Beeley, 18th September 1959, one at m.v.l. (B.S.F.).
- 832 *Hydrelia flammeolaria* Hufn. Area 1—Robin Wood, 6th July 1961, one taken in a ride (D.C.H.). The first Derbyshire specimen since 1918.
- 835 *Venusia cambrica* Curt. Area 8—Dale of Goyt, 13th July 1961, three ab. *bradyi* Prout taken and others seen—see *Ent. Rec.*, 74: 16 (N.L.B., H.N.M.). The first record of this aberration though Dr. Birkett *in litt.* states that this is a well-known locality for the dark form, many collectors having taken it in numbers in the last ten years or more and, only two days before his own visit, Mr. Austin Richardson had taken some here.
- 847 *Eupithecia linariata* Schiff. First Area 5 and P.D.N.P. record—Beeley, 22nd June 1959 (B.S.F.).
- 855 *E. centaureata* Schiff. First Area 5 record—Beeley, 25th May 1960, one at m.v.l. (B.S.F.).
- 872 *E. nanata* Hübn. ssp. *angusta* Prout. First Area 6 record—Leash Fen, 10th August 1961, commonly netted (J.N.).
- 889 *Abraxas grossulariata* L. First Area 4 record—Youlgrave, 26th June/9th July 1959, four (G.W.W.).
- 895 *Bapta temerata* Schiff. First Area 2 record—Littleover, 31st May 1959, one at b.l. (R.E.M.). First Area 5 record—Beeley, 26th May 1960, one at m.v.l. (B.S.F.).
- 914 *Deuteronomos erosaria* Schiff. First Area 5 and P.D.N.P. record—Beeley, 10th September 1959, one at m.v.l. (B.S.F.).
- 958 *Ematurga atomaria* L. First Area 7 record—Scarcliffe, 3rd May 1959, a ♂ on disused railway track (J.H.J., D.C.H.). First Area 8 record—Hathersage, 19th May 1959, abundant (W.B.).
- 986 *Scoparia ambigualis* Treits. First Area 5 record—Stanton Moor, 13th July 1959, one! (G.W.W.).
- 1016 *Udea nivealis* F. First Area 2 record—Littleover, 6th July 1961, one at e.l. (D.C.H.).
- 1042 *Mesographe forficalis* L. First Area 5 record—Beeley, early June 1960, one found dead in m.v.l. trap! (B.S.F.).
- 1045 *Hypsopygia costalis* F. First Area 1 record—Repton, 8th October 1959, one taken by Miss D. S. Horne (D.C.H.).
- 1086 *Homoeosoma sinuella* F. = *gemina* Haw. (Twin-barred Knot-horn). Refs., L. T. Ford, 35; B. P. Beirne, p. 84. An addition to the County List. Area 2—Littleover, 22nd June 1960, one taken on waste ground—specimen confirmed by S. Wakely—see *Ent. Rec.*, 72: 219 (D.C.H.).
- 1116 *Aphomia sociella* L. First Area 5 and P.D.N.P. record—Beeley, early June 1960, ♂ and ♀ specimens found dead in m.v.l. trap! (B.S.F.).
- 1126 *Crambus pratellus* L. First Area 6 records—Clay Cross, 15th and 16th June 1959 and 16th June 1960, singletons! (W.B.).
- 1202 *Eupoecilia angustana* Hübn. First Area 6 record—Leash Fen, 10th August 1961, abundant (J.N.).
- 1256 *Archips rosana* L. First Area 6 record—Clay Cross, 30th June 1959, one! (W.B.).
- 1270 *Lozotaenia forsterana* F. First Area 5 record—Beeley, early June 1960, one found dead in m.v.l. trap! (B.S.F.).

- 1276 *Philedone gerningana* Schiff. First Area 6 record—Walton, 4th August 1961, a few rather worn specimens netted on moor (J.N.).
- 1313 *Acleris caledoniana* Steph. First Area 6 record—Walton and Holy Moor, 4th/9th August 1961, common (J.N.).
- 1317 *A. permutana* Dup. (Buff Rough-winged Button). Refs., L. T. Ford 340; Bradley photo. 8c (70). An addition to the County List. Area 2—Derby, 29th and 31st August, 1st and 2nd September 1961, singletons taken in the recorder's Bridge Ward house! (A.B.W.).
- 1329 *A. ferrugana* Schiff. First positive Area 1 record—Robin Wood, 6th July 1961, one taken (D.C.H.).
- 1380 *Grapholita internana* Guen. = *erectana* Barr. (Dark Crescent Piercer). Refs., L. T. Ford 561; Bradley photo. 45. An addition to the County List. Area 6—Clay Cross, 25th May 1960, a ♂ taken! (W.B.).
- 1402 *Eucosmomorpha albersana* Hübn. = *rheediana* Haw. nec L. (Rheede's Large Piercer). Refs., L. T. Ford 396; Bradley photo. 66. An addition to the County List. Area 1—Robin Wood, 17th May 1961, one taken—see *Ent. Rec.*, **73**: 163 (D.C.H.).
- 1417 *Spilonota laricana* Hein. First Area 6 and P.D.N.P. record—*Leash Fen*, 10th August 1961, fairly commonly beaten from larch (J.N.).
- 1435 *Epiblema foenella* L. Sixteen specimens (most!) taken by W.B. at Clay Cross in the period 1959-61—see *Ent. Rec.*, **73**: 163.
- 1461 *Zeiraphera diniana* Guen. First Area 6 record—*Leash Fen*, 10th August 1961, mostly worn specimens beaten commonly from larch (J.N.).
- 1467 *Rhopobota naevana* Hübn. First Area 6 record—Holy Moor, 5th August 1961, abundant about *Vaccinium* (J.N.).
- 1469 *Epinotia stroemiana* F. First Area 6 and P.D.N.P. record—*Leash Fen*, 10th August 1961, taken at rest on birch leaves; rather local but easily seen—looking very like bird droppings—on the leaves of stunted birches (J.N.).
- 1536 *Apotomis betuletana* Haw. First Area 6 records—Holy Moor, 5th August 1961, and *Leash Fen*, 10th August 1961, fairly common (J.N.).
- 1544 *Hedya variegana* Hübn. First Area 4 and P.D.N.P. record—*Dovedale*, 15th June 1961, four taken (D.C.H.).
- 1565 *Celypha striana* Schiff. First Area 6 record—Clay Cross, 20th June 1960, one! (W.B.).
- 1603 *Stenolechia gemmella* L. First Area 6 record—Clay Cross, 11th June 1959, one! (W.B.).
- 1761 *Endrosis sarcitrella* L. First Area 3 record—Morley, 26th July 1961, one at Broomfield Hall (D.C.H.).
- 1774 *Diurnea fagella* Schiff. First Area 5 record—*Chatsworth*, 12th April 1959, one (W.B.).
- 1775 *D. phryganella* Hübn. First Area 4 record—*Dovedale*, 21st October 1959, flying (R.G.W.).
- 1780 *Carcina quercana* F. First Area 6 records—Clay Cross, 19th July 1960, and 2nd and 3rd August 1961, singletons! (W.B.).
- 1782 *Exaeretia allisella* Staint. (Mugwort Flat-body). Ref., L. T. Ford 777. An addition to the County List. Area 6—Clay Cross, 5th July 1959, one taken!—confirmed by J. D. Bradley (W.B.).

- 1820 *Agonopterix applana* F. First Area 6 record—Clay Cross, 31st March 1960, one at window (W.B.).
- 1856 *Aechmia thrasonella* Scop. First positive Area 1 record—Hartshorne, 11th June 1959, two (D.C.H.).
- 1922 *Argyresthia goedartella* L. First Area 3 record—Alderwasley, 23rd July 1961, one in the wood near Netherpark (D.C.H.).
- 1957 *Yponomeuta cognatella* Hüb. First Area 5 record—Matlock, 6th August 1959, one! (W.B.).
- 2099 *Lithocolletis nicelli* Staint. Previously included in the "Doubtful Species" section but now fully admitted. First Area 4 and P.D.N.P. record—*Dovedale*, 21st October 1959, mines collected produced imagines in 1960 (R.G.W.).
- 2175 *Ypsolophus sequellus* Clerck. First Area 3 record—Alderwasley, 23rd July 1961, one taken beneath a sycamore at the edge of the wood near Netherpark (D.C.H.).
- 2281 *Lampronia luzella* Hüb. First Area 3 record—Alderwasley, 14th June 1959, four boxed over flowering bramble and in bracken in hot sunshine between 14.30 and 16.30 G.M.T. at edge of wood near Packhorse (D.C.H.). Also the first noted this century.
- 1 Melton Avenue, Littleover, Derby. 18.ii.62.

The International Code of Nomenclature 1961

W. PARKINSON CURTIS, F.R.E.S.

I have read Professor Balfour Browne's criticisms of this in the *Entomologist's Record*, 74: 48. As he well knows, I have a firmly grounded view that to add Etymological research to Zoological research is casting a burden on the zoological worker that is very unfair, very unnecessary, serves no useful purpose, and hinders his work. I was, as a matter of professional necessity, taught Latin, and agree it is a fairly logical, if cumbrous language, but from my earliest childhood I was never able to understand why a table had a feminine gender, and now, many years from childhood, or even youth, I still have no answer to that puzzle, because gender and sex are irrevocably coupled. The older I get, the more convinced am I, that words used as names for males, females, neuters and intersexes, should have no sex or gender, but should be treated as neuter. The real trouble on that head seems to be that the Congresses prefer to leave the workers floundering, since all the Commission can do is to follow Congress decisions. I think Professor Balfour Browne might have added to his few words of approval, an approval of the new Statute of Limitations which will prevent archaeologists from unearthing more people like Pastor Hufnagel, and further upsetting names that have been in use for centuries. Years ago I tried to induce Dr. Karl Jordan to father a rule giving the Commission power to suppress a name for want of certainty, much as the Chancery Division of the High Court does with vague documents, but failed to convince him of the urgent necessity for such a practice.

Professor Balfour Browne's suggestion of national committees must, I feel sure, if he reflects on it carefully in reality, be asking us to put the clock back a couple of centuries. If he looks round the world and considers the political position subsisting on all hands to-day, he surely will perceive that the chaos, confusion and waste of life and energy is due to petty, parochial outlooks and to personal determinations to

have "my own way" at any cost. Such a look round will surely lead him to modify his view.

If the scientific world is endeavouring to keep petty, parochial outlooks, and petty, personal vanities in the background, surely we should do all we can to foster that attitude and encourage adherence to a rule rather than go back to the quagmire of diverse views.

An example of the time wasting difficulties that insistence on a personal view can cause, can be found by anyone who has to trace the references in literature to *Plebeius argus* Linn. = *aegon* Schiff. Since the late Mr. Rowland Brown obstinately insisted that *argus* Linn. = *argyrognomon* Bergstr., a view which seems now to be safely buried beyond exhumation.

I have read the revised code several times, and whilst I find the philological appendix tiresomely dreary, speaking as an equity draftsman, I consider it a very able production indeed, and I am confident that though probably every worker might like some alteration somewhere if workers will follow it, bearing in mind that it is intended and expected to help their work, and stabilize nomenclature, it will produce a high degree of stability.

131 Princess Road, Bournemouth.

1961 in Retrospect

By M. J. LEECH

The 14th February was an exceptionally mild evening, so for the first time in the year, the gear was assembled and I set out for Swithland Wood, the only remaining piece of extensive woodland which now remains of the Charnwood Forest area of Leicestershire. *Erannis marginaria* Fab. was well out, males were plentiful both in flight and sitting on the oak trees. A single specimen of *Biston strataria* Hufn. also came to the lamp—an early date. The next outing was on 4th March to Lea Woods, Ulverscroft, Leicestershire. The usual spring species of *Orthosias* came to the mercury vapour light along with *B. strataria* and *E. leucophaearia* Schiff. At Swithland Wood on the 8th it was nice to see a single specimen of *Orthosia populeti* Fab. appear at the light in company with a large number of *O. incerta* Hufn. The following day, very warm for the time of year with the temperature equal to many a day in May, I saw the first *Pieris rapae* L. in flight at Syston. Two days later the first visit of the season was made to the Nature Conservancy's Reserve at Castor Hanglands. Conditions were far from ideal, quite a strong wind was blowing and the temperatures hovered around 43° F. Ten spring species came to the mercury vapour light, included in which was a nice form of *O. munda* Schiff. On the 16th March I saw two specimens of *Gonepteryx rhamni* L. flying along the hedgerows of the main Leicester to Coventry road. Later the same day, we again visited Swithland Wood, when a further *O. populeti* was secured together with the commoner spring species.

I returned north to Lancashire for Easter. The weather was against any serious field work, temperatures were not much above freezing, and at Formby there were infrequent snow showers. A search over my old collecting grounds for larvae of *Lasiocampa trifolii* Schiff. was unsuccessful as there was no sign of the conspicuous orange coloured larvae sitting about on the dead grass stems, due, no doubt, to the cold wind

and low temperatures. I did, however, spot—and later took some colour photographs of—quite an uncommon fungus for these parts, namely, *Morchella esculenta* (L.) Perg. The cap of this species bears a kind of honeycomb network pattern. The stalk is thick and quite short. It is usually associated with chalky grasslands. The nights over the Easter weekend were unproductive; there was a sprinkling of the early spring moths, but *O. advena* Schiff. was noticeable by its absence.

Back in Leicestershire on the 8th April, at Swithland, the mercury vapour light produced a run of *Cerastis rubricosa* Schiff., and also two specimens of *Chaonia ruficornis* Hufn.; *Pheosia gnoma* Fab. also put in an appearance. Six days later the first examples of *Anthocaris cardamines* L. were seen flying in a hedgerow four miles from Worcester. The following two days were spent in larvae beating when the usual hawthorn feeders, *Allophyes oxyacanthae* L. and *Episema caeruleocephala* L. fell plentifully into the beating tray. On 17th April the mercury vapour light was in operation at a wood near to Newtown Linford, Leicestershire. Fourteen species were recorded for the night's work, including three perfectly fresh melanic *Phigalia pilosaria* Schiff. (*pedaria* Fab.)—quite a late date for the species when it is sometimes not uncommon in late February. The 23rd of the month was spent in exploring the Norfolk Broads, this being an area of the country not previously visited. Entomologically the day was unproductive, except for finding a fully grown larva of *Calothyssanis amata* L. on a dock leaf. A very pleasant day was spent, however, with some friends on board a motorised sailing boat. The bird life was quite interesting and due to long periods of bright sunshine some colour photographs of the area were obtained.

Duddington, just inside the borders of Northamptonshire, came in for some attention on the 29th April. The main quarry was the larvae of *Strymonidia pruni* L., but prolonged beating failed to produce a single example in the haunts where this butterfly was seen in some numbers the previous year. The beating tray was well patronised, however, by the usual spring species—*Theria rupicaprararia* Schiff. being in profusion. Lepidoptera on the wing were decidedly scarce, one fresh *Bapta bimaculata* Fab. was disturbed from the sloe.

The next expedition of any note was on the 11th May, when the scene of operations centred round an area of Cannock Chase, Staffordshire, after *Harpyia bicuspis* Borkh. After considerable exploring, an ideal area for the moth was located. Alders were plentiful, together with birch, and the spot generally was exceedingly damp. The night was not without success as the first *bicuspis* arrived at the light at 10.15 p.m. B.S.T., and a second flew in some thirty minutes later. Both were males and in good condition. Apart from this insect, which I had last seen at Tilgate in 1957, the catch was a little disappointing. *Dasychira pudibunda* L. was in evidence, and I also boxed three fresh *Gonodontis bidentata* Clerck ab. *nigra* Prout. Whilst attending a barbecue party at Cosby, Leicestershire the next night I spotted a fresh *Selenia lunaria* Schiff. flying round a paraffin lamp suspended from a pear tree in the grounds. This prompted further action and within minutes the mercury vapour light, always available in the boot of the boot of the car, was in operation, much to the consternation of the assembled gathering, but only one other specimen arrived.

The next day, in company with my companion, Mr. D. Tozer, was

spent at Barkby Holt Wood. This is a small woodland area a few miles from Leicester and a stronghold of foxes. None were seen on this occasion, but they have been observed frequently in the past running in and around the wood. A few larvae of *S. w-album* Kn. were obtained from off the wych elms but they were all fully grown and it was obvious that we should have been a week sooner. *Colotois pennaria* L., *E. defoliaria* Clerck and *E. aurantiaria* Borkh. were common on the oak trees. That night the light produced thirty-three species of macrolepidoptera and many micros at Swithland. Only one *S. lunaria* arrived; the commonest species was *P. gnoma*, approximately twenty-five found their way on to the sheets. The next day we visited Salcey Forest, and met Mr. Peter Cribb and his father. Long periods of searching and beating failed to produce a single *Apatura iris* L. larva. I did, however, net a nice fresh series (all males) of *Leptidea sinapis* L. and also saw a single *Pyrgus malvae* L. After dark we operated the mercury vapour light, but low temperatures kept the number of insects down and nothing of any note was seen or captured.

On the 19th May I motored north to Formby, preparatory to setting out the next day for Scotland for a week at Aviemore. Early the next day I set off and in view of the fact that I was not due at Aviemore until the following day broke the journey at the Derby Arms, Wither-slack. Little of interest was in evidence down Black Tom's Lane or on the Moss but it was very pleasant to be back in these surroundings which have seen so many good times in the past. That night was exceptionally cold for the time of year, a foretaste of what was to come, as a result I only recorded five species to the light in three hours. The late afternoon of the next day I met my two friends, Messrs. Coxey and Fairclough, at Aviemore for a week's concentrated search after the desirable late spring Scottish insects. That night we had three mercury vapour lights operating until dawn in the grounds of our abode. On examining the traps the following morning the results turned out to be not all that spectacular but we had a fair number of *Apatetele menyanthidis* View. and *Hadena bombycina* Hufn. (*glauca* Hübn.) with one *A. euphorbiae* Schiff. subsp. *myricae* Guen. The weather generally was very cold for the time of year and during our stay—towards the end of the week—fresh snow was seen on the Cairngorms. We were also caught in a snowstorm during one of our expeditions up the Burma Road. The last three nights produced no moths at all to our lamps. It was, of course, at this time of year that the whole country experienced a very late hard frost. The morning before this arrived we awoke to see deer in the grounds. They had presumably come down from the mountains on account of the further low temperatures which were to come. Our first day was mild by comparison and we each obtained a nice series of *Epelis carbonaria* Clerck from the top of the Burma Road, and a short series of *Anarta melanopa* Thunb. The related species, *A. cordigera* Thunb. was very scarce indeed. We saw no more than three specimens, and these all at rest, all week. Slowly but surely the day work produced a few insects by searching the rocks and posts but generally speaking everything was well below par. Larvae hunting produced plenty of *Thera juniperata* L. and *T. cognata* Thunb. from the juniper which eventually produced nice series of these insects. Quite a number of *Crocallis elinguaris* L. larvae were also taken, feeding mainly on *Vaccinium*, which later provided the Scottish form of this

insect. Entomology was, on this occasion, well intermixed with some botanical investigations and we also saw and photographed the Capercaillie incubating a clutch of eggs, in addition to visiting the site of the nest of the Osprey.

My arrival back in the Midlands was greeted by a large number of the F₂ generation of *S. bilunaria* Esp. in the emerging cage. The larvae from a batch of ova laid by a spring female had fed up rapidly and these had emerged earlier than in the wild. From a few pairings a third brood was obtained later in the year.

Some local collecting was undertaken in Leicestershire during the week-end of 2nd-3rd June, but there was little about and nothing of any note was recorded. Over forty species were attracted to light on the 5th June at Swithland Wood. It was interesting to see *Mimas tiliae* L. arrive quite early on. Having been basically a Northern collector for most of my life I had seldom seen this species come into light. Two *A. alni* L. and *Tethea ocularis* L. also put in an appearance before a halt was called. Returned to the scene of operations four nights later, but conditions were very inferior. We had an amazing run of *Meristis trigrammica* Hufn. to the light, both type specimens and some of the forms. In all, between forty and fifty arrived with hardly another species. Why this moth should have been abroad in such numbers and unaccompanied by anything else is one of those mysteries hard to solve. The next night I met Mr. and Mrs. Coxey at Holme Fen. The temperature varied between 58° F. and 56° F., but there was a strong S.E. wind blowing continuously. Interesting species recorded were *Stauropus fagi* L., *Leucania obsoleta* Hübn., *L. pudorina* Schiff. and *Apamea unanimitis* Hübn. out of a total of forty-eight for the night. The next day we went on to Salcey Forest, but came away with empty boxes except for three larvae of *E. cardamines*.

Three nights later, Mr. Tozer and I again set out our stall at Swithland. From the records in the diary, we observed fifty-seven species of macros but with no particular highlights except for a few further *A. alni* and *T. ocularis*. The Blotched Emerald, *Comibaena pustulata* Hufn., is known to frequent these haunts but did not put in an appearance. On the 16th June conditions in Leicester appeared to have some promise, so we set out for Castor Hanglands to try our luck once more for *Dicycla oo* L. We operated the mercury vapour light and applied plenty of sugar but there was no sign of this elusive insect. We had a fair night though, and it was a pleasure to see a male *Angerona prunaria* L. flying down the main sugaring ride during the first examination of the sugar patches. Later, single specimens of *Laspeyria flexula* Schiff. and *Scopula ternata* Schrank arrived at the light. A week later we made a trip to one of the local small pieces of woodland, but although conditions seemed good, we only saw a handful of common species. The following day was spent at Woodwalton Fen where we met Dr. Goodall who was on holiday in these parts. As mentioned by Dr. Goodall in his interesting article (*Ent. Rec.*, 73: 251-6) we operated the mercury vapour light to the north of the bungalow, whilst his was in operation on a small drove to the south of the main "drain". To those that know the area this was no real distance, perhaps a quarter of a mile, but in this small distance it was interesting to note that some species only paid court to one or other of the two lights. Dr. Goodall's light had a fair run of *Zanclonatha*

cribrumalis Hübn., whilst mine did not attract a single specimen of this species. On the other hand, and perhaps more difficult to explain due to its stronger flight, my light attracted quite a number of *Lygephila pastinum* Treit. which did not turn up at Dr. Goodall's equipment. In all I recorded sixty-two species for the night and on an examination of the trap was delighted to find a fresh male *Perizoma sagittata* Fab. sitting peacefully in one of the egg cones. May I also record my thanks to Mr. G. Mason for his help during the night's operations.

Early on the morning of 1st July I set off by road from Formby for a brief encounter with the insects and the plant life of Ben Lawers, Perthshire. The main quarry in mind was *Erebia epiphron* Kn. which inhabits this part of Scotland. It had been arranged that we should stay at Fortingal Hotel, near Aberfeldy. We arrived here late in the afternoon and the first task was to get the trap into position in the garden of the hotel. This was duly accomplished after the usual switch round of plugs and concealment of cable which, in this instance, had to cross the main path leading from the cottages at the rear of the hotel. The trap was not over-populated the following morning; one species I was pleased to see was a single *Cleorodes lichenaria* Hufn., which I had never seen in the living state before. The morning was devoted towards a general examination of the lower reaches of Ben Lawers—an area rich in flora. Many of the plants provided an opportunity of taking close-up photographs. That afternoon I visited Calvine after *epiphron*, but there was no sign of this butterfly. *Coenonympha tullia* Müll. was common as was *Ortholitha mucronata* Scop. subsp. *scotica* Cockayne. *Rheumaptera hastata* L. was about but required a lot of catching. That night there was a sharp fall in temperature due to a clear sky, and a resulting fall in the number of insects in the trap the next morning. The following day it rained until late in the afternoon, after which the wind increased to almost gale force. I decided to go to Black Wood at Kinloch Rannoch to look for *Itame brunneata* Thunb. Systematic disturbing of large areas of *Vaccinium* and heather failed to produce the desired insect so, although wet through, I beat out large quantities of *Panolis flammea* Schiff. larvae and a few *T. obeliscata* Hübn. from the conifers. No self-respecting moth would have flown at night as the wind in no way abated after dark and I did not even switch the light on. The following day the weather conditions improved slightly and the sun came through for a few brief spells. I was on Ben Lawers at the time and succeeded in netting a fresh *epiphron* whilst the sun was fully out. *Epirrhoe tristata* L. and *Colostygia salicata* Hübn. were also disturbed. The remainder of the day was spent in attempting to photograph the alpine flora at the summit of the mountain, but due to the high winds and poor light conditions the colour photographs did not turn out as well as they would have done given better conditions. Unfavourable weather continued at night, producing only a small number of moths to the light in the garden. The next morning I retraced my steps of the previous day and did quite well with *epiphron*. That afternoon I explored the banks of the River Lyon. *Odezia atrata* L. was fairly plentiful in one or two confined areas and there were a few nice fresh specimens of *Polyommatus icarus* Rott. about. New arrivals at the light that night were *Dyscia fagaria* Thunb. and a single *Chesias rufata* Fab. Ben

Lawers came in for further daytime work on the following morning when I managed to complete my Scottish series of the Mountain Ringlet. Kinloch Rannoch again in the afternoon, but as before there was no sign of *brunneata*. That evening I was entertained by Mr. and Mrs. Poore at Coshyville. Mr. Poore has lived in the neighbourhood for most of his life, and I was able to see many of his fine Scottish insects. The last day at Fortingal was again dull, with far too much rain. Collecting was cut to a minimum, so instead a run in the general direction of the Bridge of Balgie had to provide the substitute. I cannot leave the memories of these parts without reflecting for a moment on the magnificence of the table kept at the Fortingal Hotel. For those that like food of the highest order, added to the possibility of good mothing conditions, then a stay in these surroundings is a MUST!

One or two local expeditions in Leicestershire were undertaken during the next fortnight, but conditions were far from ideal and little of any interest was recorded in the diary.

On 22nd July Mr. Tozer and I revisited Holme Fen. Approximately fifty species visited the light but sugar was not attended except for a single *T. duplaris* L. Dusking produced a short series of *Sterrha emarginata* L., whilst at light *Arenostola phragmitidis* Hübn. and *A. fluxa* Hübn. were welcome visitors. The following week-end I went again to Salcey Forest. During the whole afternoon I only saw one *Limenitis camilla* L. Butterflies were scarce everywhere; in fact, there were more people about with nets than butterflies to catch in them. One party of schoolboys from a school in Bedford reported that they had obtained specimens of the second brood of *sinapis* and also a couple of *Polygonia c-album* L.

On the 4th August I was back in Formby. The trap in the garden at home produced a very large number of moths but all were exceedingly common. The only species of any note was a single *A. ophiogramma* Esp. *Actebia praecox* L. and *Agrotis vestigialis* Hufn. were conspicuous by their absence. The remainder of the August Bank Holiday was spent in the Formby area. Butterflies were very scarce indeed and during four nights operation of the mercury vapour light not one *praecox* was recorded, whereas on previous years at this time the species has been plentiful. On the 9th August I spent an hour on Whixall Moss. Not a single species of lepidoptera was observed on the wing although the sun was shining the whole time. A few pupae of *Nonagria typhae* Thunb. were shelled out from *Typha* stems. Three days later I examined Martinshaw Wood, a Forestry Commission wood on the Ashby side of Leicester. Much of the woodland had been given over to the planting of the ubiquitous conifers but fortunately some old oak trees still remain but for how long remains to be seen. Once again insects were very scarce and beating for larvae produced nothing.

The 20th August dawned a favourable day, so with my friends, Mr. and Mrs. K. W. Spencer, we set off to see what was the status of *Lysandra coridon* Poda at Dunstaple. On arrival conditions were not ideal but they could have been far worse. In two hours searching we only saw four *coridon* and one *Aricia agestis* Schiff. It would seem as if what was once a strong and thriving community of *coridon* is on the way out. Disappointed with these results, we spent the remainder of the day in common with hundreds of other human beings in watching the antics of some of the inmates of Whipsnade Zoo. Three nights later,

at Countesthorpe, Leicestershire, the autumnal species were well on the wing. *Tholera popularis* Fab. was common and *Deuteronomos fuscantaria* Steph. was also in evidence. On the 25th, I took a female *fuscantaria* at Swithland; having never reared this insect, it was kept for ova which were laid during the next forty-eight hours and which should produce a nice series this year. The last two nights of August and the first two of September were spent at Countesthorpe, and my records of the migrants captured have already been reported.

I had a holiday in Germany during the second week of September, visiting the Black Forest and travelling by road down the Rhine Valley. Serious collecting was not undertaken, but I was pleased to net an *Argynnis lathonia* L. from the flowers of *Valeriana officinalis* deep in the heart of the Black Forest. One other specimen was seen but evaded capture.

On returning to England, a little desultory local collecting was indulged in, but with no significant results.

From a purely personal point of view, I was satisfied with the year's work, but being a relative newcomer to the Midlands helped considerably as there were new areas to tackle and fresh places to visit. The season had its highlights but the occasions one sets out with high hopes, on what appears to be a propitious evening, only to return with hardly seeing a thing, not to mention a good moth in a box, are becoming all too frequent. Daywork, I think, is really becoming a waste of time. Up to a few years ago the local areas of Leicestershire woodland, particularly on the Uppingham side of the city, used to abound in butterflies, but this is a far different story to-day. Leicestershire is an intense agricultural county and there is no doubt that the spraying of crops added to the mild damp winters is having a disastrous effect on insect life generally. The status of some of the insects has now reached such a low ebb that short of a miracle there can be no hope of a come-back.

The Cottage, Hallgates, Cropston, Nr. Leicester.

Notes and Observations

ON BATTERY-POWERED MERCURY VAPOUR LIGHT.—I am sure that many of us were very interested in Mr. Alan Kennard's article on this subject in the February *Record*, and there are one or two important technical points in it which I would ask him to clarify, as I am myself investigating the transistor converter method of driving a m.v. tube from a battery, as stated in my note in *Ent. Rec.*, 74: I, p. 20. I have myself reached the stage where I agree with Mr. Kennard that 15 and 20 watt fluorescent tubes are fairly effective attractants to moths, but I too have only done a very little work with them. The snag, so far, as I said, is the necessity for the expensive transistor "ballast". Mr. Kennard makes no mention of this and states that it requires "a capacitor and choke . . ." and later says that the total cost is no more than £5. I know of no fluorescent tube which will work without the electronic transistorized converter off a car battery, and the cost is much higher than £5!—Commander G. W. HARPER, R.N.(Retd.), Nedaich, Newtonmore, Inverness-shire. 14.iii.62.

Notes on *Tinea turicensis* Mull.-Rutz. (*metonella* Pierce)

By S. WAKELY.

In January 1961, I received some case-bearing larvae from Mr. D. J. L. Agassiz. They were described as "revolting clothes moths", and were found at Midhurst, Sussex, feeding on an animal-skin rug. At the time I assumed they were the common clothes moth *Tinea pellionella* L. They were placed in a glass-topped tin and a few feathers were introduced. They showed such a liking for this diet that I continued to supply it.

At the end of June several moths appeared, and I still thought they must be *pellionella*. However, I had often bred the common moth, but these appeared slightly darker, so half a dozen specimens were set. I rather think one or two of them escaped as they were difficult to box from the tin, but there were less than a dozen in the first place.

At the end of the year I decided to get these moths determined at the British Museum, so they were sent to Mr. J. D. Bradley, who examined the genitalia and identified them as *Tinea turicensis* Müll.-Rutz.

This obscure species was discovered in Britain for the first time by Mr. N. Cooke in 1856. The moths were found in a wool warehouse at Liverpool and were recorded in the *Entomologists' Weekly Intelligencer* under the name of *Tinea merdella* Zeller. Stainton describes it under this name in the *Entomologists' Annual* for 1857.

Lord Walsingham in 1907 stated that the *merdella* in British collections differed greatly from Zeller's unique type, and he came to the conclusion that our British specimens attributed to that species were in reality *flavescentella* Haworth. It was not until 1934, when Pierce and Metcalfe were getting material for their book on the genitalia of the Tineina that the true facts came to light. When they examined the species known as *merdella* in various collections, they discovered that three distinct species were involved. Walsingham had already described the *flavescentella* of Haworth, leaving two new species to be named. Accordingly, Cooke's moths were called *Tinea metonella*, and the third species taken in Liverpool by the late W. J. Mansbridge, was named *Tinea lanella*.

Luckily, I did not destroy the material from which the moths had emerged, and a recent examination has shown that there are some small larvae, moving about quite actively. The cases are small and white in colour, but of course, the colour may depend on the material on which the larvae are feeding.

The description of the moth by Stainton has puzzled me, for the reference to Cooke's specimen reads: "Best distinguished from *pellionella* by the paler, more silky ground colour of the anterior wings". Looking at my bred series, *pellionella* appears to be the paler insect, the species more closely resembling *metonella* in general colour being *Niditinea fuscipunctella* Haw.; possibly Cooke's *merdella* (nec Zell.) were not as fresh as the *pellionella* with which they were compared.

As can be seen from the title of this paper, the name *Tinea metonella* Pierce has had to give way to the older name of *Tinea turicensis* Müll.-Rutz.

Once again I have to express my thanks to Mr. J. D. Bradley for all the help he has given me.

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Collecting Lepidoptera in 1961

By R. FAIRCLOUGH

There is a postscript to last year's article (*Ent. Rec.* **73**: 11.) I took the *Hydraecia* species collected in the Pennines to Mr. W. H. T. Tams who kindly checked their genitalia. As expected, those taken at the Trough of Bowland were *H. lucens* Frey., but the moth recorded as *H. oculea* L. from Ribbleshead turned out to be *H. crinanensis* Burn. I was grateful also to Mr H. C. Huggins who wrote about dates for *E. fraxinata* L. (*Ent. Rec.*, **73**: 95).

The main feature of the 1961 spring was the earliness of emergences following the wet mild winter. In the middle of February *Tortricodes tortricella* Hubn. were flying freely in Leith Hill Wood, and by the 26th fifteen species of 'macros' had been recorded at the home m.v. light including *Lithophane socia* Rott., a species only once before seen here. By this time most of the pupae from last year's breeding had been persuaded to emerge, such species as *Xlomyges conspicillaris* L., *Orthosa advena* Schiff., *Apatele euphorbiae* Fabr., *Xanthorhoe quadrifasciata* Clerck presenting no difficulty although *Gypsitea leucographa* Hübn. did badly, this being the second time I had failed with this moth. Some *Coenotrephia sagittata* Fabr. pupae were also tried as an experiment. These refused to be forced, and while some died, about half despite their long spell in the airing cupboard, emerged in June with those given normal treatment.

Sallows being well out on the 10th March, the campaign for *Jodia croceago* Fabr., opened with a visit to the Leith Hill area, Sugar, and m.v. light were tried with willow searching, but about a dozen common species were all that resulted. The following night at Dunsfold produced nothing better.

There was plenty of blackthorn out by the 17th March when Ron Parfitt joined me near Leith Hill. Although we had had some hot days and good nights during the week, this evening turned clear and cold. Despite this, at eight thirty I found a female *croceago* on my sugar, then a male came to R.W.P.'s m.v. shortly afterwards, and to complete an exciting trio we shook another female from the last willow *Biston strataria* Hufn., and *Eupithecia abbreviata* Steph. were particularly common at the light.

On the 25th Geoffrey Cole, Oliver Howard, Tim Pooles, Ron Parfitt and I mustered ten sheets and shook the sallows in the area. As so often an unsuitable night followed a hot day, and sheets were commoner than moths, one *leucographa* being the only interesting sight.

Three of us returned the next night, which was cloudy and windy, I sugared again taking two *croceago*. From the few sallows remaining in flower we shook six more so that I was able to add more to the three caged from the 17th. Pairing was observed and the egg-laying went on for weeks. The larvae gave no trouble until I went away at Whitsun. Their behaviour then deteriorated for they ate through the netting, marched out of the room across the passage, and tried to pupate at the far end of the room opposite under the new carpet there. Fortunately my wife detected the escape, confined them more closely, and thus ensured the series which emerged at the end of July.

During a brief look around on the morning of Good Friday the 31st March we saw orange tips and speckled woods flying, and put up *Ematurga atomaria* L.

My son Alan, and I took the m.v. light to the Leith Hill area on the 1st April. Finding that only catkins fell from a sallow or two we tried the sheet. With a light drizzle and temperature of 49° one might have expected a lot of moths but we had but trouble, and recorded only sixteen species all normal for the date except *Odontosia carmelita* Esp. of which there were two, the earliest date by far on which I have seen this species.

We had been looking forward to a first April visit to Aviemore. On the 5th April Alan and I made the trip from Lancaster, viewing with no pleasure the snow lying on the Shap and Southern Upland roadsides. It was raining too, but the amount falling being negliible by the time we reached Struan, we set about searching for *Poecilopsis lapponaria* Boisd. as so many other collectors have done before. Having heard so often of how locally common this moth usually was, we were surprised to find only four males, their condition suggesting that they were not the first ones to emerge. We were more surprised to find other moths on many posts despite the patches of snow, the banded form of *Nothopteryx carpinata* Burkh. being the commonest, with specimens of other spring species there in lesser numbers.

At Aviemore that evening the temperature was only 34°. The trap next morning emphasised the point, only seven *Orthosia gothica* L., and *O. stabilis* View. being present. Indeed the trap did little to enliven the holiday for the nights were cold except the last which was windy, and nothing worthwhile was collected by its help, as opposed to a previous summer visit in 1958, when the trap was a constant source of interesting species.

The 6th was a black cold day with frost at night. We searched birch trunks but found nothing. We were pleased to see the sun next day, and after a walk on Cairngorm with a view of Goldeneyes on Loch Morlich on our way back, we spent the afternoon at Struan again in order to discover what was happening about *lapponaria*. This time we found only four males again, but a few females as well, though other moths were scarcer. With the warmth of the sun a few micros flew and we took *Philedone prodromana* Hubn., *Peronia lipsiana* Schiff and *Telphusa aethiops* Westw., the last showing once again how early in the season it appears. On the way back we saw three whooper swans by the

Spey. I had better hopes of the night, taking the m.v. to the birches of Inshriach Forest on the east of the Spey. However the temperature was 34° at nine p.m. and had reached freezing by ten when I retired, having been amazed to see *O. gothica*, *stabilis*, *populeti* Treits., *Conistra vaccinii* L., *Colostygia multistrigaria* Haw., and *carpinata* on such a cold night.

On Saturday the 8th we collected galls of *Evetria resinella* L. from the young pines near Loch an Eilein, their presence having been reported to us by Mr. C. Holmes who was staying at Alt na Craig at the same time. At night he joined me among the birches of Craigelachie, and though the temperature was only 38° four *Brachionycha nubeculosa* Esp. came to the light with a few other species. These *nubeculosa* were worn and we were told by our host, Mr. P. le Masurier, that he had taken numbers in mid-March.

Although the cold weather continued another attempt for *nubeculosa* followed the next night when Barrie Goater, who was camping at Loch Morlich, joined us. Though the temperature was no worse there was more wind, and few moths were seen.

The 10th found my son and me on the top of the pass of the Tomintoul-Braemar road where we went to look for ptarmigan. In the clouds we found no ptarmigan, but golden plovers and mountain hares, the first of which seen in the mist as he sat up against a snow drift, looked like something quite unreal. As we returned the afternoon turned milder. We smoked a patch of bog myrtle and heather in the Nethybridge area, putting up plenty of *Peronia mixtana* Hübn., some *P. lipsiana*, *P. maccana* Treit., and *Amblyplitia acanthodactyla* Hübn. Apart from these hibernated species *prodomana* was flying.

The evening produced the apparently best 'mothing' conditions with a temperature of 45° and light drizzle. Despite staying on for three and a half hours only thirteen species came, one *Chloroclysta miata* L. and two of *Achlya flavicornis* L. being all I saw of these species all the week. (I had hoped to see *C. siterata* Hübn., and also *Xylena exsoleta* L. and *vetusta* Hübn. but failed to do so).

On the 11th, our last day, we took the smoker into Rothiemurchus Forest, and tried the old overhanging heather on the top of a wall. We saw more moths by this means than at any other time, *acanthodactyla* swarming, with the *Peronias* mentioned above and a few *Plutella incarnatella* Steud. The quiet morning gave place to an afternoon with blustering rain-laden southerly wind which kept us in at night.

We so enjoyed the week despite the difficult weather, and lack of moths we had hoped to see that we shall try to go during the coming Easter. It will not surprise me then, at what will be a later date, to find the season a backward one, and the same species out, for the weather usually wins.

Back at Lancaster on the evening of the 13th we went to Silverdale to see a flourishing colony of green hellebore, and I stayed on at dark at Beetham to look at the blackthorn and a few odd remaining sallow catkins. (We had found the sallows over in Scotland). Ten species were noted including *N. polycommata* Hübn., and *Triphosa dubitata* L.

The 21st April gave Ron Parfitt and myself a rare successful expedition. Having been very interested in the record of *Eupithecia irriguata* Hübn. at Chiddingfold the previous year, we went to what we thought was a suitable area and put out both our m.v. lights. As we had long

since concluded a long journey to the New Forest was necessary in the case of this species, it was with great pleasure that we took fourteen between nine and twelve thirty. In that time the temperature had risen a little from 46° and rain had set in finally. How seldom the temperature rises at night, and how when it does the moths respond! With them were not a lot of other species, mainly prominent (including one early *Stauropus fagi* L.), *Polyphoca ridens* Fabr. and the usual geometers. We both obtained females of the pug, and eggs later though not a lot. I had about a dozen larvae which did well until full fed. Then they hung about as if requiring a special pupating material, and in the end only one good pupa was formed though they had compost, paper and rotten wood given to them. R.W.P.'s experience was the same with his larvae. Does anyone know of any special requirement in the case of this species?

Mr S. Wakely and I went to Plaistow on the last two Saturdays in April to visit two fields of rough pasture in which grew a lot of dyer's greenwood. On the first day heavy rain stopped our search, and on the second we were disconcerted to find most of the plants ploughed in. We found some larvae on these remaining although the farmer arrived to complete the ploughing. He stopped to ask us did we know how to get rid of the *Genista* completely, and we had to tell him we would rather it had remained. The adverse effect on insect life of this constant process of farm improvement was brought home to us when we bred a few *Stomopteryx vinella* Bankes, knowing that we had made our discovery too late. Also bred later were *Argyroploce rivulana* Scop., *Cnephasia incertana* Treits. and *C. interjectana* Haw.

There were plenty of *Elachista perplexella* Staint. flying in the field and wood. I always beat firs in late April in the hopes of *Eucosma subsequana* Haw. but on this occasion saw only a worn *E. pygmaeana* Hübn. and fresh *E. tedella* Clerck. Among some neglected apple trees at Loxwood we collected larvae from which were bred *A. nubiferana* Haw., *Acroclita naevana* Hübn. *Cacoecia rosana* L. *Ypsolophus horridellus* Treits. and *Coleophora hemerobiella* Scop.

A short spell with the smoker among *Salix repens* on Ashdown Forest on the 28th gave a series of *Ancylis inornatana* H.S., but a m.v. outing to the *croceago* area on the 30th was a waste of time.

It was the 13th May before we did the next trip, which was to the salterns of the Isle of Harty. There we enjoyed the warm sunshine, finding some young *Malacosoma castrensis* L. and swarms of *Euproctis chrysorrhoea* Hubn. larvae. *Phalonia vectisana* Westw. flew in numbers in the late afternoon with some *P. affinatana* Dougl. and an odd *Epichnopteryx pulla*. Esp. A brief stop at Oldbury Hill west of Ightham produced *Capua favillaceana* Hübn. and *Argyresthia conjugella* Zell.

From the 21st to the 26th May I was at Aviemore with Stuart Coxey and Michael Leech. We arrived in glorious weather and had high hopes. During a brief stop at Struan we found females of *Apatele menyanthidis* View. and *Cleora cinctaria* Schiff. which both laid. On the first evening we enjoyed deciding where to place the three traps, and after dark searched for larvae on bog myrtle without success. I took two *Eupithecia helveticaria* Boisd. round the junipers.

Whit Monday proved to be the only warm sunny day of our visit. The traps in the morning did not contain many moths but they were a

very different selection from the trap at home. There were some *Hadena glauca* Hübn. getting past their best, one *Apetele euphorbiae* Fabr. one *Dyscia fagaria* Thunb. the small Scottish form of *Electrophaes corylata* Thunb. *A. menyanthidis*, with many *Pheosia gnoma* Fabr. and *Gonodontis bidentata* Clerck. One worn *Peronia niveana* Fabr. another moth I'd hoped to see at Easter, turned up, and a *Pachythelia opacella* H.S.

The morning we spent on Granish examining the posts where we found two worn *Anarta cordigera* Thunb., and a *euphorbiae*. Fresh *Ortholitha scotica* Cockayne were easily put up at one spot, with *Ancyllis unguicella* L.

After lunch we climbed the Burma Road. On top *Isturgia carbonaria* Clerk., completely finished in the valley, were common enough in good condition, but *A. melanopa* Thunb. were difficult to catch in the northerly wind and only one *cordigera* was seen. We wished we had gone up earlier in the day. I found a few *Tortrix rusticana* Treits., *Argyroproce mygindana* Schiff. and an odd *Nemophora pilella* Fabr.

The following morning the traps produced much less, and with cloud and a cool wind blowing we retired to Rothiemurchus to beat for *Thera cognata* Thunb. and *T. firmata* Hübn. larvae. *Argyresthia arceuthina* Zell. were emerging in the junipers in large numbers. We tried the new Cairngorm ski road but found conditions up there at 2000 feet so unpleasant that we came down having seen not a wing of any sort.

Stuart decided to take up his trap to the high heather and run it from a generator. We were sure this would be a fine site, and so it would have been if the coldest of North East winds had not taken over. In the event, the only *Hyppa rectilinea* Esp. we saw came on the first night, and after that none of us had anything in our traps. Lest it be thought we are merely m.v. merchants I ought to record that we tried sugar twice and did not see a moth.

For the last three days we grimly searched rocks and posts for the moth that seemed the most desirable, *euphorbiae*, until we had found two females and were able to obtain ova. I was surprised on the 25th when we searched over a thousand posts to find that the commonest species of the total of fifteen specimens we saw was the dingy skipper which seemed to favour sitting with its wings wrapped round the wires.

We climbed the Burma Road again on the last day but conditions were Arctic, snow having fallen. Returning by the stream valley I put up a female *Hydriomena ruberata* Frey. Though I got larvae from this I failed to rear them, for they died in a calculated manner from June to October. All the other species collected have produced moths this spring by forcing.

We visited the osprey in the approved manner, merely seeing the hen on the nest, but I was delighted to find a capercaillie's nest from which the hen refused to budge, and on the same day a skylark's nest with a cuckoo's egg, and some red grouse chicks. The snow on the mountains seemed to have driven the deer down, for a small herd were picking their way round my trap on the last evening.

Scotland had not been the only cold place in Whit week for I saw evidence of frost damage all the way back to Surrey. Altogether we recorded only fifty species of macrolepidoptera, including four butter-

flies, pearl-bordered fritillary, green hairstreak, grizzled and dingy skippers, while I took eighteen species of the 'micros'.

Abbots Wood, like so many famous hunting grounds of the last century is merely a vestage, but as I had never been there at night I sugared and set up the light on the 3rd June. Two *Tethea* or Fabr. came to the sugar which was meant for *Diptera alpium* Osbeck really, and only twenty-six species came to the sheet, the commonest being the pug from the cow wheat, *Eupithecia plumbeolata* Haw., none of the rest being even local.

Ron Parfitt came over on the 10th and 15th for Balcombe visits, and on the second occasion he took a fresh *Cerura bicuspis* Borkh. and some *Apatele alni* L. Other interesting species were *Anaplectoides prasina* Fabr. and *Craniophora ligustri* Fabr.

On the 14th I collected some *Leucoptera walesella* Staint, from Dyer's Greenwood in another part of Sussex from Plaistow, and also some cases of *Coleophora vibicella* Hübn.

An hour was spent at Betchworth in the evening of the 20th hunting the smaller species. *Oxyptilus parvidactyla* Haw., *Coleophora lixella* Zell. and *Pempellia ornatella* Schiff. were taken. *Ortholitha bipunctaria* Schiff. was out, but hardly a butterfly was seen at rest.

Another attempt at Folkestone to find *Aegeria chrysidiformis* Esp. followed on the 24th. Unlike the previous year we had a hot sunny day, but saw no more clearwings than before. *Aplasta ononaria* Fuessl. was there, and various smaller species including *Phalonia zephyrana* Treits. Before leaving the town we visited the home of *Arenostola morrisii* Dale seeing a few flying. I reflected on the home-ward journey between eleven and one o'clock that the steady increase in traffic was removing one of the pleasures of moth-hunting at night, the clear run home, for there were now cars out till the early hours on any Saturday night.

The thirteenth m.v. outing of the year was to the Leith Hill area on the last day of June, and with a temperature keeping above 60° after a very hot day, a total of fifty-five species recorded was disappointing. A worn *T. firmata* and some *Chloroclystis debiliata* Hübn. were seen at dusk, more of the pugs coming to light with *Bomolocha fontis*, Thunb., *Argyroploce sauciana* Hübn., other bilberry feeders. Among the other species were *Telphusa fugitivella*, Zell., *Borkhausenia flavifrontella* Hübn., *Hyloicus pinastri* L., *S. fagi* L., *Amathes ditrapezium* Borkh., *T. fluctuosa* Hübn., *A. leporina* L., *Boarmia roboraria* Schiff., *Hydrelia testaceata* Don.

July opened with the hottest day in London since records were kept on the Air Ministry roof, and we had over 90° at Leigh. I took the m.v. to a Chilterns wood well supplied with beech, elm, maple, ash, oak, willow etc. The light was run from 10 o'clock when the temperature was 70°, to 2.30 a.m. when it was still 67°. In that time there were particularly large numbers of *Cosymbia linearia* Hübn. and *Campaea margaritaria* L., but a total of seventy-two species showed the same sad pattern of recent years, as it was a night worthy of at least a century, and one would have had them ten years ago. I was pleased to see a few *Discoloxia blomeri* Curt. and *Procus versicolor* Borkh. and of the smaller fry *Elachista megerlella* Staint., *E. gleichenella* Fabr. and a *Cacoecia aeriferana* H.S., this being the farthest north

(to be concluded)

Current Literature

AGRICULTURAL ENTOMOLOGY IN THE TROPICS. By G. H. Caswell. Edward Arnold (Publishers) Ltd. 152 pp. 21/-. This is a useful book for the student, more as a sieve for the elimination of unnecessary research. After the introduction, the insect orders are treated by families, firstly the Exopterygota of economic importance, a chapter each for the biting and the sucking families with such details of their habits as may give the student an idea of their functions, both beneficial and predatory, to agriculture, and a fair idea of determining the order. This is followed by a similar treatment of the Endopterygota. A useful bibliography is added, classed under the crop headings, and an alphabetical index completes the book. It will be seen that the use of this book will quickly reduce the amount of literature to be perused before a pest is identified and the appropriate treatment ascertained.—S.N.A.J.

Three separates from HEREDITY, 16: 393-434, received from Dr. H. B. D. Kettlewell, deal with the question of geographical melanism in the Shetland Lepidoptera, with a special reference to *Amathes glareosa* Esp. and its local variety *edda* Stgr. This species and its Shetland forms is the subject of the second paper which gives an interesting map showing the relative frequency of *edda* and *glareosa* in various parts of the island. This shows that *glareosa* preponderates in the south, and gives way to *edda* gradually as one goes north east, until in the extreme north-east the status of the two forms is entirely reversed, and *edda* has virtually replaced *glareosa*. The third part deals with selection experiments illustrating the many aspects of this population by means of graphs and tables.—S.N.A.J.

KEYS TO THE GENERA OF THE AFRICAN TERMITES. By G. C. Webb. Ibadan University Press. 1961. Price 10/-. 35 pp.; 50 figs. These keys are partly adapted from *Revision der Termiten Afrikas* (1925) by Y. Sjöstedt. The keys for the four families of African termites and both illustrations and keys for the Calotermitidae are in fact largely those of Sjöstedt but in the present work only the soldier caste has been used since it is the most distinctive caste and at the same time the easiest to collect. Most African termites belong to the Termitidae and the keys and illustrations presented for these are entirely new.

It is a tribute to the author that the general impression given is that termites are the easiest of all insects to distinguish at least to generic level. The keys are throughout extremely clear, many with simple opposed couplets that do not seem to admit of any uncertainty. They are supported by equally clear and explicit line drawings of the head and appropriate mouthparts executed by J. C. Ene. The nomenclature has been brought up to date but the work has not unfortunately been completed so as to include a number of recently described genera which are listed either separately or as footnotes without further description. This omission is puzzling but is presumably to be explained by the unavailability of the material to the author. This seems a pity since out of 69 genera listed for the three main families—Termitidae, Calotermitidae and Rhinotermitidae, only 9 are excluded from the keys which would otherwise be comprehensive for the whole African continent.

Despite this, the presentation is of such clarity that the work is certain to be of great practical value for the collector wishing to make a preliminary classification to generic level.—C.A.C.

JOURNAL OF THE LEPIDOPTERISTS' SOCIETY, 14: No. 4 (7.ix.1961). Wilbur S. McAlpine, Stephen P. Hubbell and Thomas E. Pliske have combined to produce a detailed account of the distribution, habits and life history of the Satyrid butterfly *Euptychia mitchellii* French with two plates of enlarged drawings of early stages and anatomical details, and a plate of photographs of early stages and an upper and under view of the adult insect. Paul E. Ehrlich and Susan E. Davidson write on techniques for marking lepidoptera for ecological surveys illustrated by two line drawings. C. J. Durden describes the Ontario habitat of *Boloria titania* and W. E. Miller describes *Rhyaconia subtropica*, a new Olethreutid species from pine tips from the Gulf of Mexico region, with wing-pattern photographs of two *subtropica* from Mexico and Florida, and its near relation *B. rigidana* from North Carolina; genitalia diagrams and a distribution map are also given. In the portion "Especially for Field Collectors", Chas. V. Covell Jr. writes on collecting in the north eastern part of New Mexico; R. S. Smith writes on *Erora laeta* Edwards in New Hampshire, and R. Guppy writes on *Catocalid* species on fir logs. There is an obituary notice of Walter Roepke, and there is a further list of recent literature on Lepidoptera.

Vol. 15, No. 1 (9.xi.1961). C. W. Wyatt writes on additions to the Rhopalocera of Afghanistan, describing several new species and subspecies with three photograph plates illustrating 51 specimens; there is also a microphotograph of a mounting of the male genitalia of *Melitaea kuchi* Wyatt. The popular giant skippers (Megathymidae) have an article by D. B. Stallings, J. R. Turner, and Viola N. Stallings, with a description and photographs of a new subspecies of *Agathymus mariae* (Barnes & Benjamin) named *micheneri*. Jane and Lincoln Brower describe experiments to relate the palatability of model and mimic butterflies to caged mice; R. M. Fox gives a check list of the Ithomiidae, and J. C. Downey and W. C. Fuller write on variation of *Plebejus icaroides* Bdv. An article by Z. Lorkovic and C. Herman deals with the genetics of dimorphism in *Colias*. Walter Forster's presidential address is on the subject of systematics. In the section for field collectors, P. S. Remington writes on Megathymidae in Mexico.

Vol. 15, No. 2 (1.ii.1962) opens with an article by Ronald W. Hodges on the genus *Ithome* in North America, introducing three new species with ♂ and ♀ genitalia figures and a photograph of *I. concolorella* Chambers. D. L. Bauer writes on midges biting butterflies, and H. F. Price on Lepidoptera as prey of other insects. New butterfly records include Iowa by L. D. Miller and Maryland by R. S. Simmons and W. A. Anderson. Breeding techniques for *Galleria mellonella* L. and Agrotid larvae come from Joan F. Bronskill and D. Farnsworth. For field collectors, Anthony Valetta writes on his collecting experiences while in the U.S.A. as an exchange teacher, and P. D. Syme notes *Euchloë olympia* Edw. and *E. ausonides* Bdv. *mayi* Cherm. as species new to Ontario; D. Carney, jun., records *Boloria selene tollandensis* (Barnes & Benjamin) from Washington. Walter Forster writes an address on the butterflies of the Cordillera Real and Bolivian highlands.—S.N.A.J.

13. Tunbridge Wells (Knipe (1916)). Goudhurst, c. 1950 (B. G. Chatfield); fairly common at m.v., 1955-59, scarcer 1960-61 (W. V. D. Bolt).

14. Sandhurst, May 1, 1934 (Bull, *Diary*). Hawkhurst, common at light, 1953-54 (B. G. Chatfield). Tenterden, 1959-60 (C G. Orpin).

16. Folkestone Town, one, May 11, one, May 21, 1954 (A. M. Morley).

VARIATION.—A ♂ that I have from Long Rope, 1951, has the clear whitish ground of the median area of forewing unmarked except for the crescent, and is therefore perhaps referable to ab. *vivida* Zerny (C.-H.). D. G. Marsh has a ♀ taken Ham Street, May 12, 1956, in which the median area of forewing is completely suffused with the fuscous colouring of the basal and outer areas†.

FIRST RECORD, 1828: Stephens, *Haust.*, 2: 30.

Pheosia tremula Clerck: Swallow Prominent.

Native. Woods, marshes, etc.; on poplar, aspen, sallow. Fairly numerous, and found in all divisions.

The insect is regularly double brooded; appearing on the wing in May and June, and again in July and August, sometimes continuing into September; the second generation, it appears, is generally more numerous.

The moth has mostly occurred at light, but is occasionally seen on trunks, e.g. H. G. Gomm (*Diary*) records finding a pair *in cop.* on a poplar trunk at Westgate (div. 9), August 21, 1924.

Among the many records of its discovery in the early stages, may be mentioned the following. On aspen: ova common, at Brasted (R. M. Prideaux); larva, Stansted, August 28, 1923, two larvae, Darenth Wood, October 4, 1924 (F. T. Grant). On poplar: ova, Chevening, 1912, imagines reared (Gillett, *Diary*); larvae found by D. Saunders on small poplars at Seabrook near the beginning of the Hythe canal, c. 1925; a larva, Folkestone Town, September 6, 1934 (A. M. Morley). On sallow: several larvae, Tonbridge, 1951 (H. E. Hammond).

VARIATION.—In R.C.K. is an ab. with "marking brown", bred Chevening, June 17, 1913.

Newman (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1908-09: 71) exhibited "an extremely dark form bred from Bexley ova".

FIRST RECORD, 1828: Darenth Wood and near Dover (Stephens, *Haust.*, 2: 25).

P. gnoma (dictaeoides Esp.): Lesser Swallow Prominent.

Native. Woods, heaths, etc.; on birch. Locally fairly numerous, though usually less plentiful than *P. tremula*. Recorded from many localities in 1, 10, 12.

Note:—In certain areas it is noticeably more plentiful than *tremula*; thus, at Petts Wood (div. 1), E. Evans (*in litt.*, 1951), wrote that there it is "much commoner than *P. tremula*", and at Hawkhurst (div. 14), B. G. Chatfield (*in litt.*, 1950), likewise noted it as more common than *tremula*. V.C.H. (1908), calls it "scarce".

3. Bysing Wood (H. G. Huggins). Canterbury, a few on street lamps (A. G. Peyton, *teste* A. J. L. Bowes). Herne Bay; Blean Woods; occasionally at light (D. G. Marsh).

5. Chevening, May 18, 1914 (Gillett, *Diary*). Westerham, plentiful, 1961 (R. C. Edwards).

6. Greenhithe* (*V.C.H.* (1908)). Gravesend (H. C. Huggins). Culverstone, larva on birch, September 18, 1924 (F. T. Grant). Pinden (E. J. Hare). Shoreham, larvae c.1955 (R. G. Chatelain). Meopham, ten to twenty per annum, 1959-61 (J. Ellerton).

6a. Darenth Wood (Stephens, *Haust.*, 2: 25); 1861 (Fenn, *Ent. week Int.*, 10: 196) (Carrington, *Entomologist*, 12: 214); larva, June 28, 1907 (A. R. Kidner, *Diary*); May 11, 1912, May 15, 1921, May 22, 1923 (F. T. Grant) (H. C. Huggins) (E. J. Hare). Swanscombe Wood, larva on birch, September 6, 1913 (F. T. Grant).

7. Sittingbourne*, one, 1903 (J. P. Barrett coll.). Westwell, July 22, 1946 (Bull, *Diary*); common, 1951-54 (E. Scott). Boxley, 1953 (A. H. Harbottle).

8. Folkestone* (Ullyett (1880)). Crabble near Dover, ♂ on gas lamp, May 12, 1899 (H. D. Stockwell, *Diary*). Dover, one, August 20, 1945 (B. O. C. Gardiner).

9. St. Peters, one, c. 1945 (J. W. C. Hunt).

11. Wateringbury (*V.C.H.* (1908)). Shipbourne (Buxton, *Ent. Rec.*, 23: 314). Tonbridge (Rattray, *Entomologist*, 45: 80). Hoads Wood, one at light, May 7, 1937 (E. Scott); c. 1952 (P. Cue). Aylesford, c. 1954 (G. A. N. Davis). Sevenoaks Weald, two, May 11-12, two, August 8-22, 1959 (E. A. Sadler).

13. Tunbridge Wells, fairly common (Knipe (1916)), one, 1957, one, 1958 (L. R. Tesch, *vide* C. A. Stace). Goudhurst, common at light, 1955-59, scarcer, 1960-61 (W. V. D. Bolt).

14. Sandhurst, May 13, 1937 (Bull, *Diary*). Hawkhurst, c. 1950 (B. G. Chatfield).

16. Folkestone, two, in spring, one, August 15, 1951; one, April 25, one, May, one, August 13, 1952; two, August 8, 20, 1953; one, July 30, one, August 26, 1954; none, 1955; one, August 13, one, September 2, 1956; none, 1957; one, August 29, 1958; none, 1960-61; all ♂♂, and at m.v. (A. M. Morley).

FIRST RECORD, 1828: Stephens, *Haust.*, 2: 25.

Notodonta ziczac: Pebble Prominent.

Native. Woods, plantations, carr, etc.; on poplar, aspen, sallow.

1. Recorded from many localities in this division in the past. Recent records are:—Petts Wood, 1947-48 (E. Evans). Lewisham, apparently very local, larvae on willows and poplars (1947) (D. F. Owen). Bexley, one, July 5, 1952 (A. Heselden). Orpington, 1953 (L. W. Siggs); common, c. 1955 (R. G. Chatelain). Crofton, ova and larvae, 1959-61; Bromley, one at light, 1961 (D. R. M. Long).

2. Greenhithe* (Farn MS.). Woolwich, larvae, from which imagines reared 1952 (J. Green).

3. Bysing Wood, larva (H. C. Huggins). Herne Bay; Blean Woods; not uncommon (D. G. Marsh). Broad Oak, one at light, August 2, 1946 (C.-H.).

4. Minster, two bred, 1905-06 (J. P. Barrett coll.). Ickham (D. G. Marsh).

5. Chevening, ova on poplar, reared 1917; Knockholt, larva on aspen, reared 1918 (Gillett, *Diary*). Westerham (R. C. Edwards).

6. Longfield (Jennings, *Entomologist*, 4 (54), ii). Gravesend, 1919; Ridley Wood, larva, August 13, 1915 (F. T. Grant). Meopham, 10-20 per annum, 1959-61; Fairseat, 1960 (J. Ellerton).

6a. Darenth (Stephens, *Haust.*, 2: 24); larva on aspen, October 4, 1924 (F. T. Grant) (H. C. Huggins). Chattenden Roughs, not common (Chaney (1884-87)).

7. Westwell (Bull, *Proc. S. Lond. ent. nat. Hist Soc.*, 1946-47: 168); common, 1953-54 (E. Scott). Boxley, 1953 (A. H. Harbottle).

8. Dover, ♂, at electric light, June 5, 1895 (H. D. Stockwell, *Diary*); one, 1954 (B. O. C. Gardiner). Reinden Wood, ♀ flying at dusk, c. 1935, ♀, flying at dusk, 1948 (A. M. Morley). Wye Old Race-course, August 15, 1937 (E. Scott). Brook*; Stowting (C. A. W. Duffield). Near Whitfield (E. & Y. (1949)). Bridge c. 1946 (R. Gorer).

9. Northdown, Margate, larva on poplar, September 24, 1919, reared April 16, 1920 (H. G. Gomm, *Diary*).

10. Brasted, ova on sallow (R. M. Prideaux); bred 1913 and 1915, from larvae on aspen (Gillett, *Diary*). Sevenoaks, larva, 1946, ova and larvae, 1946; all on poplar (F. D. Greenwood).

11. Tonbridge (Raynor, *Entomologist*, 6: 79). Yalding; Wateringbury (*V.C.H.* (1908)). Shipbourne, larva, September 1951 (B. K. West). Aylesford, c. 1954 (G. A. N. Davis). Benenden, c. 1950 (B. G. Chatfield). Hoads Wood (Scott (1950)). Sevenoaks Weald, several at m.v., 1959 (E. A. Sadler).

12. Ham Street, one, 1933, five, June 6, 1934, one, 1946; one, August 2, 1947; single larvae on sallow, June 24, 1933, July 20, 1934, September 18, 1948 (A. M. Morley); April 14, 1937 (A. J. L. Bowes, *Diary*); 1939, 1951 (C.-H.); several larvae, 1960 (M. Singleton). Shadoxhurst (Scott (1936)). Ashford, c. 1952 (P. Cue, *vide* E. Scott). Wye, three, 1953, six, May 10-June 26, four, August 2-26, 1954, five, May 1-20, ten, August 8-17, 1955, eight, May 12-June 9, June 28-August 25, 1956; Willesborough, four, May 25-June 1, one, August 25, 1954, five, May 29, June 25, three, August 3-13, 1955, two May 7-8, four, July 9-26, 1956 (W. L. Rudland). W. Ashford, one, August 1959 (M. Enfield).

13. Tunbridge Wells (E. D. Morgan); larvae common, 1951 (H. E. Hammond). Bedgebury (G. V. Bull). Goudhurst, common at m.v. annually, c. 1953-59, scarcer, 1960-61 (W. V. D. Bolt).

14. Sandhurst (G. V. Bull). Hawkhurst, several at light, c. 1950 (B. G. Chatfield). Iden Green, one at light, 1951 (H. Boxall). Appledore, one at light, 1956 (M. Singleton). Tenterden, 1959-60 (C. G. Orpin).

15. Appledore*, larva on osier, 1898 (Heitland, *Entomologist*, 31: 221). Dungeness, ♀, sitting on wire of a fence, August 11, 1946, one, May 26, 1933, a larva on sallow, September 26, 1948 (A. M. Morley); July 30, 1935 (Bull, *Diary*); July 7-8, 1959 (C. R. Haxby).

16. Lower Sandgate Road, Folkestone (Knaggs (1870)). Folkestone Town, larva on willow, July 25, 1929, larva on poplar, July 24, 1930; imagines at m.v., one, 1951, two, 1952, two ♀♀, 1953, two ♂♂, 1954, three, 1955, two, 1956, two ♂♂, same night, 1959 (A. M. Morley).

VARIATION.—From ova laid by a typical ♀, taken at Ham Street, May 14, 1939, some twelve typical examples reared and three ♂♂ apparently referable to *ab. pallida* Grunberg (C.-H.).

The following abs. are in R.C.K.:—?*ab. montion* Dannehl, Bexley, bred 1918; *ab.* "with markings obsolescent", Fordwich (Barrett, *Br. Lep.*, 3: plt. 105, fig. e); *ab.* "rufous with markings decreased", Kent, 1901; *ab. lunata* Cockayne, holotype, allotype, paratypes (*Ent. Rec.*, 63: 32).

HYBRIDISATION.—Hybr. *newmani* Tutt (*N. ziczac* ♂ × *N. dromedarius* ♀). In R.C.K. are numerous examples, bred from Bexley (cf. Tutt, *Br. Lep.*, 5: 21).

FIRST RECORD, 1828: Darenth (Stephens, *Haust.*, 2: 24).

N. dromedarius L.: Iron Prominent.

Native. Woods, carr; on birch, alder, hazel, oak. Not very common, but decidedly more frequent in the woods of the Weald and in those of Mid- and West Kent. Most of the records are of imagines at light, and of autumnal larvae on birch, the main pabulum in Kent. Regularly double brooded.

1. Shooters Hill (Crewe, *Ent. week. Int.*, 1: 123) (*Wool. Surv.* (1909)). West Wickham (Fenn. *Ent. week. Int.*, 10: 196); 1951 (E. J. Trundell). Eltham; Bexley district; St. Pauls Cray (*Wool. Surv.* (1909)). Bexley, 1893 (Fenn, *teste* E. D. Morgan); two, May 3, one July 20, 1952 (A. Heselden); larva on birch, October 1957 (L. T. Ford). Bexley Park Wood, larva, October 15, 1922 (A. R. Kidner). Sidcup, one, May 4, 1936, one, August 16, 1937; New Eltham, August 2, 1924; St. Pauls Cray, several larvae, September 27, 1909, one larva, August 2, 1913, September 6, 1919, September 10, 1920, 1922 (A. R. Kidner). Chislehurst (*V.C.H.* (1908)); common (S. F. P. Blyth); Farningham Wood, three larvae, 1937 (A. R. Kidner). Abbey Wood, 1953 (A. J. Showler). Dartford, larvae, September 1948 (B. K. West). Welling, one, August 5, 1952 (A. Heselden). Orpington, 1953 (L. W. Siggs); common, c. 1955 (R. G. Chatelain). Charlton, one on garden fence, September 7, 1948 (J. F. Burton). Petts Wood, c. 1947 (E. Evans); larvae on oak and birch (A. M. Swain). Bromley (Sterling, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 17); April 26, 1961 (Long, *Ent. Rec.*, 73: 133); fairly numerous at m.v., 1960-61 (D. R. M. Long). Blackheath, one at m.v., May 26, 1960 (A. A. Allen).

2. Davington, one larva on alder, 1914 (H. C. Huggins).

3. Bysing Wood, larva (H. C. Huggins). Trenley Park, two pupae at foot of birch, April 4, 1919, imagines emerged early June 1919 (H. G. Gomm, *Diary*). Blean, larva, 1936 (J. L. Atkinson). Canterbury, one, c. 1939 (J. A. Parry). Broad Oak, one at light, August 5, 1951 (C.-H.).

4. Sandwich, August 18, 1936 (A. J. L. Bowes). Ham Fen, one at light, August 6, 1950 (C.-H.). Ickham, 1958, 1960 (D. G. Marsh).

5. Chevening, larvae on birch, September 1912, 1915; Knockholt, one bred, 1918 (Gillett, *Diary*). Westerham, (R. C. Edwards).

6. Greenhithe (Farn MS.). Magpie Bottom, larva, September 25, 1910, larva, September 23, 1934 (A. R. Kidner). Stanstead, four larvae, August 21, 1923; Culverstone, four larvae, September 18, 1924 (F. T. Grant). Eynsford, larva (Blair, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 33); July 8, 1960 (R. G. Chatelain). Pinden (E. J. Hare). Fawkham, 1947 (G. G. E. Scudder). Meopham, 6-10 per annum, 1959-61 (J. Ellerton).

6a. Darenth Wood (Stephens, *Haust.*, 2: 23); larva, September 25, 1910 (A. R. Kidner); larva (H. C. Huggins) (E. J. Hare). Swanscombe Wood, three larvae on birch, September 15, 1914 (F. T. Grant). Upnor (Chaney (1884-87)).

7. Longton Wood (H. C. Huggins). Westwell, 1933 (Scott (1936)); both broods annually (Scott (1950)); August 24, 1946 (Bull, *Diary*);

common, 1953-54 (E. Scott). King's Wood, a larva, 1933 (A. M. Morley). Boxley, 1953 (A. H. Harbottle).

8. Folkestone Warren, July 11, 1934 (J. H. B. Lowe). Brook*; Wye Old Racecourse, August 15, 1937 (E. Scott). Atchester Wood; Deal*; Shepherdswell (E. & Y. (1949)). Dover, one, 1954 (B. O. C. Gardiner). Eltham, July 4, 1959 (de Worms, *Entomologist*, **93**: 177).

10. Brasted, larvae on birch, September 1912 (Gillett, *Diary*); ova and larvae on birch (R. M. Prideaux). Sevenoaks, June 27, 1922 (Gillett, *Diary*); eight larvae on birch, 1942; at light, 1948-49 (F. D. Greenwood). Westerham (Carr & Turner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1924-25: 107) (Jacobs, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 75) (R. C. Edwards).

11. Yalding; Wateringbury (V.C.H. (1908)). Shipbourne, larvae (Buxton, *Ent. Rec.*, **23**: 314); larvae on hazel, 1951 (B. K. West). Edenbridge, at light, 1928 (F. D. Greenwood). Mereworth Wood, larva, July 23, 1939 (A. R. Kidner). Hoads Wood, larva, September 22, 1941 (Bull, *Diary*); May 10, 1954 (P. Cue). Aylesford, c. 1953 (G. A. N. Davis). Bethersden, August 14-20, 1960 (C. R. Haxby and J. Briggs). Sevenoaks Weald, May 13-June 18, July 18-24, 1959 (E. A. Sadler).

12. Ham Street, one, July 31, 1932 (de Worms, *teste* A. M. Morley); larva, September 1936, ♀, 1937 (A. M. Morley); 1933 (Scott (1936)); ♀, August 20, 1939 (A. J. L. Bowes); fairly numerous at m.v., July 1951, July 1952 (C.-H.) (de Worms, *Entomologist*, **92**: 70); two, August 1960 (C. R. Haxby & J. Briggs); two larvae, 1960 (M. Singleton). Ashford (P. Cue). Willesborough, five, May 10-June 4, 1954, six, August 15-23, 1955, three, May 18-June 19, three, July 9-August 6, 1956; Wye, one, June 10, six, August 6-30, 1953, two, May 27-30, six, July 2-August 26, 1954, five, May 27-June 25, four August 11-23, 1955, two, May 31, three, June 21-28, seventeen, July 14-September 11, 1956 (W. L. Rudland).

13. Broadwater Down, one (E. D. Morgan). Tunbridge Wells, two, 1959 (L. R. Tesch, *fide* C. A. Stace). Goudhurst, fairly common at m.v., 1955-59, scarcer 1960-61 (W. V. D. Bolt).

14. Benenden Government Forest, August 13, 1937 (Bull, *Diary*). Hawkhurst, a few at light, 1950-51, one, 1953 (B. G. Chatfield). Tenterden, 1959-60 (C. G. Orpin).

15. St. Mary-in-the-Marsh, one, taken at car lights, August 1, 1948 (P. le Masurier).

16. Folkestone Town, two, 1952, three, 1953, one, 1955, one, 1957, one, 1959, none, 1960-61, all at m.v. (A. M. Morley).

VARIATION.—In R.C.K. is ab. *dromedarius* Haw., one, "Kent, 1898, J. G. G[reen]".

FIRST RECORD, 1828: Stephens, *Haust.*, **2**: 23.

Notodonta tritophus Schiff. (*phoebe* Sieb.): Three-humped Prominent.

Suspected immigrant.

One in 1955, is the only confirmed occurrence.

16. Folkestone Town, ♂, taken on the morning of August 22, 1955, by A. M. Morley, from m.v. trap in his garden (Morley, *Ent. Rec.*, **67**: 243); and exhibited (*idem*, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 37, plt. 3, fig. 1).

[One, "near Gravesend", in Burney coll. sale (Anon., *Ent. Rec.*, **4**: 326, 329); ♂, in Dale coll., labelled "Gravesend from coll. Whitsmith"]

(Walker, *Ent. mon. Mag.*, **45**: 109), may refer to the one in the preceding record.]

FIRST (CONFIRMED) RECORD, 1955: Morley, *Ent. Rec.*, **67**: 243.

N. trepida Esp. (**anceps** auct.): Great Prominent.

Native. Oak woods, parkland; on oak. Frequent in the Weald, less so elsewhere.

1. Birch Wood (Stephens, *Haust.*, **2**: 33). West Wickham (Tugwell, *Ent. week. Int.*, **1**: 37) (Fenn, *Ent. week. Int.*, **10**: 196) (Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1892: 33); May 25, 1953 (E. Trundell). Shooters Hill, larva, on oak, 1856 (Crewe, *Ent. week. Int.*, **1**: 123). Lewisham, 1867 (Adkin, *Entomologist*, **4**: (51),ii). Eltham; Bexley district (*Wool. Surv.* (1909)).

3. Faversham*, five, 1904, three, 1905, all bred (J. P. Barrett coll.). Trenley Park, 1920 (H. G. Gomm, *Diary*). East Blean Wood, one, West Blean Wood, one (D. G. Marsh). Canterbury, one at light on the Littlebourne road, c. 1947 (J. A. Parry).

6. Shoreham*, larvae, c. 1947 (D. F. Owen). Meopham, one, May 24, 1960 (J. Ellerton).

6a. Darenth Wood (Stephens, *loc. cit.*); 1855 (Harding, *Zoologist*, 4820) (Harding, *Ent. week. Int.*, **1**: 76; *idem*, *Ent. week. Int.*, **6**: 43, 67) (Standish, *Entomologist*, **4**: 99). Cobham, one 1906 (H. C. Huggins).

7. Wigmore Wood, one, May 1872 (Chaney (1884-87)). Westwell (Scott (1936)); June 3, 1938; fairly common at m.v. annually since c. 1949 (E. Scott, *personal communication*, December 1954). Soakham Downs, May 29, 1938 (E. Scott). Boxley, 1953 (A. H. Harbottle).

8. Wye, one, May 31, 1937 (A. H. Lanfear MS.). Brook, c. 1953 (C. A. W. Duffield, *teste* E. Scott).

10. Westerham (Gorham, *Ent. week. Int.*, **7**: 28) (R. C. Edwards). Sevenoaks (Carrington, *Entomologist*, **13**: 80) (Hill, *Entomologist*, **19**: 185); at light, 1949 (F. D. Greenwood). Seal Chart (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 47) (Coote, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1937-38: 45) Brasted Chart, 1916 (Gillett, *Diary*); ova on fences and tree trunks, larvae occasionally (R. M. Prideaux).

11. Tonbridge*, three (Raynor, *Entomologist*, **6**: 79); 1911 (Rattray, *Entomologist*, **45H** 80). Near Maidstone* (Green, *Young Nat.*, **1**: 211). Yalding (*V.C.H.* (1908)). Watlington (E. Goodwin, *teste* W. A. Cope) (*V.C.H.* (1908)). Edenbridge, at light, 1936 (F. D. Greenwood). Hoads Wood, seven, May 9, 1937 (E. Scott); c. 1953 (P. Cue). Aylesford, c. 1953 (G. A. N. Davis).

12. Ashford Town, ♂ found on fence by E. Scott, May 7, 1931 (A. M. Morley); c. 1953 (P. Cue). Ham Street.—4 ♂♂, at light, May 12, 1933, by C. G. M. de Worms; ♀ on oak trunk found by W. Stickles, c. 1935, 5 ♂♂, May 19-26, 1933, 6 ♂♂, May 20—June 14, 1934, 4 ♂♂, April 28—May 24, 1935, 2 ♂♂, June 8, 1936 (A. M. Morley); Long Rope, at light, 2 ♂♂, May 14, 1939, 7 ♂♂, 2 ♀♀, at m.v., May 12-13, 1951 (C.-H.); 1958-59 (de Worms, *Entomologist*, **92**: 69, **93**: 158); one, May 6, 1960 (R. G. Chatelain). Wye, one, May 19, 1953, three, May 25—June 2, 1954 (W. L. Rudland).

13. Southborough (M. M. Phipps, in Knipe (1916)). Kilndown, April 18, 1938 (Bull, *Diary*). Pembury, c. 1950 (V. M. Sage). Goudhurst, at light, c. 1950 (W. F. Hodge); fairly common at m.v., 1955-59,

scarcer, 1960-61 (W. V. D. Bolt). Tunbridge Wells, five, 1957 (L. R. Tesch, *vide* C. A. Stace).

14. Tenterden, April 1946 (Mrs. Luke, *teste* Bull, *Diary*). Sandhurst, one, at light, May 23, 1949 (Bull, *Diary*). Iden Green, three, at light, 1954 (H. Boxall). Hawkhurst, four, 1954 (B. G. Chatfield).

16. Copperhurst Hill, Aldington, ♂, at car lights, 1937, A. M. Morley; Folkestone Town, ♂, at m.v., 1952, J. W. Riddell (Morley, *Trans. Folkestone nat. Hist. Soc.*, 1950-52: 11). Folkestone Town, ♂, at m.v., May 12, 1954 (A. M. Morley).

FIRST RECORD, 1828: Stephens, *Haust.*, 2: 33).

Lophopteryx cucullina Schiff. (*cuculla* Esp.): Maple Prominent.

Native. Hedgerows, copses, wood borders; on maple, sycamore.

Mainly recorded in the past from the chalk of 6 and 7, but since about 1935 the species appears to have extended its range considerably.

1. Erith (see *First Record*). Bexley, one at m.v., July 20, 1952 (A. Heselden). Abbey Wood, singletons at m.v., 1953, 1958 (A. J. Showler). Orpington, one, 1956 (Siggs, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 9). St. Mary Cray, two, 1957; Dartford Heath, one, June 23, 1959 (R. G. Chatelain). Bromley, one, 1959 (N. Wilding). Sutton-at-Hone, a full-grown larva on maple, September 4, 1960 (S. Wakely).

2. Higham, ♂ at light, June 11, 1961 (B. K. West).

3. Den Grove, Sturry, one at light, July 17, 1938; Broad Oak, one at light, June 22, 1952 (C.-H.). Eddington, at light, one, 1950; two 1952 (D. G. Marsh). Whitstable, one, 1960 (F. Bickerstaff).

4. Ickham, two, 1955, one 1958, three, 1960, all at light (D. G. Marsh).

[5. Westerham.—Although *cucullina* might very well be expected to occur at R. C. Edward's residence on the chalk downs by the Pilgrim's Way, he tells me that he has never seen it there, despite having worked a light fairly regularly since 1935, as well as having searched for the larva (C.-H.).]

6. Culverstone, larva on sycamore, October 14, 1922; Stansted, three larvae on maple, August 18, 1923; Birling, larva on maple, September 5, 1925 (F. T. Grant). Birling (H. C. Huggins). Eynsford, larvae (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 33; 1934-35: 33; 1935-36: 25; 1947-48: 69; 1951-52: 80); imago, June 21, 1959 (R. G. Chatelain). Shoreham, for many years W. A. Cope used to search regularly for the ova, always finding them laid singly on the undersides of maple leaves; my records show that recently he took six ova, July 29, 1948, numerous ova and two larvae, August 1950 (C.-H.); larvae annually since 1945 (F. D. Greenwood, *in litt.*, 1952). Fawkham and Pinden, a few, 1950-52, also larvae frequently beaten from maple (E. J. Hare). Otford, at m.v., two, July 15, one, July 17, one, July 30, one, August 26, 1955, five, July 9-August 27, 1956 (W. B. L. Manley). Halling, one, at light, July 30, 1958 (E. E. J. Trundell).

6a. Darenth Wood, June 1820, and several other specimens here and in neighbouring woods (Stephens, *Haust.*, 2: 27); one larva, 1949 (B. K. West). Lodge Hill Wood, a larva on maple, July 26, 1947, from which imago emerged August 8 the same year (P. V. M. Allen). Shorne, one at m.v., June 1, 1960 (E. E. J. Trundell).

7. Westwell, ♂ on sycamore leaf, June 10, 1868 (Jeffrey, *Ent. mon. Mag.*, 5: 223); larvae, 1922 (F. W. Andrews, *teste* Scott (1936)); three

larvae, August 8, 1935 (A. M. Morely); larvae beaten from maple in July (A. M. Morley); and on August 18, 1935 (A. J. L. Bowes); one, July 27, 1948, one July 23, 1949 (E. Scott); one, June 22, 1953 (de Worms, *Ent. Rec.*, **65**: 346); 1954, 1955 (P. Cue).

8. Temple Ewell, one, 1932, a larva, August 1936 (E. & Y. (1949)). Whitfield, one, 1953 (Wakely, *Ent. Rec.*, **66**: 109). Stowting (C. A. W. Duffield). Brook, a larva, July 22, two larvae, August 14, 1935 (A. M. Morley); larva on maple, October 1, 1937 (A. G. Peyton, *teste* A. J. L. Bowes); larvae, August 19, 1948 (C. A. W. Duffield, *teste* E. Scott). Near Canterbury*, one, c.1948 (A. G. Maconochie). Wye Downs, larva, August 26, 1957 (de Worms, *Entomologist*, **91**: 151).

11. Wateringbury neighbourhood* (E. Goodwin, *teste* V.C.H. (1908)). Tonbridge, one or two (R. H. Ratray, in Knipe (1916)). Aylesford, three, 1953, one, 1954, all at m.v. (G. A. N. Davis). Sevenoaks Weald, one at m.v., August 21, 1959 (E. A. Sadler).

12. Chartham, one, 1939, two, 1949-50, two, 1952 (P. B. Wacher). Ham Street, one, July 1951 (C.-H.); one, 1951 (E. J. Hare). Stubbs Cross, August 25, 1949 (le Ray, *teste* E. Scott). Ashford Town, July 10, 1954 (P. Cue). Wye, two, July 7, 1953, three, July 12—August 19, 1954, one, July 25, 1955, two, July 21—August 3, 1956 (W. L. Rudland).

13. Goudhurst, one, 1953, one, 1954, (W. V. D. Bolt).

14. Appledore, one, May 28, 1948 (L. C. Bushby, *teste* Scott (1950)).

16. Folkestone, one at m.v., 1957 (R. W. Fawthrop, *teste* A. M. Morley).

FIRST RECORD, 1803: Erith, ♂ and ♀, beaten out of an oak tree by Hatchett, in late July 1803 (Haworth, *Lep. Britannica*, **1**: 97).

L. capucina L. (*camelina* L.): Coxcomb Prominent.

Native. Woods, copses, etc.; on birch, oak, hazel, alder, sycamore, willow, beech, Spanish chestnut, white poplar. Found in all divisions except 15; is frequent, but apparently never very plentiful. "Generally distributed and not scarce" (V.C.H. (1908)).

The species is regularly double brooded in Kent, moths of the first generation appearing in May or late April, to early June; and those of the second emergence, in July and August. The two broods appear roughly in about equal numbers.

The larva is perhaps most often found on birch and oak. It has also been found on hazel, at Reinden Wood, July 7, 1928, on beech, at Westwell, September 18, 1932, on Spanish chestnut, at Whitehill Wood, near Bridge, September 24, 1932, and on willow, in a Folkestone garden, August 25, 1946 (A. M. Morley); on alder, at Edenbridge, 1933 (F. D. Greenwood); on sycamore, at Culverstone, 1924 (F. T. Grant); on willow, at Blean, 1957 (A. S. Wheeler); and on white poplar, Petts Wood, 1959 (D. R. M. Long).

VARIATION.—G. V. Bull (*Diary*) describes as "melanic", one taken, Sandhurst, May 7, 1930, and another as "very dark", taken Sandhurst, August 25, 1953. A ♂, taken by me, Ham Street, June 5, 1954, has dark greyish-brown forewings, and greyish hindwings, and is similar to the specimen figured in Barrett, *Br. Lep.*, **3**: pl. 110, fig. 1d, except that there is no pale band on forewing. I have two ♂♂ transitional to the above, taken Ham Street, 1951, and have seen in collections numerous others from various parts of Kent, taken during the past fifteen

EXCHANGES AND WANTS

For Sale.—Entomological Cabinets, one 20 Drawers, one 17 Drawers, and one 16 Drawers. Easy payments if required.—*R. W. Watson, "Porcorum," Sandy Down, Boldre, near Lyminster, Hants.*

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IRISH LEPIDOPTERA RECORDS.—No comprehensive catalogue of Irish macrolepidoptera has been published since Lt. Col. C. Donovan's List in 1936. I am now engaged in the preparation of a revised List, and in order that it may be as up to date as possible, I should be most grateful for any records from lepidopterists who have collected in Ireland since the date of Col. Donovan's publication. Full acknowledgment will be made.

E. S. A. BAYNES

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

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Vanessa cardui L. and other migratory Lepidoptera in South Africa in 1961

By J. S. TAYLOR

It was interesting to read in the November 1961 issue of the "Record" (73, 11) of the activities of various species of migratory lepidoptera in southern England during the late summer and autumn of that year, and to learn that several of them were then much in evidence. Whatever the cause, but at the same time, although of course it was spring here, a number of these species as well as some others well-known as migrants in Europe were particularly abundant in South Africa, and in a number of instances directional migratory flights of considerable density were observed. The distinguished ornithologist and naturalist, Col. C. W. Mackworth Praed, who was on a visit to South Africa during the recent spring, was impressed by the abundance of several European species and remarked upon this to the writer when he was in Port Elizabeth. In his thirty-six years residence in the country, the writer has not hitherto seen such an abundance and variety of well-known migratory Lepidoptera at one time.

The most noticeable of all the species recorded was the best-known throughout the world of the migratory butterflies, namely *Vanessa cardui* L., the Painted Lady. It was reported in large numbers and dense swarms from many parts of the country and was the subject of sensational paragraphs in newspapers. Although the writer is familiar with the migratory flights of various Pieridae, notably *Belenois aurota* (F.), which are of such frequent occurrence in South Africa, this is the first occasion on which he has witnessed one involving *V. cardui*. While there are many records of migratory flights of this species from West Africa northwards, there are few to be found in the literature from the southern part of the continent. Williams (1930) quotes two, one from the Cape Province and one from Northern Rhodesia. More recently Dickson (1953) records a migration near Cape Town in August 1948. In view of this sparsity of records in South Africa it seems worthwhile recording the recent movements of *V. cardui* in the country in some detail.

In the Western Cape, Dr. G. J. Broekhuysen, of the University of Cape Town, obtained records from various correspondents, and these, together with his own personal notes, he has generously placed at the writer's disposal. The details, in chronological order, are as follows.

- 15th July 1961. Caledon district (87 miles S.E. from Cape Town). Above average numbers noted, heading N.W. with a following S.E. wind.
- 21st July 1961. Near Durbanville (8 miles N.E. from Capetown). Butterflies passing all the time—76 individuals counted on a stretch of 29½ miles. Direction N.W. with a light following S.E. wind. A perfect summer-like day.
- 21st or 22nd July 1961. Somerset West (30 miles S.E. from Cape Town). Thousands travelling South to North regardless of wind.
- 22nd July 1961. Some migration noted at Kirstenbosch, Cape Town, during afternoon from S.E. to N.W., wind N.W. A perfect summer-like day. Migration also noted at Sir Lowry Pass (35 miles S.E. from Cape Town) on the same date.

22nd-23rd July 1961. Cape Town to Niewoudtville (243 miles N. of Cape Town). In numbers flying N.E., and rendering it necessary to clean windscreen of car from time to time.

At Niewoudtville the butterflies were seen from about 2nd July and the largest concentration was noted on 30th July at 12.30 p.m. The movement was more noticeable in the mornings and the direction was W. to E. The weather was fairly warm with light wind, and the observer, Mr. J. McGregor, states that this is the first occasion upon which such a movement has been seen by him.

25th July 1961. The "Cape Argus" reported from Niewoudtville that for the past week or two, millions of butterflies were noted flying West to East in clouds and were at their densest on 23rd July. They were said to pass like swarms of bees and not very high up, while the radiators of cars were choked with them. On 29th July, the same paper reported huge swarms over a wide area including Namaqualand, Calvinia, Clanwilliam, Niewoudtville, and on to George and Wilderness on the south coast. Swarms were also noted at Mossel Bay, and at Plettenberg Bay were seen flying in across the bay.

At Die Kelder on Walker Bay, near Hermanus (21 miles S.E. from Cape Town), the migration was from West to East: swarms like locusts came off the sea and settled, eggs and larvae being found subsequently. At Gansbaai, a little further along the coast, fishermen reported a migration for over four days up to nine miles out to sea, the butterflies flying low and over the boats, not round them.

At Sir Lowry's Pass, towards the end of July, thousands were noted passing at 11 a.m., at 12.30 p.m. the butterflies were seen passing in hundreds, and at 5.30 p.m. in dozens. Direction S.S.E. to N.N.E. They had been present all week in the observer's garden.

20 August 1961. Five to ten butterflies were recorded passing per minute to N.W., near Klavervlei, 10 to 12 miles S.E. of Cape Town. This would appear to be the only August record from the Western Cape.

In almost all the above instances, specimens were submitted or obtained.

So much for the Western Cape and the vicinity of Cape Town and we now proceed to deal with the records obtained in the Eastern Cape.

The first instance of migrating *V. cardui* in the Eastern Cape was noted by Mr. H. R. Philip who observed thousands of the butterflies coming off the sea between 9 a.m. and 3.30 p.m. on 16th August at Mazeppa Bay in the Transkei, some 75 miles up the east coast from East London. They were travelling from East to North West and against a northerly wind.

Miss G. Morrison of Port Elizabeth reported a flight there commencing on 29th August and which continued for about a week although interrupted by two days of wet weather. The direction was slightly West of North. Miss Morrison adds that the butterflies passed through her garden, seventeen yards in length, at the rate of 20 to 30 per minute. Many were worn, undersized and apparently old. They often stopped to feed at flowers before resuming their flight again. A less extensive flight was reported from Humansdorp, 56 miles west of Port

Elizabeth, at the same time.

On 31st August 1961, from 11 a.m. to 5 p.m., a flight was recorded by Mr. C. J. Skead, between King William's Town and East London, a distance of 38 miles. Direction South to North or a little West of North into the eye of the wind which was light at first but freshening later. A hot day. The flight was thin, but varied in intensity: the butterflies flying from six inches to two feet above the ground generally, but up to six feet when the wind was stronger.

6th October 1961. Port Elizabeth, early afternoon. Forty-nine individuals were counted passing on a 25 yards front in ten minutes, together with *Pieris (Pontia) helice* (L.), and a few *Papilio demodocus* Esp. Direction S. to N. or S.W. to N.E. The flight was still in progress at 3.30 p.m. although somewhat diminished, while some butterflies were flitting about and proceeding in other directions. At the seaside suburb of Humewood, the flight was also in evidence, twelve individuals passing on a front of 25 yards, in half-an-hour. Direction N.W.: wind light to moderate S.E. The butterflies were in fresh condition with undeveloped ovaries.

19th October 1961. A similar but somewhat thinner migration noted at Port Elizabeth. From 11.25 to 11.35 a.m., twenty-one passed on a 25-yard front: from 2.03 to 2.13 p.m., twelve passed, and from 3.20 to 3.30 p.m., eight passed. Direction mostly S. to N., but some N.E. to N.W., while others flitted about in a haphazard manner. By 6 p.m., large numbers were seen cavorting round, chasing one another, and resting on the ground. Although the species continued to be plentiful for a few weeks longer, no further migratory flights were recorded.

From July, *V. cardui* was unusually abundant at Port Elizabeth and elsewhere in the Eastern Cape, but since November, only odd individuals have been seen.

On 7th October 1961, Mr. C. G. C. Dickson reported from Durban, Natal, that the Painted Lady had been remarkably plentiful there for the previous three months, but that no migratory flights had been observed. Throughout most of this period he noted it breeding in the area. However, on 15th October, a directional flight was recorded, thirty butterflies passing on a front of 200 feet in ten minutes, and earlier in the day about twice that number. The direction was N.W. This flight was also seen in another part of Durban (about one mile away) on the same date. Many of the butterflies were in fresh condition. On 23rd October another flight was witnessed, twenty-eight passing on a 200-ft. front from 9.03 to 9.13 a.m., but only four between 11.32 and 11.42. Direction N.W. with a strong following wind.

Thinner flights were also observed on 26th and 30th October, fourteen and ten butterflies respectively being the maximum numbers passing on a 150-foot front in ten minutes on the two dates. The direction in each case was N.W. Very few *V. cardui* were seen migrating in Durban after this date and the species almost disappeared during the following month. Mr. Dickson remarked that in Durban the migrants seemed to fly in broad streams, and also intermittently. Flights in Port Elizabeth were likewise intermittent, a small group would pass, then after some moments, an odd individual and so on.

Migratory flights of Painted Ladies have also been reported from Theunissen, O.F.S., and elsewhere inland, as well as unusually large numbers of the butterfly, but details are not available. However, sufficient evidence has been given to show that there were very considerable mass movements by this species over a considerable part of South Africa during the spring of 1961. It will be noted that the Eastern Cape and Durban flights were somewhat later than those recorded in the Western Cape, with one exception.

There are not many references to *Pieris (Pontia) helice* (L) in the literature on insect migration, and Williams (1930) gives only two, both from South Africa. On 25th September 1961, while travelling from Humansdorp to Swellendam and beyond, a distance of approximately 250 miles, and again on the return journey on 29th September, the writer noted a very thin flight of this species from North to South, a butterfly crossing the road every few hundred yards. On the second date, Mr. C. J. Skead also recorded the flight on the same route. The flight continued all day until about 4 p.m. or a little later. The weather was warm on both occasions with a hot berg (N.W.) wind.

On 6th October 1961, a directional flight of *P. helice* was observed by the writer at Port Elizabeth. It was first noted at 12.40 p.m. in the Central Hill area of the town and the direction was more or less N. to S. The weather was warm with a light to moderate S.E. breeze. 222 butterflies were counted passing on a 50-yard front in thirty minutes (1.10 to 1.40 p.m.). At Humewood—on the sea front—95 specimens were counted, passing on a 50-yard front from 3 to 3.30 p.m., 23 between 4 and 4.15 p.m., and 1 butterfly only from 4.15 to 4.30 p.m. The direction was N.W. and W. The flight was on a broad front, as it was noted while proceeding west to Westview, a distance of some three miles, and where it continued throughout the afternoon although somewhat thinner in intensity than on the Hill. *V. cardui* took part in this flight (see above), and in the Hill area it was also accompanied by an odd *P. demodocus* and a few *Colias electo* (L.). Many butterflies settled on lawn and bushes, fluttering about and pursuing one another before continuing on their way, while a few would go off in the opposite direction. They were in fresh condition and the ovaries for the most part were undeveloped. One example contained eggs but they were not ready for oviposition. Eggs were not found on cruciferous weeds in the lawn where the butterflies were observed settling. Many individuals hurried on without stopping, passing over, and not going round high buildings. Two windy, cool and overcast days followed, but although these were succeeded by a warmer and sunny day with butterflies about, no further directional flights on the part of *P. helice* were noted. It may also be mentioned that there was no subsequent increase in the numbers of the species as a result of the migration.

Another butterfly which was abundant and widespread during the spring and which has been recorded as migrating on other occasions was *Colias electo*. Although a few individuals accompanied some of the flights mentioned above, no definite and specific directional flights by this species were noted.

In addition to these butterflies, various species of moths well-known as migrants in Europe and elsewhere, were also much in evidence at the same time. One of these was *Heliothis armigera* Fab., otherwise

known as American Bollworm, and a serious pest of many crops in South Africa and other parts of the world. Adults were numerous at light in Port Elizabeth and throughout the country and were also numerous at garden flowers, in wheat fields and citrus orchards. While in some localities there were subsequent infestations of larvae, in others the species just as suddenly disappeared without trace, which is typical behaviour of migratory Lepidoptera. Another species, well-known as a migrant in Europe, which appeared in unusually large numbers was *Laphygma exigua* Hbn., the Lesser Army Worm or Pigweed Caterpillar, to give it its local names. Normally, in the writer's experience, this species is a minor pest of vegetables and other crops in this country. Last spring, however, it assumed major proportions and caused extensive damage to maize, lucerne and onions in the Eastern Cape.

While on an outing near the coast in the Alexandria district, some 60 odd miles east of Port Elizabeth, Col. Mackworth Praed drew the writer's attention to the numerous adults of the pyralid *Nomophila noctuella* Schiff., another common migrant in Europe. The moths were frequenting a clover-clad hillside along with the butterflies *V. cardui* and *C. electo* but there were no signs of directional flights on the part of any of them. Some adult moths were collected and subsequently laid eggs in the laboratory. The larvae fed readily on the local clover (*Trifolium burchellianum*) as well as on lucerne and other leguminous plants, and from the resulting adults another generation was successfully reared. Careful and repeated search of the growing clover where the species was first found yielded nothing, however, and it just completely disappeared: another typical instance of migrant behaviour.

Other species of known migratory habits overseas, which were recorded in the Eastern Cape this spring were *Pyrausta martialis* Hbn., and *Plutella maculipennis* (Curt.), while a specimen of *Plusia ni* Hbn., was seen along with other members of its family feeding at flowers in the writer's garden. It was certainly a season for migrants.

ACKNOWLEDGMENTS

The writer is much indebted to Dr. G. J. Broekhuysen and Mr. C. G. C. Dickson for so kindly placing their notes and observations at his disposal: also to all the other observers including Messrs. C. J. Skead, H. R. Philip and Dr. A. C. van Bruggen who so kindly rendered data and assistance.

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- Williams., C. B. 1930. Migration of Butterflies. *Oliver & Boyd, Edinburgh.*

Box 7011, Port Elizabeth, South Africa. 6.ii.62.

B. C. S. Warren has sent me his paper from ENTOMOLOGISK TIDSKRIFT, 82: 121-148, with three half-tone plates giving 72 figures, mostly microphotographs of the Androconial scales. The paper deals with the bearing of these scales in the speciation of the genus *Pieris*. The paper is in three parts, written at intervals, and each showing the progress of the author's work at the stage in question, and references are listed at the end.—S.N.A.J.

Collecting Lepidoptera in 1961

By R. FAIRCLOUGH (continued from p. 98)

I've seen this species. The best 'capture' of the night was a young man, Tony Harman, who deserted his motor bike for the mothing sheet. Not having seen an m.v. light in operation before, and being interested in Lepidoptera, he stayed until 'lights out', and has since had good results by using m.v. at his home nearby.

A short visit to Betchworth on the 4th gave us our first *Phalona rutilana* Hübn., *Argyresthia abdominalis* Zell. (both from Juniper), *Bucculatrix cidarella* Zell., and *Walshia rhammiella* Zell. We hoped to return to search for *rutilana* but it was the 16th before we got there again, on a poor evening. Although we failed we consoled ourselves with the thought that we should soon lose interest if rare moths were easy to take.

On the 8th, the long run was made to Portland with Ron Parfitt. We spent three hours smoking *Inula crithmoides*, taking only three *Dioryctria banksiella* Rich., our objective. *Dolycharthria punctalis* Schiff., *Homoesoma saxicola* Vaugh. (worn), and *Coleophora troglodytella* Dup. were common. We then tried *Artemesia absinthium* for *Euzophera cinerosella* Zell. without result, but a *Eucosma pupillana* Clerck. was taken. The night's results were rather poor, less than fifty species coming to light while none except very common species were seen at dusk. However, some fresh *Agrotis trux* Hübn. turned up; a few *Sterrha degeneraria* Hübn.; *L. l-album* L., *Schrankia costaestrigalis* Sheph., a species I always seem to see at Portland; *Lygris prunata* L., one I never see in Surrey; *Nola albula* Hübn., and a *Scopula marginepunctata* Goeze, which gave a nice series in September from her ova.

Near Beachy Head on the 22nd I caught a *Pammene aurantiaria* Staud. (is this a first Sussex record?), and among sea purslane on the banks of the Cuckmere, some *Coleophora salinella* Staint. A brilliant moonlight night proved useless for the m.v. by the reed bed.

A week later we were at Southwold on the Suffolk coast where we spent the next fortnight. On the first night I made for the Walberswick reed beds. The night was cool, and at dusk I could find no sign of anything but *Arenostola phragmitidis* Hübn. At the m.v., however, the two species I hoped for, *Nonagria neurica* Hübn. and *A. brevilinea* Fenn. were both taken. These reed beds with the sea to the east, and heathland to the west, yield a rich mixture of moths, so that apart from the Wainscots and other marshland species, insects such as *Agrotis cursoria* Hufn., *Arenostola elymi* Treits., *Eremobia ochroleuca* Esp. and *Chesias rufata* Fabr. also arrived.

The trap placed among a little patch of dune with lyme grass did rather badly (total 61 species) due to the poor nights. A few *elymi* came, one *Dioryctria formosa*, and one fresh *Heliothis dipsacea* L. on 4th August (we saw another at Dunwich later still), while *cursoria* of pale forms unlike those from Lancashire were always present, and *Triphaena interjecta* Hübn. was noticeably commoner than at home.

Two nights were outstanding, the first at Dunwich on 1st August. We saw plenty of *Nyctegretis achatinella* Hübn. among the Rest Harrow on the beach at dusk. From nine-thirty, for three hours, until a

thunderstorm stopped the fun, a very varied selection of moths came to the sheet. I was very pleased to have some *Phycita boisduvaliella* Guen., and one *Mellissoblaptēs zelleri* Joan., while some of the seventy two species of larger moths seen were *Leucania albipuncta* Fabr., *Spaëletis ravidā* Hübn., *albula*, *Hadena lepida* Esp., (white like those of Dungeness), *Tethea duplaris* L., *Lymantria monacha* L., *Mitochondria miniata* Forst., *Zeuzera pyrina* L., *Cerura furcula* L., *Lygephila pastinum* Treits., *Abraxus sylvata* Scop., *Cerapteryx graminis* L., *Lycophotia varia* Vill., *A. tritici* L., *neurica*, *E. griseola* Hübn., *Eupithecia tenuiata* Hübn., *Itame wauaria* L., *Hydraecia paludis* Tutt., and *elymi*.

The second was 4th August, when we sugared marram tufts on the beach on a wild, windy night, seeing thirty species—something to restore one's faith in sugar. All the yellow underwings except the wanted *T. orbona* Hufn. were there, with the usual moths of the shore. We had five fresh *albipuncta*, four *Apamea abjecta* Hübn., and among its betters even *A. secalis* L., the commonest kind, became, in its numerous forms, interesting.

We had a successful few hours at Thorpeness on the 3rd, where we took plenty of *Oxyptilus distans* Zell., at first by smoking then by disturbing the plants and watching for them to move. *Mniophaga desertella* Dougl. was probably the commonest moth on the beach, but we also saw *Gelechia mullinella* Zell., *Crambus alpinellus* Hübn., *Hemimene politana* Hübn., *Coleophora argentula* Zell., *Phthorimaea semidecandrella* Threlf., and *Sterrha ochrata*, this being, I believe, its northern limit.

Another none too common sunny day found us on the north Norfolk coast salt marshes where we discovered *Eupithecia extensaria* larvae to be common enough despite their name. This was on 9th August and we were rather surprised to find odd ones in their last skin. Another 'new' species of the holiday was *Simyra albevenosa* Goeze, two of which were taken at Walberswick and Dunwich.

One of the pleasures of the holiday was the quietness of the local roads, as compared with S.E. England, and the other the meeting of so many other collectors, for we met in the field, or looked up Messrs. Chipperfield, Dacie, Goater, Hare, Lyon, More, McNulty, and de Worms.

August is always a dull month after the first few days, and even a visit with Mr. Wakely to a Dorset heath to look for the larvae of *Stenoptilia graphodactyla* Treits. was a disappointment as only a few Marsh Gentians could be found. The heath was dry and we suspected some drainage connected with the inevitable housing development nearby. A stop for sugar and light at night near Lyndhurst proved a failure, only a few common species being seen.

At Camber, on the 29th, a very hot day, beating sea buckthorn, produced some *Semiothisa alternaria* Hübn. larvae (a worn imago was seen and a very late *alpinellus*). A lot of small tortoiseshells with a red admiral were on the sea asters.

On the last day of the month we again saw more butterflies than usual on a patch of thistle in a Chiddingfold wood, mainly brimstones, with commas and a painted lady, the only one of the year: An unlooked for insect was a *Rhodomētra sacraria* L. This was a fertile female, and I thought of that hot afternoon this New Year when I was scratching under the snow to find some dock to feed the third generation larvae.

Geoff. Cole and I went to the Breck, where we met Mr. Chipperfield on 2nd September. We were successful in finding *Coenotrephia berberata* Schiff. larvae, then moved on round the area. Specimens of *sacraria* and *Scopula rubiginata* Hufn. were put up and caught. We sugared and ran the m.v. near Barton Mills at night. Twenty-five posts yielded over a thousand moths, none of which was of interest, while the light had only sixteen species despite the temperature of over 60°.

The next evening I went to Ashdown Forest to try the spot where I took *Depressaria prostratella* Const. in 1957. Again the night was warm but with a group of bats working the light the moths had no chance. Are others finding more trouble from bats in the field these days? I have the impression that each bat carries radio equipment with his radar, and calls up all his friends as he sees an m.v. light appear! Certainly, I have had an increasing number of nights ruined by their attentions.

Having heard of large numbers of *Leucania vitellina* L. being taken in Dorset, a hurried trip to the Sussex coast was made on the 11th. Warm breezes and a cloudy sky did not give their usual result, for sugar and light were hardly attended by the common moths, let alone good migrants.

We were still in the hot spell that made the autumn of 1961 so different from that of the previous year, and on the 16th Mr. Wakely and I went to Kent to look for larvae of *Eulia cinctana* Schiff. Having given this up as a bad job, we went on to the Warren at Folkestone, which we found rather barren. The woods of Ham Street would, we thought, yield some interesting larvae, but again we were disappointed, though some affected rose galls were collected for *Laspeyresia roseticolona* Zell. Sugar and light were at their worst, so finally we ran down on to the marshes, and despite the late hour found a *Hydraecia hucherardi* Mab., some *Rhizedra lutosa* Hübn., and a *Nycterosia obstipata* Fabr. by using hand lamps.

En route for Swanage on the 23rd we beat for *Cosymbia orbicularia* Hübn. without success, there being hardly any larvae of any kind. We ran into sea mist as we neared the Isle of Purbeck. Neither sugar nor the ivy gave one moth that night, but in the thick mist they came freely to the light, *Plusia gamma* L. in large numbers. Thirty-one species were recorded between 7.30 and 3.00 the next morning, one worn *vitellina* arriving at midnight while the usual coastal species of this date, *Leucochlaena hispida* Gey. and *Aporophyla australis* Boisd., appeared with *Cirrhia gilvago* Esp. and a fresh *Eilema griseola* Hübn. which I tried to turn into something new in footmen, the date appearing to be wrong for *griseola*! I was pleased to meet Messrs. Hayward and Langmaid, who were having trouble with their generator nearby, but who had a couple of traps up their sleeves as it were and took later in their stay some very interesting moths.

We returned to Swanage on 7th October. With us went Tony Harman and there we met Stuart Coxey who was staying for a few days. We also came across Captain Jackson, who had taken *Leucania unipuncta* Haw. on his sugar, and Baron de Worms, who found the cliffs too windy for his light. We were in a rather more sheltered position, but the wind badly affected the results. However, some fresh

Dasypolia templi Thunb. (for which we had come) appeared, *Lithophane leautieri* Boisd. was seen, while Tony was able to enjoy seeing *lichenea* and other species new to him. My sugar was a failure.

With *Utetheisa pulchella* L. in mind, following reports of its having put in an appearance in larger numbers than usual with this rare moth, my son and I went to Dungeness on the 14th, a warm sunny day with an east wind. It was not our lucky day, and the night was no compensation, sugar and light being visited only sparingly. Dr. Kettlewell enlivened an hour for us as we watched the light, he having stopped on seeing the m.v. bulb out on the shingle.

A possible night on 18th November sent me to the Downs, where I found Messrs. Bretherton, Dacie, and de Worms at the spot where I had hoped to catch *Ptilophora plumigera* Esp. Having exchanged greetings, I moved on a few miles and set up my light under some maples at a lower altitude than usual. There I took four of the moth, the only other moth seen being an *Operophtera fagata* Scharf.

A return visit with Geoff. Cole the following night yielded one more *plumigera* among four moths seen. This was the fifty-fifth and final night expedition of the year.

On the whole, 1962 was another poor year for the indigenous species judging from my home trap, which had the worst result in ten years. However, numbers of migrants were taken, and in my case visits to new areas made it a season better than usual.

Blencathra, Deanoak Lane, Leigh, Near Reigate, Surrey. 11.iii.62.

The Moths of Wimbledon

By J. V. DACIE, M.D.

Stimulated by the example of the late Mr. H. D. Swain, I started in the Spring of 1955 to run a mercury-vapour moth trap in the garden of my house at Wimbledon. The present article summarises the results of this venture for the six years, 1955-1961, inclusive. The list which follows covers, unfortunately, only the families usually grouped together as "macros", but it is hoped to publish a list of the local Pyralidae at a later date. With few exceptions, which are individually noted, all the species listed have been caught by means of the trap in my garden. The exceptions are moths taken as imagines or larvae on Wimbledon Common or elsewhere in Wimbledon, and I have included two records of moths taken in Wimbledon before the Second World War but not caught or seen here subsequently. I have not collected systematically on Wimbledon Common and never there at night, and it is no doubt likely that species exist on the Common which I am not likely to take in my garden.

Alan Road, where the trap has been run, is in a residential area of Wimbledon on high ground between Wimbledon High Street and Wimbledon Park. The site of the trap is within 200 yards of Wimbledon Park and about half-a-mile from Wimbledon Common in a straight line. Although the garden is not a particularly large one, there are many large gardens between Alan Road and the Common and many fine and long-established trees. A limited amount of new building has taken place in the area in the last three years and the effect on the local fauna can only have been harmful.

The moth trap has not been run every night. Generally speaking, however, it has been run every favourable night between the beginning of March until mid-October at least from 1959 onwards. At first (during 1955) it was placed quite near the house and many moths settled on the adjacent wall of the house. From 1956 onwards the trap has been run in the centre of the lawn with two boards, approximately 18" × 10", set up to screen off the two adjacent neighbours' houses. Moths settled on these boards, too.

Birds have been a menace, and they soon learnt to make a clean sweep of all moths not actually in the trap very soon after dawn unless I preceeded them, which was sometimes but not always the case. Unfortunately, there is no doubt that many moths were lost in this way, including probably species which never entered the trap and have thus not been recorded. Some were rescued, however, such as the solitary *A. alni*, which was found at dawn sitting on the outside of the trap.

The trap was almost always run all night, on 48 occasions in 1956, on 42 occasions in 1957, on 47 occasions in 1958, on 80 occasions in 1959, on 75 occasions in 1960 and on 67 occasions in 1961.

Three hundred species are recorded in the following list. Where the species is listed without comment, this species is probably resident, ten or more specimens have been caught and they have not all been taken in the same year. Where fewer than four specimens in all of a species have been taken this has been noted. The designation "uncommon" indicates that only 5-10 specimens have been noted in the whole 6-year period, 1956-61.

Some species are no doubt resident although present in very small numbers; others seem likely to be vagrants or even immigrants. The most notable captures have been single specimens of *Cosymbia puppillaria* Hübn. taken on 16th October, 1959 and *Itame brunneata* Thunb. taken on 25th June 1960.

Vast numbers of moths have never been caught, and the heaviest catches, on the most favourable nights, have not exceeded about 500 moths, excluding "micros".

The nomenclature and order of arrangement in the following list are those of Heslop (1961):—

SPHINGIDAE: 6 species

- Mimas tiliae* L.
- Laothoe populi* L.
- Smerinthus ocellata* L.
- Sphinx ligustri* L.
- Deilephila porcellus* L.
- Deilephila elpenor* L.

NOTODONTIDAE: 10 species

- Harpya bifida* Brahm (*hermelina* auct.), uncommon.
- Cerura vinula* L., uncommon.
- Chaonia ruficornis* Hufn. (*chaonia* Hübn.)
- Pheosia tremula* Clerck
- Pheosia gnoma* F. (*dictaeoides* Esp.)
- Notodonta dromedarius* L.
- Lophopteryx capucina* L. (*camelina* L.)
- Pterostoma palpina* Clerck, 2 only, 1959, 1960.

Phalera bucephala L.
Clostera curtula L., uncommon.

THYATIRIDAE: 5 species

Habrosyne pyritoides Hufn. (*derasa* L.)
Thyatira batis L., 2 only, 1957, 1959.
Tethea ocularis L. (*octogesima* Hübn.)
Tethea duplaris L., 4 only, 1958, 1959, 1961.
Achlya flavicornis L., 2 only in trap; larvae on Wimbledon Common.

LYMANTRIIDAE: 3 species

Orgyia antiqua L.
Dasychira pudibunda L., 1 only, 1959.
Leucoma salicis L., uncommon.

LASIOCAMPIDAE: 1 species

Malacosoma neustria L., Uncommon.

DREPANIDAE: 4 species

Drepana binaria Hufn.
Drepana falcataria L.
Drepana lacertinaria L., larvae on Wimbledon Common only.
Cilix glaucata Scop.

NOLIDAE: 1 species

Nola cucullatella L., 1 only, 1959.

ARCTIIDAE: 7 species

Eilema complana L., 1 only, 1957.
Callimorpha jacobaeae L., 1 only, 1956 in trap.
Spilosoma lubricipeda L. (*menthastri* Esp.)
Spilosoma lutea Hufn. (*lubricipeda* auct.)
Cyenia mendica Clerck, 3 only, 1957, 1959.
Phragmatobia fuliginosa L.
Arctia caja L.

COSSIDAE: 1 species

Zeuzera pyrina L.

HEPIALIDAE: 4 species

Hepialus humuli L., uncommon.
Hepialus sylvina L.
Hepialus fusconebulosa Deg. (*velleda* Hübn.), 1 only, 1960.
Hepialus lupulina L.

NOCTUIDAE: 150 species

Euxoa nigricans L.
Euxoa tritici L., 2 only, 1956, 1960.
Agrotis segetum Schiff.
Agrotis clavis Hufn. (*corticea* Schiff.)
Agrotis puta Hübn. (*radius* Haw.)
Agrotis exclamationis L.
Agrotis ipsilon Hufn. (*suffusa* Schiff.)
Lycophotia varia Vill. (*strigula* Thunb.)
Peridroma porphyrea Schiff. (*saucia* Hübn.)
Graphiphora augur F., 3 only, 1956, 1959.

- Diarsia brunnea* Schiff., 3 only, 1956, 1957, 1960.
Diarsia mendica F. (*festiva* Schiff.)
Diarsia rubi View. (*bella* Borkh.)
Ochropleura plecta L.
Amathes glareosa Esp.
Amathes baja Schiff., 3 only 1957, 1959, 1961.
Amathes c-nigrum L.
Amathes ditrapezium Schiff.
Amathes triagulum Hufn.
Amathes stigmatica Hübn. (*rhomboidea* Treits.), 1 only, 1961.
Amathes sexstrigata Haw. (*umbrosa* Hübn.), uncommon.
Amathes xanthographa Schiff.
Axylia putris L., including 1 melanic.
Cerastis rubricosa Schiff., 2 only, 1959, 1960.
Naenia typica L., 2 only, 1957, 1958.
Euschesis comes Hübn. (*orbona* F.)
Euschesis janthina Schiff.
Noctua pronuba L.
Lampra fimbriata Schreber (*fimbria* L.)
Pyrrhia umbra Hufn. (*marginata* F.), uncommon.
Anarta myrtilli L., Wimbledon Common, but 1 in trap.
Mamestra brassicae L.
Melanchra persicariae L.
Polia nebulosa Hufn.
Diataraxia oleracea L.
Ceramica pisi L.
Hada nana Hufn. (*dentina* Esp.), uncommon.
Scotogramma trifolii Hufn. (*chenopodii* Schiff.)
Hadena w-latinum Hufn. (*genistae* Borkh.)
Hadena suasa Schiff. (*dissimilis* Knoch), 1 only, 1956.
Hadena thalassina Hufn., 1 only, 1960.
Hadena bicolorata Hufn. (*serena* Schiff.)
Hadena conspersa Schiff. (*nana* Rott.), 3 only, 1957, 1960.
Hadena bicurris Hufn. (*capsincola* Hübn.)
Hadena rivularis F. (*cucubali* Schiff.), uncommon.
Hadena lepida Esp. (*carpophaga* Borkh.), 2 only, 1956, 1960.
Heliophobus reticulata Vill. (*saponariae* Borkh.), 1 only, 1959.
Tholera popularis F., uncommon.
Tholera cespitis Schiff., uncommon.
Cerapteryx graminis L., uncommon.
Orthosia gothica L.
Orthosia cruda Schiff. (*pulverulenta* Esp.)
Orthosia stabilis Schiff.
Orthosia incerta Hufn. (*instabilis* Schiff.)
Orthosia munda Schiff., uncommon.
Orthosia advena Schiff. (*opima* Hübn.), 4 only, 1959, 1960.
Orthosia gracilis Schiff.
Leucania pallens L.
Leucania impura Hübn.
Leucania comma L.
Leucania lythargyria Esp.
Leucania conigera Schiff.
Mythimna turca L., 1 only, 1957.

- Rhizedra lutosa* Hübn. (*crassicornis* Haw.), 1 only, 1959.
Arenostola pygmina Haw. (*fulva* Hübn.), 1 only, 1961.
Meristis trigrammica Hufn. (*trilinea* Schiff.)
Caradrina morpheus Hufn.
Caradrina alsines Brahm
Caradrina blanda Schiff. (*taraxaci* Hübn.)
Caradrina ambigua Schiff.
Caradrina clavipalpis Scop. (*quadripunctata* F.)
Dypterygia scabriuscula L. (*pinastri* L.)
Apamea lithoxyla Schiff., uncommon.
Apamea monoglypha Hufn. (*polyodon* L.), including melanic examples, 1960, 1961.
Apamea epomidion Haw. (*hepatica* L.)
Apamea crenata Hufn. (*rurea* F.)
Apamea sordens Hufn. (*basilinea* Schiff.)
Apamea unanimitis Hübn., 2 only, 1956.
Apamea infesta Ochs. (*sordida* Borkh.), 3 only, 1959, 1960.
Apamea remissa Hübn. (*obscura* Haw.)
Apamea secalis L. (*didyma* Esp.)
Apamea ophiogramma Esp., 1 only, 1961.
Apamea ypsilon Schiff. (*fissipuncta* Haw.), 5 only, 1959, 1960.
Procus strigilis Clerck
Procus fasciuncula Haw., uncommon.
Procus literosa Haw., 4 only, 1958, 1959.
Procus furuncula Schiff. (*bicoloria* Vill.)
Luperina testacea Schiff.
Euplexia lucipara L.
Phlogophora meticulosa L.
Thalpophila matura Hufn. (*cytherea* F.)
Petilampya minima Haw. (*arcuosa* Haw.), uncommon.
Celaena leucostigma Hübn. (*fibrosa* Hübn.), 1 only, 1960.
Hydraecia oculatea L. (*nictitans* Borkh.)
Hydraecia paludis Tutt, 1 only, 1958.
Gortyna micacea Esp.
Gortyna flavago Schiff. (*ochracea* Hübn.), uncommon.
Cosmia affinis L.
Cosmia trapezina L.
Zenobia subtusa Schiff., 1 only, 1960.
Panemeria tenebrata Scop. (*arbuti* F.), Wimbledon Common, 1928; not seen since.
Amphipyra pyramidea L.
Amphipyra tragopoginis Clerck
Rusina tenebrosa Hübn. (*umbratica* auct.), 1 only, 1959.
Mormo maura L.
Cryphia perla Schiff.
Apatele leporina L.
Apatele aceris L.
Apatele megacephala Schiff.
Apatele alni L., 1 only, 1956.
Apatele psi L.
Apatele rumicis L.
Cucullia umbratica L., uncommon.

- Cucullia chamomillae* Schiff., 1 only, 1960.
Cucullia absinthii L., 5 only, 1957, 1959, 1960.
Xylocampa areola Esp. (*lithorhiza* Borkh.), uncommon.
Bombycia viminalis F., 2 only, 1956, 1960.
Aporophyla lutulenta Schiff., 1 each, 1957, 1958; 5, 1961.
Aporophyla lunula Stroem (*nigra* Haw.), 2 only, 1959, 1961.
Allophyes oxyacanthae L., uncommon, all ab. *capucina* Mill.
Parastichtis suspecta Hübn., 1 only, 1961.
Omphaloscelis lunosa Haw.
Agrochola circellaris Hufn. (*ferruginea* Esp.), 3 only, 1956, 1961.
Agrochola lychnidis Schiff. (*pistacina* F.)
Anchoscelis litura L.
Atethmia xerampelina Esp., 1 only, 1957.
Tiliacea citrigo L., uncommon.
Tiliacea aurago Schiff., 2 only, 1959.
Cirrhia icteritia Hufn. (*fulvago* L.)
Cirrhia gilvago Schiff., 1 only, 1957.
Conistra vaccinii L.
Bena prasinana L. (*fagana* F.)
Pseudoips bicolorana Fuessl. (*quercana* Schiff)
Earias clorana L., 1 only, 1959.
Lithacodia fasciana L., 2 only, 1961.
Catocala nupta L.
Euclidimera mi Clerck, Wimbledon Common.
Colocasia coryli L., 1 only, 1961.
Polychrisia moneta F.
Plusia chrysitis L.
Plusia jota L., 1 only, 1957.
Plusia gamma L.
Unca triplasia L., uncommon.
Unca tripartita Hufn. (*urticae* Hübn.)
Lygephila pastinum Treits., 1 only, 1959.
Scoliopteryx libatrix L., uncommon.
Hypena proboscidalis L.
Hypena rostralis L., 1 only, 1954 (sugar).
Zanclognatha tarsipennalis Treits.
Zanclognatha nemoralis F. (*grisealis* Schiff.)

GEOMETRIDAE: 108 species

- Archicaris parthenias* L., Wimbledon Common.
Alsophila aescularia Schiff.
Pseudoterpna pruinata Hufn. (*cytisaria* Schiff.), Wimbledon Common.
Geometra papilionaria L., larvae, Wimbledon Common.
Comibaena pustulata Hufn. (*bajularia* Schiff.), uncommon.
Hemithea aestivaria Hübn. (*strigata* Müll)
Hemistola immaculata Thunb. (*chrysoprasaria* Esp.), 1 only, 1959.
Jodis lactearia L., 1 only, 1957.
Calothysanis amata L.
Cosymbia albipunctata Hufn. (*pendularia* auct.), larvae, Wimbledon Common.
Cosymbia puppillaria Hübn., 1 only, 16th October 1959.
Cosymbia punctaria L., quite common in 1956; 1 only since (1959).
Cosymbia linearia Hübn. (*trilinearis* Borkh.), 1 only, 1959.
Scopula promutata Guen. (*marginipunctata* auct.), 3 only, 1959, 1960.

- Sterrrha interjectaria* Boisd. (*fuscovenosa* auct.)
Sterrrha seriata Schrank (*virgularia* Hübn.)
Sterrrha straminata Borkh. (*inornata* Haw.), 3 only, 1959, 1960, 1961.
Sterrrha aversata L.
Sterrrha trigeminata Haw. (*scutularia* Hübn.)
Sterrrha biselata Hufn. (*bisetata* Rott.)
Xanthorhoë spadicearia Schiff. (*ferrugata* Staud., non Clerck)
Xanthorhoë montanata Schiff., uncommon.
Xanthorhoë fluctuata L.
Nycterosea obstipata F. (*fluviata* Hübn.), 2 only, 1960, 1961.
Perizoma alchemillata L. (*rivulata* Schiff.), 2 only, 1957.
Euphyia bilineata L.
Lyncometra ocellata L., 1 only, 1957.
Electrophaes corylata Thunb., 1 only, 1958.
Ecliptopera silaceata Schiff., 2 only, 1958, 1960.
Lygris mellinata F. (*associata* Borkh.)
Plemyria rubiginata Schiff. (*bicolorata* Hufn.)
Dysstroma truncata Hufn. (*russata* Borkh.)
Thera obeliscata Hübn.; melanic forms are dominant.
Thera variata Schiff., 1 only, 1959.
Hydriomena furcata Thunb. (*sordidata* F.)
Hydriomena coerulea F. (*impluviata* Schiff.), 2 only, 1959.
Philereme vetulata Schiff., 1 only, 1959.
Epirrhoe alternata Müll (*sociata* Borkh.)
Anaitis efformata Guen., 2 only, 1957, 1958.
Horisme vitalbata Schiff., 1 only, 1960.
Horisme tersata Schiff., uncommon.
Lobophora halterata Hufn. (*hexapterata* Schiff.), 2 only, 1956.
Acasis viretata Hübn., uncommon.
Ortholitha mucronata Scop. (*umbrifera* Prout), 2 only, 1959, 1960.
Pelurga comitata L.
Oporinia dilutata Schiff. (*nebulata* Thunb. non Scop.)
Operophtera brumata L.
Operophtera fagata Scharf. (*boreata* Hübn.)
Hydrelia flammeolaria Hufn. (*luteata* Schiff.), 1 only, 1961.
Eupithecia subnotata Hübn., 1 only, 1938.
Eupithecia haworthiata Doubl. (*isogrammaria* H.-S.), uncommon.
Eupithecia linariata Schiff., 3 only, 1957, 1960, 1961.
Eupithecia pulchellata Steph.
Eupithecia exigua Hübn., uncommon.
Eupithecia centaureata Schiff. (*oblongata* Thunb.)
Eupithecia intricata Zett. (*helveticaria* Boisd.), subsp. *arceuthata* Freyer, uncommon.
Eupithecia absinthiata Clerck (*minutata* Schiff.)
Eupithecia assimilata Doubl., 2 only, 1958, 1959.
Eupithecia vulgata Haw.
Eupithecia icterata Vill.
Eupithecia succenturiata L.
Eupithecia nanata Hübn., uncommon.
Eupithecia abbreviata Steph., 1 only, 1959.
Eupithecia dodoneata Guen.
Eupithecia sobrinata Hübn. (*pusillata* auct.), uncommon.
Chloroclystis rectangularata L.

- Gymnoscelis pumilata* Hübn.
Abraaxas grossulariata L.
Lomaspilis marginata L.
Bapta temerata Schiff. (*punctata* Hübn.)
Deilinia pusaria L.
Deilinia exanthemata Scop., uncommon.
Ellopia fasciaria L. (*prosapiaria* L.)
Campaea margaritata L. (*margaritaria* L.)
Semiothisa liturata Clerck, uncommon.
Erannis leucophaearia Schiff., 1 only, 1959.
Erannis aurantiaria Hübn.
Erannis marginaria F. (*progemmaria* Hübn.)
Erannis defoliaria Clerck
Ennomos quercinaria Hufn. (*angularia* Hübn.), 1 only, 1960.
Deuteronomos alniaria L. (*tiliaria* Borkh.)
Deuteronomos fuscantaria Steph.
Deuteronomos erosaria Schiff.
Selenia bilunaria Esp. (*illunaria* Hübn.)
Apeira syringaria L., 1 only, larva, Wimbledon Common.
Gonodontis bidentata Clerck, including 1 melanic.
Colotois pennaria L.
Crocallis elinguaris L.
Plagodis dolabraria L.
Opisthograptis luteolata L. (*crataegata* L.)
Ourapteryx sambucaria L.
Phigalia pedaria F. (*pilosaria* Schiff.), common 1928, 1 only, recently.
Lycia hirtaria Clerck, including one melanic, 1960.
Biston strataria Hufn. (*prodromaria* Schiff.), including 1 melanic, 1957.
Biston betularia L.: of 85 specimens recorded in 1960, 70 (82%) were ab.
carbonaria Jordan, 7 (8%) type and 8 (9%) intermediate forms.
Menophra abruptaria Thunb., including 1 ab. *fusca* Tutt, 1960.
Cleora rhomboidaria Schiff. (*gemmaria* Brahm)
Alcis repandata L.: a melanic form is not uncommon.
Boarmia roboraria Schiff., 1 only, 1958.
Pseudoboarmia punctinalis Scop. (*consortaria* F.), 3 only, 1960.
Aethalura punctulata Schiff. (*punctularia* Hübn.), Wimbledon Common only.
Bupalus piniaria L., 1 only, 1957: a strikingly white form.
Itame wauaria L.
Itame brunneata Thunb. (*fulvaria* Vill.), 1 during night 25-26 June 1960; a large ♂ (wing-spread when set 25 mm.) in good condition.
Lithina chlorosata Scop. (*petraria* Hübn.)
Chiasmia clathrata L.

It is interesting to compare the above lists with the comprehensive account of the moth fauna of London and its surroundings published by de Worms (1953-1959), and the Putney lists of Swain (1952, 1955, 1958). de Worms lists a total of 596 species ("macros") as recorded for Surrey (vice-county 17), within a radial distance of 20 miles from St. Paul's Cathedral. Looking through these lists in detail I find that de Worms specifically gives Wimbledon or Wimbledon Common as localities for 77 species not yet caught by myself in Wimbledon. It is interesting to note, however, that 53 of these records are for 1898 or 1902 (*Trans.*

City Lond. Ent. Soc., 1898-1902) or earlier. Swain, who ran a mercury-vapour moth trap in Putney, about $2\frac{3}{4}$ miles from my trap, recorded 282 species ("macros") for Putney (but included a few Wimbledon Common records), and this list, too, contained 38 species not caught by myself. It seems, therefore, that the total of species still to be found in the Wimbledon area is likely to be somewhere between 300 and 350; it is not likely to be as great as 400. It will certainly be interesting to see in future years how many of the 53 species recorded 60 or so years ago still exist in the district. That some new species should be added to the Wimbledon list in future years seems certain, judged from the relatively large number of species more recently recorded by Swain in Putney which I have not yet noted in Wimbledon. Moreover, there are some common moths, such as *Euproctis similis* Fuesl., which I have not yet seen in Wimbledon, but which must surely be residents.

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Autumn Holiday

Dr. A. M. R. HERON

Last autumn the hills and glens of Scotland called me and I went north on 23rd September to Aberfeldy. It rained most of the way, but on arriving I sugared trees in the garden and around, in my first optimism. This resulted in the record number of moths which I had seen on sugar last year, namely three, all different. What has gone wrong with this form of collecting? I used to get hundreds on some nights, a few years ago, and with the same mixture. Is it all a matter of atmospheric conditions?

On the following day we had one of those perfect days that one can have among the hills at that time of year in Scotland. The autumn colouring was beautiful and as we went over to Loch Rannoch there were wonderful cloud effects with deep blue shadows.

On Rannoch Moor the wind began to blow and the rain was not far behind. I just had time to collect a few *Celaena haworthii* and *Hydraecia lucens*. We returned by the north side of Loch Rannoch, and

with the passing of the shower, we saw the perfect views of the peak of Schiehallion through the golden birch woods. As we approached Aberfeldy there was a red sunset and I thought we were going to have glorious weather for our week. Alas, on the following morning the rain was falling in torrents and this continued for almost the rest of the week. At Aberfeldy we took little of note in spite of using the mercury vapour trap: eighteen species were noted. *Chloroclysta sterata* was commoner here than *miata*, which in my experience, is the opposite of what is usual in this area. I have taken *sterata* on this occasion at all the places where I stayed during the week. I took one *Diarsia dahlii* on 24th September, which is fairly late.

On 26th we thought the weather might be better in the west, so we went through torrents and floods up to Loch Tay and Glen Dochart. We went as far as Oban where we viewed the beautiful Sound of Kerrera from the car. The weather was still discouraging so we turned north to Onich via the Ballachulish ferry. This part of the country had recently been swept by a gale and trees were uprooted or stripped of branches on all sides. The oaks had lost many of their larger branches and few leaves were left on any of the trees.

At Onich we found shelter and comfort with relations who live on the north shore of Loch Linnhe, looking up the historic pass of Glencoe. After two pleasant days, with indifferent weather and few moths, we decided to try the south of Scotland.

We drove through the worst rain I have experienced in Scotland, and in Glasgow, the streets were flooded to a depth of one to three feet in many places. Our car went through the floods without so much as a splutter. We drove on through some fine hilly country on our way to south Kirkcudbrightshire, where we found a quiet bay for the last two days of our holiday. This is very interesting country for walking, but as the weather was still poor we went to see Loch Trool, which is one of the beauty spots in the mountains called the Kells. During our two nights, the trap produced little of note (eleven kinds). *Agrotis ipsilon* was one of these, and being a migrant, might have been prophetic.

Before setting out for home, my wife and I thought we should have a last walk before leaving Scotland. I left my net behind as I had not used it the whole time of being away. The sun tried to shine and we saw, first two butterflies, *Nymphalis io* L. and *Pieris rapae* L., and then one male *Orgyia antiqua*, on the wing. We were thinking of turning back when I saw a silvery moth flying quickly across the path in front of us. I thought at first it might be *Chesias legatella* and when it landed on a broom bush I thought this made it likely. Fortunately, on second thoughts I considered it had been too large and pale in colour to be that species. I went to investigate, and imagine my amazement when I found that it was a large, fresh female crimson speckled footman, *Uitheisa pulchella*. With trembling hands I hunted for a box, and with great care approached the prize. Just as I was bringing the two halves of the box together, the moth rose from its perch, but it was safe in the box. We hunted for more of this species, but of course, without success. We went back to our hotel, and drove south at high speed so that we could get my friend, George Hyde, to photograph our prize from different angles. I even took some of the hillside with me so that he could have the natural background. He was highly delighted to see this moth alive from Scotland. No ova were produced, but the specimen

appeared almost too fresh to produce fertile ova in this country. I do not believe that many of this species have been taken in Scotland, nor do I know whether it is a new record for Kirkcudbrightshire.

108 George a Green Road, Wakefield.

Cryphia muralis Forst. in Kerry

By H. C. HUGGINS, F.R.E.S.

With reference to Mr. Haynes's note on this species in the March number of the Entomologist's Record, I was well aware of Halbert's Killarney record, as not only did I read it in the Entomologist in 1942, but also Dr. Beirne gave me a reprint soon after the end of the war, which I carry in the back of my "Donovan" whenever I visit Ireland. Perhaps it might have been better had I put in the phrase "except for one dubious record" after new to Kerry, but I have never had any belief in Halbert's specimen.

For the past hundred years, except for the immediate neighbourhood of Dublin, Killarney has been worked more than any other part of Ireland, yet Halbert's is the only *muralis* recorded. Even the phrasing of the record leaves a lot to be desired; there is no date given, yet at the time Halbert wrote (in the Irish Naturalist 1919) there was no excuse for not giving exact data. *Muralis* is not a difficult insect to obtain, where present; apart from its habit of sitting on walls, it comes to light, sugar, and several sorts of flowers, (notably ragwort) and it is strange that no other specimen was captured in the course of literally hundreds of collecting trips by other collectors.

Although I do not like to dogmatise, especially with the occurrence of *muralis* at Cambridge, Killarney did not seem to me to be a very likely locality; all other Irish localities for the moth are maritime, with the sole exception of Bandon, and even Bandon is quite near the sea on a tidal river which has been a main artery of Irish trade throughout historic times. It is generally spread in the area of Cork City, but even there is commonest on buildings near the the river and harbour, particularly at Passage West and Monkstown, and in the country at the back of the city it seems to be absent.

I may say that the late Lt. Col. Donovan shared my scepticism of this record. I corresponded with him several times about Irish *muralis* and in 1947 he agreed with me that it was very doubtful. I first began corresponding with him in 1937, when I wrote and told him I did not consider the Cork insect he called *impar* to be *impar* Warren, and sent him two Cambridge *impar* for comparison. This peculiar Cork insect has now, of course, been separated as *similis* (Cockayne and Williams 1956).

Mr. Haynes seems to have a rather strange idea of the time of emergence of *muralis* in the south of England and Ireland. In Cork it usually begins to emerge at the end of the first week in July and although it has a very long emergence period there, like many Irish insects, it is well out by the middle of the month and reaches a peak about the third week. It occurs right through August but although it is usually in good condition (*muralis* stays undamaged for a long time) August specimens seldom have the brilliance of July ones. As an example I may state that my record Cork bag of *muralis* (seventeen in

less than an hour, all the time I had to spare) was on July 16th, 1952. Included in this was the lovely green variation referred to in Cockayne and Williams paper (*Ent. Gazette* 7: 70). Of course Galway City is a lot further north, but I usually found insects there in past days and recently opposite in the Burren of Clare, little behind Cork and Kerry ones. I fancy if Mr. Haynes had worked for *muralis* there at least a month earlier, he would have had more luck.

In the Isles of Scilly *muralis* is earlier still, it is on the wing as a rule at the beginning of July and in the very early year of 1959 was well out on Tresco in the last week in June.

I have not worked for the moth much in England, but I found it commonly at Lyme Regis from July 20th to 24th, 1934.

Mr. Haynes does not mention to what form his Galway specimen and Mr. Bullock's three belong. Except for that taken by Mr. Haynes no authentic Galway ones can now be traced, and as all Irish specimens so far can be referred to various forms of s.sp. *westroppi* C. & W. the identity of these is of great interest.

I do hope, however, that Mr. Haynes will get some more from Flesk, I was of course unaware of these unrecorded specimens till he recently wrote to me. It is a pity that they have remained so since 1927, and it is to be hoped that their captor (as moths are not his primary interest) labels his insects on the spot. Flesk was a favourite collecting ground of that most energetic collector, Dr. B. P. Beirne, and it is odd he never took it there.

Further Notes on *Euspilapteryx (Gracilaria) pyrenaeella* Chretien

By S. WAKELY

In 1960 I recorded the breeding of a single specimen of this local moth (*Ent. Rec.*, 72: 247-8) from maple leaves sent to me by J. Lobb. As this insect was bred from leaves collected in July—a month late according to L. T. Ford's original note on his discovery of this species in 1933—I was only too glad to accept Mr. Lobb's invitation to spend a weekend with him at the beginning of June, 1961, with the object of trying to find out more about this species in the Isle of Wight.

Accordingly, we were both able to make a search of the maples in the vicinity of his house at Cranmore. Larval spinnings ("cones") were at first difficult to find, but later we found some trees where cones were not only easy to procure, but fairly common as well. Many spinnings occur out of reach on the higher branches, which fact allayed our fears that we might be over-collecting such a local moth. The next day we collected again and were joined by W. Cameron, a neighbour, who showed us more maples growing near by. Once again, the "cones" were fairly common, although they were not seen on every tree examined.

Returning to London later that day, I wondered how many *pyrenaeella* would emerge from the material collected, and I had great hopes of getting a few, at least, among the *Caloptilia semifascia* Haw., which I expected in view of the numbers of that species bred the previous year from this locality.

The next day some of the larvae were seen to be spinning up in their opaque cocoons on the leaves. The first moth appeared exactly a week later, and proved to be *pyrenaella*. The amazing thing is that all those that emerged later were this species! In all, I bred 22 specimens. Three small lots of spinnings had been sent to friends, who all reported that *pyrenaella* only had emerged. Apparently the leaves had been collected too early for *semifascia*, the larvae of which can be found in July, and again in September in the Isle of Wight.

The fairly small number which emerged is explained by the fact that 60 or 70 per cent. were parasitized. On opening the cones it was found that a small white cocoon was present in most of them. These cocoons were the usual cylindrical shape with rounded ends but were suspended at each end by a thread of silk. Having frequently bred *Parascotia fuliginaria* L. in the past, I was reminded of a great similarity in this peculiar way of spinning the cocoon.

Recognizing the parasites as *Apanteles*, some were sent to R. L. E. Ford, who has studied this group for years. He was able to determine the species as *Apanteles laetus* Marshall, a species which also attacks *semifascia*.

To me it seems extremely likely that *pyrenaella* will be found in other places along the south coast as well as in other parts of the Isle of Wight. Entomologists interested should look for the characteristic spinnings on maple (*Acer campestre*) during the first week of June. The "cone" appears to be similar to the one constructed by *semifascia*, but the earlier date should separate them.

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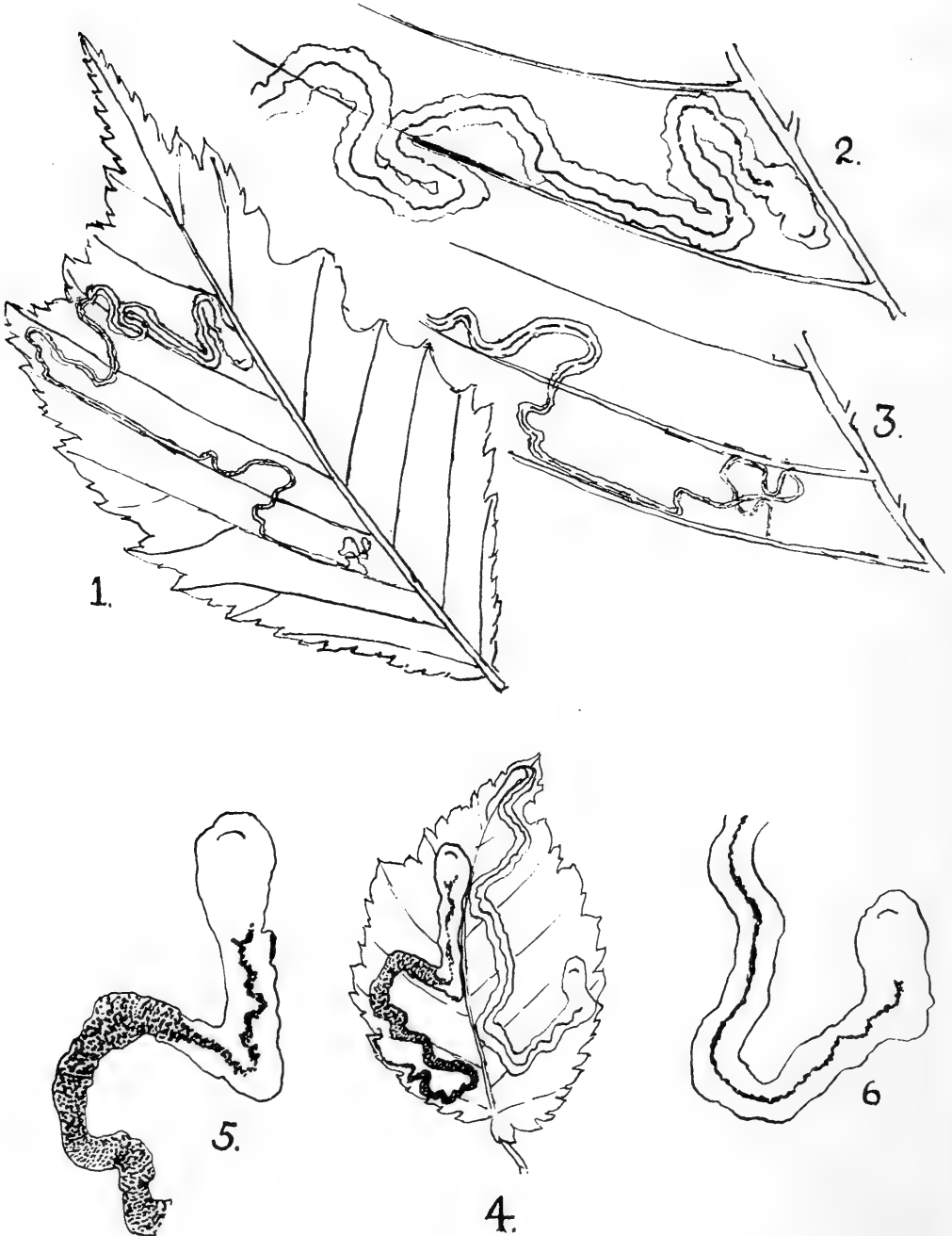
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LYMAN ENTOMOLOGICAL MUSEUM.—In December 1914, the H. H. Lyman Bequest established a collection of insects and an entomological library in the Redpath Museum on the McGill Campus of McGill University, Montreal. For various reasons the Lyman collections remained isolated spatially from the Entomology Department of the University. On 26th December 1961, however, the collection and library were moved to more spacious quarters, to be known as the Lyman Entomological Museum, in the Department of Entomology and Plant Pathology on the Macdonald College Campus near Ste Anne de Bellvue, Quebec. The Macdonald College collections have now been amalgamated with those from Montreal and the first full-time curator has been appointed. It is hoped that a new era of expansion and usefulness has begun. The collections are not large by international standards, although comprising several hundred thousand specimens. Lepidoptera and American Heteroptera are strongly represented and there is fair representation of most other orders although not, so far, of Orthoptera, the smaller orders or groups containing small insects. Donations (particularly of groups which are poorly represented) would be welcome from any part of the world, but it is hoped to build by exchange also. Enquiries should be directed to V. R. Vickery, Curator, Lyman Museum, Macdonald College P.O., P.Q., Canada.—D. K. McE. KEVAN, Chairman, Lyman Bequest Committee.

Stigmella ulmifoliae Hering, A Species New to Britain

By S. N. A. JACOBS

Among the collection of Nepticulid mines which I had sent to Mr. Carolsfeld-Krausé of Copenhagen (*antea*: 41-43) was one which has been returned to me determined as *Stigmella (Stigmella) ulmifoliae* Her., a species not previously recorded from Britain.



The mine is a long slender gallery, contorted at first and then tending to run in straight stretches along the leaf ribs then crossing to another rib. At first the sides are very evenly eaten so that they are almost parallel, but latterly they are not so cleanly eaten, and while running generally parallel, the sides are jagged instead of straight. This mine cannot be confused with any other elm mine because of the very distinctive fine black central frass line which runs smoothly along the middle of the mine until the last few millimetres before the chamber, where it becomes slightly irregular. The frass line in this species may easily be traced with the aid of a pocket lens, from the very beginning, and in the first part of the mine it may be seen as fine dashes with short breaks, but very soon it settles down to an almost continuous line.

I took the mine among leaves of sucker elm bushes at the roadside near Stratford on Avon, Warwickshire, in September (12.ix.1950) but unfortunately failed to breed the imago. The leaf of *Ulmus campestris* (Fig. 5) contained on the one side of the mid-rib, a mine of *Stigmella ulmivora* Fologne, and on the other side *Stig. ulmifoliae* Her., and enlargements of the final portion of each mine are shown at Fig. 4 and Fig. 6 respectively. Unfortunately the early part of the *ulmifoliae* mine was concealed by the leaf folding near the tip, where the egg was deposited, in pressing. However, my good friend lent me a Danish example on *Ulmus glabra* Huds. which is the subject of Fig. 1, while Fig. 2 and Fig. 3 show early and late parts of the mine, enlarged to show the frass line.

A dictionary translation of the reference in *Die Blattminen* M. Hering, 1935-37:543, following the key, may be considered to run as follows: 8: The frass in the mine throughout in a fine black central line (Fig. 485): *Nepticula ulmifoliae* Her. (Lep.) Egg deposited on the underside of the leaf on a rib. Mine long and slender, gradually widening, the edges at first very regular but later often eaten out in a jagged way. Mine mostly straight often lying for a long time along a leaf rib, rarely tightly winding, larva green.

54 Hayes Lane, Bromley, Kent. 2.iv.1962.

A New Aberration of *Precis clelia* Cramer

By I. R. P. HESLOP

The specimen in question was caught by myself in the government station at Owerri, Southern Nigeria, during my first tour of service. At the time I thought I should defer my judgment on it, but I can say now, that, of the many thousands of this common species that I must have seen during my twenty-three years service, I never saw another one like this.

The females of this species have a paler ground colour than the males, but I should mention that this specimen, a female, has the ground colour considerably lighter—without in any way having a pathological appearance—than the normal female. I have taken specimens of both sexes with pallid or "bleached" hindwings, without, however, the blue patches being affected.

On numerous occasions in Southern Nigeria—e.g. at Arochuku,

Okigwi, Obetim and Meko—I saw a single specimen, among the many flying of this pretty species, which had the blue patch of the hindwing extended: in one or two cases even so far as to cover nearly the whole of the wing, but I never had a net available at the time.

The formal description is as follows:—

***Precis clelia* Cramer ab. *caeruleffugiens* ab. nov.:**

The ground colour of both forewing and hindwing on the upperside is considerably paler than is normal for the sex concerned. The eye-spots consequently stand out very boldly. The normal blue patch of the hindwing is totally absent, being replaced by the ground-colour. The type specimen—a female taken at Owerri, Nigeria, on 21st June, 1930—is in my collection: its underside is not significantly different from normal. It has my serial number D.343.

“Belfield”, Burnham-on-Sea, Somerset. 30.iii.1962.

Notes and Observations

GONEPTERYX RHAMNI IN DEVONSHIRE.—I saw three male *Gonepteryx rhamni* flying in a lane about two miles from here on April 13th. At the time, about 12.30, the shade temperature was 50° F.—F. H. LYON, Sampford Peverell, Tiverton, Devon.

THE DIARY OF A TYRO.—I was very interested to read Mr. Redfern's article in the March issue of the Record. On consulting my diary I find that I was in Hell Coppice on 11th May 1961, three days before Mr. Redfern, and saw a web of larvae of *Eriogaster lanestris* L. on some sloe bushes. If these were the same batch that Mr. Redfern observed, I am sorry to learn that they subsequently disappeared.

As regards *Euphydryas aurinia* L., I am afraid Mr. Redfern was a few years too late to find this species in the Hell Coppice area. In 1944 and 1945 the colony was flourishing, and extended over a wide area in Hell Coppice and the neighbouring woods. In May 1953, I visited the area, and found that the colony had become restricted to one small marshy field next to Hell Coppice (probably the spot where Mr. Redfern was looking for it), though it was still abundant and I have seven specimens I took at that time. The following week, a friend of mine who was also a collector, visited the colony, and found a horde of school-boys swotting every specimen of *aurinia* within sight, with nets, caps and coats. It transpired that they were members of the “Natural History Society” of a local school. I have repeatedly looked for *aurinia* in that locality since then, and have not seen a single specimen.

Would it be feasible to re-establish the colony by releasing fertile females? To all appearances, much of the habitat has not changed over the past 10 years, and the foodplant is very common there.—R. G. AINLEY, 15 Eldon Square, Reading, Berks 1.iv.1962.

years, exhibiting varying degrees of melanism (C.-H.). In R.C.K. is an example of ab. *giraffina* Hb., bred Ashford, 1935.

FIRST RECORD, 1856: Shooters Hill (Crewe, *Ent. week. Int.*, **1**: 123).

Odontosia carmelita Esp.: Scarce Prominent.

Native. Woods (apparently preferring birch woods where the trees are scattered amongst heather); on birch, beech. Local and fairly scarce.

1. Birch Wood (Anon., *Ent. Mag.*, **3**: 310); one, April 25, 1841 (Lambert, *Entomologist*, **1**: 128); one, April (1845), taken by J. Standish (Douglas, *Zoologist*, 1042). West Wickham, one, 1853, one, 1854 (Machin, *Zoologist*, 4562); there are records of over twenty specimens taken here subsequently up to 1908, but it has apparently not been noted since (cf. *Ent. week. Int.*, **1**: 44, **2**: 43, 85, **4**: 59, **8**: 51; *Ent. Ann.*, 1858: 100; *Zoologist*, 4740, 5148, 5209; *Entomologist*, **3**: 87, **14**: 181, 263, **27**: 320; *Ent. Rec.*, **9**: 154); one, April 19, 1863 (Fenn, *Diary*); one, May 4, 1868 (Stockwell coll.); 1908 (Nottle, *vide de Worms, Lond. Nat.*, 1953: 119). St. Paul's Cray, larva (A. H. Jones, in *Wool. Surv.* (1909)). Chislehurst, a larva (Fenn, *teste* Buckle & Prout, *Trans. Uy. Lond. ent. nat. Hist. Soc.*, 1898: 61), may refer to the preceding occurrence (C.-H.). Bexley district (L. W. Newman, in *Wool. Surv.* (1909)). Keston, two ♀♀, May 7, 1904 (E. Nottle coll.).

6. Gravesend, ♂ on street lamp, April 25, 1920 (F. T. Grant). Pinden, one, April 28, 1952, one in m.v. trap, May 10, 1956 (E. J. Hare).

6a. Darenth Wood (Stephens, *Haust.*, **2**: 28); May 1855 (Harding, *Zoologist*, 4820). Dartford* (*V.C.H.* (1908)).

7. Chilham*, one, May 4, 1914, two, April 15, one, April 18, three, April 20, 1920 (H. G. Gomm coll.).

10. Seal Chart (Carrington, *Entomologist*, **13**: 79). Brasted, ova on birch (R. M. Prideaux). Crockhamhill, near Westerham, two at light, May 1, 1946 (R. C. Edwards)..

11. Watringbury, one larva by E. Goodwin, which fed on beech in preference to birch, and ten others by W. A. Cope and T. Blest, all taken August 1903, crawling up beech trunks (Goodwin, *Entomologist*, **36**: 288 and W. A. Cope); several (E. Goodwin coll.). Two, labelled "Bred 7.4.06 Mid Kent", and one, "Bred 9.4.06 Mid Kent", given me by G. L. Keynes, probably came from Goodwin, and originated from Watringbury (C.-H.). Sevenoaks Weald, two ♂♂, at m.v., April 24, 25, 1960 (E. A. Sadler).

12. Ham Street Woods.—♂, May 5, 1934, two ♂♂, April 27, May 4, 1935 (A. M. Morley); one, E. Scott, April 27, 1935, one, by A. G. Peyton, May 26, 1935 (A. M. Morley); about six taken 1935 (Scott (1936)); ♂ taken by W. Stickles, May 1, 1937 (A. J. L. Bowes); ♂, April 25, ♂, May 5, 1939, ♂, May 7, 1956 (C.-H.); one, May 1, 1939 (C. G. M. de Worms); two, April 29, four, April 30, 1955 (P. B. Wachter); two, May 8, 1956 (D. G. Marsh); three, 1957 (P. Cue). Note: So far as I am aware, all Ham Street *carmelita* have occurred along or near the southern or eastern edge of Long Rope, and were at light (C.-H.).

14. Tenterden, one, 1959 (C. G. Orpin).

FIRST RECORD, 1828: Darenth Wood, two about sixteen years back (i.e., c. 1812) (Stephens, *Haust.*, **2**: 28).

Ptilophora plumigera Schiff.: Plumed Prominent.

Native. Woods and hedges on chalk; on maple, sycamore. Local, but doubtless distributed in many more places in the downland areas of 6, 7 and the western portion of 8, than the records show. The principal pabulum is maple, and in only one locality (Well Shave Wood, near Wye) is it known to occur on sycamore.

1. Birch Wood, larvae found by J. Standish (Curtis, *Br. Ent.*, 328). Blackheath (West, *Ent. Rec.*, 18: 200).

6. Gravesend, two, November 2, 1907, one, November 30, 1908, all on street lamps (H. C. Huggins). Otford, larva; Trottescliffe, larva (W. A. Cope). Wrotham, a larva (E. Goodwin, *teste* Goss, in *V.C.H.* (1908)). Eynsford, three larvae, beaten from maple, 1912 (S. F. P. Blyth). Shoreham Rifle Range, thirty-six ♂♂ at light, November 23, 1937 (D. G. Marsh); nine larvae beaten from maple in about two hours, June 14, 1951, and twenty beaten in one day a few years previous to that (W. A. Cope); three ♂♂, at light, November 13, 1955 (C.-H.).

6a. Darenth Wood (Stephens, *Haust.*, 2: 29). Chattenden, imago taken by A. B. Farn (H. Goss, in *V.C.H.* (1908)).

7. Between Luton and Great Cowbeck Woods, ♀, November 23, 1856 (Chaney, *Substitute*, 89). Bluebell Hill, a larva (W. A. Cope). Chilham*, 1914 (H. G. Gomm). Westwell, singletons, November 2, 10, 15, 1935, taken by E. Scott, C. G. M. de Worms, A. M. Morley, two at lighted window, November 14, 1946 (A. M. Morley); annually, also larvae from maple, June 5, 1948 (Scott (1950)) (E. J. Hare).

8. Folkestone*, 1892 (Austen, *Proc. Folkestone nat. Hist. Soc.*, 1892: 26). [Eastry] ♀, at light, December 2, 1904 (Lister, *Ent. Rec.*, 17: 22). Reinden Wood, a larva on maple, June 14, 1938 (A. M. Morley). Brook, one, 1930, one, 1934 (Scott (1936)); bred from larvae, 1936 (C. A. W. Duffield, *teste* E. Scott); ♂, at light, November 10, 1934 (A. M. Morley); ♂, October 24, 1939 (C.-H., *Entomologist*, 72: 22); ten, November 13, 1960 (de Worms, *Entomologist*, 94: 165). Wye Old Race Course, ♂, October 31, 1937 (E. Scott); nearly forty taken by various collectors, November 1937 (A. J. L. Bowes); over forty (apparently all ♂♂) taken by various collectors in Well Shave Wood at light, November 1938, five larvae beaten by me from sycamore in two hours, June 4, 1948 (C.-H.); one, November 26, 1960 (R. G. Chatelain). Crundale, a larva, June 9, 1946 (H. King). Waltham, four ♂♂, at light, 1954 (J. W. C. Hunt). Hastingleigh, larvae on maple, 1954 (B. K. West). Near Barham, one, December 2, 1945 (E. & Y. (1949)). Wye*, one taken January 1, 1948, by C. A. W. Duffield (E. Scott).

12. Wye, seven, November 7-25, 1953, four, November 4-25, 1954, ten ♂♂, November 4-21, ♀, November 11, 1955, thirty, November 10-21, 1956 (W. L. Rudland).

[13. Broadwater Down (Given (1946)).]

VARIATION.—East Kent (Wye, Brook, Waltham, Hastingleigh, Westwell) ♂♂ have pale reddish-ochreous (less ochreous and more rust-red in some specimens) nearly *unicolorous* forewings, hindwings paler; West Kent (Shoreham) ♂♂ are very distinct from the foregoing, with forewings *variegated* with brownish-rust, grey, and ochreous, and have pale greyish hindwings. ♀♀ from East and West Kent appear indistinguishable except that the latter are a trifle darker and have a slightly more variegated forewing (C.-H.).

The following abs. are in R.C.K.:—*flavescens* Smith, ♂, bred 1905, from "Kent parents", ♂, Shoreham, 1903, two ♂♂, N. Kent, 1905; *variegata* Vill., several ♂♂, bred N. Kent, 1911; *saturationior* Rebel, ♂, Wye, 1937, ♀ ♂, N. Kent, 1904, 1905, ♂, 3 ♀♀, Shoreham, 1902-3, ♀, bred, "Bexley, 1904"; *obscurior* Schwing, ♀, N. Kent, 1904, ♀, Shoreham, bred 1902; *nigricans* Smith, ♂, bred, "Bexley, 1911"; *unicolor* Smith, ♂, bred N. Kent, 1905, two ♂♂, bred N. Kent, 1911.

FIRST RECORD, 1828: "Far from common; but met with nearly annually in the larva state at Darenth-wood . . ." (Stephens, *Haust.*, 2: 29).

Pterostoma palpina Clerck: Pale Prominent.

Native. Woods, marshes; on poplar, aspen, sallow. Found in all divisions, except 9. Not uncommon; frequent in the woods of the Weald.

First generation moths appear in May and June; those of the second brood (perhaps partial only) in late July and August.

Ova have been found on aspen, at Brasted (R. M. Prideaux); on poplar leaves, Chevening, May 25, 1912, imagines reared, August 1912, April 1913 (Gillett, *Diary*). Larva on sallow, West Wickham (Huckett, *Ent. week. Int.*, 10: 117); on black poplar, West Wickham (Meek, *Ent. mon. Mag.*, 1: 191); on willow, Tonbridge, small numbers, 1951 (H. E. Hammond).

VARIATION.—A ♂ and ♀, taken Ham Street, May 1950 and May 1951 respectively, show definite melanic tendencies, the ♀ in particular being somewhat dusky (C.-H.).

According to Seitz (*Pal. Bomb. & Sphinges*, 308), second brood specimens are smaller than those of the first brood, and of a "light straw-colour". Despite this statement, however, I cannot find any distinguishing features at all to separate first and second generation specimens in my series from various Kentish localities (C.-H.).

FIRST RECORD, 1828: Birch and Darneth Woods (Stephens, *Haust.*, 2: 28).

Phalera bucephala L.: Buff-tip.

Native. Woods, plantations, bushy places, etc.; on lime, oak, sallow, poplar, birch, elm, hazel, apple. Found in all divisions. "Generally abundant" (*V.C.H.* (1908)).

Apparently single brooded, with a continuous emergence from May to August. Fairly common at light, and occasionally seen on walls, fences, and on tree trunks pretending to be broken twigs.

The species is much more often seen as a larva, which in towns seems to show a preference for lime, but in rural districts is perhaps most frequently noted on oak, sallow, poplar and birch; it has also been found feeding on hazel by B. O. C. Gardiner, at Dover, and on apple as well as hazel, by A. M. Swain, at Petts Wood. Sometimes the larvae have been noted in vast numbers; thus for example, Newman (*Br. Moths*, 221) recorded that in his neighbourhood [New Cross], they were collected as food for poultry; C. R. Haxby and J. Briggs saw them in hundreds, on August 16, 1960, stripping a sallow tree on Romney Marsh; and A. M. Morley states that they swarmed (in September 1929) on small elm trees, on the Canterbury Hill, Folkestone, a great many of which were collected by L. W. Newman.

VARIATION.—The following two abs. are in R.C.K.:— *tenebrata* Strand, one, N. Kent, 1915; *tenebricosa* Stertz, one, bred Bexley, 1940. Also, a remarkable "double forewing", found by H. G. Webster, in Hurst Woods, Bexley, July 11, 1919 (the other wings could not be found, so that it was "evidently the work of a bat").

FIRST RECORD, 1858: Lewisham (Perkins, *Ent. week. Int.*, 4: 141).

***Clostera curtula* L.:** Chocolate-tip.

Native. Woods, parks, etc.; on aspen, poplar, willow. "Scarce" (*V.C.H.* (1908)). "Probably more frequent in Kent than anywhere else" (Barrett, *Br. Lep.*, 3: 169).

1. Near Eltham, larvae (Crewe, *Ent. week. Int.*, 1: 60). Lewisham (Perkins, *Ent. week. Int.*, 4: 141). Charlton (Jones, *Ent. week. Int.*, 6: 67). Farnborough, larvae (Alderson, *Ent. Rec.*, 12: 248). Bromley (*V.C.H.* (1908)). West Wickham (*V.C.H.* (1908)); third brood (Edwards, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1947-48: 25); 1947 (R. Birchenough). Shooters Hill; Holwood*; Keston; Greenwich Park; Mottingham (*Wool. Surv.* (1909)). Bexley (*Wool. Survey.* (1909)); ♂, 1946 (B. K. West); two, May 3, 1952 (A. Heselden). Chislehurst, larvae, August-September 1928, August 1929 (S. F. P. Blyth). Farningham Wood, larva, September 11, 1937 (A. R. Kidner). Petts Wood, frequent, 1947-48; one, 1949, none, 1950 (A. M. Swain); larvae, c. 1955 (R. G. Chatelain). Orpington, one, 1956 (R. G. Chatelain). Petts Wood, St. Mary's Cray and Orpington, 1947-57 (L. W. Siggs, in de Worms, *Lond. Nat.*, 1958: 43). Bromley, 2 larvae, on aspen, June 6, 26, 1949 (D. Lanktree). Petts Wood, larva on white poplar, August 23, 1959; Crofton, larva on aspen, August 28, 1960 (D. R. M. Long).

2. Green Street, near Faversham* (R.C.K.). Abbey Wood Marshes, 1947 (A. J. Showler).

3. Near Canterbury*, larvae on willow (Vaughan *in litt.*, teste Knaggs, *Ent. Ann.*, 1866: 152). Chestfield, two, August 17, 1939 (P. F. Harris). Herne Bay, ♂, May 22, 1953; Blean Woods, one at light (D. G. Marsh).

5. Westerham (R. C. Edwards).

6. Greenhithe (A. B. Farn MS.). Harvel, larvae, August 29 and September 24, 1938 (F. T. Grant).

6a. Darenth Wood (Harding, *Ent. week. Int.*, 1: 76) (H. C. Huggins); larvae, 1939 (Attwood, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1939-40: 40). Lords Wood, scarce (E. J. Hare).

7. Boxley, 1953 (A. H. Harbottle).

8. Walmer (E. & Y. (1949)). Dover, larvae on poplar, September 15, 1943, from which two imagines reared (B. O. C. Gardiner).

10. Brasted, ova (R. M. Prideaux); larvae, September 28, 1912, larva, 1913, larva, 1914 (Gillett, *Diary*). Sevenoaks (Gillett, *Entomologist*, 53: 23).

11. Tonbridge (Rattray, *Entomologist*, 45: 80); 1947 (D. Lanktree). Hoads Wood (Scott (1936)); one larva, August 28, 1947 (Bull, *Diary*); three, May 14, 1956 (W. L. Rudland). Aylesford (G. A. N. Davis). Bethersden, three, August 15-20, 1960 (C. R. Haxby & J. Briggs). Sevenoaks Weald, larvae on willow, July 14, from which an imago emerged August 1, 1959 (E. A. Sadler).

12. Ham Street, two ♂♂, May 1933, two ♂♂, May 1934 (A. M.

Morley); July 24, 1934, May 3, 1937 (A. J. L. Bowes); two, May 9, three, May 14, 1939, one, May 25, 1947, nine, May 12-13, 1951, all ♂♂ at light in Long Rope (C.-H.); 1958-59 (de Worms, *Entomologist*, **92**: 69, **93**: 158); four, May 6, 1960 (R. G. Chatelain). Ashford, May 11, August 12, 1953 (P. Cue, *teste* E. Scott). Brook* (C. A. W. Duffield, *teste* E. Scott). Wye* (Scott (1936)). Wye, two, 1953, one, 1954, one, 1955; Willesborough, two, 1954, two, 1956 (W. L. Rudland).

13. Tunbridge Wells, larvae, 1911-12; Bidborough, 1912; Groombridge (E. D. Morgan). Goudhurst, two, 1953 (B. G. Chatfield); fairly common at light (W. V. D. Bolt). Tunbridge Wells, one, 1959 (L. R. Tesch, *fide* C. A. Stace); three, 1959 (C. A. Stace).

14. Appledore, a larva on poplar, September 15, 1932; Benenden, larvae, October 3, 1938 (Bull, *Diary*). Hawkhurst, three at light, 1953 (B. G. Chatfield).

16. Lower Sandgate Road, Folkestone, larvae on balsam poplar, autumn 1862 (Briggs, *Entomologist*, **14**: 133); larva (Ullyett (1880), 9). Folkestone* (Ullyett, *Simpson's Handbook to Folkestone* (1871)), may be the basis of the preceding record (C.-H.). Folkestone Town, a larva on poplar, September 28, 1935; one at light by A. G. Riddell, June 1951; ♂, ♀, by R. W. Fawthrop, 1954; one, May 5, 1952, ♂, ♀, May, 3 ♂♂, August 1953, 2 ♂♂, August, ♂, September 19, 1954, ♂, July 31, 1957 (A. M. Morley).

VARIATION.—Robinson (*Ent. Rec.*, **2**: 36; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1890-91: 109) records a striking aberration, *webbiana* Rebel, having forewing deep greyish chocolate with three transverse white stripes, six specimens of which were obtained by Bird in 1876, from George Ray of Sittingbourne.

In R.C.K. are the following abs.:—*rufescens* Lempke, several, Bexley; *brunnescens* Lempke, four; *webbiana* Rebel, seven, bred "Green Street near Faversham", one, bred, N. Kent, June 1900. Also, a most remarkable specimen, being a gynandromorph, right side ♀, ab. *brunnescens* Lempke, left side ♂, ab. *webbiana* Rebel, bred Green Street near Faversham (it appears that this was the specimen exhibited at the National Entomological Exhibition, Royal Aquarium, Westminster, March 9-23, 1878, and figured in *Entomologist*, **11**, plt. 2, fig. 1 (C.-H.)).

FIRST RECORD, 1856: Near Eltham (Crewe, *Ent. week. Int.*, **1**: 60).

C. anachoreta Schiff.: Scarce Chocolate-tip.

Probable immigrant. Plantations, etc.; on *Populus*, *Salix*. Only recorded from E. and S.E. Kent (div. 4, 8, 12, 15, 16), and mainly coastal. Perhaps temporarily established in the Folkestone area between 1858-64.

1858-1863.—Newman (*Zoologist*, 7681-2) wrote:—"This beautiful larva was first found by my friend, Mr. Sidney Cooper, feeding as he believes on *Salix caprea* (sallow) . . . Mr. Cooper only took two specimens, not being aware of the value of his capture until the perfect insect emerged". Cooper (*Entomologist*, **21**: 112) recording the circumstances of his capture, observed that in 1859, "specimens were obtained by me from larvae which fell to my net whilst beating the shallows in a field near Saltwood, in Kent" (div. 16). According to Barrett (*Br. Lep.*, **3**: 171), Cooper took his larvae in June 1858.

In June 1859, H. G. Knaggs found eleven larvae feeding on Ontario poplar in one of the plantations along the Lower Sandgate Road, Folkestone (div. 16), ten of which reached the imago state the same year. Altogether eleven *anachoreta* were bred by Knaggs in 1859, one emerging from "a pupa found by a friend" (Knaggs, *Zoologist*, 6733; *idem*, *Proc. ent. Soc. Lond.*, 1859: lxxvii; *idem*, *Ent. week. Int.*, 6: 204; *idem*, *Q'tly. J. Folkestone nat. Hist. Soc.*, 1869 (4) 73; *idem*, *Ent. Ann.*, 1864: 130; Barrett, *Br. Lep.*, 3: 171)¹

T. H. Briggs (*Entomologist*, 14: 133-4) records that in September 1861, his father found a larva of *anachoreta*, "feeding on poplar in some small plantations below Westcliff, Folkestone" (div. 16); and that in the autumn of 1862 at this locality, he and his brother, C. A. Briggs, found twelve larvae, and a further larva there in October 1863. In the same communication, it is stated that in the latter month, the Briggs brothers turned down eighty-four full-fed *anachoreta* larvae at various places on these plantations, but that they never saw the species again there, although they were at Folkestone every autumn up to the time of writing (May 1880). Auld (*Entomologist*, 26: 114) suggested its disappearance was due to the effect of a terrific gale which took place on December 19, 1863, and which according to the *Folkestone Chronicle* of that date, "blew the plantations to smithereens", and on to the beach. C. A. Briggs (*Entomologist*, 21: 90) states that four species of poplar grew in these plantations: the white, black, the Lombardy, and the balsam, but that *anachoreta* was confined to the balsam poplars.

A larva was found at Folkestone by J. Sidebotham, in June 1863, "very near the place" where Knaggs took his (Sidebotham, *Zoologist*, 8694; Knaggs, *Ent. Ann.*, 1864: 127); and in mid July 1864, two larvae were found feeding upon Ontario poplar, by E. Meek, in one of the plantations on the Lower Sandgate Road, Folkestone (Meek, *Ent. mon. Mag.*, 1: 123).

1875-1912.—1876: Deal, one emerged, May 8, from a pupa found by S. Norman "behind the loose bark of a pollard willow, no poplar being near" (Norman, *Entomologist*, 9: 232, 14: 160). [1876]: Two imagines found on pavement [at Deal] by Mr. Harbour (Norman, *Entomologist*, 9: 232). 1878: "In 1888, a single example of *C. anachoreta* (and a variety too) was bred from a cocoon found upon a wall at the back of the Folkestone Road, Dover" (Webb, *Entomologist*, 26: 79). 1900: "Folkestone, bred 1900", numerous specimens so labelled (R.C.K.). 1901: Walmer, over forty ova, in two clusters, found by G. Murray, on balsam poplar in June, from which he bred a series (Bloomfield, *Ent. mon. Mag.*, 37: 276). 1902: One, "Folkestone, bred 1902, E.G." (R.C.K.). 1906: One, "Ashford, 1.v.06" (R.C.K.). 1907: Romney (div. 15), one bred by C. Holmes in 1907, from larva found at Romney (Symes, *Ent. Rec.*, 74: 67). Minster (div. 4), J. W. C. Hunt showed me a ♂, which his brother, R. P. A. Hunt, took at rest on a tarred fence outside Minster railway station, August 1908 (C.-H.). Hythe, one bred by C. Holmes, in 1908, from a larva found at Hythe (Symes, *Ent. Rec.*, 74: 67)². 1910: I have 2 ♂♂, 2 ♀♀, from the late W. Quibell coll., labelled as from "Dr. Heath's stock, A. E. Wright", and bred, Lydd (div. 15), April 19, 24 (two), 28, 1910 (C.-H.). 1912: Deal neighbourhood, from two larvae found September 1912, two imagines emerged, spring 1913 (Browne, *Entomologist*, 49: 67).

1951-1953.—1951: Dover, ♂, taken at light, August 8, by G. H.

Youden (Youden, *Entomologist*, **84**: 261; *idem*, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 47). 1953: Lydd, ♂, taken at light, August 9, by G. F. Johnson (Johnson, *Ent. Rec.*, **65**: 291).

VARIATION.—The only example of variation in this species known to me, is that mentioned by Webb (*Entomologist*, **26**: 79) as bred in 1888, but of which he unfortunately gave no description (C.-H.),

FIRST (PUBLISHED) RECORD, 1859: Knaggs (*Zoologist*, 6733).

¹The genuineness of Knaggs' *anachoreta* was questioned by the Rev. Joseph Greene, and some animated correspondence ensued, *vide Entomologist*, **14**: 117, 133, 160, **21**: 31, 90, 112, **26**: 40, 76, 79, 111, 114, 136, 163, **29**: 163.

²Referring to the two *anachoreta* which Holmes gave him, H. Symes (*in litt.*) writes: "I am quite sure that they are not the only ones Holmes had, but that there was a series of bred specimens in his collection. I am almost certain that he told me he had found the larvae not by chance discovery, but by deliberate search in an area where it was well known the species formerly occurred".

C. pigra Hufn. (**reclusa** F.): Small Chocolate-tip.

Native. Woods, plantations, commons, carr; on *Populus* (apparently mainly on *P. tremula*, and with a marked preference for very young trees), *Salix*.

Obs.—The species seems to have a natural diurnal flight. Thus, at Long Rope, I took a ♀, which was flying rapidly in the late afternoon sun, June 1, 1950; and in the same locality, M. Singleton took a ♂ in May 1960, which was "flying in daylight" (C.-H.).

1. Birch Wood (Stephens, *Haust.*, **2**: 13); larvae on "dwarf poplar", 1841 (Douglas, *Entomologist*, **1**: 358). Crown Woods, near Shooters Hill, larvae on aspen, June 23, 1855 (Crewe, *Zoologist*, 4953). West Wickham, larvae on willow, June 17, 1865 (Cole, *Ent. Ann.*, 1866: 152); larva, 1948 (de Worms, *Lond. Nat.*, 1953: 120). Bexley (*Wool. Surv.* (1909)); larvae, 1911-12 (A. R. Kidner) (L. T. Ford). Sidcup, larvae, September 19, 1915, 1918, larvae on willow, September 24, 1927; imago, May 24, 1930; St. Pauls Cray Common, larvae on poplar, September 28, 1910, September 2, 1911 (A. R. Kidner). Chislehurst, larvae (S. F. P. Blyth). Farningham Wood, larva, September 11, 1937 (A. R. Kidner). Petts Wood, 1947, frequent larvae on aspen (A. M. Swain); two, 1947, two, 1948; all at light (E. Evans). Sparrow Common (Haynes, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1950: 88).

3. Near Canterbury*, larvae on poplar, September 1865 (Vaughan, *Ent. Ann.*, 1866: 152); Blean Woods, nineteen larvae on small aspens, June 23, 1928 (A. M. Morley). Mincing Wood, larvae common on aspen, June 1933, 1936; also on willow (A. J. L. Bowes). Honey Wood, three larvae on aspen, June 12, 1947 (C.-H.).

4. Deal* (E. & Y. (1949)). Ham Fen, a larva on mature aspen, 1955 (C.-H.). Ickham, one, at m.v., August 1, 1959 (D. G. Marsh).

5. Westerham (R. C. Edwards).

6. Greenhithe* (Farn MS.).

6a. Darenth Wood (Stephens, *Haust.*, **2**: 13); 1860 (Huckett, *Ent. week. Int.*, **10**: 51); larvae plentiful on poplar, September 1909; larvae, September 25, 1910 (A. R. Kidner); fifteen larvae, on aspen, October 4, 1924 (F. T. Grant) (L. T. Ford).

8. Reinden Wood, four larvae on "dwarf aspen", July 7, 1928; 1930 (Morley (1931)). West Wood, five larvae on young poplars, June 24, 1932 (A. M. Morley).

11. Wateringbury, scarce (*V.C.H.* (1908)). Benenden (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1940-41: 15). Hoads Wood (Scott (1936)); larvae on willow, 1953 (P. Cue). Aylesford (G. A. N. Davis).

12. Ham Street (Scott (1936)); imagines at light, April 13, 1938, May 12, 1951; larvae fairly numerous on young aspens in Birchett and Long Rope, May 1946, May 1947, from which imagines emerged in July 1946 and July 1947 respectively (C.-H.); four, May 6, 1960 (R. G. Chatelain). Brook, larvae, August 1948 (C. A. W. Duffield, *teste* E. Scott). Ashford (Scott (1950)).

13. Pembury (Stainton, *Man.*, 1: 127). Tunbridge Wells, common (E. D. Morgan).

14. Marsh Quarter near Sandhurst, larvae, June 8, 1943 (Bull, *Diary*).

16. Folkestone, larvae on balsam poplar, autumn 1862, on Lower Sandgate Road (Briggs, *Entomologist*, 14: 133) (Ullyett, *Simpson's Handbook to Folkestone* (1871)) (Ullyett (1880), 9).

VARIATION.—My series of second generation specimens are quite distinct from those of the first; the second brood examples being altogether paler, and with a somewhat washed-out appearance, whereas those of the first are richly coloured and brightly marked (C.-H.).

Sich (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1906-07: 65, 66) exhibited a "very beautiful and strongly marked form", and included a lengthy description of the specimen; it was bred from a larva taken from aspen, Chislehurst, September 16, 1905.

HYBRIDIZATION.—Hybr. *proava* Standf. (*C. curtula* ♂ × *C. pigra* ♀). In R.C.K. are numerous specimens from Kent, but these are probably artifacts.

Hybr. *inversa* Tutt (*C. pigra* ♂ × *C. curtula* ♀). Numerous specimens in R.C.K. from Bexley, probably artifacts.

FIRST RECORD, 1828: Stephens (*Havst.*, 2: 13).

[**(Thaumetopoea pityocampa** Schiff.

Very doubtfully genuine.

10. W. Peyton (*Entomologist*, 7: 82) records that, at Seal Chart, on March 4, 1874, he found larvae "feeding in batches, under cover of a white web, on some fir trees".

13. T. Batchelor (*Entomologist*, 7: 81) records that, on February 15, 1874, he found larvae, in a wood of pine trees called Ashew Wood, situated some distance along the Penshurst Road; and added that the firs were being cut down, and that he found the larvae on the top and upper branches of the fallen trees.

Note: In both the above cases, the larvae were determined by Doubleday as being those of *pityocampa* (cf. Newman, *Entomologist*, 7: 82).]

[**T. processionea** L.

Very doubtfully genuine.

13. Ashour Wood.—"About the middle of last June (1873) I found a quantity of pupae . . . concealed among the twigs and rubbish of an old magpie's nest built in a tall pine-tree . . . one has just yielded me a moth, which appears to me to be a small variety of *B. processionea*; there are about fifty pupae in all" (T. Batchelor, *Entomologist*, 6: 487).]

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IRISH LEPIDOPTERA RECORDS.—No comprehensive catalogue of Irish macrolepidoptera has been published since Lt. Col. C. Donovan's List in 1936. I am now engaged in the preparation of a revised List, and in order that it may be as up to date as possible, I should be most grateful for any records from lepidopterists who have collected in Ireland since the date of Col. Donovan's publication. Full acknowledgment will be made.

E. S. A. BAYNES

2 Arkendale Road, Glengary, Co. Dublin, Eire

LEPIDOPTERA OF KENT, Vol. 1: RHOPALOCERA.—A limited number of reprints of this list is available, unbound with heavy paper cover, at 15/- per copy post free, from the EDITOR.

Wanted.—Living larvae of oak-feeding Lepidoptera, other than Winter Moth or *Tortrix* species, required this spring for filming. Dunbar (*Cosmia trapezina*) particularly wanted, also living pupae of Speckled Wood (*Pararge aegeria*) and adults of the Carabid beetle, *Calosoma inquisitor*. Postage will be more than refunded.—*J. F. Burton, B.B.C. Natural History Unit, Broadcasting House, Bristol, 8.*

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

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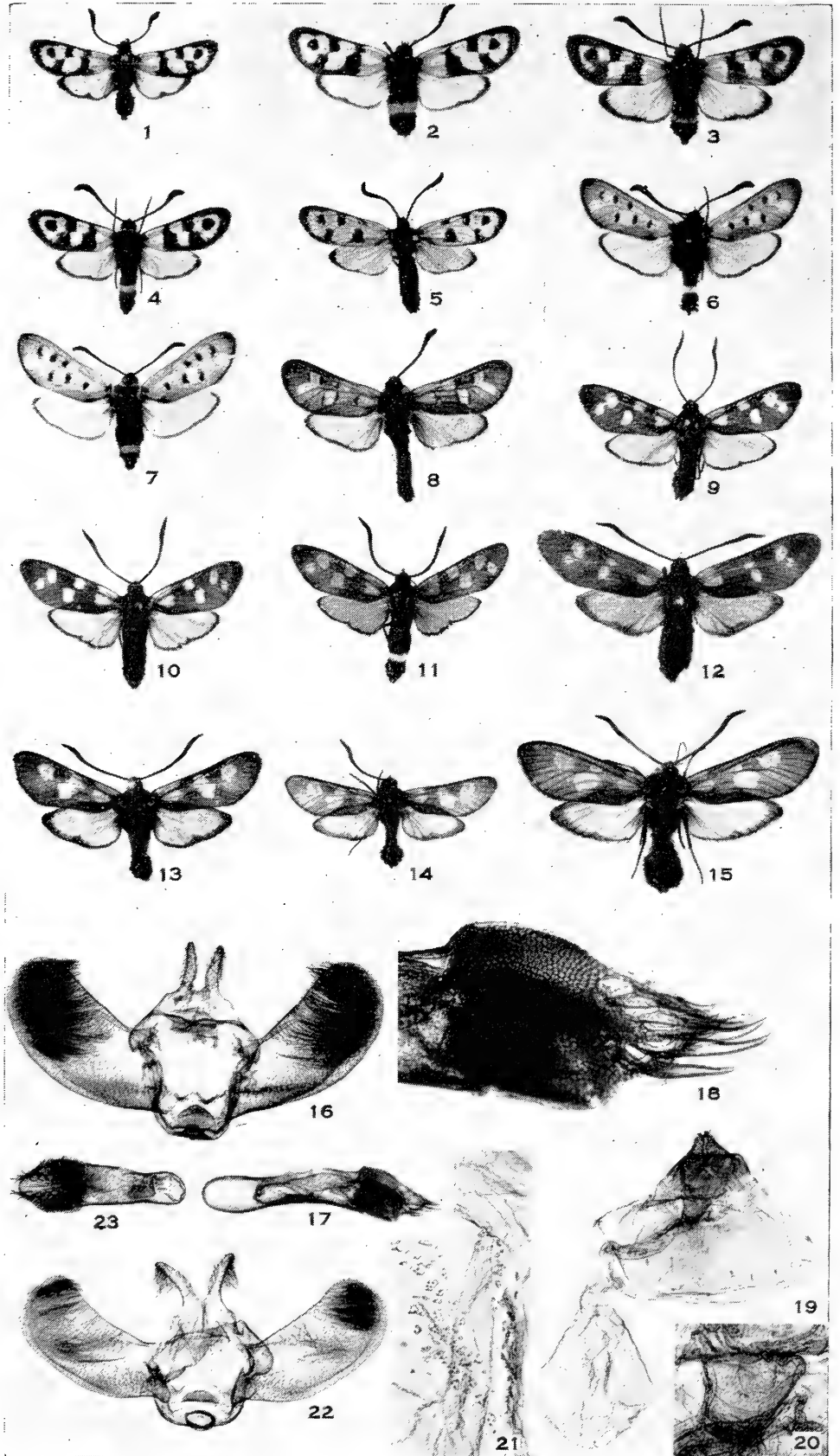
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On Some Type Specimens of the Genus *Zygaena* Fabricius, including the Lectotype selection of *Zygaena felix* Oberthür, Lepidoptera : Zygaenidae

By W. G. TREMEWAN.

Department of Entomology, British Museum (Natural History)

This short paper is written as a supplement to the recently published catalogue of the *Zygaena* types in the British Museum (Natural History), (Tremewan, 1961). Since the publication of the catalogue, the original series or syntypes of *Zygaena felix* Oberthür have been traced. The discovery of these syntypes is of considerable taxonomic importance and involves the change of the species names of *mauretanicus* Staudinger and *felix* Oberthür, *auctorum nec* Oberthür. As the syntypes of *felix* were originally thought to be lost or destroyed, a neotype was designated in the catalogue (Tremewan, 1961: 255). However, the neotype designation is invalid as it does not conform with the International Code of Zoological Nomenclature and a lectotype is now designated from the original series. Full details are given below.

The arrangement of the present work follows that of 1961 and the same classification is employed.

Zygaena erythrus (Hübner)

Sphinx erythrus Hübner, [1803]-[1806], Sammlung europäischer Schmetterlinge, 2 (1), pl. 18, fig. 87.

Zygaena saportae Boisduval, 1834, Icones Historique des Lépidoptères, 2: 38, pl. 52, figs. 2, 3.

[saportae]

The name *saportae* Boisduval was omitted from the catalogue (Tremewan, 1961). I have failed to trace the type in the Boisduval collection and assume that it no longer exists. Boisduval's figures undoubtedly depict specimens of *erythrus* Hübner, consequently the name *saportae* Boisduval is considered a synonym (Burgeff, 1926: 5).

Zygaena felix Oberthür

Zygaena felix Oberthür, 1876, Études d'Entomologie, 1: 36.

Zygaena eudaemon Mabille, 1885, Bull. Soc. philom., Paris (7) 9: 57.

Zygaena mauretanicus Staudinger, 1887, Berl. ent. Z., 31: 37.

[felix]

(Pl. II, fig. 1)

Lectotype: ♂ 24 mm. "Lambessa R. Oberthür 1875"; "coll. Ch. Oberthür."

Ex Rothschild collection. Slide No. 789, pl. II, figs. 16-18.

As stated in the introduction, the syntypes of *felix* have been traced. The original series comprises three males and four females with the data quoted above and one male and one female labelled "Boghari". I designate as lectotype a male from Lambessa.

The examination of the syntypes of *felix* has revealed that the species is conspecific with *mauretanicus* Staudinger. The latter has recently been separated as a distinct species from *felix*, *auctorum* (Alberti, 1958: 304). The true identity of *felix* Oberthür has already been

shown by Bernardi & Viette (1961: 142) who have also discussed the synonymy and new combinations of the various subspecies. For the species which has been known under the name of *felix*, the next available name is *andalusiae* Burgeff. Burgeff's description is based on a short series of specimens from Andalusia. In my opinion, however, it is highly probable that *andalusiae* Burgeff is not conspecific with *felix*, *auctorum*. If this assumption is correct, then the next available name for *felix*, *auctorum* is *beatrice* Przegendza which was described from Sebdu. Up to the time of writing I have been unable to examine the type material of *andalusiae* Burgeff.

Zygaena faustina Ochsenheimer

Zygaena faustina Ochsenheimer, 1808, Die Schmetterlinge von Europa, 2: 99.

Zygaena faustina baetica Rambur

Zygaena baetica Rambur, 1839, Faune Entomologique de l'Andalousie, 2: pl. 12, fig. 9.

Zygaena baetica Rambur, 1866, Catalogue Systématique des Lépidoptères de l'Andalousie, p. 170.

(Pl. II, fig. 2)

Lectotype: ♀ 28 mm. "Baetica Malaga (Rambur)"; "Ex. Musaeo Ach. Guénéé"; "coll. Ch. Oberthür."; a label in Guénéé's hand: "1.2. Z. Baetica Rb. Faun. And. pl. 12. f.9.—H S 79.80. Faustina Hb. 141. 142.—Bdv. Mon. p. 103.—icon. pl.—Dup. Sup. 141. Prises aux environs de Malaga par M. Rambur de qui je les tiens. La Faustina d'Ochsenheimer est encore un peu problématique. J'ai cru la reconnaître dans une espèce algérienne rapportée par M. Allard.—M. Rambur a figuré sous ce nom une variété de la fausta (Boite No. quant à la Faustina de Hubner et des autres français qui n'est certainement point la véritable, elle se rapporte bien ici."

EX Rothschild collection. Slide No. 773, pl. II, figs. 19-21.

I consider the female with the data quoted above, an original specimen of *baetica* which Guénéé received from Rambur and designate it as a lectotype. Viette (*in lit.*) states that there are no original specimens of *baetica* in the Rambur collection in the Muséum National d'Histoire Naturelle, Paris and, having examined the Guénéé specimen, agrees with me that it is undoubtedly original and valid for designation as a lectotype.

There are two specimens of *baetica* in the Zoologisches Museum, Berlin. These specimens are labelled paratypes and were figured as such by Reiss (1932), but there is no substantial evidence to prove that the specimens originated from the Rambur collection. Alberti (*in lit.*) states that the specimens are merely listed in an old register as having originated from Rambur. It is not known who was responsible for placing the red "Paratypus" pin labels under the specimens.

Zygaena gibraltarica Tremewan

Zygaena gibraltarica Tremewan, 1961, Ent. Rec., 73: 223, pl. 7, figs. 1, 7.

(Pl. II, figs. 3, 4)

Holotype: ♂ 29 mm. Gibraltar 10.5.1910 J. J. Jacobs.”; “*Zygaena gibraltaria* Trmn. Holotype ♂. det. W. G. Tremewan. 1961.”.

Ex Rothschild collection. Slide No. 791, pl. II, figs. 22, 23.

***Zygaena hilaris* Ochsenheimer**

Zygaena hilaris Ochsenheimer, 1808, Die Schmetterlinge von Europa, 2: 101.

***Zygaena hilaris chrysophaea* Le Charles ab. *pallida* Seitz**

Zygaena hilaris Ochsenheimer ab. *pallida* Seitz, 1908, Die Grossschmetterlinge der Erde, 2: 28, pl. 7i.

(Pl. II, fig. 5)

Type: ♀ 27 mm, “465”; “Digne”.

Ex Rothschild collection. Slide No. 790.

The specimen is a female but possesses a male abdomen which has been glued to the thorax. An examination of the genitalia shows that the abdomen belongs to *dalmatina* Boisduval.

***Zygaena rhadamanthus* (Esper)**

Sphinx rhadamanthus Esper, 1793, Der europäischen Schmetterlinge, Supplement, 2: 13, pl. 40, figs. 1, 2.

***Zygaena rhadamanthus aragonia* Tremewan**

Zygaena rhadamanthus aragonia Tremewan, 1961, Ent. Rec., 73: 4.

(Pl. II, figs. 6, 7)

Holotype: ♂ 25 mm. “ARAGON Albarracin m.1100 8 VI. 24 Querci”; “*Z. rhadamanthus* ssp. *aragonia* Trmn. Holotype ♂. det. W. G. Tremewan. 1960.”.

Ex Rothschild collection. Slide No. 792.

***Zygaena oxytropis* Boisduval**

Zygaena oxytropis Boisduval, 1829, Essai sur une Monographie des Zygénides, p. 89, pl. 5, fig. 7.

***Zygaena oxytropis quercii* Verity**

Zygaena oxytropis quercii Verity, 1920, Ent. Rec., 32: 160.

Zygaena oxytropis insulicola Stauder, 1928, Lep. Rdsch., 2: 77.

[*insulicola*]

(Pl. II, fig. 8)

Lectotype: ♂ 29 mm. “S. Martino, Palermo, Beg V. 27. (H. Stauder).”.

Ex Rothschild collection. Slide No. 787.

There are seven males and two females in the British Museum (Natural History). I designate as lectotype the male with the data quoted above.

***Zygaena hippocrepidis* (Hübner)**

Sphinx hippocrepidis Hübner, [1796]-[1799], Sammlung europäischer Schmetterlinge, 2 (1): 79, pl. 17, fig. 83.

Zygaena hippocrepidis curtisi Tremewan*Zygaena hippocrepidis curtisi* Tremewan, 1961, Ent. Rec., **73**: 139.

(Pl. II, fig. 9)

Holotype: ♂ 30 mm. "Dieulefit Drome France 3/10:vii:1934 W. P. Curtis"; "*Z. hippocrepidis* ssp. *curtisi* Trmn. Holotype ♂. det. W. G. Tremewan. 1961."

Ex Curtis collection. Slide No. 782.

Zygaena hippocrepidis curtisi Tremewan ab. **miniacens** Tremewan*Zygaena hippocrepidis curtisi* Tremewan ab. *miniacens* Tremewan, 1961, Ent. Rec., **73**: 140.

(Pl. II, fig. 10)

Holotype: ♂ 30 mm. "Dieulefit Drome France 27:vi:1934 W. P. Curtis"; "*Z. hippocrepidis* ssp. *curtisi* Trmn. ab. *miniacens* Trmn. Holotype ♂. det. W. G. Tremewan. 1961."

Ex Curtis collection. Slide No. 783.

Zygaena hippocrepidis curtisi Tremewan ab. **cingulata** Tremewan*Zygaena hippocrepidis curtisi* Tremewan ab. *cingulata* Tremewan, 1961, Ent. Rec., **73**: 140.

(Pl. II, fig. 11)

Holotype: ♂ 29 mm. "Dieulefit Drome France 3/10:vii:1934 W. P. Curtis"; "*Z. hippocrepidis* ssp. *curtisi* Trmn. ab. *cingulata* Trmn. Holotype ♂. det. W. G. Tremewan. 1961."

Ex Curtis collection. Slide No. 784.

Zygaena filipendulae (Linné)*Sphinx filipendulae* Linné, 1758, Systema Naturae, ed. X, p. 494 (with reference to Fauna Suecica, p. 256, 1746).**Zygaena filipendulae kricheldorffiana** Reiss ab. **sexmaculata** Tremewan*Zygaena filipendulae kricheldorffiana* Reiss ab. *sexmaculata* Tremewan, 1961, Ent. Rec. **73**: 7.

(Pl. II, fig. 12)

Holotype: ♀ 35 mm. "ASTURIAS Pajares m. 1300 18 VIII. 24 Romei"; *Z. filipendulae* ssp. *kricheldorffiana* ab. *sexmaculata* Trmn. Holotype ♀. det. W. G. Tremewan. 1960."

Ex Rothschild collection. Slide No. 793.

Zygaena trifolii (Esper)*Sphinx trifolii* Esper, 1783, Der europäischen Schmetterlinge, **2**: 223, pl. 34, figs. 4, 5.**Zygaena trifolii muspratti** Tremewan*Zygaena trifolii muspratti* Tremewan, 1961, Ent. Rec., **73**: 199.

(Pl. II, fig. 13)

Holotype: ♂ 32 mm. Bses-Pyrénées, Le Lac Saint-Jean-de-Luz 6 Mai 1961 Collection V. Muspratt; "*Z. trifolii* ssp. *muspratti* Trmn. Holotype ♂. det. W. G. Tremewan. 1961."

Ex Muspratt collection. Slide No. 786.

Zygaena trifolii Esper f. **pusilla** Oberthür

Zygaena trifolii pusilla Oberthür, 1910, *Études de Lépidoptérologie comparée*, **4**: 498.

(Pl. II, fig. 14)

Lectotype: ♂ 26 mm. "Auch."; "Ex. Musaeo Ach. Guénéée"; "coll. Ch. Oberthür."; a label in Guénéée's hand: "Trifolii var. Pusilla Gn. in Mus. Trifolii var. Dup. Sup. pl. 8 fig. 1. Dépt. du Gers. M. Fallou. Nos. 1 à 3. Cette petite trifolii a été prise en très grande quantité à Auch. Elle a les caractères du type". The locality "Auch" has also been written on the label by Oberthür.

Ex Rothschild collection. Slide No. 788.

According to Oberthür, *trifolii* f. *pusilla* was taken in great numbers by Jules Fallou in the neighbourhood of Auch, a small town near Lectoure, in the department of Gers. The specimens were taken over a number of years and their small and somewhat degenerate characters were constant. Specimens from other populations of *trifolii* occurring in the neighbourhood of Lectoure were much larger and were referred by Oberthür to the nominate subspecies.

Zygaena lonicerae (Scheven)

Sphinx lonicerae Scheven, 1777, *Der Naturforscher*, Halle, **10**: 97.

Zygaena lonicerae jocelynae Tremewan

Zygaena lonicerae jocelynae Tremewan, 1962, *Ent. Gaz.*, **13**: 10.

(Pl. II, fig. 15)

Holotype: ♂ 39 mm. "SKYE e pupa em. 27.vi.61 R. F. Bretherton": *Z. lonicerae jocelynae* Trmn. Holotype ♂. det. W. G. Tremewan. 1961."

Ex Bretherton collection. Slide No. 785.

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EXPLANATION OF PL. II.

- Fig. 1. *Zygaena felix* Oberthür, lectotype ♂.
- Fig. 2. *Z. faustina baetica* Rambur, lectotype ♀.
- Fig. 3. *Z. gibraltarica* Tremewan, holotype ♂.
- Fig. 4. *Z. gibraltarica* Tremewan, paratype ♂, September generation.
- Fig. 5. *Z. hilaris chrysophaea* Le Charles ab. *pallida* Seitz, type ♀.
- Fig. 6. *Z. rhadamanthus aragonia* Tremewan, holotype ♂.
- Fig. 7. *Z. rhadamanthus aragonia* Tremewan, allotype ♀.

- Fig. 8. *Z. oxytropis quercii* Verity (*Z. oxytropis insulicola* Stauder, lectotype ♂).
- Fig. 9. *Z. hippocrepididis curtisi* Tremewan, holotype ♂.
- Fig. 10. *Z. hippocrepididis curtisi* Tremewan ab. *miniaccens* Tremewan, holotype ♂.
- Fig. 11. *Z. hippocrepididis curtisi* Tremewan ab. *cingulata* Tremewan, holotype ♂.
- Fig. 12. *Z. filipendulae kricheldorffiana* Reiss ab. *sexmaculata* Tremewan, holotype ♀.
- Fig. 13. *Z. trifolii muspratti* Tremewan, holotype ♂.
- Fig. 14. *Z. trifolii* Esper f. *pusilla* Oberthür, lectotype ♂.
- Fig. 15. *Z. loniceræ jocelynae* Tremewan, holotype ♂.
- Fig. 16. *Z. felix* Oberthür, lectotype ♂, genitalia..
- Fig. 17. *Z. felix* Oberthür, lectotype ♂, aedeagus.
- Fig. 18. *Z. felix* Oberthür, lectotype ♂, lamina dorsalis.
- Fig. 19. *Z. faustina baetica* Rambur, lectotype ♀, genitalia.
- Fig. 20. *Z. faustina baetica* Rambur, lectotype ♀, ostium.
- Fig. 21. *Z. faustina baetica* Rambur, lectotype ♀, signum.
- Fig. 22. *Z. gibraltarica* Tremewan, holotype ♂, genitalia.
- Fig. 23. *Z. gibraltarica* Tremewan, holotype ♂, aedeagus.

Coenobia rufa Haworth (1809)—Some Remarks on its Varietal Names and Colours

By W. PARKINSON CURTIS

These remarks are the product of an attempt to understand and apply the colour terms used by various authors to a series of this insect forming part of my collection, and including five labelled "Tutt, Deal, 1888", no doubt some of the captures by J. W. Tutt referred to by him in his *British Noctuae* Vol. 1, p. 48 (1891), and Vol. 4 of that work, p. 100, which had previously been dealt with by him in *The Entomologist*, 1888 (21:208). There are certain conditions that must be borne in mind in reading these remarks. I have no experience of, or access to, material of extra-British origin, and I recognise that Latin is a language that is painfully deficient in colour terms of any precise meaning. I also agree that prior to the publication of *Ridgway's Color Standards* 1912 edition, there was no set of standard colours that was so comprehensive and available for general use, as admittedly the rare first edition proved insufficient in many respects, and even the 1912 edition leaves aside the question of the diffraction effect produced by the shining or metallic lustre of scales. If memory serves me the original first edition had a diagram of a man holding a bird in his hand to demonstrate how the light should be made to impinge on the bird's feathers in order to judge iridescent colours. No such guide appears in the second edition.

However, with all that in mind, it seems to me that the application of names to the colours of this insect has been confusing and loose. Especially do I think that Tutt has added to confusion by his emphasis on some colour when the emphasis is evidently leading to great overstatement. Nor can I see that any author has had regard to the

variation in hue, and tint produced by the shiny scales of this insect in relation to angle of incidence or even to the spectrum values of the light used. I found it impossible with this insect to do any good by artificial light, and by daylight for at least two hours before sunset, the reflected colours were more brown, or reddish-brown, than they were at high noon, and any attempt to assess colour otherwise than in full light, but not in actual sun, was productive of results that were far from accurate. I accordingly confined myself to south light about mid-day in a large window, the material being lighted at 90° and 45° well out of direct sun.

I first turned my attention to Tutt's views of the meaning of Haworth's Latin diagnosis, which Tutt calls "the Type" (I much prefer the term "nominotypical form"). Haworth's "type" has long since been lost sight of. Haworth uses the word "rufa" as part of his description and not "ruber". From such meagre help as I have on the exact difference between "rufa" and "ruber" I infer that writers of good classical Latin would use "ruber" for red and "rufa" for reddish yellow, probably something nearer "rufous" as used by Ridgway. I should prefer to translate Haworth's first sentence as consisting of three components and should consider that "Alis oblongis ciliisque rufis" should read "With oblong wings and reddish cilia". That "unicoloribus posticis ciliisque pallidis striga medio macularum obscurarum" should read "with unicolorous hindwings and with pale cilia, with a medial striga of obscure spots." Tutt *l.c.* seeks to expand this into a diagnosis of a very red form as nominotypical and states that the series he took at Deal varies from "a very deep reddish". Such a liberty with a prime diagnosis is not in my view permissible since it so happens that of the many specimens I have seen, alive and dead, I have never seen anything approaching a "very deep reddish" and I find myself unable to take Tutt's statement at its face value. The late Hy. J. Turner rightly remarks in his *Supplement* Vol. 1, p. 139, that Tutt is the only author to use the phrase. This is by no means the only case where Tutt's efforts at translating a colour into words has failed to convey to me the colour that I am convinced a particular insect really is.

Now as to the elusive colour of this insect as I see it. I remark that in the literature I have perused no author calls attention to the fact that although this insect is not metallic in the way that *Plusia chrysitis* L. and *P. festucae* L. are, yet the shining scales render the colour that reaches the eye very variable in many respects. Their reaction to light is entirely different from that of an insect whose scales are matt, I have had a careful look at "Rufous" Ridgway, Pl. XIV, No. 9, and no matter how I treat this insect in relation to source of light, amount of light, and angle of light, I cannot get anything approaching that colour. I felt a little inclined to think that Buckthorn Brown Ridgway XV 17, might be a good comparison, but not being too pleased with that range of brown, I requested the opinion of a lady who, though not interested in insects or birds from a colour point of view, is very interested in flowers and in the use of colour for decoration purposes and is moreover a great stickler for exactitude. She considered the reddish tone exhibited distally, and the cilia of the forewings, was Cinnamon Brown Ridgway XIV, No. 15, and I think that is the nearest, but the full depth of that colour is not developed. The reddish tint is not an

absorption tint, it is refractive due to the scale structure. The submedian streak or shade and the spots representing the postmedial line are dull and do not alter their colour on change of angle.

I will now come back to Tutt and Turner and the various references they give respectively and criticize the assessments of colours given by the various authors they refer to or quote. Tutt, Vol. 1, p. 48, after calling *rufa* a very red form, which as set out above I strongly demur to, gives *lineola* Stephens as a grey form tinged with red and a few lines lower down quotes Humphreys and Westwood *British Moths*, Vol. 1, p. 245, and calls this an intermediate form. Precisely what the forms are between which the insect as described by Humphreys and Westwood is intermediate is not clear to me since there is no stated *terminus a quo* nor *terminus ad quem*.

I have before me Stephen's Illustrations of *Brit. Ent. Haust.* III: 133: Stephens uses the Latin *griseorufa* and the English *griseous red*. This is near enough to Tutt's translation "grey tinged red" and he states that it has a longitudinal fuscous streak, and then in a separate paragraph states that he has one specimen in which the streak is v-shaped. Humphreys and Westwood's description as quoted by Tutt makes it appear as if this v-shaped mark was usual, which is certainly incorrect. Hy. J. Turner, *l.c.*: 140, after remarking on the confusion of the varietal forms of this species falls into the trap already laid for him by Humphreys and Westwood and states: "the name *lineola* applied at first to one specimen with a v-marked shade by Stephens has gradually come to be applied to the grey red-tinged form with or without the v-shaped cloud". I am certain that anyone who reads what Stephens himself wrote will agree with me that Stephens was first describing *lineola* in detail and having done so, remarked that one specimen has a v-shaped mark. The two paragraphs are wholly distinct and do not afford any ground for Humphreys and Westwood or Hy. J. Turner suggesting that the v-shaped mark had any diagnostic value whatever. It is just a remark that there is known to Stephens one very extreme aberration, probably made with the intention of leaving the reader to infer the rarity of such an extension.

Warren in Seitz, Vol. III, p. 221, describes *rufa* Haw. as having a submedian streak or cloud which Haworth did not mention, and he does not credit *lineola* Stephens with such a streak or cloud which Stephens does but does mention alternate pale and dark spots on the nervures which Stephens does not.

Quite a considerable percentage of specimens of *C. rufa* have the submedian streak or cloud present but usually ill-defined, sometimes confined exactly to the submedian nervures. But how far is it permissible for a subsequent author to diverge markedly from an original diagnosis when the author of that diagnosis does nothing to indicate that his description can be amplified at will to cover specimens which exhibit characters not originally noticed by him or conversely without characters which are part of the original diagnosis? I should have thought that this was not permissible unless it be made quite clear by the subsequent author by a statement that notwithstanding such and such a divergence, he is of opinion that the specimen ought to be included under the original name, as being so slightly different as not to deserve differentiation. If there is not some limitation, and pretty severe limitation, one gradually gets to the position where there is no clear

idea at all of what falls within or without the name.

I think that to get a clear idea of an insect and its area of variation something in the way of precision is essential in the application of names. I recognise that the strict precision applicable to mathematical problems is out of place in the world of the taxonomy of living creatures, but there must be a limit, and that is where varietal names have a value which is often underestimated by serious scientists, partly because their value scientifically has been swamped by foolish people paying absurd prices for occasional aberrant specimens and partly because too many inconsiderable transitions have received names.

At my request, so that the number of specimens examined might reach reasonable magnitude, Dr. J. W. B. Nye of the Entomological Department of the British Museum has examined the series at Cromwell Road, and states that apart from *ab. fusca*, they are fairly uniform in colour and fit Hampson's description. None of these specimens can be called red. Mr. A. I. Goodson has looked at those in the Zoological Museum at Tring. He tells me that they have nine specimens from Pulborough which might be called dull reddish, "I think I myself would say reddish brown", and thinks Hampson's *Ab. 1*, "dark rufous", is probably this reddish-brown.

The following is an attempt by me to marshal the variations of *rufa* Haw. into a logical sequence and keep some clarity before the worker as to the ambit of each name. It may well be that it is not much more successful with this difficult insect than previous efforts have been, but I hope it is.

- (a) The warm buff or antimony yellow form as described by Hampson (*Cat. Phal.* (1910) IX: 300) as *rufa* Haworth which is not within Haworth's description.
- (b) Specimens coloured as (a) but with a submedian dark streak or cloud. This form needs a name; unfortunately *rufata* Steph. 1829 is not available as it is a pure synonym of *rufa*.
- (c) Darker greyish insect with reddish reflections without median streak. This seems comfortably covered by *despecta* Hübner.
- (d) As (c) but with submedian streak or cloud *lineola* Stephens.
- (e) Pale ochreous insect devoid of reddish reflection and without median streak or cloud *palescens* Tutt.
- (f) As (e) but with median streak or cloud. There is no name for this form nor can it be named until a "type" specimen is available.
- (g) The deep fuscous form *fusca* Bankes.
- (h) A form with a cinnamon brown tone nominotypical *rufa* Haworth.

Note. *rubicundipennis* Strand sinks to *fusca* Bankes.

It will be noted that I do not suggest giving a name to Tutt's very deep red specimens nor do I suggest giving a name to Spuler's "rich brown" nor Hübner's, fig. 751, rich brown as set out in Turner's *Supplement*, I:140, although these may be the form described by Haworth. I think it will be advisable to wait until a "lectotype" can be produced by some fortunate person to justify the names in each case; I fear however, that the wait will be a long one!

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A Comparison Between the Macro-Lepidoptera Recorded in Light Traps at Ottershaw (North-west Surrey) and Bishop's Stortford (East Hertfordshire) 1954/1961

By R. F. BRETHERTON AND CLIFFORD CRAUFURD

The authors have kept complete records of the numbers and species of Macro-lepidoptera which have attended their respective mercury-vapour light traps at Ottershaw, North West Surrey, and Bishop's Stortford, East Hertfordshire, during the years 1954 to 1961 inclusive. The methods of trapping and recording used have been constant throughout, and have been very closely similar at the two traps. At Ottershaw the trap has been operated on about two-thirds of all the possible nights from 1st March to 31st October (though the proportion has differed somewhat from one year to another): at Bishop's Stortford the proportion is rather higher—about four-fifths. Both traps have also been used occasionally in the intervening winter months. This has added a few species which would not otherwise have been recorded, but the numbers of insects obtained then have been very small. It seems possible to use the records as the basis for a comparison of the similarities and differences between the make-up and balance of the moth population in the two localities.

Both traps are operated in large gardens, which contain a normal assortment of garden flowers and shrubs as well as a good variety of larger trees. At Ottershaw there is woodland, mainly of birch and oak, within a quarter of a mile, small areas of heather and Scots pine within the same distance, and a semi-circle of open heathland two miles out to the south and west and of meadow and small patches of residual marsh in the Thames and Wey valleys a little further away on the north and east. But the natural flora is limited by its geological base on the Bagshot Sands; the nearest chalkland is eight miles away, and moths which need its conditions appear at the Ottershaw trap only occasionally, if at all. London Clay begins about four miles to the north east, but is still too distant to have much effect on the Ottershaw insects. Whereas Bishop's Stortford is placed on the London Clay very near to its junction with the long ridge of the Hertfordshire and Cambridgeshire chalk. Consequently its surrounding natural flora, though entirely lacking in heather, contains two elements different both from each other and from those which are dominant around Ottershaw. On the other hand, though there are many small woods up to within half a mile of the

town, and also plantations of conifers and limes, most of the land is under cultivation. It seems clear from the records that the more distant surroundings contribute much less variety to the attendances at the trap at Bishop's Stortford than at Ottershaw.

The total numbers of Macro-lepidoptera recorded at the two traps during the years 1954 to 1961 are set out below:—

	Ottershaw		Bishop's Stortford	
	Total	Nightly average (March/October)	Total	Nightly average (March/October)
1954	26,228	169	13,918	70
1955	31,092	255	16,081	80
1956	38,272	257	22,416	112
1957	20,710	174	12,410	56
1958	21,566	173	8,281	42
1959	30,155	202	23,692	119
1960	20,170	134	30,280	163
1961	28,659	159	21,855	112
Total ...	216,852	189	148,933	94

Thus the total number of moths recorded at Ottershaw was about half as big again as that at Bishop's Stortford, and the nightly average was double. Too much should not be made of this. Small differences in the positioning of the traps with regard to uninterrupted light radius or exposure to wind could account for large differences in the total numbers captured. It would certainly be unsafe to conclude, on this evidence alone, that the moth population was really more dense in the one place than in the other. The comparison of the annual experience at the two traps is more interesting. 1956 and 1959 were years of abundance, and 1954, 1957 and 1958 years of scarcity, at both of them. But 1960, which showed the highest total of all at Bishop's Stortford, had the lowest of all at Ottershaw; 1955, which was very good at Ottershaw, was below average at Bishop's Stortford; and for 1961 the reverse was true. There is nothing to show whether these contrasts reflected real differences in population numbers or only differences in local weather conditions, favourable or unfavourable for trapping.

In order to compare the composition by species of the totals recorded, at each trap, it is convenient to use the categories of frequency previously applied by one of the authors to moth-trap records in North West Surrey (*Proc S. Lond. ent. nat. Hist. Soc.*, 1955: 98). These are based on the proportions, on a logarithmic scale, which the numbers of each species recorded bear to the total numbers of all species recorded at each trap. As here applied, they are as follows:—

	Percentages of total	Absolute numbers at Ottershaw	Absolute numbers at Bishop's Stortford
Dominant	Above 3.161	Above 6,856	Above 4,711
Abundant	1.0 to 3.161	2,168 to 6,856	1,490 to 4,711
Very common	0.316 to 0.99	685 to 2,167	471 to 1,489
Common	0.1 to 0.315	216 to 684	149 to 470
Fairly common	0.031 to 0.09	68 to 215	47 to 148
Scarce	0.01 to 0.03	22 to 67	15 to 46
Very scarce	0.003 to 0.009	6 to 21	4 to 14
Occasional	Below 0.003	5 or less	3 or less

	Species in category	of which at O at B.S.	Dominant	Frequency Status at the Other Trap										
				Abundant	Very common	Common	Fairly common	Scarce	Very scarce	Occasional	Absent			
Dominant	At—													
	Ottershaw B.Stortford	4 5	4 4	— 1	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
Abundant	Ottershaw B.Stortford	17 16	1 —	8 8	7 5	1 3	— —	— —	— —	— —	— —	— —	— —	— —
	Ottershaw B.Stortford	33 33	— —	5 7	13 13	7 9	5 3	1 —	— —	— —	— —	— —	— —	2 1
Common	Ottershaw B.Stortford	57 54	— —	3 1	9 7	19 19	13 17	9 5	1 1	— —	— —	— —	— —	2 1
	Ottershaw B.Stortford	80 68	— —	— —	3 5	17 13	24 24	17 10	12 8	— —	— —	— —	— —	4 5
Scarce	Ottershaw B.Stortford	77 71	— —	— —	— 1	5 9	10 17	13 13	19 13	19 19	19 19	11 12	7 7	21 7
	Ottershaw B.Stortford	69 71	— —	— —	— —	— —	8 12	13 19	13 11	13 19	13 19	13 13	13 7	48 12
Occasional	Ottershaw B.Stortford	90 47	— —	— —	— —	3 1	3 3	12 11	65 77	64 48	35 54	96 32	— —	— —
	Ottershaw B.Stortford	429 365	5 4	16 17	32 31	53 55	63 76	65 77	64 48	35 54	96 32	— —	— —	— —

In what follows, therefore, we are comparing, not the absolute abundance of any particular species at the two traps, but its relative abundance at each of them. Thus, though nearly 20,000 examples of *Amathes c-nigrum* L. were counted at Ottershaw as against only some 14,600 at Bishop's Stortford, we define the species as "Dominant" at both traps, where it accounts for about the same proportion of all the moths recorded at each.

A summary cross-analysis of the numbers of species which fall into the various frequency categories at the two traps is given opposite. The details appear in the Annexe. It brings out some interesting points. The total number of "species" recorded at Ottershaw in the period was 429, against only 365 at Bishop's Stortford. But it will be seen that, as far as the more numerous species are concerned, the composition of the population recorded at the two traps is very similar. The "dominant" species were almost identical. They included, at both traps, *Amathes c-nigrum*, *Agrotis exclamationis* L., *Noctua pronuba* L., and the complex of *Caradrina morpheus* Hufn., *blanda* Schiff. and *alsines* Brahm, which has been treated as a unit because full counts of each species were not kept separately. *Orthosia gothica* L., which just reached "dominant" level at Bishop's Stortford, was in the upper half of the "abundant" category at Ottershaw, and thus differed in frequency by less than a full grade. These insects between them accounted for just about one third of the total score at each trap. Of the "abundant" group, containing 17 species at Ottershaw and 16 at Bishop's Stortford, eight were common to both traps (*Agrochola lychnidis* Schiff., *Orthosia incerta* Hufn., *Leucania pallens* L., *Plusia gamma* L., *Apamea secalis* L., *Melanchra persicariae* L., *Ochropleura plecta* L., *Apamea monoglypha* Hufn.), and nine of the others (*O. gothica* L., *Spilosoma lutea* Hufn., *S. lubricipeda* L., *Leucania impura* Hübn., *Diataraxia oleracea* L., *Procus strigilis* Clerck and *P. latruncula* Schiff. (taken together), *Amathes xanthographa* Schiff., *Euschesis janthina* Schiff., *Amathes triangulum* Hufn.) differed at the two traps by less than a full grade. The "very common" category, containing 34 species at each trap, was also fairly similar. Thirteen species were identical, thirteen differed by less than a full grade, though there were nine species in which the differences in frequency at the two traps were very large, and three which were recorded at one trap only.

But in the less abundant species the degree of similarity between the captures at the two traps becomes progressively less. Only about a half of the species which were "common" at one trap had approximately the same status at the other. In the "fairly common" category the proportion was rather less; for the "scarce" and "very scarce" species it was about two fifths, and for the "occasionals" less than a quarter. For the most part the numbers of species which fell into each category was much the same at both traps. But in the "occasional" category Ottershaw had nearly twice as many species as Bishop's Stortford; indeed, this accounted for a great part of Ottershaw's superiority in total number of species recorded.

Despite these differences, it appears that of the 461 species which were recorded at the two traps combined, 333 occurred at both; and of these 113 fell into the same categories at both traps and a further 43 differed in frequency by less than a full category. And these 156

species accounted for about 80 per cent. of all the moths trapped, whereas species for which the frequency differences were outstanding—more than two categories or absence from one of the traps—accounted for only about three per cent. The picture as a whole is thus of rather remarkable similarity between the general composition of the bags at the two traps.

The most striking difference lies in the large number of species obtained at one trap only—96 at Ottershaw and 32 at Bishop's Stortford. Of the "Ottershaw only" species, two were "very common" there. One, *Caradrina ambigua* Schiff., has spread from the South Coast. It was first noticed in North West Surrey in 1949, and has gained strength since, though there have been big annual fluctuations and the second brood is always much more numerous. The other, *Lycophotia varia* Vill., feeds on heather. Its high frequency at the Ottershaw trap is surprising, since its main breeding grounds are two miles away. It presumably could not be established anywhere near Bishop's Stortford. About another score of the "Ottershaw only" insects are also heath-frequenting insects, if not all heather-feeders. These include *Aporophyla nigra* Haw. (common), *Miltochrista miniata* Forst. and *Euphyia unangulata* Haw. ("fairly common"), *Hadena contigua* Schiff., *Cybosia mesomella* L., *Parastichtis suspecta* Hübn., *Chesias rufata* F. ("scarce"), *Dasychira fascelina* L., *Pseudoterpna pruinata* Hufn., *Eupithecia goosensiata* Mab., *Diacrisia sannio* L., *Agrotis vestigialis* Hufn., *Lygris testata* L., *Mythimna turca* L., *Perconia strigillaria* Hübn. ("very scarce"), and several "occasionals". Allied to these are birch-feeding species, which as a group are conspicuous at Ottershaw but are absent or only very thin at Bishop's Stortford, despite the presence of many birch trees in the garden. The following have been recorded only at Ottershaw: *Oporophtera fagata* ("fairly common"), *Polia tinctoria* Hübn., *Trichopteryx carpinata* Borkh. ("scarce"), *Odontotrypa carmelita* Esp., ("very scarce"). There are also specialities of North West Surrey, such as *Parascotia fuliginaria* L. and *Dasycampa rubiginosa* Schiff. ("scarce"), and a number of scarce migrants from the Continent which for geographical reasons are more likely to reach Surrey than Hertfordshire: *Acherontia atropos* L., *Celerio galii* Rott., *Laphygma exigua* Hübn., *Heliothis peltigera* Schiff., *Rhodometra sacraria* L., *Itame brunneata* Thunb. (all "occasional"). Two other migrants, *Nycterosea obstipata* F. and *Leucania albipuncta* Schiff. have appeared at both traps, and *Eurois occulta* L. at Bishop's Stortford only. Apart from the migrants, there are over forty species which rank as "occasionals" at Ottershaw but have not been recorded at all at Bishop's Stortford. This difference is presumably attributable mainly to greater variety and richness of the fauna in the country surrounding Ottershaw but at some considerable distance from the trap. The list includes, for instance, half-a-dozen species which can be identified as stragglers from the chalk downs at least eight miles away, as well as several wanderers from marshes by the Thames and the Wey. But besides these there are in the Ottershaw list a few generally distributed species, for whose absence from the Bishop's Stortford trap there is no obvious explanation. These include *Lithacodia fasciana* L. ("common"), *Drymonia dodonaea* Schiff. ("fairly common"), *Amathes ditrapezium* Schiff., *Diarsia brunnea* Schiff., *Apamea scolopacina* Esp., *Anaitis efformata* Guen., *Mysticoptera sexalata* Retz., *Sterrhia subsericeata* Haw.,

Cosymbia porata L., *Electrophaes corylata* Thunb., *Bupalus piniaria* L. ("scarce").

Of the species which have been recorded only at Bishop's Stortford, one, *Dysstroma citrata* L., is "very common" there. This is a mainly moorland and mountain species whose distribution in south east England is very patchy (as well as uncertain because of confusion with its relative *D. truncata* Hufn.). Its frequency at Bishop's Stortford is therefore notable. In Surrey it appears to be altogether absent from the Bagshot Sand area, though it can be found sparingly on the North Downs. *Lygris pyraliata* Schiff., "common" at Bishop's Stortford, is an unexplained absentee at Ottershaw: it occurs, though not commonly, elsewhere in the district. Among the "fairly common" species, *Ennomos quercinaria* Hufn. is typically a beech-wood species and therefore not surprisingly absent from Ottershaw. *E. autumnaria* Wernb. is usually found near the South Coast; at Bishop's Stortford it must be at the very edge of its range both inland and to the north. *Hadena compta* Schiff. first established itself in Britain at Dover in 1948. Since then it has entered the Eastern Counties and is spreading rapidly. It first appeared at Bishop's Stortford in 1954 and is now breeding freely on Sweet William in the garden. *Eumichtis adusta* Esp. is confined in Surrey to the chalk downs; and *Cirrhia gilvago* Schiff. usually requires the presence of wych elm, which is lacking at Ottershaw.

Among the scarcer species which are present at Bishop's Stortford but have not been recorded at Ottershaw, *Trichiura crataegi* L. and *Episema caeruleocephala* L. may be missing because of the rarity of their most usual food-plant, sloe. *Lygris prunata* L., a currant feeder, cannot have the same excuse; but, though taken in North West Surrey in the past, it seems to have disappeared from the district altogether in recent years. *Eupithecia irriguata* Hübn., is usually a denizen of old oak woods, and its presence in some numbers at Bishop's Stortford is notable. Finally, there is a group of species which frequent the chalk country, which is much nearer to the trap at Bishop's Stortford. These include *Epirrhoe rivata* Hübn. ("scarce"), *Hadena conspersa* Schiff., *Eremobia ochroleuca* Schiff., *Eupithecia venosata* F., *Melanthia procellata* Schiff. ("very scarce"), *Eupithecia denotata* Hübn., *Cosymbia annulata* Schulze, *Lophopteryx cucullina* Schiff., *Aspitates ochrearia* Rossi ("occasional"). Also occurring at Bishop's Stortford, but unrecorded at Ottershaw, were *Colostygia didymata* L., *Eupithecia expallidata* Doubl., *Hepialus fusconebulosa* de Geer, ("very scarce"), *Lasiocampa quercus* L., *Anticlea derivata* Schiff., *Bomolocha crassalis* F., *Euproctis chrysorrhoea* L. (probably an escape), *Nudaria mundana* L., *Amathes stigmatica* Hübn., *Eupithecia trisignaria* Herr-Schaff. ("occasional").

It remains to say something about those species which, though they were recorded at both traps, were much more frequent at one than at the other. Thus *Diarsia rubi* View., *Plusia chrysitis* L., and *Hepialus lupulina* L., all "abundant" at Bishop's Stortford, were only "common" at Ottershaw; and of *Orthosia cruda* Schiff. the reverse was the case. Similarly, *Agrotis puta* Hübn., *Meristis trigrammica* Hufn., *Cirrhia icteritia* Hufn., *Cosmia trapezina* L. and *Pheosia gnoma* F. were "very common" at Ottershaw, but only "fairly common" at Bishop's Stortford, while for *Orthosia gracilis* Schiff., *Euxoa nigricans* L. and *Lomaspilis marginata* L. the case was reversed. *Agrochola macilenta* Hübn., "very

common" at Ottershaw, barely reached the "scarce" level at Bishop's Stortford. For one or two of these, such as *P. gnoma* and *C. icteritia*, greater prevalence of specialised food-plants (birch and willow) is probably the explanation. But most of the others are polyphagous or grass-feeding species of wide national distribution, and it is not clear why, if they occurred at all, there should be wide differences in their frequency at the two traps.

As the table shows, both the numbers and the proportions of species showing big frequency differences between the traps was greater for the less common species. Over thirty species which were "common", "fairly common", or "scarce" at one trap were only "occasional" at the other, where presumably they formed no regular part of the local population. Apart from these, it is worth noticing that, of the species which were "common" at Ottershaw, *Lithosia complana* L. was "very scarce" at Bishop's Stortford, and the following were "scarce" there: *Deilephila elpenor* L., *Dypterygia scabriuscula* L., *Conistra vaccinii* L., *Drepana binaria* Hufn., *D. falcataria* L., *Polia nebulosa* Hufn., *Apamea epomodion* Haw (*characteria* Hübn), *Amathes baja* Schiff, and *Orthosia munda* Schiff. On the other side *Xanthorhoe spadicearia* Schiff. is "common" at Bishop's Stortford, but "very scarce" at Ottershaw, and *Malacosoma neustria* L., *Larentia clavaria* Haw., *Xanthorhoe montanata* Schiff., *Ortholitha chenopodiata* L. and *Procus fasciuncula* Haw. are "scarce" there. Of the species which are "fairly common" at one trap, no less than twelve rank as "very scarce" at Bishop's Stortford and eight as "very scarce" at Ottershaw.

It seems likely that the rather startling similarity between the basic composition of the catches at Ottershaw and Bishop's Stortford is primarily due to the fact that both traps were operated in large gardens. Probably the "dominant", "abundant" and "very common" species would be found to be closely similar for garden traps almost anywhere in the southern half of England, though they might well not be so for traps operated in the middle of a heath or on the edges of a marsh or on a cliff by the sea. Unfortunately, though there are plenty of lists of the *species* obtained in traps in various situations, the authors know of very little published information of an exact nature about their relative *abundance*, against which these conclusions might be tested.

The differences between the populations recorded at Ottershaw and Bishop's Stortford on the other hand, affect mainly the scarcer species. They seem to be mainly due either to geographical factors, affecting especially the occurrence of migratory species or to differences in the nature and variety of the soil and natural flora in the areas surrounding the traps but not immediately adjacent to them. But, again, it would be very desirable to check these differences against frequency records from traps operated in other situations.

FREQUENCIES OF SPECIES OF MACRO-LEPIDOPTERA RECORDED AT LIGHT TRAPS AT OTTERSHAW (N. W. SURREY) AND BISHOP'S STORTFORD (EAST HERTS.), 1954 to 1961.

(species whose frequencies differed by less than a full grade are marked *).

- Dominant at both traps*:—*A. c-nigrum*, *A. exclamationis* (with *A. clavis*), *N. pronuba*, *C. morpheus* (with *C. blanda* & *C. taraxaci*). (4)
- Dominant at Bishop's Stortford, abundant at Ottershaw*:—**O. gothica*. (1)
- Abundant at both traps*:—*A. monoglypha*, *O. incerta*, *A. lychnidis*, *P. gamma*, *M. persicariae*, *A. secalis*, *L. pallens*, *O. plecta*. (8)
- Abundant at Ottershaw, very common at Bishop's Stortford*:—**A. triangulum* **A. xanthographa*, **E. janthina*, **D. oleracea*, **P. strigilis* (with *latruncula*), *A. putris*, *O. stabilis*. (7)
- Abundant at Bishop's Stortford, very common at Ottershaw*:—**S. lutea*, **S. menthastri*, **L. impura*, *R. ferruginea* (*tenebrosa*), *A. litura*. (5)
- Abundant at Ottershaw, common at Bishop's Stortford*:—*O. cruda*. (1)
- Abundant at Bishop's Stortford, common at Ottershaw*:—*D. rubi*, *H. lupulina*, *P. chrysitis*. (3)
- Very common at both traps*:—*O. luteolata*, *B. betularia*, *A. infesta*, *P. meticulosa*, *E. comes*, *A. segetum*, *S. aversata*, *G. micacea*, *L. populi*, *C. rhomboidaria*, *A. sordens*, *L. lithargyria* *P. bucephala*. (13)
- Very common at Ottershaw, common at Bishop's Stortford*:—**M. brassicae*, **H. pyritoides* (*derasa*), **A. ipsilon*, *L. testacea*, *D. trifolii*, *A. remissa*, *T. obeliscata*. (7)
- Very common at Bishop's Stortford, common at Ottershaw*:—**A. caja*, **A. tragopoginis*, *L. hirtaria*, *X. ferrugata*, *P. tremula*, *C. amata*, *X. areola*, *C. rectangulata*, *C. elinguarina*. (9)
- Very common at Ottershaw, fairly common at Bishop's Stortford*:—*A. puta*, *M. trigrammica*, *C. icteritia*, *P. gnoma*, *C. trapezina*. (5)
- Very common at Bishop's Stortford, fairly common at Ottershaw*:—*L. marginata*, *O. gracilis*, *E. nigricans*. (3)
- Very common at Ottershaw, scarce at Bishop's Stortford*:—*A. macilentata*. (1)
- Common at both traps*:—*E. similis*, *A. aescularia*, *L. lurideola*, *X. fluctuata*, *C. pisi*, *C. pennaria*, *S. bilunaria*, *O. dilutata* (with *O. autumnata*), *A. rumicis*, *U. triplasia* *L. (tripartita* Hufn.), *A. oxyacanthae*, *O. truncata*, *O. sambucaria*, *G. augur*, *C. repandata*, *A. pisi* (with *A. tridens*), *L. capuchina*, *B. strataria*, *A. lithoxylea*. (19)
- Common at Ottershaw, fairly common at Bishop's Stortford*:—**E. centaureata*, **S. ocellata*, **G. bidentata*, **E. lucipara*, **A. lota*, **A. pyramidea*, **L. chlorosata*, *G. pumilata*, *L. comma*, *C. clavipalpis*, *L. fimbriata*, *T. matura*, *D. pudibunda*. (13)
- Common at Bishop's Stortford, fairly common at Ottershaw*:—**E. marginaria*, **A. sexstrigata*, **D. mendica* *F. (festiva* Schiff.) **H. bicurris*, **E. alniaria*, *E. fuscantaria*, *C. clathrata*, *L. conigera*, *E. vulgata*, *C. glaucata*, *G. flavago*, *P. populi*, *E. alternata*, *H. humuli*, *L. mellinata*, *H. proboscidalis*, *C. rubricosa*. (17)
- Common at Ottershaw, scarce at Bishop's Stortford*:—*D. elpenor*, *A. baja*, *C. vaccinii*, *D. scabriuscula*, *A. epomodion* (*characteria*), *D. binaria*, *O. munda*, *D. falcataria*, *P. nebulosa*. (9)
- Common at Bishop's Stortford, scarce at Ottershaw*:—*X. montanata*, *M. neustria*, *L. clavaria*, *O. chenopodiata*, *P. fasciuncula*. (5)

- Common at Ottershaw, very scarce at Bishop's Stortford:—L. complana.* (1)
- Common at Bishop's Stortford, very scarce at Ottershaw:—X. spadicearia.* (1)
- Common at Ottershaw, occasional at Bishop's Stortford:—E. tritici.* (1)
- Common at Bishop's Stortford, occasional at Ottershaw:—P. jota, P. nitens, A. grossulariata.* (3)
- Fairly common at both traps:—H. furcata, C. pusaria, B. temerata, Z. tarsipennalis, A. megacephala, C. mendica Clerck, P. moneta, N. ziczac, P. palpina, I. wauaria, P. alchemillata, P. dolabraria, E. icterata, H. aestivaria, O. brumata, O. lunosa, S. ligustri, C. margaritata, E. interjecta, H. bicolorata Hufn. (serena Schiff.), C. perla, N. dromedarius, N. cucullatella, P. fuliginosa.* (24)
- Fairly common at Ottershaw, scarce at Bishop's Stortford:—*O. oculea (nictitans), *A. flavicincta, *P. pedaria, *H. thalassina, *A. crenata, C. lutea Strom., C. pustulata, C. ruficornis, C. exanthemata, C. jacobaeae, P. porphyrea, E. erosaria, P. punctinalis, E. silaceata, A. leporina, A. aceris, N. trepida.* (17)
- Fairly common at Bishop's Stortford, scarce at Ottershaw:—*C. nupta, *T. popularis, *T. ocularis, *Z. nemoralis, C. curtula, P. pulchrina, H. sylvina, A. unanimis, P. furuncula.* (10)
- Fairly common at Ottershaw, very scarce at Bishop's Stortford:—E. bistortata, P. minima, D. lacertinaria, D. eremita, F. (protea Schiff.), R. sericealis, E. transversa, P. flavicornis, E. abbreviata, E. nanata, H. leucophearia, H. w-latinum, S. fagi.* (12)
- Fairly common at Bishop's Stortford, very scarce at Ottershaw:—E. badiata, E. asimilata, H. rivularis F. (cucubali Schiff.), P. potatoria, S. imitaria, E. succenturiata, S. tetralunaria, X. quadrifasciata.* (8)
- Fairly common at Ottershaw, occasional at Bishop's Stortford:—C. punctaria, D. coryli, T. cespitis.* (3)
- Fairly common at Bishop's Stortford, occasional at Ottershaw:—B. sphinx, H. hecta, S. ravida.* (3)
- Scarce at both traps:—C. vinula, C. ligula, E. defoliaria, S. dimidiata, A. circellaris, A. xerampelina, Z. pyrina, C. pyralina, A. ypsilon, E. absinthiata, L. flexula, S. trigeminata, C. furcula.* (13)
- Scarce at Ottershaw, very scarce at Bishop's Stortford:—*D. tiliae, E. exiguata, P. flammea, C. chamomillae, S. libatrix, P. comitata, B. viminalis, D. cultraria, C. legatella, M. maura, B. fagana, S. interjectaria, E. castigata, A. helvola, S. liturata, S. inornata, T. batis, S. emarginata, E. repandaria.* (19)
- Scarce at Bishop's Stortford, very scarce at Ottershaw:—*A. syringaria, C. coronata, P. flavofasciata, R. lutosa, H. suasa, H. vitalbata, I. lactearia, P. rubiginata Schiff. (bicolorata Hufn), C. hermelina, H. flammeolaria, E. linariata, L. ocellata, E. bilineata.* (13)
- Scarce at Ottershaw, occasional at Bishop's Stortford:—H. pinastri, B. roboraria, C. albipunctata Hufn. (pendularia auctt.), A. punctulata, P. ridens, D. oo, S. biselata, A. diluta, P. hippocastanaria, P. literosa, L. pastinum.* (11)
- Scarce at Bishop's Stortford, occasional at Ottershaw:—C. affinis, U. trigemina Wern. (triplasia auctt.), Z. subtusa, T. rupicaprararia, H. lepida, H. immaculata, S. linearia, T. aurago, S. immutata,*

T. variata, *L. adustata*, *T. dubitata*. (12)

Very scarce at both traps:—*E. fasciaria*, *H. abruptaria*, *A. lutulenta*, *C. umbratica*, *G. papilionaria*, *A. ophiogramma*, *E. pulchellata*, *S. seriata*, *A. hispidaria*, *P. prasinana* L. (*bicolorana* Fuessly), *A. pygmina*, *N. typhae*, *P. umbra*, *D. porcellus*, *C. graminis*, *S. lactata* Haw. (*floslactata* Haw.), *T. citrigo*, *O. advena*, *A. plagiata*. (19)

Very scarce at Ottershaw, occasional at Bishop's Stortford:—**P. festucae*, **O. miniosa*, **B. bimaculata*, **N. obstipata*, *B. monacha*, *A. viretata*, *E. tripunctaria*. (7)

Very scarce at Bishop's Stortford, occasional at Ottershaw:—**S. lunaria* **C. leucostigma*, **C. ocellaris*, *P. bifaciata*, *L. ornitopus*, *G. aprilina*, *G. quercifolia*, *H. tersata*, *L. salicis*, *E. crepuscularia*, *C. pectinitaria*, *C. fulvata*, *N. typica*. (13)

Occasional at both traps:—*M. albicillata*, *O. antiqua*, *R. cervinalis*, *C. diffinis*, *L. halterata*, *T. senex*, *S. sylvestraria*, *H. rostralis*, *C. cossus*, *C. absinthii*, *L. albipuncta*, *P. glareosa*, *P. transversata*. (13)

Recorded only at Ottershaw (with status there):—*Very common*:—*L. varia*, *C. ambigua*. (2) *Common*:—*A. nigra*, *L. fasciana*. (2) *Fairly common*:—*D. dodonaea*, *M. miniata*, *O. fagata*, *E. unangulata*. (4) *Scarce*:—*A. ditrapezium*, *D. brunnea*, *P. hepatica* Cl. (*tincta* Hüb.), *H. contigua*, *A. scolopacina*, *P. fuliginaria*, *A. efformata*, *T. carpinata*, *E. intricata arceuthata* Fr., *M. sexalata*, *P. duplaris*, *C. mesomella*, *P. suspecta*, *D. rubiginea*, *S. subsericeata*, *C. porata*, *C. rufata*, *E. corylata*, *B. piniaria*. (19) *Very scarce*:—*H. nana*, *D. fascelina*, *O. populeti*, *P. pruinata*, *E. goosensiata*, *O. carmelita*, *N. revayana*, *D. sannio*, *A. vestigialis*, *H. calcatrippae* View. (*saponariae* Borkh.), *C. rufa*, *L. testata*, *X. designata*, *P. albulata*, *E. tenuiata*, *E. innotata*, *fraxinata* Crewe, *M. turca*, *L. semibrunnea*, *S. costae-strigalis*, *P. strigillaria*, *N. confusalis*. (21) *Occasional*:—*E. extersaria*, *A. avellana*, *H. paludis*, *E. nebulata*, *E. valerianata*, *A. villica*, *E. uncula*, *A. albulata* Hufn. (*candidata* Schiff.), *E. haworthiata*, *M. rubi*, *N. geminipuncta*, *C. verbasci*, *P. viridaria*, *T. turfosalis*, *R. undulata*, *R. sacraria*, *E. cuculata*, *E. indigata*, *E. sobrinata*, *E. subnotata*, *E. clorana*, *H. albicolon*, *A. sublustris*, *L. obsoleta*, *L. exigua*, *H. peltigera*, *P. vetulata*, *O. plumbaria*, *E. tantillaria*, *E. satyrata*, *X. biriviata*, *A. atropos*, *D. galii*, *C. pigra*, *C. maritima*, *A. myrtilli*, *H. maritima*, *A. alni*, *H. venustula*, *S. conjugata* Borkh. (*marginepunctata* Goeze), *C. sparsata*, *S. alternata*, *I. fulvaria*, *A. pulveraria*, *C. multistrigaria*, *T. firmata*, *E. dodoneata*, *E. plumbeolata*. (48)

Recorded only at Bishop's Stortford:—*Very common*:—*D. citrata*. (1) *Common*:—*L. pyraliata*. (1) *Fairly common*:—*E. quercinaria* *E. adusta*, *E. autumnaria*, *C. gilvago*, *H. compta*. (5), *Scarce*:—*T. crataegi*, *L. prunata*, *P. affinitata*, *D. caeruleocephala*, *E. irriguata*, *E. rivata*. (6). *Very scarce*:—*H. conspersa*, *E. ochroleuca*, *C. didymata*, *E. venosata*, *M. procellata*, *E. expallidata*, *H. fusconebulosa*. (7) *Occasional*:—*E. denotata*, *A. derivata*, *C. annulata*, *B. crassalis*, *L. cucullina*, *E. chrysorrhoea*, *N. mundana*, *E. occulta*, *A. ochrearia*, *T. polycommata*, *A. stigmatica*, *E. trisignaria*. (12)

Note: of the above, *D. caeruleocephala*, *E. venosata* and *A. derivata* have been recorded at the Ottershaw trap in years before 1954.

(For certain closely similar species, separate counts were not made at one or both traps, though the presence of both species was verified. These have been combined to form single units in the above list. The species concerned are *A. exclamationis* and *A. clavis*; *C. morpheus*, *C. blanda* and *C. alsines*; *P. strigilis* and *P. latruncula*; *O. dilutata* and *O. autumnata*; *A. psi* and *A. tridens*. The total numbers of actual species recorded was Ottershaw, 435, Bishop's Stortford, 371.)

April Butterflies in Provence, 1962

By R. F. BRETHERTON

On 11th April, 1962, my wife and I flew, with our car, from Lydd Airport to Calais and, after picking up our youngest son the next morning, near Paris, drove southwards through France to Provence. We spent nights at Bourges and Le Puy and, after passing through some very fine country on the east side of the Massif Central, we emerged on the afternoon of 14th April in the Rhône Valley and established ourselves for two nights under the Roman aqueduct at Pont du Gard. We gave some time to exploring the Roman and mediaeval monuments for which the district is so famous, and then settled ourselves for a week at Bormes, which is a pretty village on a hill above the Mediterranean, some fifteen miles east of Hyères. We started homewards by easy stages on 24th April, spending time at the country home in the Beaujolais of the distinguished entomologist, M. le Vicomte de Toulgoët, and staying two nights in Paris before returning to England from Le Touquet on 28th April. Altogether, we drove over 2,000 miles in France, without any kind of hitch or incident, beyond some admonitory finger-wagging when my son drove the car to the left, instead of the right, by the policeman on point duty in a small town!

Collecting was only one of several objects of this expedition. But I had intended that, particularly during our stay at Bormes, we should see something of the great range of spring butterflies of Provence. In particular, I hoped to find seven species which would be new to me, viz. *Zerynthia rumina* L., *Z. hypsipyle* Schulz. (*polyxena* Schiff.), *Libythea celtis* Esp., *Erebia epistygne* Hb., *Thestor ballus* F., *Callophrys avis* Chapman, and *Glaucopsyche melanops* Bdv. This hope was—just—fulfilled.

We were told that the season was at least a month later than usual; indeed, it seemed to be relatively even more backward than in England. The weather was also frustrating. On our drive south we hardly saw the sun, and we explored Le Puy in a snow-storm. The 15th April was a brilliant day, but with a north wind so cold that few insects flew: on the thyme-covered rocks below the mediaeval castle at Les Baux we saw nothing but a couple of *Philotes baton* Bergstr., in striking contrast to the abundance of insects which I remembered from my previous visit there in April, 1924. The next day the wind went round to the south, but our attempt to study the birds in the marshes of the Camargue was spoilt by a deluge of rain. This "sirocco" lasted for a week, bringing cloud, rain and much high wind; moreover, it was full of Sahara sand,

and our car, left out on several wet nights, was covered with red mud by the mornings. Only on our last day at Bormes and during our return to Paris was there real sun and warmth.

The first day after our arrival at Bormes was wholly cloudy and wet, but we started serious collecting on the second with fair morning sunshine, in the Cap Bénat area just west of Bormes. We found a spot by the roadside where, besides a good show of pink *Cistus* and other flowers, there were a number of small Strawberry Trees (*Arbutus unedo* L.), which are the main food of the Provençal Green Hairstreak, *Callophrys avis*. Sure enough, after examining and rejecting a large number of the ordinary *C. rubi*, which were mostly worn, we caught two specimens of *C. avis* in fine condition. They were larger and brighter than *C. rubi*, and seemed to be only just beginning to emerge, so we promised ourselves a return visit later, which the weather in fact prevented. *Glaucopsyche melanops* was common on this ground, and we quickly collected a nice series, though they were mostly males. Other species in evidence were *Gonepteryx cleopatra* L., *V. atalanta* L., and a number *Vanessa cardui* L., which looked like newly arrived immigrants; also the moth *Minucia lunaris* Schiff., which was flying freely in the sunshine. It also came to the lights of our hotel in the evening. Unfortunately we had arranged to return to our hotel for lunch, always a time-consuming operation in France; and the afternoon was much less sunny than the morning. We spent it in the fine Forêt du Dom above Bormes. But at that altitude, about 800 feet, the woods were still brown and the butterflies were mostly hibernated *Nymphalis antiopa* L., *N. polychloros* L., *Inachis io* L., *Polygonia c-album* L. and *G. cleopatra*, though we also saw a few males of *Anthocaris cardamines* L., and some *Pararge egeria* (of the buff-spotted southern form) and *P. megera* L. The Geometer *Pseudopanthera macularia* L., rather paler than its English form, was also common.

On 20th April we set out for Hyères to look for *Thestor ballus* F. This butterfly, which looks half Copper, half Hairstreak, is, I believe, found in France only near Hyères and for a short way inland; like several other Provençal species, it occurs in Spain but does not extend eastwards to Italy. It is also a very early species, and in a normal season we might have missed it altogether. The classical ground for it is on the low pass between Hyères and Costebelle. But we found this almost entirely built over or cultivated, so we turned up a narrow lane on the right of the road and, after some casting about, selected some suitable-looking old vine terraces above a quarry. Despite only very intermittent sunshine and a strongish wind, we managed to catch here three *T. ballus*, besides missing two others because of the ease with which their green and brown colours seemed to melt into the background when one chased them. There was also a good selection of other species, though none were numerous. Two Whites, *Euchloë ausonia* Hb. and its much smaller relative *E. tagis* Hb., dashed about over the quarry but were very hard to net. The beautiful Provençal Orange-tip ('L'Aurore de Provence'), *Anthocaris euphenoides*, was also caught, though neither here nor elsewhere did we see any females. Among the Blues, there were a few *G. melanops*, *P. baton*, and *Polymmatius icarus* Rott. and singles of *Scolitantides orion* Pall., and *Glaucopsyche cyllarus* Rott., as well as many *Lycaenopsis argiolus* L.; and we saw our first Skippers with *Pyrgus malvoides* El. & Ed., *Erynnis tages* L., and a single *Spialia*

sao Hb. There was also an early *Melitaea cinxia* L. and some *Leptidea sinapis* L., though we saw nothing, here or elsewhere, of *L. duponcheli* Stdgr. Altogether, it was a successful day in the face of difficulties.

There followed two days on which the net could not be used, though a few moths, including *Lycia hirtaria* Clerck and *Cleora rhomboidaria* Schiff. in unfamiliar conjuncture, were collected at the hotel lights. The gloom was, however, relieved by the finding of a half-fed larva of *Charaxes jasius* L. on an *Arbutus* bush near Cavalaire. It looked like a dull green slug and was perfectly camouflaged, which was no doubt why considerable search failed to yield any more. Fortunately, it can be fed from the Strawberry Tree in my garden, so there are good hopes that in June it will reveal the four-tailed splendour of the butterfly.

Easter Monday began clear and warm. We decided to make a fifty mile expedition inland to the limestone country round Draguignan, where several English collectors did very well between the wars. We started by the winding, hilly roads through the Forêt du Dom, where there were still few butterflies to be seen. But after dropping into a deep valley at Collobrières we stopped to investigate lush meadows in the hope of finding *Zerynthia hysipyle*. The second attempt succeeded, and we found a flourishing colony. The brilliant black, yellow and red butterflies sat quietly on the grasses or flew heavily to clumps of flowering thyme, and we quickly collected a series. I should have liked more time to study their habits, but we had to press on to our main objective at Draguignan, which was reached at noon. After passing through the town we drove some way up the Grasse road and stopped on a south-facing hillside covered with overgrown vine and olive terraces. It proved to be very rich. In two hours' collecting we saw practically all the species we had seen elsewhere (except, of course, *C. avis*, *T. ballus* and *Z. hysipyle*), and most of them in much better numbers. In addition, *Colias croceus* Fourc. and *C. australis* Vty were about; I saw, but missed, *Polygonia egea* Cram.; and we caught four perfect males of *Zerynthia rumina*. These were flying fast on the slopes, and had a way of dodging from one terrace to another which caused us to miss several; their habits seemed very different from those of *Z. hysipyle* in the meadows. The Fritillary *Clossiana dia* L. was common. Finally, just as we were about to move off, my son netted a *Libythea celtis* in very fair condition. It was probably a stray, as I did not see any of its food-plant, the Nettle Tree (*Celtis australis*) in that spot.

This accounted for the sixth out of my seven wanted species. We decided to try for the seventh, *Erebia epistygne*, by driving on to the higher ground between Montferrat and Comps, where it has been reported to be common in the past. This did not succeed. We investigated several promising stony wastes beside the road, at heights between 1,500 and 2,500 feet, but saw no *Erebias*; either they had not yet emerged so high up, or else it was too late in the day for them. Almost the only insects we did see there were numbers of a spectacular, fast-flying Geometer, *Fidonia plummistaria* de Vill., which resembles a gigantic version of our *Ematurga atomaria* L.; and a wandering *Iphiclides podalirius* L., the only one we saw in Provence. So at about 4.30 p.m. we turned back, dropped down through the magnificent gorge of Chateau Double to much needed drinks in Draguignan, and then drove back to Bormes by a different route via Saint Maxime and

Cogolin. Even on this day it had to rain; we had cloud along the coast and a shower as we entered our hotel

Early next morning, 24th April, we started homewards in brilliant sunshine. I had planned a slight detour in order to explore the limestone Massif de la Sainte Baume, whose butterflies and their biotopes have recently been fascinatingly analysed by M. L. Bigot (*Alexanor*, 2: 137/144). I also had a lingering hope of seeing *Erebia epistygne*. So at 11 a.m. we parked the car outside the Hostellerie de la Sainte Baume and walked up the steep path which leads to the place of pilgrimage, a chapel in a natural cave some way up the north face of the limestone cliff. Though interesting enough, this was entomologically unprofitable, since this face was still in shadow, and we saw only a few common Whites and Satyrids and a *Gonepteryx rhamni* at its foot. Having spent an hour in this way, we started to move the car a little along the road towards Plan d'Aups, before eating our sandwiches. Almost at once a large dark butterfly came across the road with the unmistakable loping flight of an *Erebia*; and *E. epistygne* was the only possible one for this date and place. We stopped the car, set to work, and in less than an hour my son and I collected twenty of them, mostly females in perfect order but with with some quite good males as well. They flew steadily at about six miles an hour over flat, stony ground, where there was very little grass (and that still brown); and they seemed to sense pursuit and then quickly doubled their pace and began to zigzag. They settled seldom, and did not seem to be attracted by the few flowers there were. Though many of the females may have emerged that morning, males must have been out for some days, though their haunt was on the north side of the mountain and at about 2,100 feet. I was particularly glad to get this species because, though it is well spread on the limestone hills of Provence, it is only found elsewhere in Europe in Spain, and there very locally and as different subspecies.

This ended our butterfly collecting. We had to drive hard for Avignon, as we needed francs and petrol coupons before the banks shut. After that, we ran into a record traffic block on the road to Orange, and a thunder deluge marred our inspection of the Roman theatre and triumphal arch in that town. The next two days were sunny and hot, but opportunities for collecting as we moved northwards did not arise, except that, thanks to the kindness of Madame de Toulgoët, I was able to take a number of moths at light in the Beaujolais; those included both forms of *Xylomiges conspicularis* L. In the circumstances of weather and season, we had really done surprisingly well. Given normal sunshine and a normal season, we might have hoped to see at this time in Provence perhaps 60 species of butterflies. We did in fact see 42, including all our main objectives, though most of them were in too small numbers and in circumstances which did not give us enough opportunity to study their habits.

Ottersnaw, Surrey. May, 1962.

The XIIIth INTERNATIONAL CONGRESS OF ENTOMOLOGY will take place in LONDON from 8th to 16th July under the presidency of Professor O. W. Richards, F.R.S. Those who are interested and who have not received the preliminary notice should write to the Secretary, Dr. Paul Freeman, c/o British Museum (Natural History), Cromwell Road, London, S.W.7.

A New Form of *Eumenis semele* L.

By I. R. P. HESLOP

The grayling butterfly used to occur on both sides of the Avon Gorge and at numerous points on the southern environs of Bristol. I doubt, however, whether it is now to be found within ten miles of the city.

As a schoolboy, when on 8th August 1919 I was exploring ground which was new to me on the Failand massif on the Somerset side of Bristol, and which afforded entrancing views of the Severn estuary, I came across a local form of the grayling—already a very favourite butterfly of mine—which was quite unfamiliar to me and which, despite continued close attention to the species, I have never met since. In fact, I thought the first one I saw must be an aberration of the marbled white (which actually did not occur on the ground). The form was distinguished, roughly, by its extreme general pallor and by the actual intensification of the marginal band. There were also gradations in the direction of the typical limestone form; but such specimens were the more exceptional here. I worked the site also on the following day.

I was unable to visit the ground again until 1926 when I discovered that, with the increasing ease of transport, the ground which had sustained this colony was trampled and littered to death; and that there was no sign of *semele*. I have never returned there.

On having occasion to review my collection, and having never seen similar ones in any other collection, I feel it is high time these specimens were described under a designation to cover both sexes. The sex-mark of the male is not significantly different from normal. The formal description is as follows:

***Eumenis semele* L. *sabrinae* forma nov.:** In both sexes the underside, though very pale, is not outside the general range of variation of specimens taken on the limestone. On the upperside, in both sexes, the band on the outer margin of both forewing and hindwing is much deepened in colour. The greyish pattern towards the base of both forewing and hindwing is paler than usual, though still quite clear and sharp. The colour of the whole of the rest of the upper surface in both sexes ranges, according to the specimen, from pale buff to a cream white. As types, I have selected a male and a female in my collection, both taken by me in Failand, Somerset, on August 9, 1919, bearing my serial numbers (A)339 and (A)342 respectively.

“Belfield”, Burnham-on-Sea, Somerset. 14.v.1962.

The Larval Taxonomy of the British Trichoptera

By ALLAN BRINDLE, F.R.E.S.

III. THE LEPTOCERIDAE

The present part again follows the general plan of this series in that both the larval and pupal keys included are based on the keys in Lestage (1921): the present larval keys are somewhat amended whilst the pupal keys are more or less literal translations, although a considerable number of obscure or doubtful characters have been omitted. Not all the British species of the Leptoceridae are known as larvae, and

mention is made of the undescribed larvae in the notes on the genera.

In order to avoid duplication of illustrations, reference will be made in the present part to drawings in Part 1 (*antea*, 73: 114-125) and to those in the Key to Trichoptera Pupae (*antea*, 73: 156-162).

The Leptoceridae possess eruciform larvae in which the body is much narrower in proportion to the length than in most eruciform Trichoptera larvae (Part 1, fig. 4). The larval cases are, therefore, generally long and slender, either curved or straight, and are often characteristic of a particular genus. The larvae are distinctive in having long antennae, these organs being very inconspicuous in most Trichoptera larvae, and by having very long slender posterior legs which are inserted on forwardly projecting tubular prominences on the lateral part of the metathorax (fig. 2).

The head is more or less elongated and elliptical, often with darker spots or bands. The mandibles are either elongated with a long pointed apex (fig. 6) or shorter and broad with a blunt or serrated tip (figs. 12, 13). The right mandible has no brush of setae on the internal edge and if setal brushes are developed on the left mandible they are usually small.

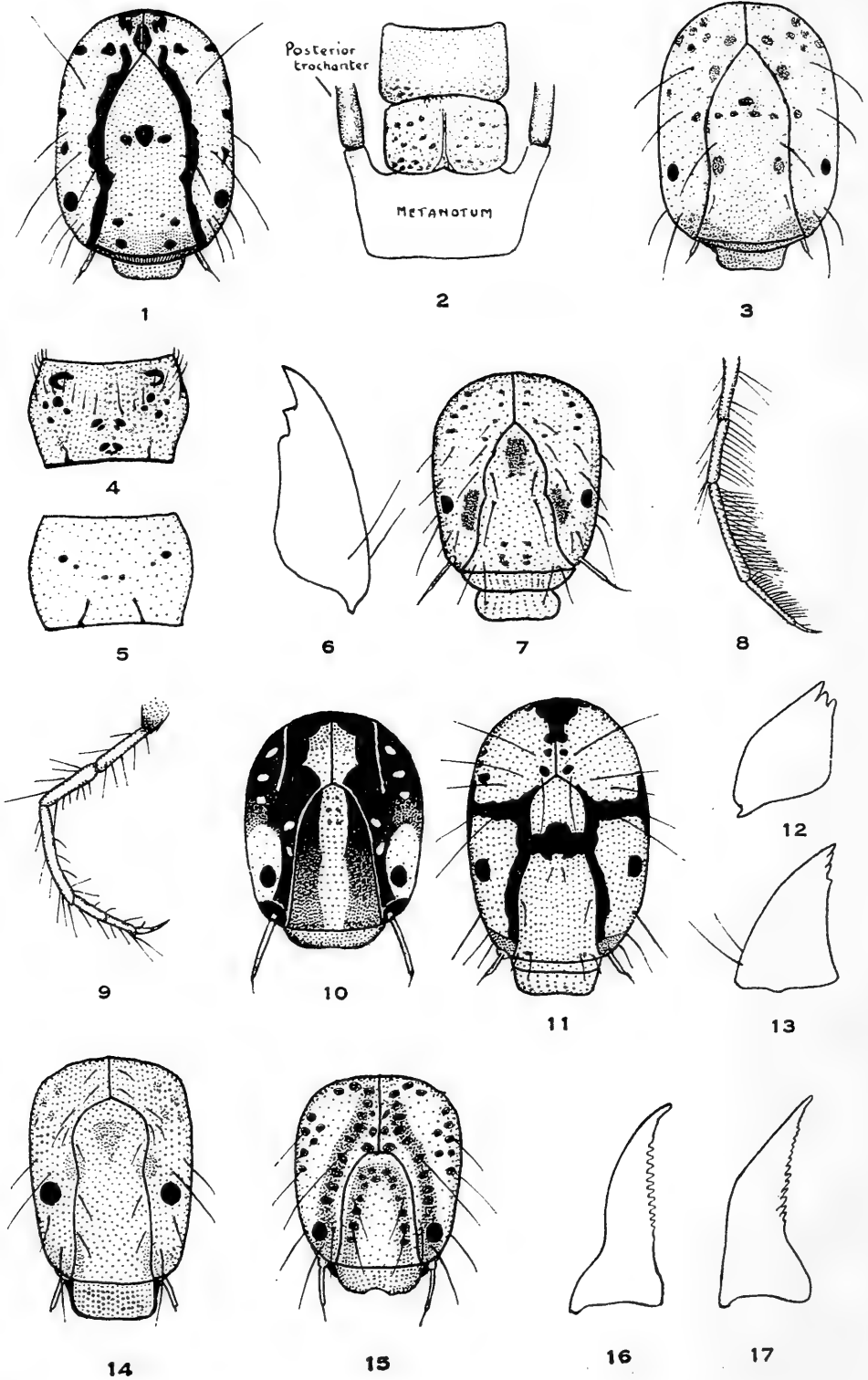
The pronotum is sclerotised completely, but sclerotisation on the mesonotum is sometimes less prominent. In all known *Athripsodes* larvae (except for *A. aterrimus*) the mesonotum is weakly sclerotised according to Lestage (1921), who regards the two black short longitudinal lines on the posterior part of the mesonotum (fig. 5) as representing the distinct sclerotisation). The mesonotum, however, appears to be usually obviously pigmented (and consequently sclerotised) in contrast to the whitish or translucent membranous metanotum. In *A. aterrimus* the mesonotum is much more distinctly pigmented (fig. 4). The metanotum is always membranous and unsclerotised.

The posterior legs are slender and long, sometimes three times as long as the anterior pair, and they project well beyond the latter when the larva is in the case. The hind tibiae are divided in some genera but this does not appear to be a conspicuous character and is not used in the keys. In two genera, *Triaenodes* and *Leptocerus*, the posterior legs are furnished with fringes of long setae (fig. 8) which enable the larvae, still bearing their cases, to swim through the water.

The abdomen may be whitish or coloured (greenish, etc.), and the tubercles on the first abdominal segments are prominent. Neither the intersegmental constrictions nor the lateral line are well marked. The anal processes are short.

The larval cases are divisible into five main types:—

- 1 *Athripsodes*: long, narrow, curved cases, with the width narrowing rapidly posteriorly (Part 1, fig. 16). They may be either of secretion only or composed of fine mineral material, the surface being smooth. Those of *Oecetis* are less curved and rather wider; straight in *O. furva*.
- 2 *Adicella* and *Setodes*: short and wide cases, much less curved either of fine mineral material (*Adicella*) in which the case resembles a small *Odontoceram* case (Part 1, fig. 15) or of larger pieces of mineral material (*Setodes*).
- 3 *Mystacides*: more or less straight, sometimes rather curved, of mineral or vegetable material and usually with long pieces of twig, etc.,



LEPTOCERIDAE

1. Head, dorsal, *A. aterrimus*.
2. Thoracic nota, *T. bicolor*.
3. Head, dorsal, *A. cinereus*.
4. Mesonotum, *A. aterrimus*.

5. Mesonotum, *A. cinereus*.
6. Mandible, *O. ochracea*.
7. Head, dorsal, *O. lacustris*.
8. Posterior leg, *T. bicolor*.
9. Posterior leg, *M. azurea*.
10. Head, dorsal, *E. baltica* (after Lestage).
11. Head dorsal, *M. longicornis*.
12. Mandible, *T. bicolor*.
13. Mandible, *M. azurea*.
14. Head, dorsal, *S. argentipunctella* (after Hickin).
15. Head, dorsal, *T. bicolor*.
16. Mandible, pupal, *Adicella* (after Lestage).
17. Mandible, pupal, *Oecetis* (after Lestage).

attached longitudinally (as in Part 1, fig. 18, but narrower).

4. *Triaenodes*: long, narrow, straight, tapering cases, of vegetable material cut into uniform lengths and arranged spirally around the case (as *Phryganea*, Part 1, fig. 13, but much more narrow). *Erotosis* also uses lengths of vegetable material but arranges these distinctively (see key and notes on the genus).
5. *Leptocerus*: shaped as in 4 but composed entirely of secretion, and translucent.

As usual the pupal case is the larval case, which may be modified by shortening and closure of the ends. The modification is so extensive in *Athripsodes* as to alter the entire shape, and their pupal cases are elliptical, sometimes depressed. The pupae of this family are usually distinctive by the great length of the antennal sheaths, the tips of which are curled around or across the apex of the pupae (pupal key, fig. 21). The anal appendages are generally long and narrow. The tibial spines are either 0.2.2, 1.2.2. or 2.2.2, the latter formula restricted to *Athripsodes* (see pupal key for details). In *Oecetis furva* and *O. lacustris* the spine on the anterior tibia is often rudimentary, and the spine formula is given as 0.2.2, but in *O. ochracea* the anterior spine is prominent and this species has the formula 1.2.2. Normally the spine formula is constant for a genus at least.

The habitats of the less common species are taken from Mosely (1939). Characters concerning the cases are in general omitted in the keys and reference can be made to the summary above.

KEYS TO GENERA

Larvae

1. Abdominal gills in tufts, each gill dividing into six or more filaments *Athripsodes*
- Abdominal gills single or absent 2
2. Mandibles with apex long and pointed sharply (fig. 6) *Oecetis*
- Mandibles broader and shorter (figs. 12, 13) 3
3. Posterior legs with fringes of long setae (fig. 8) 4
- Posterior legs without such fringes (fig. 9) 5
4. Gills prominent on most abdominal segments; case of vegetable material *Triaenodes*
- Gills present on no more than two segments, often more reduced; case of secretion only *Leptocerus*

5. Head pattern distinctive (fig. 10); case of vegetable material arranged partly transversely and partly circularly around the case *Erotesis*
 — Head pattern otherwise; case not so constructed 6
6. Head yellow with prominent black longitudinal bands, at least along anterior part of fronto-clypeus *Mystacides*
 — Head yellow or brownish without black bands 7
7. Head and pronotum uniformly reddish *Adicella*
 — Head and pronotum with darker spots and bands *Setodes*

Pupae

1. Spines 2.2.2; gills in tufts *Athripsodes*
 — Spines 0.2.2, or 1.2.2; gills single or absent 2
2. Labrum with numerous small setae on dorsal surface near anterior border in addition to long setae 3
 — Labrum with only long setae on dorsal surface 4
3. Mandibles with external border curved sharply inwards; external border convex; mandibular teeth larger proximally..... *Oecetis*
 — Mandibles with external border curved gradually; external border concave (fig. 16); mandibular teeth subequal *Adicella*
4. Spines 1.2.2. 5
 — Spines 0.2.2. 6
5. Gills present *Triaenodes*
 — Gills absent *Erotesis*
6. Gills present (except *M. azurea*); cases distinctive *Mystacides*
 — Gills absent 7
7. Anal appendages short, triangular, not more than three times as long as broad at base *Leptocerus*
 — Anal appendages long and slender, tapering gradually, more than six times as long as broad at base *Setodes*

KEYS TO SPECIES

Athripsodes Billberg

Cases usually distinctive, but they may be coloured green by a covering of algae in *senilis* and *fulvus* and both these larvae are reported to be associated with fresh-water sponges. The following larvae are unknown:—*nigronevrosus* (Retz.), *alboguttatus* (Hagen), *albifrons* (L.), *interjectus* (McLach.), *commutatus* (McLach.), and *dissimilis* (Steph.).

Larvae

1. Mesonotum strongly sclerotised and pigmented (fig. 4); head yellow with blackish bands and spots (fig. 1). Common in lakes and ponds *aterrimus* (Steph.)
 — Mesonotum weakly sclerotised (fig. 5); neither head nor nota strongly pigmented 2
2. Cases entirely of secretion, rarely with added material; gills present on eighth abdominal segment 3
 — Cases composed of various added material; gills absent from eighth abdominal segment 4
3. Head pale without dark markings; pronotum pale with black anterior border; mesonotum not darkened in middle; hooks of anal appendages with two dorsal teeth. Local, in lakes and ponds *senilis* (Burm.)

- Head darker with dark spots; pronotum only darkened on anterior border; mesonotum darkened in middle; hooks of anal appendages with one dorsal tooth. Frequent in lakes and ponds
fulvus (Ramb.)
- 4. Gills on abdominal segments 2-7; head light yellow with faint dark markings; pronotum light yellowish-brown unicolorous. Common in lakes and rivers *annulicornis* (Steph.)
- Gills present only on abdominal segments 1-3 5
- 5. Head and thoracic nota pale yellow; pronotum with faint darker spots laterally; mesonotum with darker spots and posterior black lines prominent (fig. 5). Common in lakes and rivers
cinereus (Curt.)
- Head and thorax darker yellow; pro- and meso-nota immaculate and posterior black lines short and curved. Local in rivers
bilineatus (L.)

Pupae

- 1. Case elliptical, entirely of secretion, with a ventral transverse slit near anterior border 2
- Case elliptical, not entirely of secretion 3
- 2. Labrum without a median projection on anterior border; a sclerotised plate on seventh abdominal segment *fulvus* (Ramb.)
- Labrum with a small median projection on anterior border; rarely a sclerotised plate on seventh abdominal segment ... *senilis* (Burm.)
- 3. Gills in three series on abdominal segments 2-7
annulicornis (Steph.)
- Gills in four series on abdominal segments 1-3 or 2-3 only 4
- 4. Anal appendages broader with parallel sides, and truncate at tip *aterrimus* (Steph.)
- Anal appendages narrower, tapering distally, not truncate at tip .. 5
- 5. Pupae about 12 mm. in length, case about 14 mm. ... *cinereus* (Curt.)
- Pupae about 8-9 mm. in length, case about 10 mm. ... *bilineatus* (L.)

Mystacides Berthold*Larvae*

- 1. Gills absent; fronto-clypeus without a black transverse band. Common in still or running water *azurea* (L.)
- Gills present; fronto-clypeus with a black transverse band, making a letter "H" with the longitudinal black bands (fig. 11) 2
- 2. Gills on abdominal segments 2-7 or 2-8. Common in lakes and ponds *longicornis* (L.)
- Gills on abdominal segments 2-4. Local in still or running water ...
nigra (L.)

Pupae

- 1. Gills absent *azurea* (L.)
- Gills present 2
- 2. Anal appendages regularly curved, tapering distally *nigra* (L.)
- Anal appendages with apex strongly re-curved, and hook-like ...
longicornis (L.)

Triaenodes McLachlan

The larva of *T. simulans* Tjeder is unknown.

Larvae

1. Head yellow with prominent dark spots and dark longitudinal bands extending to anterior border of head (fig. 15). Common in lakes and ponds *bicolor* (Curt.)
- Head yellowish-brown with dark spots confined to occipital area, no dark band extending down to anterior border of head. Local in running water *conspersa* (Ramb.)

Pupae

1. Internal border of anal appendages strongly emarginate about the apical third *bicolor* (Curt.)
- Internal border of anal appendages not emarginate about the apical third *conspersa* (Ramb.)

Erotosis McLachlan

One species, rather local in rivers. The case is distinctive according to Lestage. It is apparently composed of small lengths of vegetable material arranged in more or less circular bands along one side of the case and transversely along the other side, the junction of the two arrangements making a ziczac ridge along the case *baltica* McLach.

Adicella McLachlan

Two species, of which one, *reducta* McLach., is unknown in the larval stage.

Rather local, near boggy ground or springs *filicornis* (Pict.)

Oecetis McLachlan

Five species, two (*notata* (Ramb.) and *testacea* (Curt.)) being unknown as larvae.

Larvae

1. Claws of middle and posterior legs each with a prominent basal spine; two or three setae on each side of metasternum; head and pronotum pale yellow with numerous dark spots; cases straight, of pieces of vegetable material arranged transversely. Local, in lakes and ponds *furva* (Ramb.)
- Claws of middle and posterior legs with rudimentary basal spines; numerous setae on each side of metasternum; cases curved, usually of sand grains 2
2. Prosternum with numerous setae near anterior coxae; head pale yellow with dark spots (fig. 7); pronotum pale yellow, darkened on posterior half with brownish spots; cases strongly curved. Widely distributed in lakes and ponds *lacustris* (Pict.)
- Prosternum with a single setae near anterior coxae; head yellow with a series of six spots arranged in a semicircle on fronto-clypeus; a large spot between the eyes surrounded by dark spots; pronotum pale yellow with large dark transverse median band; cases weakly curved. Frequent, in lakes and ponds *ochracea* (Curt.)

Pupae

1. Larger, 12-14 mm.; spines 1.2.2: anterior border of labrum with a long pointed median projection *ochracea* (Curt.)

- Smaller, less than 12 mm.; spines 0.2.2; labrum with a small projection on anterior border 2
- 2. Size 7-11 mm.; median projection on anterior border obtuse
furva (Ramb.)
- Size 6-8 mm.; median projection on anterior border of labrum sharply pointed *lacustris* (Pict.)

Leptocerus Leach

Three species, of which one, *lusitanica* McLach., is unknown as larva or pupa—the pupa of *interrupta* (F.) has not been separated from that of *tineiformis*.

Larvae

- 1. Case straight; local in lake and ponds *tineiformis* (Curt.)
- Case curved; local in running water *interrupta* (F.)

Setodes Rambur

Two species, of which one, *punctata* (F.) is unknown in the larval stage.

- Local, in lakes *argentipunctella* McLach.

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Insects in 1960 (Part One)

By P. SKIDMORE F.R.E.S.

The present paper is concerned largely with insects collected in the counties of Gloucester and Nottingham during the early part of June 1960. From the evening of the 3rd to the morning of the 10th, the collecting was concentrated on some of the large woods on the Coltswoods to the south and east of Cheltenham. Most of the time was spent working a highly interesting area of dissected forest-land roughly bounded by the villages of Colesborne, Chedworth and Withington. Since the predominant rock in this region is Oolitic Limestone, the fauna is comparable with that of other calcareous regions—notably that of Derbyshire, though undoubtedly richer in species. One day (the 4th) was spent working the woods around Postlip from the summit of Cleeve Hill to the boundary of Winchcombe.

The rest of the period—from the evening of the 10th to the morning of the 13th—was spent at Heanor in south Derbyshire at the kind invitation of Mr. F. A. Hunter. Little collecting was done in Heanor, other than a little very productive window collecting, all the attention

being paid to the fine ground "over the border" in Nottinghamshire. On the 11th a visit was paid to a remnant of the original Sherwood Forest just to the north of Edwinstowe. This consisted of an area of ancient oaks, of unequalled magnificence. The following day was spent working some very fine woodland near Belvoir Castle in Leicestershire.

For the purpose of convenience, a few records have been included from early September, 1959, when I spent a day surveying the Colesborne-Lye Bank area of Gloucestershire.

PSOCOPTERA :

CAECILIIDAE :

Caecilius flavidus (Steph.) Abundant on an oak tree near Lye Bank (near Colesborne Hall), 6.ix.59.

ODONATA :

AGRIIDAE: *Agrion splendens* and *virgo* were flying in some abundance along the stream which flows along the eastern side of Chedworth Woods, 7-9.vi.60.

HEMIPTERA :

MIRIDAE :

Miris striatus (L.) Rather common and widespread. Specimens seen in some numbers in all the woods around Colesborne and Chedworth and also in the Leicestershire locality. 4-12.vi.60.

Orthops campestris (L.) Adults in considerable numbers on wild parsnip growing on the roadside verges at Little Colesborne. 4-9.vi.60.

CERCOPIDAE :

Cercopis vulnerata Germar. Numerous around Postlip.

MEMBRACIDAE :

Centrotus cornutus (L.) Two on a wild rose by Colesborne Hall, 7.vi.60.

COLEOPTERA :

CARABIDAE :

Loricera pilicornis (F.) One on the road by Colesborne Post Office, 9.vi.60.

Agonum dorsale (Pont.) One on road near Postlip House, 4.vi.60.

Abux ater (de Vill.) One in wood near Postlip Warren, 4.vi.60.

HISTERIDAE :

Plegaderus dissectus Erichs. Several under bark of oak stump near the Major Oak, Edwinstowe, 11.vi.60.

LYCIDAE :

Platycis minuta (F.) 1♂ Lye Bank, 6.ix.60.

CANTHARIDAE: The following species were all common around Colesborne, Chedworth, Withington and Postlip—*Cantharis livida* L., *pellucida* F., *nigricans* (Muel.), *Rhagonycha lignosa* (Muel.), and *Podabrus alpinus* (Pk.).

ELATERIDAE :

Athous haemorrhoidalis (F.) Abundant around Postlip, Colesborne, Chedworth, etc., 4-9.vi.60.

MYCETOPHAGIDAE:

Mycetophagus 4-pustulutus (L.) Several under the bark of a dead horse chestnut in Chedworth Woods, 9.vi.60.

COLYDIIDAE:

Ditoma crenata (F.) A few with *Plegaderus* mentioned above.

OEDEMERIDAE:

Ischnomera coerulea (L.) 1 ♀ Chedworth Woods, 9.vi.60.

Oedemera nobilis (Scop.). 1 ♀, Monkham Wood, near Colesborne Hall, 7.vi.60.

XYLOPHILIDAE:

Xylophilus pygmaeus (Degeer). 4 ♂, 1 ♀, beaten out of flowering elder bush growing out of an ancient long-dead oak tree near the Major Oak, 11.vi.60. Very active little beetles with remarkably long antennae—at least in the male.

SERROPALPIDAE:

Phloiotrya rufipes (Gyll). 1 ♀ bred from a larva dug out of an oak twig at Bilhaugh, east of the Major Oak, 11.vi.60. The larva was dug out by Mr. F. Hunter, and its companions in the branch were larvae and pupae of the Longhorns—*Leiopus* and *Saperda scalaris* (L.). The adult *Phloiotrya* emerged about the middle of July.

ALLECULIDAE:

Prionychus fairmairei Reiche. Half a dozen specimens of this fine insect were found under very loose bark of a hollow section of an old oak, along with one or two larvae, at Bilhaugh, 11.vi.60. (N.B. *P. ater* (F.) is said to occur, too, in this locality, but none were taken on this occasion.)

TENEBRIONIDAE:

Hypophlaeus unicolor (Pill. & Mitter). Two specimens under the bark of an old birch tree by the Major Oak, 11.vi.60.

SCARABAEIDAE:

Aphodius fossor (L.). One in cow dung near the summit of Cleeve Hill, 4.vi.60.

Trox scaber (L.). One specimen under bark of rotten Horse Chestnut, Chedworth Woods, 9.vi.60. (An extraordinary beetle to find behind bark.)

LUCANIDAE:

Dorcus parallelipedus (L.). Rather numerous at Bilhaugh, 11.vi.60.

Sinodendron cylindricum (L.). 1 ♂ in flight in wood by Postlip Warren, 4.vi.60.

CERAMBYCIDAE:

Stenocorus meridianus (L.). Withington, 1 ♂, 7.vi.60. Little Colesborne, one black male, 5.vi.60. Chedworth Woods, two females, 7.vi.60. (All these were on large umbels.) Also several in flight in the rides in the wood near Belvoir Castle, 12.vi.60. These appeared immediately after very heavy rain.)

Grammoptera ruficornis (F.). Abundant in all the woods worked around Cheltenham, and in the Leics. locality, too. One specimen of the extreme black form (*holomelina* Pool) was taken at the latter locality.

- Alosterna tabacicolor* (Degeer). Abundant in the Leics. locality and in Chedworth woods. Much more localized in the Gloucs. woodlands than the previous species.
- Strangalia melanura* (L.). Several on wild rose flowers on edge of Monkham Wood, 7.vi.60.
- S. maculata* (Poda). Several in the wood near Belvoir Castle, 12.vi.60.
- Molorchus minor* (L.). 1 ♂, 1 ♀, on umbels in the same locality, 12.vi.60.
- Clytus arietis* (L.). One seen on a fence-post near Postlip Warren, 4.vi.60.
- Leiopus nebulosus* (L.). 1 ♂ on Dog's Mercury at foot of an oak tree in Chedworth Woods, 9.vi.60.
1 ♂ found by Mr. Hunter on the branch mentioned under *Phloiotrya*, 11.vi.60.
- Stenostola ferrea* (Schrank). Old borings present in several large Lime trees in Chedworth Woods. The borings of this species are sufficiently characteristic for them to be recognised at once.
- Phytoecia cylindrica* (L.). One female swept from umbels growing by roadside at Little Colesborne, 5.vi.60.

CHRYSOMELIDAE:

- Orsodacne cerasi* (L.). Two on umbels at Little Colesborne, 7.vi.60. Three on umbels in Chedworth Woods, 9.vi.60. Many more seen in both localities.
- Timarcha tenebricosa* (F.). Common throughout Chedworth, Withington, and Colesborne areas, 5-9.vi.60.

CURCULIONIDAE:

- Apoderus coryli* (L.). One on hazel bush in Chedworth Woods, 7.vi.60.
- Phyllobius urticae* (Degeer). Numerous on nettles around Postlip, 4.vi.60.
- Phyllobius purvulus* (Ol.). One taken as prey of *Dioctria atricapilla* (Dipt., Asilidae, which see). Probably abundant.
- Magdalis carbonaria* (L.). One on Dog's Mercury in the Leics. wood, 12.vi.60.
- Cionus alauda* (Hbst.). One on *Scrophularia* in Postlip woods with *C. scrophulariae* (L.) and *Cleopus pulchellus* (Hbst.), 4.vi.60.

HYMENOPTERA:

CEPHIDAE:

- Cephus pygmaeus* (L.). One female in meadow near Postlip, 4.vi.60.

ARGIDAE:

- Arge pagana stephensi* (Leach). One female, Little Colesborne, 5.vi.60.
- Arge fuscipes* (Fallen). One female, Little Colesborne, 5.vi.60.
- Arge ustulata* (L.). One male, Postlip Warren, 4.vi.60.

TENTHREDINIDAE

- Dolerus gonager* (F.). One female, Postlip Warren, 4.vi.60.

ICHNEUMONIDAE:

- Rhyssa persuasoria* (L.). One male hovering around some sawn conifer logs at Lye Bank, 5.vi.60.

DIPTERA

TIPULIDAE:

Dietenidia bimaculata (L.). Several females hatched at the end of June from larvae found under the very loose bark of an ancient dead oak near the Major Oak on 11.vi.60. They were in the pupal state for under a fortnight.

Utenophora pectinicornis (L.). One male flying across the road from Seven Springs to Andoversford, 8.vi.60.

MYCETOPHILIDAE:

Apemon marginata (Mg.). One male of this fine insect (our largest Fungus gnat) was swept from lush vegetation in clearing in Postlip woods, 4.vi.60.

Symmerus annulatus (Mg.). One male on rotten ash stump in copse by Colesborne Hall, 5.vi.60.

ASILIDAE:

Isopogon brevisrostris (Mg.). One male on fence-post on upper edge of Postlip woods, 4.vi.60.

One female on fence-post by roadside in Pinchley Wood (upstream from Lye Bank) with a small Muscid as prey, 8.vi.60.

Dioctria rufipes (Degeer). One male, Little Colesborne, 5.vi.60. Abundant with the next species along a short stretch of wide roadside verge by Little Colesborne. Also in clearing in copse near Tithby (Notts.), 12.vi.60.

D. atricapilla Mg. Several with the above species by Little Colesborne. One taken with *Phyllobius parvulus* and another with the Mirid bug, *Rhopalotomus ater* (L.) as prey. Also in some numbers in the same Tithby locality.

Machimus atricapillus (Fallen). One male on fence-post near Lye Bank, 6.ix.59.

EMPIDIDAE:

Empis tessellata F. Common in all the woods worked, 4-12.vi.60.

SYRPHIDAE:

Syrphus diaphanus Zett. One male Lye Bank 8.vi.60.

Xanthogramma citrofasciatum (Degeer.) One female at rest on Dogs Mercury after shower between Monkham and Withington Woods, 7.vi.60.

Chrysotoxum cautum (Harris) One female on oak leaf in Chedworth Woods, 7.vi.60.

Merodon equestris F. v. *transversalis* Mg. One male on Cleeve Hill, 4.vi.60.

Volucella inflata (F.) One male on roadside umbel by Colesborne Hall, 9.vi.60. Another seen in Chedworth Woods on the same day.

Eristalis horticola (Degeer). Abundant at Hawthorn flowers around Postlip, 4.vi.60.

Sphegina clunipes (Fallen). One male, Chedworth Woods, 9.vi.60.

Cheilosia honesta Rondani. One male, Chedworth Woods, 9.vi.60.

Cheilosia antiqua Mg. One male Cleeve Hill, 4.vi.60.

Pipiza austriaca Mg. One female, Chedworth Woods, 9.vi.60.

CONOPIDAE:

Myopa testacea (L.) One beaten off Hawthorn flowers, Pinchley Wood, 8.vi.60.

PLATYSTOMIDAE:

Platystoma seminationis (L.) Abundant throughout the Colesborne, Chedworth and Withington areas, 4-9.vi.60.

OTITIDAE:

Otites guttata (Mg.) Very common in all the woods and copses in the Colesborne, Chedworth and Withington areas especially on Dog's Mercury, 4-9.vi.60.

Herina germinationis (Rossi.) One female, Lye Bank, 6.ix.59.

Seioptera vibrans (L.) Two on the house window at Heanor, 10.vi.60.

TRYPETIDAE:

Urophora stylata (F.) A pair in cop in rough field near the Major Oak, 11.vi.60.

Trypeta falcata (Scop.) One female swept from thistle growing by roadside at Chedworth Woods 9.vi.60.

PSILIDAE:

Chyliza annulipes Mcq. One female on rotten beech stump in copse by Colesborne Hall, 5.vi.60. A further male in deep shade on edge of wood in Postlip Warren, 4.vi.60.

SCIOMYZIDAE:

Sciomyza dubia Fallen. A few seen on Cleeve Hill, 4.vi.60.

S. albocostata Fallen. Seen in all the woods worked around Chedworth, Colesborne, Withington, and Postlip, 4-9.vi.60.

Ditaenia cinerella (Fallen). Numerous on Cleeve Hill, 4.vi.60.

Trypetoptera punctulata (Scop.) Several in Postlip Warren, Lye Bank, and Chedworth Woods, 4-9.vi.60, 6.ix.59.

Limnia fumigata (Scop.) Several seen in Postlip and Chedworth Woods, 4-9.vi.60. Also two females and one male at Lye Bank, 6.ix.59.

Limnia unguicornis (Scop.) A few seen in Chedworth Woods, 7.vi.60.

OPOMYZIDAE:

Opomyza germinationis (L.) Starting to come out on Cleeve Hill, 4.vi.60.

O. florum (F.) Several near Lye Bank; only noted in a very small area, 6.ix.59.

HELOMYZIDAE:

Helomyza dumicola Collin. One beaten out of Lime foliage in small copse by Little Colesborne, 5.vi.60.

TACHINIDAE:

Ernestia rudis (Fallén). One male, Withington Woods, 9.vi.60.

Varichaeta connivens (Zett.) One male, Chedworth Woods, 9.vi.60.

CALLIPHORIDAE:

Sarcophaga rosellei Boettcher. One male, Chedworth Woods, 9.vi.60.

Sarcophaga crassimargo Pand. One male, Chedworth Woods, 9.vi.60.

Sarcophaga atratrix Pand. One male, Heanor, 10.vi.60.

- Sarcophaga subvicina* Rohd. Numerous around Lye Bank, 6.ix.59.
- Sarcophaga dissimilis* Mg. One male, Chedworth Woods, 9.vi.60.
- Helicobosca distinguenda* Ville. One female at rest on Dogs Mercury in Chedworth Woods, 9.vi.60.
- Nyctia halterata* (Pz.) Numerous on edge of small copse between Little Colesborne and Monkham Wood, 7.vi.60.
- Melinda coerulea* (Mg.) One male, Chedworth Woods, 7.vi.60; abundant.
- MUSCIDAE:**
- Musca autumnalis* Deg. Numerous in all the areas worked, 4-12.vi.60.
- Muscina pabulorum* (Fallén). One male in garden at Heanor, 10.vi.60.
- Polietes lardaria* (F.) Abundant in all the areas worked, 4-12.vi.60.
- Phaonia pallida* (F.) Two males in copse near ford at Lye Bank, 8.vi.60.
- Phaonia perditia* (Mg.) One male on bramble leaf in clearing in Postlip Woods, 4.vi.60.
- Helina lasiophthalma* (Macq.) One male, Chedworth Woods, 9.vi.60.
- Helina impuncta* (Fallén). One male in house; Heanor, 10.vi.60.
- Helina pertusa* (Mg.) One female on house window, Heanor, 10.vi.60.
- Helina depuncta* (Fallén). One female, Lye Bank, 8.vi.60.
- Mycophaga fungorum* (Degeer). One male on house window; Heanor, 10.vi.60.
- Eriosphia brassicae* (Bouché). One male, Chedworth Woods, 9.vi.60.

Notes and Observations

THE CANARY ISLANDS AND CENTRAL SPAIN.—I am afraid that Mr. Hayward has fired his broadside in defence of Baron de Worms (*antea*, 81) without troubling to identify his target. In the original article the name of the foodplant was spelled *Asclepius curassavica*. I pointed out that the correct spelling was *Asclepias curasavica*, with which Mr. Hayward appears to agree. It is Mr. Hayward's comment and not mine that is uncalled for.—D. G. SEVASTOPULO, Mombasa, P.O. Box 5026. 27.iv.1962.

CURRENT LITERATURE: THE NIGERIAN BUTTERFLIES.—With reference to Major Johnson's notes under this heading (*antea*, 68) I would draw readers' attention to the recent paper by R. H. Carcasson of the Coryndon Museum, Nairobi, entitled *The Acraea Butterflies of East Africa* and published as a Special Supplement (No. 8) to the *Journal of the East African Natural History Society* in October 1961. This consists of keys, brief descriptions and black and white figures. This should prove extremely valuable to anyone studying this family. With reference to Major Johnson's remarks on the cyanide resistance of the Acraeidae, they all die quickly if exposed to the fumes of tetrachlorethane, as quickly as a Pierid or any other butterfly. Whilst agreeing generally

with Major Johnson that the genus *Acraea* is associated with grassland, there are quite a number of species, at least in East Africa, that are definitely forest dwellers.—D. G. SEVASTOPULO, P.O. Box 5026, Mombasa. 27.iv.62.

LAPHYGMA EXIGUA AT BROMLEY, KENT.—I was gratified to take one specimen of *Laphygma exigua* Hübn. at mercury vapour light here on both of the evenings of May 7 and 8. They were both males in good condition, but the first is considerably larger than the second and more distinctly marked; its pinkish orbicular and reniform are very obvious. The smaller one has ochreous stigmata which are comparatively obscure.—D. R. M. LONG, White Croft, Marvelstone Close, Bromley, Kent. 15.v.1962.

LAPHYGMA EXIGUA HÜBN. IN SURREY.—It will be of interest to note that I took a male small mottled willow moth at mercury vapour light in my garden on the night of 8th May 1962.—E. A. SADLER, 1 New Farm Cottages, Knowle Lane, Cranleigh, Surrey. 18.v.1962.

SPARGANOTHIS PILLERIANA SCHIFF. IN HAMPSHIRE.—I would like to place on record the finding of an almost fully fed larva of *Sparganothis pilleriana* Schiff. in spun leaves of bog myrtle (*Myrica gale*) in an open part of the New Forest a few miles from Ringwood, on 2nd July 1961. This larva pupated a few days later in its spun leaves, and the imago duly emerged on 25th July 1961. My thanks go to Mr. S. Wakely who kindly identified this insect for me.—E. A. SADLER, 1 New Farm Cottages, Knowle Lane, Cranleigh, Surrey. 18.v.1962.

NYMPHALIS IO L. IN THE CHANNEL ISLANDS.—I have received from Mr. Peter Kneale a cutting from the local press stating that *Nymphalis io* L. was seen sunning itself on rocks on Little Sark at Easter. The cutting adds that this island is the home of an infinite variety of butterflies and moths during the summer season. It may be that this announcement is not without an ulterior motive, but we have not heard many reports from the Channel Islands in recent years.—ED.

BREEDING CERAPTERYX GRAMINIS L. AND THOLERA CESPITIS SCHIFF.—I was pleased to obtain eggs from female *Cerapteryx graminis* L. and *Tholera cespitis* Schiff. captured in my m.v. trap here on 18th August and 9th September 1960. In each case about 40 or 50 eggs were laid quite loosely in a glass-bottomed cardboard box and were kept in small glass-topped tins in a garden shed throughout the winter. The *graminis* eggs began to hatch on 16th March and the *cespitis* eggs on 20th March 1961. The young larva were fed on a grass which seemed to fall into the category of "hard" grasses mentioned by Buckler, and which I decided later was *Festuca ovina*. The *graminis* larvae did not do well and all but two larvae died in their first instar. The two that survived their infancy were fed up in a small plastic box on plucked grass—at first only *F. ovina* but later *Poa annua* as well, as they ate it readily. These larvae did not seem to mind the absence of growing grass, but I found it necessary to change their food frequently as the gathered grass quickly withered and turned yellow even in an air-tight container. These larvae duly pupated in a layer of earth in the bottom of their box and two rather small females emerged on 29th June 1961.

The *cespitis* larvae were treated in precisely the same way (though more containers were used) as it seemed to suit them sufficiently and they seemed to thrive. Nevertheless their numbers gradually dwindled and only about 15 became full grown. From the pupae produced by these eight moths emerged between 18th-24th July 1961.

As is well known, the larvae of these two species are very similar in appearance and habits and as is mentioned by Buckler, the larvae of *cespitis* is quite attractive in its third and fourth instars; the colour being a clear grass-green with white longitudinal stripes; later the colour darkens. It is in the green stage that the larvae shows most vigorously its habit when disturbed of twisting its head and tail into a semi-circle and then flicking itself straight again. It would appear that the immature green larvae rest high up in the grass stems but that later they retire to the roots during the day.—D. R. M. LONG, White Croft, Marvelstone Close, Bromley, Kent. 15.v.1962.

SILVER CLOUDS AMONG THE GREY.—In view of the late season and unmentionable weather, it was with some misgivings that we set out for Somerset on 4th May. The weather at Taunton, however, was quite pleasant, and searching the posts nearby quickly produced three *Xylomyges conspicillaris* L. It was three hours before we found the fourth and last specimen to be encountered at rest. There was very little on the posts, *conspicillaris* being the commonest moth followed by two or three *Apatele rumicis* L. and *Xylocampa areola* Esp.

That night we set up two m.v. lights, one connected to a portable trap. Only common species were seen until about 10.30 p.m. when the trap produced one Silver Cloud. Shortly after, another flew in to the sheet, and by 3 a.m. nine specimens had been taken, bringing the total bag to thirteen. Other welcome visitors were two *Lithophane semibrunnea* Haw. and one *Cucullia verbasci* L., all of which came well after midnight. Sixteen species of macros were recorded. Apart from two of those taken at rest, all the *conspicillaris* were of the dark *melaleuca* form.

Operations ceased at 3 a.m. and London was reached in good time after passing through a police check at Wincanton and an all-night café west of Andover, which should be avoided at all costs.—R. G. CHATELAIN and B. F. SKINNER.

HOPLITIS MILHAUSERI FAB. AND NOTODONTA TRITOPHUS SCHIFF. IN SPAIN.—I found Mr. Greenwood's article in the March issue very interesting, and in particular his mention of *Hoplitis milhauseri* Fab. in Spain in April 1961, because my wife and I spent the first two weeks of April 1960 at Tossa de Mar on the Costa Brava and I noticed about six examples of this elegant prominent (which, from my limited reading, I understood to be scarce throughout Europe) at lighted windows and sea-wall lamps. As I noticed only one or two deciduous oaks in the vicinity, I take it the larva must feed on the cork trees which abound in the area. At the same time I noticed a similar number of *Notodonta tritophus* Schiff. The first one of these I found was a female and she laid a large number of eggs.

I found the resulting larvae very difficult to rear. The young larvae were extremely restless and reluctant to feed on the black poplar with which they were provided. It appeared to me that they continually

sought light and height, which might indicate that they prefer the tops of the trees in nature. Nevertheless, about a dozen larvae survived the flight home and eight moths emerged between 1st and 18th July. The larger larvae gave no trouble and were very like *N. ziczac* L. though larger and more contorted, and, of course, with an extra hump.—D. R. M. LONG.

BREEDING TETHEA OCULARIS L.—I have heard or read that it is difficult to get *Tethea ocularis* L. to lay, and that the young larvae are difficult to rear. I captured a female of this species in my mercury vapour trap here on 14th June 1961 and by the following evening she had laid at least fifty whitish eggs on a poplar leaf in the glass-bottomed pill box in which I had confined her. These eggs were curiously flat and almost amorphous to the naked eye and seemed to resemble a blister-like discoloration I have seen on poplar leaves.

The eggs began to hatch on 22nd June and the young larvae gave no trouble. They immediately made their tabernacles between two adjacent leaves and the only deaths of young larvae were from condensation. The young larvae were kept in a small plastic container and the necessity of taking them to Cornwall for a week resulted in their being kept so until they were nearly half grown. They were somewhat overcrowded and some fatalities occurred in an excess of spun silk. On return, the large larvae were kept in a ventilated cage on cut poplar twigs placed in water, and I now have some two dozen pupae.—D. R. M. LONG, White Croft, Marvelstone Close, Bromley, Kent.

ZEITSCHRIFT DER WIENER ENTOMOLOGISCHE GESELLSCHAFT 46: No. 1, 15.i.1961, has notes on the biology of *Peloponnesia megaspieliella* Sieder by Rudolf Löberbauer, on *Eupista supinella* Ortner in Lower Austria by Wolfgang Glasser, and further work on the Lycaenid genus *Agrodiaetus* Scudd. by Walter Forster. No. 2, 15.ii.1961, has notes on the Lepidoptera of Lower Austria by Hans Reisser: Jan Zelny writes on *Pieris bryoniae* O. in the Carpathians with a distribution map. Jozef Razowski contributes a study of the Cochylidae types in the Vienna Nat. Hist. Museum, with 14 text figures of genitalia, and Klaus Sattler writes on a new synonymy of European Gelechiidae.

THYATIRIDAE

Habrosyne pyritoides Hufn. (*derasa* L.): Buff Arches.

Native.¹ Woods, etc.; on bramble. Apparently never abundant, though frequent, particularly at m.v., and recorded from all divisions. Perhaps casual in 15. "Scarce" (V.C.H. (1908)).

In 1952, the moth was noted at Bexley as early as May 30 (A. Heselden); and in 1954, at Wye, as late as August 15 (W. L. Rudland); there appears, however, to be only one generation.

The larva has been taken on bramble at Darenth Wood, October 11, 1924 (F. T. Grant), and at Ham Street, September 15, 1951 (C.-H.).

15. Dungeness, 1957 (S. Wakely); July 7, 1959 (C. R. Haxby, *vide* A. M. Morley).

FIRST RECORD, 1829: Darenth Wood, occasionally (Stephens, *Haust.*, 3: 48).

¹There is some indication that it may also be migratory. Thus, one was taken July 23, 1954, on the North Goodwin Light Vessel, 7 miles off Ramsgate (T. Rouget, *vide* French, *Entomologist*, 88: 129).

Thyatira batis L.: Peach Blossom.

Native. Woods; on bramble. Found in all divisions, except 9. Perhaps casual in 15.

A partial second generation may occasionally occur. Thus, Vinall (*Entomologist*, 36: 267) records one at sugar, September 9, 1903; Fenn (*Diary*), noted a few at West Wickham, August 24, 1861; and E. A. Sadler observed it at Sevenoaks Weald, August 21, 24, 1959, also there the same year on May 11, an exceptionally early date.

Though usually rather uncommon, the moth has very occasionally been observed plentifully. Beeching (*Ent. Rec.*, 2: 229) records that in 1891, at Tunbridge Wells, it "swarmed at sugar"; and at Den Grove, near Sturry, at about 10.30 p.m., on June 26, 1940, I took ten, all hovering about and settling on a damaged oak trunk, from which sap was oozing (C.-H.).

The larva appears to be very seldom noted, despite its rather curious appearance, and the only record I have is that of H. C. Huggins (*in litt.*), who states that he found two or three on bramble at Bysing Wood (div. 3), where he adds the moth was common.

15. Dungeness, one, August 16, 1933 (A. M. Morley).

VARIATION.—Alderson (*Ent. Rec.*, 2: 108) records one that he took in 1890 [at Farnborough], "evidently fresh from pupa, but instead of possessing the usual pink-tinted blotches, they are all of delicate brown, without (or to speak more correctly, having the faintest tinge of) pink".

One of my specimens from Den Grove, 1940, is referable to *ab. juncta* Tutt (C.-H.). In R.C.K. are: *ab. indecorata* Turner, one, bred, Charing, July 1918; *ab. juncta* Tutt, two, bred, Charing, July 1918.

FIRST RECORD, 1829: Darenth Wood, 1820 (Stephens, *Haust.*, 2: 156).

Tethea ocularis L. (*octogessima* Hübn.): Figure of Eighty.

Resident.¹ Woods, etc.; on *Populus tremula*, *P. nigra*, [*P. italica*].

The species first appeared in div. 1 in 1900, since when it has gradually extended its range eastwards, but up to 1929, was still scarce and only known from W. Kent. Has been noted far more plentifully since

about 1946, and at the present time is apparently rather well distributed and locally not uncommon.

1. Bexley district, ♀ drying wings on Lombardy Poplar trunk, June 20, 1900 (Newman, *Ent. Rec.*, 12: 218); one, June 1909, L. W. Newman (R.C.K.); ♀ emerged May 15, 1952, from wild pupa, October 20, 1951 (J. F. Burton) (L. T. Ford); two at m.v., June 13—July 20, 1952 (A. Heselden). West Wickham, one at sugar, June 9, 1926 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1930-31: 75); 1951 (E. Trundell); two, at m.v., July 7, 1958, including one melanic (C.-H.). Bromley, one, June 1920 (W. A. Cope; typical ♀, bred 1927, W. A. Cope (D. G. Marsh coll.)). Sidcup, a pupa, September 1924; one at sugar, July 2, 1925; one, at light, June 24, 1936; one, at light, June 27, 1937 (A. R. Kidner). Petts Wood, one, 1948 (E. Evans); larva on aspen, 1951 (A. M. Swain). Chislehurst, took about half-a-dozen larvae, 1929-30 (S. F. P. Blyth). Abbey Wood (Juby & Hards (1925)), at light, 1952 (A. J. Showler). Greenwich Park; Bexley; Joydens Wood (D. F. Owen, in de Worms, *Lond. Nat.*, 1953: 122). Orpington, 1953 (L. W. Siggs); noted about six in 1957 at m.v., "including, on July 3, the only melanic I have encountered" (R. G. Chatelain). Blackheath, not rare at m.v., 1959 (A. A. Allen). Bromley, one, May 31, one, June 16, 1960, seven, 1961, including two on June 28; a larva on black poplar, August 13, 1959 (D. R. M. Long).

3. Great Hall Wood, one, at sugar, June 27, 1946 (D. G. Marsh and C.-H.). Den Grove, Sturry, one melanic, June 11, 1947 (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 57). Broad Oak, one, June 16, 1952 (C.-H.). Herne Bay, one, 1948, one, 1951, three, 1952, one, 1953; one, melanic, June 20, 1947, two, melanic, 1951, two, melanic, 1952, two, melanic, 1953 (Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 39; D. G. Marsh coll.).

4. Sandwich, one, June 20, 1947 (R. P. Demuth). Ickham, one, 1955, one, July 15, 1956; both typical (D. G. Marsh coll.); one, melanic, one, "semi-melanic", both 1955 (Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 35).

5. Westerham, fairly numerous annually at least since c.1949; no melanics (R. C. Edwards).

6. Gravesend, about twelve on street lamps over a period of 7-8 years, c.1900-07 (H. C. Huggins); July 1, 1911, June 16, 1914, July 9, 1926 (F. T. Grant). Pinden, two, 1951, three, 1952, one, 1953; one, melanic, June 8, 1950, one, melanic, June 28, 1953 (E. J. Hare coll.). Otford, seven, June 21—July 14, 1955; twelve, May 29—July 16, 1956 (W. B. L. Manley). Eynsford, June 19, 1960 (R. G. Chatelain).

6a. Darenth (L. T. Ford); c.1948 (D. F. Owen, in de Worms, *Lond. Nat.*, 1953: 122). Lords Wood (E. J. Hare).

7. Westwell, two, 1951 (L. C. Bushby, *vide* E. Scott); one, 1953 (D. G. Marsh). Boxley, 1953 (A. H. Harbottle).

8. Brook* (C. A. W. Duffield, in Scott (1936)). Dover, several, 1954 (B. O. C. Gardiner). Reinden Wood, one, melanic, bred September 17, 1954 (D. G. Marsh coll.). Betteshanger, July 6, 1957 (R. F. Bretherton).

9. St. Peters, three, June 23-25, 1948 (J. W. C. Hunt); seven, May 28—July 2, 1956; two, melanic, June 26, 1956 (W. D. Bowden).

10. Sevenoaks, June 26, 1920 (Gillett, *Diary*); three, bred, May 13, 1921, F. Gillett (R.C.K.). Brasted, one at sugar (R. M. Prideaux).

11. Aylesford, several, 1953-54 (G. A. N. Davis). Hoads Wood, 1953 (E. Scott). Sevenoaks Weald, June 11, 21, 24, July 1, 1959 (E. A. Sadler).

12. Ham Street, a larva on aspen, August 29, 1930; one, July 4, 1931; one, taken by A. G. Riddell, June 7, 1950 (A. M. Morley); 1935, 1951-53 (E. J. Hare); one, 1948 (D. G. Marsh); twelve at m.v., July 6-7, 1951, several worn specimens, end of July 1951, one, July 16, 1952; all in Long Rope Wood (C.-H.); one, July 16, 1955 (W. D. Bowden); June 30, July 7, 1956 (W. L. Rudland); one, June 16, 1956 (W. B. L. Manley); July 28, 1956 (R. F. Bretherton); July 8, 1958; 1960 (de Worms, *Entomologist*, **92**: 71, **94**: 161). Wye, two, June 15-July 14, 1955, two June 29-July 6, 1956 (W. L. Rudland). Willesborough, two, June 23-28, 1954, two, June 27-July 19, 1956 (W. L. Rudland). Ashford, June 24, 1953, July 9, 15, 1954; one, melanic, 1955 (P. Cue). Chartham (P. B. Wacher).

13. Tunbridge Wells, one, bred from pupa, 1930 (R.C.K.). Goudhurst, two or three annually, five in 1955 (W. V. D. Bolt).

14. Sandhurst, one, bred May 26, 1931, from larva beaten (G. V. Bull). Tenterden, 1960 (C. G. Orpin).

15. Dymchurch, fifteen, of which two were melanic, July 1952 (Wakely, *Ent. Rec.*, **65**: 42). Lydd, one, June 13, 1953 (C.-H.). Dungeness, one, 1957 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1957: 42).

16. Folkestone Town, one, June 30, 1950, three, July 2-3, one July 7, 1951, ♂, June 24, 1952, a melanic ♂, June 30, 1952, ♀, June 13, 1954, ♀, July 5, 1955; one, melanic taken by R. W. Fawthrop, 1956; one, worn, July 9, 1959 (A. M. Morley).

VARIATION.—In¹ 1947, a number of melanic *ocularis* were taken in N. E. Kent, since when others have occurred in various parts of the county. The degree of intensity of darkness exhibited in these examples varies somewhat, but the only two that I possess, one from Den Grove, June 11, 1947 (apparently the first melanic noted), the other, West Wickham, 1958, are referable to ab. *franckii* Boegl. (C.-H.).

FIRST RECORD, 1900: Bexley district (Newman, *Ent. Rec.*, **12**: 218).

¹The fact that certain blackish forms (known for many years on the continent, particularly in N. France and Belgium) occurred in north-east Kent in 1947, their first appearance in the county as well as possibly in Gt. Britain, strongly suggests that *ocularis* may also be an occasional immigrant from abroad.

T. or Schiff.: Poplar Lutestring.

Native. Woods; on aspen. Fairly local.

A partial second generation may occasionally occur: two specimens having been taken at sugar at Ham Street, August 16, 1952 (C.-H., *Ent. Rec.*, **64**: 288).

1. West Wickham (Tugwell, *Ent. week. Int.*, **3**: 11); common at sugar, 1928-29 (S. Wakely). Shooters Hill; Eltham (*Wool. Surv.* (1909)). Bexley (*Wool. Surv.* (1909)); (L. T. Ford). Bromley (W. A. Cope). Bexley Park Woods, larva, July 18, 1915 (A. R. Kidner). Chislehurst, fairly common at sugar; three larvae, 1942 (S. F. P. Blyth). Farningham Woods, larva, September 23, 1951 (Haynes, *Proc. S. Lond. ent. nat. Hist. Soc.*; 1951-52: 81).

3. Blean, larva; Bysing Wood, larva (H. C. Huggins). Den Grove,

two, June 25, 1938, one, June 30, 1940 (C.-H.).

5. Westerham (R. C. Edwards).

6a. Darenth (Stephens, *Haust.*, 3: 53) (Douglas, *Zoologist*, 687) (Harding, *Ent. week. Int.*, 4: 84); larvae in leaves of "dwarf poplar" (Meek, *Ent. mon. Mag.*, 1: 190); larva, September 24, 1909, larva, September 25, 1910 (A. R. Kidner); two, at sugar, June 25, 1925 (F. T. Grant). Lords Wood (E. J. Hare). Mark Oak Wood* (Chaney (1884-87)).

7. Chatham district* (Tyrrer, *Ent. week. Int.*, 7: 4). Wigmore Wood (Chaney (1884-87). Westwell, ♀, July 8, 1932 (Scott (1936)). Boxley (A. H. Harbottle).

8. Dover (Stonestreet, *Ent. week. Int.*, 10: 186). Folkestone* (Ullyett (1880)). Reinden Wood, three at sugar, July 8, 1930 (Morley (1931)); one, June 6, 1933 (A. M. Morley). Whitehill Wood, two at sugar, July 11, 1930 (A. M. Morley). Covert Wood, larva (H. C. Huggins). Elham (W. E. Busbridge).

10. Sevenoaks (W. E. Busbridge) (H. E. Hammond); one at light, 1949 (F. D. Greenwood). Seal Chart (Coote, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1937-38: 45).

11. Watlington (V.C.H. (1908)). Tonbridge, common (H. E. Hammond). Aylesford (G. A. N. Davis). Hoads Wood, at sugar, c. 1953 (P. Cue).

12. Ham Street, three larvae on aspen, August 29, 1930, two larvae, July 24, August 16, five imagines, July 4, 1931, one, July 8, 1933, two at sugar, July 14, one, July 20, larva, July 28, 1934, two, June 1-2, two, June 8, two, June 14, one, and one larva, July 20, 1935, five at sugar, June 23, 1948 (A. M. Morley); regular in small numbers in Long Rope, at light and sugar, between 1937 and 1960 (C.-H.); June 2-5, 1950, six at sugar, June 1, 1956, one, July 28, 1956 (R. F. Bretherton); May 31, 1958 (de Worms, *Entomologist*, 92: 70). Wye* (Scott (1950)). Willesborough, one at light, 1957 (M. Singleton).

14. Knock Wood (Beale, *Diary*). Sandhurst; Hawkhurst (G. V. Bull).

VARIATION.—A striking aberration, *permarginata* Hasebk., dark with pale marginal areas, used repeatedly to be taken at sugar in Barnfield Wood near Bromley, by the late W. A. Cope. From captured ♀♀, Cope told me he reared a number of this ab., and that it always bred true. His examples of *permarginata* in my coll., six in all, are dated 1920, 1927, 1929 (C.-H.). Wakely (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1930-31: 75) records having taken a specimen at West Wickham in 1929, which accords with *permarginata*. In R.C.K. are four *permarginata* from W. A. Cope, Bromley, one, June 1927, one 1929, one, bred, 1929, one, bred, June 1930.

FIRST RECORD, 1829: Stephens, *Haust.*, 3: 53.

T. duplaris L.: Common Lutestring.

Native. Woods; on birch. Local and mainly among birch; but apparently occasionally among alder.¹

1. Noted from many localities throughout this division. Recent records are:—West Wickham, common at sugar, 1926 (S. Wakely); July 30, 1951, one, melanic, August 4, 1954 (E. J. Trundell). Farningham Wood, two larvae, September 29, 1929, larva, September 25, 1930,

several larvae, September 11, 1937 (A. R. Kidner). Petts Wood, few annually, 1947-49, all melanic (E. Evans) (Haynes, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 18); 1953-54, common at sugar, there being as many as 4-5 per patch (R. G. Chatelain). Plumstead Common; Abbey Wood, 1952 (A. J. Showler). Orpington, 1954 (L. W. Siggs). Bromley, three, 1959, ten, 1960, sixteen, 1961; in 1960, one was noted as late as September 3; on August 13, 1961, four were noted (D. R. M. Long).

3. Thornden Wood, one, worn, at sugar, July 29, 1865 (Fenn, *Diary*). Near Canterbury* (Parry, *Entomologist*, 5: 394). Blean, one, July 15, 1905 (J. P. Barrett) (H. C. Huggins). Bysing Wood (H. C. Huggins). Church Wood, three, July 4, 1960 (D. G. Marsh).

6. Longfield (Jennings, *Entomologist*, 4 (54) ii). Greenhithe (Farn MS.). Stone, one, c.1950 (G. Law). Otford, three, in m.v. trap, July 15-17, 1955 (W. B. L. Manley).

6a. Darenth (Stephens, *Haust.*, 3: 52); one, June 16, 1862, four, July 1, 1865 (Fenn, *Diary*) (Carrington, *Entomologist*, 12: 211); larva, 1925 (F. T. Grant) (H. C. Huggins) (E. J. Hare). Chattenden, July 13, 1875 (Fenn, *Diary*). Mark Oak Wood* (Chaney (1884-87)).

7. Wigmore Wood (Chaney (1884-87)). Westwell (Scott (1936)); July 22, 1946 (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 168). Long Beech Wood, one, worn, July 29, 1939 (C.-H.). Boxley, 1953 (A. H. Harbottle).

8. Dover (Stonestreet, *Ent. week. Int.*, 10: 186); one, 1898, six, 1899 (H. D. Stockwell coll.); a few (B. O. C. Gardiner); Poulton Woods, June 27, 30, 1908 (P. A. Cardew, *Diary*). Deal* (*V.C.H.* (1908)). Near Waldershare, very common; Ewell Minnis; Coombe Wood, St. Radigunds (E. & Y. (1949)). Folkestone (Ullyett (1880)). Reinden Wood, ♀, beaten out, July 12, 1929 (W. O. W. Edwards, *teste* A. M. Morley); five, at sugar, July 17, four, at sugar, July 22, 1929 (Morley (1931)). Whitehill Wood, near Bridge, three, at sugar, July 11, 1929 (A. M. Morley). Elham (W. E. Busbridge). Elham Valley, one, July 8, 1953 (D. G. Marsh coll.). Brook (C. A. W. Duffield).

10. Brasted, ♀, 1917 (Gillett, *Diary*); at light (R. M. Prideaux). Sevenoaks (Howarth, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1947-48: 31).

11. Harrietsham (Stephens, *Entomologist*, 1: 200). Wateringbury (*V.C.H.* (1908)). Shipbourne (P. A. & D. J. A. Buxton coll.). Hoads Wood (Scott (1936)); one, June 14, one, June 19, 1961 (B. K. West). Benenden, June 15, July 19, 1938, at sugar and light, July 19, August 4, 1939, August 5, 1946 (Bull, *Diary*). Tonbridge, common (H. E. Hammond). Aylesford (G. A. N. Davis); 1955, more frequent than in 1954, especially the dark forms (Davis, *Bull. Kent Fld. Cl.*, 1956, 1: 6).

12. Ham Street, three, July 8, 1933, two, July 14, 1934 (A. M. Morley); July 19, 1934 (A. L. J. Bowes) July 3, 17, 1937 (Bull, *Diary*) (Demuth, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 23); one, July 20, 1961 (B. K. West). Chartham, one, 1952 (P. B. Wachter). Ashford, one, July 14, 1954 melanic (P. Cue). Wye, one, July 15, 1955, two, July 22—August 10, 1956; Willesborough, two, July 17—August 5, 1955, four, July 19-27, 1956 (W. L. Rudland).

13. Tunbridge Wells, formerly frequent in Frant Road (E. D. Morgan). Kilndown, July 15, 1938 (Bull, *Diary*).

14. Knock Wood (Beale, *Diary*). Bedgebury, July 10, 1937, July 12, 1939 (Bull, *Diary*). Hawkhurst, one at light, 1952 (B. G. Chatfield).

15. Dungeness, one at light, July 27, 1956 (R. F. Bretherton).

16. Folkestone, one at m.v., July 26, 1957 (A. M. Morley).

VARIATION.—Of my fifteen Bromley specimens from W. A. Cope, dated 1927, 1929, only five are typical, the remainder being referable to ab. *obscura* Tutt (C.-H.).

FIRST RECORD, 1829: Stephens, *Haust.*, 3: 52.

¹James (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 62) recorded it as common at Eltham (div. 1) among alder.

T. *fluctuosa* Hübn.: Satin Lutestring.

Native. Woods; on birch. Local, with seemingly a preference for light soils.

1. Birch Wood (Stephens, *Haust.*, 3: 52). West Wickham, larva and imago (Machin, *Ent. week. Int.*, 1: 76); larvae beaten from birch, autumn (1863) (Meek, *Ent. mon. Mag.*, 1: 50); fine imago and full-fed larva, August 17, 1880 (Harper, *Entomologist*, 13: 219); 1892 (Wells, *Entomologist*, 25: 194); three, May 22, 1893 (Robinson, *Entomologist*, 26: 224); one, July 7, 1902, two, June 1909, one, June 1910 (E. Nottle coll.); June 6, 1910 (Mannering, *Entomologist*, 43: 204); six, June 27, 1910 (L. T. Ford); one, 1917 (Kershaw, *Entomologist*, 43: 204). Shooters Hill Wood, August 5, 1862, one seen by A. H. Jones (Fenn, *Diary*). Eltham, one, at light (Jones, in Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 62) probably refers to the preceding record (C.-H.). Forest Hill, one, 1886 (Cansdale, *Ent. Rec.*, 2: 69). Farnborough neighbourhood,* 1901 (Lawrence, *Entomologist*, 34: 355), Bexley district (Newman, in *Wool. Surv.* (1909)). Farningham Woods, one, June 5, 1952 (B. K. West).

3. Near Canterbury,* a few specimens, July 1871 (Parry, *Entomologist*, 5: 394). Church Woods, July 1895 (S. Wachter). Bysing Wood, common, 1914, not seen since (H. C. Huggins).

6. Near Gravesend, bred, May, 1868 (Vaughan, *Ent. Ann.*, 1869: 133). Greenhithe* (Farn MS.).

6a. Darenth Wood (Stephens, *Haust.*, 3: 52); 1844 (Douglas, *Zoologist*, 687); one, 1845 (Stevens, *Zoologist*, 1787); 1853 (Harding, *Zoologist*, 3923); larvae not uncommon (Machin, *Ent. week. Int.*, 1: 76); June 23, 1860 (Fenn., *Ent. week. Int.*, 9: 59); one, June 21, 1862 (Fenn, *Diary*); larva, autumn (1863) (Meek, *Ent. mon. Mag.*, 1: 50). Chattenden, one, July 26, 1862 (Fenn, *Diary*); 1904-06, one or two beaten out (H. C. Huggins). Chattenden district, 1905 (Ovenden, *Ent. Rec.*, 18: 17).

7. Wigmore Wood, June 14, 1864 (D. J. French, in Chaney (1884-87)). Westwell, July 15, 1934 (A. J. L. Bowes) (Scott 1936)); "much rarer here since the war"; one, August 1, 1954 (E. Scott, *verbatim*, 19.xii.1954). White Hill, King's Wood, a few at light, 1935 (A. G. Peyton & E. Scott, *teste* A. J. L. Bowes) (Scott (1936)); two at light, June 20, 1936 (A. M. Morley). Long Beech Wood, about twelve worn specimens, of both sexes, at car lights, July 29, 1939 (C.-H.).

8. Dover, two, 1861 (Stonestreet, *Ent. week. Int.*, 10: 186). Folkestone* (Ullyett (1880)). Near Barham, 1935, 1945 (E. & Y. (1949)). Elham (W. E. Busbridge); July 4, 1959 (de Worms, *Entomologist*, 93: 177).

10. Wildernesse Park (Carrington, *Entomologist*, 13: 80). Seven-

oaks (Crewdson, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1934-35: 47); two, June 21, one, July 5, 1919 (Gillett, *Diary*). Ide Hill (E. J. Hare). Brasted, imagines on fences, ova on edge of birch leaves (R. M. Prid-eaux). Westerham, larva, September 13, 1924 (Carr & Turner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1924-25: 107). Crockham Hill, one, at light, June 30, 1951 (R. C. Edwards & C.-H.). Goodley Stock, five, June 30, about 30 at light, July 6, 1956 (C.-H.).

11. Wateringbury, two, 1906, one, 1908, one, 1911 (E. Goodwin coll.). Near Tonbridge, common at light in a wood, 1939 (H. E. Hammond). Aylesford, not uncommon at m.v., 1951-55 (G. A. N. Davis). Park Wood, near Detling, three on a street lamp, June 24, 1961 (B. K. West).

12. Willesborough, one, August 3, 1954; Wye, one, June, 21, one, July 21, 1956 (W. L. Rudland). Ashford Town, one, at m.v., in garden, June 25, 1955 (P. Cue). Ham Street, melanic ♂, June 15, 1955 (G. H. Youden).

13. Millers Wood, Pembury, 1856 (Weir, *Zoologist*, 5208; *idem*, *Ent. week. Int.*, 1: 124). Tunbridge Wells, 1894, several, 1895 (Beeching, *Entomologist*, 27: 351; *idem*, *Ent. Rec.*, 7: 113); one, 1915 (C. G. M. de Worms). Broadwater Down, two (A. L. Townsend, in Knipe (1916)). Southborough district (M. M. Phipps, in Knipe (1916)). Kilndown, July 10, 27, 1937; Bedgebury, June 22, 1938 (Bull, *Diary*).

14. Knock Wood, Tenterden, 1856 (Beale, *Diary*). Benenden Woods, June 10, 15, August 25, 1938, July 19, August 17, 1939 (Bull, *Diary*).

VARIATION.—In R.C.K. are two ab. *albilinea* Ckne.:—allotype ♀, West Wickham, H. W. Barker (*Ent. Rec.*, 63: 30), one, N. Kent, June, 1908, L. W. Newman.

A remarkable ab., and the only example of this rather constant species ever to have been recorded from the much-worked Ham Street Woods, is described by its captor, G. H. Youden, as "melanic with no markings".

FIRST RECORD, 1829: Stephens, *Haust*, 3: 52.

Asphalia diluta Schiff.: Lesser Lutestring.

Native. Woods; on oak. Recorded from all divisions, except 16 (probably present), 2, 4. Perhaps casual in 9, 15. Apparently rather scarce in 8. "Common in many places" (V.C.H. (1908)).

Note:—The moth is occasionally extremely plentiful. Thus, Stevens (*Zoologist*, 334) records it as abundant at Birch Wood (div. 1) in September 1843; Carr (*Entomologist*, 31: 295) states that it was in great abundance at sugar at Bexley in 1898; and de Worms (*Entomologist*, 90: 181) observed it as particularly plentiful at Hoads Wood (div. 11), in 1956. It is usually fairly common at Ham Street, but on September 21, 1957, R. F. Bretherton noted seeing as many as thirty there, an abnormally large number.

Gillett (*Diary*) wrote that an imago emerged on August 13, 1917, from a wild larva taken at Knockholt (div. 5). A more detailed and satisfactory account, however, is that of J. L. Atkinson (*in litt.*), who writes that he beat three larvae out of oak in Blean Woods, June 3, 1934, the imagines emerging September 7, 10, 12, 1934, and a further larva off oak at the same locality, June 5, 1938, from which an imago emerged September 16 that year.

8. Folkestone Warren, one, August 24, 1893 (Fenn, *Diary*). White-

hill Wood, Bridge, eight, September 20, 1932 (R. C. Crewdson, *teste* A. M. Morley). Wye, one, September 2, 1934; Brook, seven, October 10, 1934 (A. M. Morley). Denge Wood, c. 1938 (P. B. Wachter).

9. St. Peters, one, October 11, 1955 (W. D. Bowden).

15. Dungeness, one, at sugar, September 28, 1934, by A. G. Peyton; ♀, at sugar, September 11, 1938; Lydd-on-Sea, ♀, on street lamp, September 17, 1936; Romney Marsh, ♀, at m.v., September 10, 1956 (A. M. Morley).

VARIATION.—A rare ab. having the forewing rufous, with broad blackish suffused median band, and other markings absent or much obscured, is *melanarufa* C.-H., ♂ holotype, Plumstead Common, 1956, taken by W. A. Cox (C.-H., *Entomologist*, 94: 281).

Buxton (*Ent. Rec.*, 23: 314) records a "fine asymmetrical specimen", in which the "characteristic bands on the left forewing are run together, and this is particularly noticeable on the disc". The example was taken at Fairhill, Tonbridge, August 28, 1911.

The following two abs. are in R.C.K.:—*hartwiegi* Reuss; one, Herne Bay, September 1933, A. J. L. Bowes, two, Ham Street, September 1948, E. A. Cockayne; *fuscofasciata* Ckne., holotype ♂, Herne Bay, A. U. Battley.

FIRST RECORD, 1829: Darenth Wood (Stephens, *Haust.*, 3: 53).

***Achlya flavicornis* L. ssp. *galbanus* Tutt: Yellow-horned:**

Native. Woods, heaths, commons; on birch.

1. Recorded from many localities in this div. Recent records are:—Petts Wood, fairly common, 1947, one, 1948 (E. Evans); larvae on birch, 1950 (A. M. Swain). Abbey Wood, 1947 (A. J. Showler). Elmstead Woods, one, 1946; Hayes Common, two, March 30, 1946 (D. F. Owen). Shooters Hill, one, 1948 (J. F. Burton). West Wickham, one, 1949, one, 1951 (C.-H.). Bexley, many, March 20, a few, March 21-24, 1950 (A. Heselden). Orpington, 1954 (L. W. Siggs). Bromley, one, 1959, two, 1960, four, 1961, fourteen, March 31-April 11, 1962 (D. R. M. Long).

Obs.—At meeting of Society of British Entomologists, April 6, 1852, it was stated that some dozens of the wings of this insect had been found at the foot of an oak in Plumstead Wood (*Zoologist*, 3502).

3. Denstroude, March 15, 1933, March 22, 1934, flying in sun, March 28, 1936 (A. J. L. Bowes). Barton Wood, fresh ♀, on apple branch in orchard, March 12, 1938, three ♂♂, at light, March 12-13, 1945 (C.-H.). Whitstable (P. F. Harris). Trenley Park, about twenty, March 25, 1956; Westbere, nine one night, seven another, c. 1955 (D. G. Marsh).

5. Westerham (R. C. Edwards).

6. Pinden (E. J. Hare).

6a. Darenth Wood (see *First Record*) (noted here since, by many observers (C.-H.)); one, flying at mid-day, April 11, 1925 (F. T. Grant); larva, June 10, 1939 (Atwood, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1939-40: 41). Chattenden, larvae (Chaney (1884-87)).

7. Westwell, one, March 10, 1948 (Scott (1950)).

8. Folkestone (Ulliyett (1880)). Reinden Wood, ♂♀, on bush at night, March 25, 1930; West Wood, one, March 29, 1930 (Morley (1931)). Reinden Wood, one, April 12, 1947 (A. M. Morley). Covert Wood, three, April 10, 1956 (W. D. Bowden).

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AND JOURNAL OF VARIATION

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Collecting Notes, 1961

By S. WAKELY.

Wood Walton Fen, Huntingdonshire.—This locality was visited on 4th June, on the occasion of the South London Entomological and Natural History Society's field meeting there. In the previous year I had found larvae of *Acrocercops imperialella* Mann on *Symphytrum officinale* (comfrey), and it was hoped that I would find larvae of the first brood on this occasion, but none could be found; it was probably too early. I would like to mention here that after the forced emergence of my first moth on 16th February (*Ent. Rec.*, 73: 83-86), ten others appeared from 30th April to 19th May.

Most of my time on this 1961 visit was spent searching plants for larvae, and the best find was a few larvae of *Aristotelis morosa* Muhl. in the leading shoots of *Lysimachia vulgaris* (yellow loosestrife). Five moths emerged a month later, thus adding another rarity to the local list. This insect had only been reported previously from Wicken Fen, but Mr. J. D. Bradley tells me he took one at light the previous year at Wood Walton. Spinings on the small-leaved willow bushes provided several *Gelechia sororculella* Hübner. One of the few moths on the wing, was *Lampronia praelatella* Schiff., whose usual foodplant—*Fragaria* (wild strawberry), seemed to be absent from the boggy ground of this locality, but in the *Entomologist's Annual* 1856, p. 49, there is a record of larvae of this species having been found on *Filipendula ulmaria* (meadowsweet), a plant which is extremely abundant at Wood Walton.

Kent.—During May, a small series of *Enicostoma lobella* Schiff. was bred from larvae found the previous year on 4th September, feeding on Blackthorn, near Dartford. The larvae spin a web across the underside of the leaves, under which they hide. This web draws the outer edges of the leaf slightly downwards and gives a clue to their whereabouts. At the "South London" field meeting at Otford on 30th April, a small larva of *Apamea scolopacina* Esp. was found feeding on grass in woodland. It was interesting to notice how the larva ate through the grass to feed on the immature seeds at the base of the flowering stalks. Several interesting species were taken at Westwell, where I visited Dr. E. Scott on 22nd May. A fresh *Euphyia luctuata* Schiff. was spotted at rest on herbage while we were looking for larvae of *Telephila schmidiella* Heyd., which were quite plentiful in folded leaves of *Origanum vulgare* (marjoram). A trip to Brook, near Wye, rounded off a happy visit, when Col. Duffield took us across his fields and showed us where to get *Adela croesella* Scop. We took two only, both round bushes of *Rhamnus catharticus*, and Col. Duffield's suggestion that the larvae may be attached to this plant as well as to *Ligustrum* (privet) seems very feasible. Numerous larvae of *Peronea shepherdana* Steph. were found in one field in spun shoots of meadowsweet. A large percentage of these were parasitized, but I succeeded in breeding quite a nice series of this local species. During April, many dozens of *Lithocolletis* were bred from leaves of *Sorbus aucuparia* (rowan) collected with Mr. Chalmers-Hunt at West Wickham. Unfortunately, they all seem to be the same species, *L. sorbi* Frey.

Isle of Wight.—On 12th May, a visit was paid to the Island, when I stayed at Cranmore with Mr. J. Lobb for a week-end. An account of finding the larvae of *Euspilapteryx pyrenaeeala* Chret. has already

appeared in this journal (*antea* pp. 120-1). We also found larvae of *Mecyna asinalis* Hübn. on *Rubia peregrina* (wild madder). The brownish larvae spin up during the day in the lower dead leaves of the long trailing stems of this local plant. An interesting find was the larvae of the common *Depressaria nervosa* Haw. on a foodplant not hitherto recorded—*Sison amomum* (stone parsley). They were present in almost every flowerhead of this plant by the roadside. Meyrick mentions only one foodplant for this species, namely *Oenanthe crocata*. Lhomme, however, lists fifteen different foodplants but does not mention *Sison amomum*—not *Aegopodium podagraria* (ground elder) on the flowers of which I once found a larva. Dr. Scott tells me that in Kent, larvae are common on *Oenanthe pimpinelloides*, a rare plant.

A trip to Luccombe Chine in August proved very disappointing. My object was to find larvae of *Grapholita gemmiferana* Treits. To my dismay, I found there had been an extensive cliff fall which had wiped out the foodplant over a wide area at the place where I had previously found the larvae in plenty in 1959. The foodplant, *Lathyrus sylvestris*, was still present at the edges of the cliff subsidence, but no larvae could be found on this occasion, although two or three empty spinings were found during a search of several hours. Larvae of the local *Leucoptera lathyrifoliella* Staint., however, were still abundant in the leaves of what *Lathyrus* was left. *G. gemmiferana* has only been recorded at one other station in Britain—in Devonshire—and it would be sad indeed were it to disappear from the Island. I would like to repeat that the larvae feed between spun leaves, and not in the pods as stated in all the literature I have seen on this species—both British and continental. While mentioning Isle of Wight insects, I would like to place on record the name of the parasite which emerged from a wild larva of *Lithophane leautieri* Boisd. sent to me by Mr. Lobb who had taken the larva in his garden at Cranmore. Mr. R. W. Crosskey of the British Museum has determined it as *Agria mamillata* Pandelle; the fly emerged on 25th April 1962.

Suffolk.—At the end of July I had a fortnight's holiday at Southwold. A solitary specimen of *Leucania favicolor* Barr. was taken, which was of special interest to me as it was the first I had ever taken. *Arenostola elymi* Treits. was much more scarce than in the previous year, and the same applied to *Euxoa cursoria* Hufn. Single specimens of *Nonagria neurica* Hübn. and *Apamea oblonga* Hübn. were taken. *Nyctegretis achatinella* Hübn. was extremely common at dusk on one or two nights only; the conditions had to be mild and calm or none would appear. *Witlesia pallida* Steph. was met with in all the local reed beds visited after dark. A few *Epischnia boisduvaliella* Guen. came to light, also a single *Nephopteryx formosa* Haw. On 20th, a visit was paid to Thorpness. At dusk, some nice species were taken on the wonderful beach in this locality and included one *Melissoblaptēs zelleri* Joan., five *Platytes alpinellus* Hübn., several *Cromibruggia distans* Zell., *Phalonia manniana* F v. R., *Aristotelia pictella* Zell., *A. palustrella* Dougl. and *Batia lambdella* Don. A very worn specimen of *Zanclognatha cribrumalis* Hübn. was seen in the adjacent reed beds. An interesting find was that of a few larvae of *Platyedra vilella* Zell. on the flowers and seeds of the common mallow. I collected samples of mallow from several localities, including Walberswick, but the larvae were only to be found along the front at Southwold, near the pier. Most of the larvae spun up and pro-

duced parasites, but two pupae produced moths on 21st and 23rd March 1962. Why they came out at such an odd time is a mystery, as the normal time of emergence is in August—a few weeks after spinning up. This species has been recorded for Suffolk only twice previously—both records before 1890—once at Brandon and once at Southwold.

London.—The most interesting species taken in my garden at Camberwell were as follows: over twenty larvae of *Cucullia absinthii* L. were found on two large plants of *Artemisia absinthium* by searching after dark. Some plants of *A. vulgaris* were growing nearby, but the larvae were only on the *absinthium*. At mercury vapour, single specimens of *Pyrrhia umbra* Hufn., *Homoeosoma cretacella* Rossl., *Ostrinia nubilalis* Hüb. (a tiny specimen in perfect condition, measuring 20 mm. across the wings, against the normal 29/37 mm.), *Lozopera dilucidana* Steph., *Epinotia tenerana* Schiff. and a very worn *Coleophora clypeiferella* Hofm. were taken.

Surrey.—During March and April I collected spun shoots of bilberry, both at Coldharbour and Hurt Wood. The commonest species found was *Orthotaenia undulana* Schiff., but a specimen of *Chloroclystis debiliata* Hb. was bred from each locality. A single specimen of *Amphisbatis incongruella* Staint. was netted at Hurt Wood on 25th March. *Gelechia velocella* Dup. was locally common at Black Heath (near Chilworth), on 23rd April.

Sussex.—Plaistow was visited on the last two Saturdays in April, when Mr. Fairclough kindly took me in his car (*antea* p. 96). For years I wanted to find *Iwaruna (Stomopteryx) vinella* Bankes and Mr. Fairclough suggested searching for it at Plaistow as he had already noted that the foodplant, *Genista tinctoria*, was common there in several large fields. On our first visit it rained so heavily that we were soon forced to give up, but not before we had found a few spun shoots. The second visit was better as far as the weather was concerned, but to our disappointment, we found that the owner was harrowing the field preparatory to ploughing it up at a future date. However, we were allowed to search the *Genista* and found a few more spinings. One had to kneel down and examine the clumps of *Genista* carefully as the spinings were so small. An examination of the material collected showed us later that several species were present, including a few small larvae which answered the description of *vinella*. On 25th May, two specimens of *vinella* emerged from my material, followed by another on 30th, and the last one on 2nd June. Of these four, three had the white fascia complete, two very distinct, and one less so; the other showed no fascia at all. According to Meyrick, the form with the fascia is rare, and it is strange that three of my four were of this rare form. Specimens were sent to Mr. J. D. Bradley, who confirmed their identity. This species was described by E. R. Bankes in 1898 under the name of *Aproaerema vinella* (E. M. M., 34: 242/4) from specimens taken by A. C. Vine and the larva was described in E. M. M. 35: 202-5. The locality was given as "near Brighton" and generally thought to have been Ditchling Common; the *Genista* still grows there freely, but a lot of it was ploughed in during the war years. There have been few records of the species being found since Vine found it. In 1932, A. F. Griffith recorded it from "a rough field near Lewes" (*Entomologist*, 65: 163), L. T. Ford found it at Tilgate in 1934, 1935 and 1936, according to data of his specimens now in the British Museum. A

recent visit to this locality showed that the place is now occupied by a pig farm and the foodplant almost exterminated, although a few plants were seen beside a neighbouring path. *Genista tinctoria* is a plant which likes wet and heavy clay land. Owing to the very heavy work entailed in getting such land into cultivation, it was usually left by the owners for rough grazing, but with the advent of powerful modern machinery, farmers are now able to drain the land and put it under plough more easily. However, I understand the plant is still common enough in many places, and I would not be surprised if this moth did not occur in other places from which it has not so far been recorded. Perhaps I should mention that we bred four other species from the material collected, namely *Cnephasia interjectana* Haw., *Cnephasiella incertana* Treits., *Anarsia spartiella* Schrank, and *Agonopteryx costosa* Haw. Several other species also occur on the same plant.

Bournemouth and New Forest.— On 26th August, Mr Fairclough took me down to Bournemouth where we met Mr. S. C. S. Brown. Our main quest was to look for larvae of the rare plume *Stenoptilia pneumonantes* Buettner. On visiting Parley Heath, Dorset, we were shocked to find the foodplant, *Gentiana pneumonanthe*, very scarce. Less than one dozen plants were found, and only one of these contained a larva, which subsequently died. What used to be a large area of bog land was now drained and dry, with dry *Sphagnum* moss and dying cotton grass everywhere. Apparently a new housing estate had grown up in an adjacent valley, and owing to winter flooding, a pumping station had been installed which had a disastrous effect on the old bog-land flowers and insects. Mr. Brown said that on previous visits all the ditches were full of water; now they are nearly all dry. Although the gentian is to be found further westwards, together with the plume, we were told that Parley Heath was the place where it could always be found in the past. Our disappointment was offset in some measure by having the privilege of collecting some of the rarities that occur in Mr. Brown's garden, namely *Mompha decorella* Steph. larvae in stems of *Epilobium montana* (often eight or nine galls in one stem), *Caloptilia azaleeae* Brants. (flying in profusion among the *axaleas*), and larvae of *Teichobia (Mnesipatris) filicivora* Meyr. (in the leaves of male fern, *Filix mas*).

Vanessa cardui L. and other Migratory Insects— Recent Observations in the Federation of Rhodesia and Nyasaland

J. A. WHELLAN

In view of the recent article, Taylor, 1962, readers may be interested in the following observations.

Vanessa cardui is a common insect in Rhodesia but I have not generally suspected it of migrating here. It is usually seen in ones and twos and I have observed it annually in this manner in S. Rhodesia and also at times in Uganda and Tanganyika. From 1951 to 1953 G. F. Cockbill (*in litt.*) kept records in S. Rhodesia but again never noticed more than a few individuals and recorded nothing suggestive of migration. His records covered every month except November and December. Considerable

numbers, of the order of one per hundred yards of roadside, were seen at Mount Selinda in September 1961, but I saw nothing which would lead me to suppose that migration or any form of social behaviour was occurring.

As is well known the most conspicuous lepidopterous migrant in Rhodesia is the African migrant white butterfly, *Catopsilia florella* (F.). Records up to 1950 have been described by Cockbill, 1951, and the data are reproduced by Williams, 1958, without, however, acknowledging their earlier publication. I observed a very large migration of this insect in December 1961. At the Victoria Falls from 14th to 20th it was very conspicuous and, on a front of approximately 100 yards I made several counts which averaged 10 to 20 per minute flying steadily towards the south west. In the course of two weeks at this time I witnessed the migration also at Bulawayo, Karoi and Lusaka and at various places between these points, but not further north, though I travelled to the Congo border and conditions were suitable. The migration front as known was thus 250 miles and extended in depth also over 250 miles. On this front the migration was not even, but taking as an average an eighth of the lower figure recorded at the Falls, 5,000 butterflies passed per minute and this went on for certainly 10 days and very likely considerably longer.

A similar observation in relation to *C. florella* was made by me in 1958 during a visit to the eastern part of S. Rhodesia. A rather thin migration had already been noticed at Salisbury at the Experiment Station on the 13th and 14th November 1958, consisting entirely of this species. This migration was noticed continuously all the way to the Sabi Experiment Station about 200 miles to the South-south-east of Salisbury. By the 20th the flight was very much thicker and a count was made in the Umvumvumvu river valley near Cashel, about 60 miles to the north. The river flowing through hilly country would have funnelled the insects to some extent in the valley. Besides *C. florella* two species of *Papilio* were migrating also. These were *P. antheus* Cramer and *P. porthaon* Hewitson. Two-minute counts over a stretch 15 yards wide gave *C. florella* 70, 108 and 89; *P. antheus* 8, 6 and 5, and *P. porthaon* 2, 4, and 5. The flight here was more or less from north to south. These observations were made at about 9 a.m. Observations were also carried out at Inyanga, about another 130 miles north, at about 9 a.m. on 22nd November. Here the butterflies were flying over an open stretch of country without any barriers. Across a stretch of 50 yards in width, 22 were counted flying from west-north-west to east-south-east in one minute. No other species were with them. A pinewood with trees about 50 ft. in height formed an obstacle in the path of flight in a nearby locality. Some of the butterflies flew around the pinewood while others were seen to fly over it. The unusual direction of this flight may have been partly conditioned by the mountainous nature of the surrounding country though the direction is not entirely without precedent (Cockbill, 1951).

On the return to Salisbury on the 22nd and 23rd November the flight was continuing but was not so thick, and on the 23rd November it was observed to be accompanied by a flight of the dragonfly, *Pantala flavescens*. In one minute over a distance of 20 yards at Hatfield, close to Salisbury, 40 of these dragonflies were observed to pass. The total duration of this dragon fly flight was not timed exactly but was rather less than one hour. A thin migration of *C. florella* was continuing on 30th November 1958 at Salisbury.

Considered broadly the density of this migration was much the same as that observed in 1961. It occurred considerably earlier in the year, and, as far as known, covered a front of similar extent.

The following observations, relating to another well-known migrant, *Belenois creona severina* Stoll, was made by Mr. P. J. R. Maclaren and supplied by courtesy of Mr. E. C. G. Pinhey of the National Museum of S. Rhodesia who also kindly made the determinations. Mr. Maclaren states that on the 7th June 1956, between Mzimba and Rumpi in northern Nyasaland, and on 9th June from Njakwa to near Lake Nyasa, there were large masses of *Belenois creona severina* Stoll moving north-east against a steady breeze from the east. There was no cloud. Maximum numbers were 50 per minute per 20 yards, and the movement took place between 1130 and 1500 hours.

A few specimens of *Pinacopteryx eriphia* Godart were also noted, but I am not certain that they were actually migrating.

On 14th June there was similar steady movement in the same direction, the wind still being from the east, across the Vipya highlands north-east of Mzimba. It was noticed that the flight halted whenever the sun was obscured by the clouds.

On 15th June there was a fainter movement of *B.c. severina* Stoll between Mzimba and Kazungu, and an equal number of the small yellow *Eurema desjardinsi* Boisd. In addition a few of the orange-tipped *Colotis antevippe* Boisd. were moving with *B.c. severina* Stoll and *Eurema desjardinsi* Boisd.

On 17th June, at Nsefu in the Luangwa Valley, a cloudy day, there were countless thousands of *B.c. severina* Stoll in the riverain flats, feeding on the flowers of a thistle-like plant which is abundant there.

On 18th June, a sunnier day, they were still assembled on the flats, and in addition there was a steady movement away from the area in an easterly direction. There was no wind.

Lastly, on 19th June, at the Luangwa Bridge, there were numbers of *B.c. severina* Stoll present and a suggestion of an easterly movement.

As in South Africa, *Heliopsis armigera* F. was exceptionally plentiful in 1961 and caused much more damage to a variety of crops than usual during the summer 1961-62. *Spodoptera (Laphygma) exigua* (Hbn.) was also more than usually plentiful in the winter of 1961. These species are not known to be migratory here but this might well be due to the very few observers in this part of the world.

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PYRAMEIS CARDUI L., NEAR MARLBOROUGH.—On 7th July 1962, I climbed to the top of Silbury Hill, near Avebury with Mr. J. A. C. Greenwood. We were surprised to find the summit alive with this butterfly, and counted at least eight individuals. We saw none on the slopes or at the base of the hill.—C. G. M. DE WORMS, Three Oaks, Woking. 10.vii.1962.

A New Subspecies of *Eupithecia venosata* Fabr.

By H. C. HUGGINS, F.R.E.S.

I have already (*Ent. Rec.*, 73: 203) given an account of the visit paid last July by Mr. E. S. A. Baynes and myself to Inishvickilaun, the remotest of the Blaskets, which has now been uninhabited for many years.

Before leaving the island, we each took a bag of heads of sea campion, which was not uncommon on the face of the cliffs. From these, a good many larvae appeared, and we each obtained a fair number of pupae of *Hadina lepida* Esp., ssp. *capsophila* Dup., and three of *H. caesia* Borkh., none of which has yet emerged. In addition, however, we each got two larvae of *Eupithecia venosata* Fabr., from which Mr. Baynes obtained one pupa, and I two, all of which have recently emerged.

They constitute a very striking subspecies of the moth. I have been in recent correspondence with Mr. D. S. Fletcher of the British Museum, and he agrees with me that it is quite new. The well-known Shetland subspecies, ssp. *fumosae* Gregson, in some cases approaches a rather dark smoke colour, but these Inishvickilaun moths are a deep leaden grey, looking almost black at a short distance. I have good, recently bred examples of *fumosae* and the darkest of them is nearer to the type than to the new insect. In addition, in the Shetland specimens, the netted pattern tends to obliteration, whilst in the Irish insects it is of a very deep black, and more conspicuous than usual, despite the dark ground. In most Shetland specimens, the two dark bands enclosing the centre of the wing are light and conspicuous, whilst in the new moth they are of the leaden-grey ground colour and invisible.

For these reasons, I think the moth worth naming, so append an official description:

Eupithecia venosata Fabr. ssp. **plumbea** ssp. **nov.**

Ground colour, deep leaden-grey, the netted pattern, jet black and conspicuous. Type bred, H. C. Huggins, Inishvickilaun, The Blaskets, Co. Kerry, 18.v.1962; ♀ in coll., H. C. Huggins.

Paratypes: ♀ bred, H.C.H., Inishvickilaun, 22.v.1962; in coll., H.C.H. ♂ bred, E. S. A. Baynes, Inishvickilaun, 30.v.1962; in coll., E. S. A. B.

Donovan (p. 82), states that most of the specimens he had taken in Cork, are smokier in colour than the delicate grey of the type, and that some from Seven Heads and Glandore approach *fumosae* from the Shetlands, but these Basket insects are very much darker than *fumosae*. Mr Baynes has pointed out that when looked at sideways, the blackish wings have almost a greenish tinge.

It will be interesting to see whether this unusual insect is found on the other Blaskets, or on the opposite shore of Kerry, but in this connection it must be remembered that Inishvickilaun is one of the only two known habitats of *Euphyia bilineata* L., ab. *isolata* Kane.

On the same Dingle trip, Mr. Baynes and I collected a few larvae of *E. pulchellata* Steph., about a couple of miles out of the town on the road to Connor Pass. I took ten, and as I have already recorded (*Ent. Rec.*, 73: 247), obtained the unusual number of six pupae from them. I have now been rearing *pulchellata* from western Ireland for some years, and always reckon at least 80% perish as full-fed larvae from the attacks of a species of *Apanteles*, but once a larva safely pupates, I have regarded him as in the bag. However, to my surprise, two of my Dingle pupae each pro-

duced a large solitary parasite. I killed these and sent them to Mr. Fletcher, who referred them to Dr. Perkins who has identified them as *Platylabops pulchellatus* Bridgman, a regular parasite of the foxglove pug. This species is poorly represented at the British Museum, so I have given them my two, and Dr. Perkins would be glad of further material, if possible.

My four other pupae have hatched, and all moths are of the ssp. *hebudium* Sheldon. I have bred a number of this moth from West Cork, and found it to vary very little, but my four Dingle specimens show much more variation than usual, two being whiter, and one blacker than any others I have. I have now bred this interesting subspecies, which is quite devoid of the usual brick red colour, from West Cork, from Glengarriff to the end of the Dursey peninsula, and on the Kenmare road, nearly as far as the tunnel, and Mr. Baynes also has it from Valentia Island. It is odd that a Hebridean race should turn up in west Cork and Kerry, but Sheldon's type, which may be seen in his bequest at the British Museum, is identical with the Irish race, which I first discovered on 14th May 1914. I should perhaps add that, in a recent letter, Mr Baynes informed me that he had just bred one of the solitary parasites.

I am also indebted to Mr. Baynes for the record of *E. vulgata* Haw., ssp. *clarensis* Huggins from Killinaboy in the Burren of Clare. So, as I forecast, this race evidently covers the whole Burren.

I am greatly indebted to my friend Mr. E. S. A. Baynes for kindly pooling his notes on these pugs with me, and to Mr. D. S. Fletcher of the Entomological Department, British Museum, Natural History Section, for answers to my enquiries.

Yugoslavia Revisited

By RALPH L. COE.

START OF THE SECOND JOURNEY, AND THE TOWN OF ZADAR

I was on my way to Yugoslavia again. Two years had passed since my last visit. Among the little-known places where I planned to collect this time were the inland seas of Novi Grad and Karin and the island of Golem Grad that lies in Lake Prespa, on the frontier between Yugoslavia and Albania.

It was mid-May. Darkness had closed in when I caught the Simplon Orient Express at the Gare de Lyon in Paris. I was asleep as the train sped through France and Switzerland. When I woke, it was getting light, and we were approaching the Italian frontier station of Domodossola. When the train stopped, a jostling crowd of men and women climbed on. They filled the carriages and corridors, and even the lavatories were crammed with people and cases. It was the time of a General Election in Italy, and all adults were compelled by law to go to their home towns and villages in order to cast their vote.

Soon the atmosphere in my carriage became intolerable with the odour of packed humanity and garlic. In desperation I opened the window a few inches. But there were cries of indignation, and someone closed it again. At every stop some of them got out, until by the time we left Italy by the frontier station of Poggioreale peace reigned again. Soon we were passing the Istrian hills with their cypresses and vineyards.

It was early evening when I stepped out on to Yugoslavian soil at the little station of Pivka. There was half-an-hour to wait for my connection to Rijeka. I went in to the station café and ordered a glass of slivovice. A tall, good looking young Yugoslav soon joined me, and introduced himself in English as a journalist on a Belgrade newspaper. He was on his way home from Paris, where he had covered a current political crisis. The time passed quickly in his company. The train arrived, and we got on. It had three long coaches. Our one was crowded with some tipsy young Macedonians on their way to Rijeka. They were roaring out national songs to the strumming of a guitar. The noise was so appalling that my companion suggested that we should move to the next coach, which was first-class. I told him that I had no dinars yet, with which to pay the excess fare. But he went off to find the guard, and paid for us both. We passed the rest of the journey in comfort.

At Rijeka we both left the train, shook hands and went our different ways. I spent the night at the private house where I had stayed two years before.

In the morning I went down to the docks and boarded the fine Yugoslav steamer 'Dalmatija', for the short journey down the Adriatic to the Dalmatian port of Zadar. From there I planned to travel overland to the inland sea of Novi Grad at the western extremity of the vast region of bare limestone rock known as the Karst. Among the passengers on the boat I noticed a German with his wife and little boy. They sat near me at lunch in the dining saloon. The father wore the brief shorts beloved of the German tourist, and with his grossly corpulent figure and small stature he looked rather ridiculous. He barked his orders to the Yugoslav waiter in a way that made me fume. It is strange how the average German tourist treats the Yugoslav as though he were an inferior creature. After all, it is not many years since the Slavs drove the proud Teutons from their country.

As is invariably the case on Yugoslav steamers the meal was not only satisfying but sumptuous. The first course was an enormous helping of spaghetti, a reminder of the Italian influence along the Dalmatian coast. I was glad to spend the rest of the afternoon on deck in a lounge chair, dozing in the glorious sunshine.

It was nearly midnight when the boat docked at Zadar. Despite the lateness of the hour, the quay was crowded with people walking up and down, talking and laughing. The arrival of the passenger boats is a source of excitement to most of these coastal communities. In Zadar it is their main daily contact with the outside world, for there is no railway station within forty miles. Almost opposite the landing stage I found a good hotel, the Beograd, and booked a room there for the night.

The next morning I sat down to an excellent breakfast on the hotel terrace overlooking the broad natural harbour. It was dotted with small boats, coastal steamers, and smacks returning from the night's fishing. After my meal I set off to explore the town. Standing as it does on a peninsula it is a compact place, and it is impossible to lose one's way to any serious extent. I was surprised to see so few tourists about, for Zadar, in my opinion, is one of the most beautiful and interesting of the towns along the north Adriatic sea-board. It has a mild and pleasant climate besides. Yet it seems to be one of the least advertised of the coastal places.

During the last war the Axis used Zara, as Zadar was then named, as a naval base. In consequence it was heavily bombed and shelled by the Allies. Fortunately most of its many ancient buildings escaped damage. There are few signs left of the tremendous havoc that the town suffered, for fine new blocks of flats cover most of the scars. Zadar was once the important Roman city of Jadera. Then, in the early Middle Ages, it was twice captured and lost by the Venetians. Since that time, like the rest of Dalmatia, it has changed hands quite frequently. In 1920, under the Treaty of Rapallo, Zara was handed over to Italy, and it remained part of their territory until 1945, when Yugoslavia took it over.

I climbed several flights of steps behind the hotel, and passing under an ancient stone archway came to a busy street-market. The large open square was crowded with stalls displaying a wide range of merchandise. There was cheap jewellery, clothing, lace, boots and shoes, flowers, fruit, vegetables, and many other items. I joined a group of men and boys who were jostling round a stall. The stall keeper was spinning a large disc on which were spaced out various playing cards. Duplicate cards were being handed to the spectators for a few dinars each. When the disc stopped the card nearest to a black line was the winning one, and whoever held the duplicate won a packet of cigarettes or some other small prize. At another stall a man tried to sell me a small book-shaped trinket with cheap gilded covers and a long gilt chain, containing some abominable coloured views of Zadar. I shook my head and strolled on. Sitting at the foot of a high wall were some peasant women with baskets of eggs and other country produce that they were offering for sale.

I turned left into a long narrow main street of the town. Coming towards me I saw a small procession of men and women. In front of them walked a pretty young girl in a long white dress and a white linen cap shaped like a crown. She was clasping to her bosom a posy of wild flowers. These family processions are a pleasant custom in some parts of Yugoslavia to mark the occasion of a child's confirmation. In the window of a wine-shop there was a giant bottle of maraschino liqueur, which is a local speciality. The hill-slopes around Zadar are dotted with orchards of the purple Morello cherry from which the liqueur is made.

Soon I reached the cathedral, a basilica built in the 13th century in the Roman style. It is said that its tall spire was designed by an English architect. The unaltered interior has some finely carved choir stalls, and two altar pieces ascribed to Vittore Carpaccio, the great Italian painter. West of the cathedral I came to a square with Roman columns, the Piazza dei Signore of Venetian times, which is supposed to stand on the site of the old Roman forum, or market-place. It has a picturesque old guard-house with a Venetian-style clock tower and steeple of wrought iron. The building is now a museum of national costumes.

Close to the square is the 9th century church of St Donat. It has a very unusual appearance, being round in shape, with lofty walls of bare grey stone, towards the tops of which are cross-shaped cavities. Many years ago some archaeologists dug down under the floor of the church and found that it was built on flattened fragments from the old Roman city. Their discovery gave rise to the belief that the building was converted from an original Roman temple, which it certainly resembles in shape.

I went into the church of St Simeon, and saw the coffin of the saint.

It is a large silver-gilt affair, placed over the High Altar, and supported by bronze angels of the early Renaissance. Two narrow flights of steps lead up to this shrine. The casing was made by an Italian craftsman in the fourteenth century, and the modelling is superb. A recumbent figure decorates the upper part, and on each of the sides are six metal panels depicting the death of the Saint and various stages in the passage of the coffin to its last resting place. St. Simeon is the patron saint of Zadar, and on his feast-day, the eighth of October, people still come to the church to honour his memory.

I walked back along the main street, and found that it ended just past the street-market. Beyond I came to a gateway in the elaborate fortifications that partly enclose the town, and which have long been used as promenades. They were built in the 14th century to replace the original Roman walls, which were destroyed, strange as it sounds, by the Crusaders. History relates that on their way to the Holy Land the armies of the Fourth Crusade took shelter in the republic of Venice. While they were there the Doge of Venice, Dandolo, offered them large numbers of golden ducats if they would assist the Venetians to capture Zara. The temptation was too great for the impoverished Crusaders to resist, and in 1212 the town was besieged and taken.

I wandered back to the harbour. Among the craft huddled together at the quay-side a small steamer was being loaded with wine barrels. I was surprised to see several sturdy women carrying the heavy barrels on their heads. They held the barrel with a hand at either end, and on their head was a thick pad of cloth to reduce the friction and help keep the balance. One woman engaged in this strenuous work was in an advanced stage of pregnancy, but this did not seem to bother her at all.

Farther along the quay the shipping thinned out, and children sat dangling their legs over the concrete side, watching the shoals of sardine-like fishes which absolutely teemed in the clear, deep water. A group of youths in bathing slips came along and plunged in. In a second there was not a fish to be seen.

As I walked on, the shore suddenly curved to the left and I came to a small inner harbour, guarded by a horse-shoe shaped fortification. It was crowded with all manner of small craft. Yachts, dinghies, cutters and fishing smacks floated quietly at anchor in the calm water. Sitting along the narrow concrete path were dozens of school-children with pencils and drawing-boards busily sketching the varied scene. I had to pick my way between their legs as I passed by. On the further side I reached a small open-air café, where I quenched my thirst with a welcome glass of 'pivo' (beer) before turning back.

(to be continued)

54 Crossways, Addington, Surrey.

COLOSTYGIA SALICATA HÜBN., IN SURREY.—On the evening of 22nd May last, I found a male specimen of *C. salicata* Hübn. in my garden here, close to the spot on which my mercury vapour trap had been running during the previous night and to which it had no doubt been then attracted. I wonder whether any readers have records of this species so far from its normal habitat, or whether it was vagrant, migrant, or unwitting deportee, perhaps brought in by a neighbouring gardener.—J. L. MESSENGER, Stonehaven, Wormley, Godalming, 15.vii.1962.

The Distribution of the British Dixinae (Diptera, Culicidae) in North West England

By ALLAN BRINDLE

This well defined subfamily has been somewhat neglected to judge from the distribution given in Freeman (1950). The recent paper by Roper (antea, 74: 21-23) giving notes on the Dixinae of East Sussex, is excellent, both as regards the extension of the known distribution and for the biological observations on the species. Records of the Dixinae for Lancashire and Cheshire have been summarised in Kidd and Brindle (1959) in which seven species are listed for the two counties.

The purpose of the present paper is to publish county records of the subfamily additional to those listed in the publications quoted above, and to summarise the distribution in North West England. The new county records, with one exception, are taken from two sources, (1) from collections made by the late Mr. H. Britten, M.Sc., formerly Keeper of Entomology at Manchester Museum, and determined by the author, and (2) from personal collecting. The former records are indicated by the appropriate initials (HB), but records from (2) are not initialled. The exception is a specimen of *Dixa obscura* Loew, taken by Dr D. Bryce of Reading University, which is the second British record of this species. Dr. P. Freeman, of the British Museum (Natural History) kindly confirmed the determination by comparison with this original British specimen.

The Dixinae contains one genus, *Dixa* Meigen, with thirteen British species. The genus is divisible into two subgenera, *Dixa* s.s., with six species, and *Paradixa* Tonnoir, with seven. This division is supported both by larval and adult characters as well as by the ecological preferences of the species. Those of *Dixa* s.s. are characteristic of lotic water habitats, often being numerous by stony streams in woodland, whilst those of *Paradixa* are characteristic of static or slowly moving water with emergent vegetation.

Although the flight period is lengthy in the more common species, there is a succession of broods during that time, the broods being separated by a time gap in which the species is apparently scarce or absent as an adult. Some species are in evidence during the early Winter and they may extend through until Spring.

In the following list the scientific name is followed by the estimate of abundance of that species and by the flight period, the latter being indicated by using Roman numerals referring to the months. Both of these items are with reference to North West England. Next is given all the counties of North West England from which records have been made, both those included in the publications listed previously and those included in this paper as new county records. The latter have the locality and date added in parentheses after the county name.

The area taken as North West England, extends from Cheshire northwards to the border, and is restricted to the western side of the Pennines, i.e. the counties of Cheshire (v.c. 58), Lancashire (v.c. 59, 60), Westmorland (v.c. 69), and Cumberland (v.c. 70), together with part of West Yorkshire (v.c. 64). When records for Lancashire are quoted the particular vice county is added, otherwise the v.c. number is not given. The Furness district of Lancashire, as usual, is associated with Westmorland. The records for Yorkshire in Freeman (1950) do not state the particular vice county; these may not refer to v.c. 64. A few records from Derby (v.c. 57),

Shropshire (v.c. 40) and Staffordshire (v.c. 39) are included, and these also are new county records.

- D. (D.) nebulosa* Meigen Common. 5-12. Cumberland (Skirwith, 25.vi.1935 (HB)): Westmorland (Witherslack, 30.vi.1958): Lancashire (59): Yorkshire (Whitewell, 15.vii.1959): Cheshire.
- D. (D.) nubilipennis* Curtis Fairly common. 6-10. Cumberland (Skirwith, 19.x.1938 (HB)): Westmorland (Witherslack, 30.vi.1958): Lancashire (59, Whalley, 21.vi.1953): Yorkshire: Shropshire (Prees Heath, 8.x.1939 (HB)).
- D. (D.) puberula* Loew Common. 6-10. Westmorland (Witherslack, 19.x.1959): Lancashire (59): Yorkshire (Darnbrook Fell, 6.x.1957): Cheshire: Staffs. (Coombe Valley, 6.x.1940 (HB)).
- D. (D.) dilatata* Strobl. Not common. 9. Lancashire (59, Thursden, Burnley, 1.ix.1951): Yorkshire.
- D. (D.) maculata* Meigen Fairly common. 1, 8-10. Lancashire (59): Cheshire; Derby (Miller's Dale, 18.viii.1940 (HB)): Staffs. (Burnt Woods, 25.viii.1940 (HB)).
- D. (D.) submaculata* Edwards Common. 4-11. Lancashire: Yorkshire: Cheshire.
- D. (P.) aestivalis* Meigen The distribution of this species in North West England can be summarised as common and generally distributed, which agrees with that quoted for the British Isles generally in Freeman (1950). Records exist for Westmorland, Lancashire, Yorkshire, and Cheshire.
- D. (P.) serotina* Meigen Rare. 10. One record, Cheshire (Delamere, 19.x.1924 (HB)) recorded in Kidd and Brindle (1959) and determined by the late Dr. F. W. Edwards in 1939. Specimen in coll. Manchester Museum.
- D. (P.) autumnalis* Meigen Scarce. 7-8. Lancashire (59, Whalley, 16.vii.1954): Staffs. (Madeley, 16.viii.1936 (HB)).
- D. (P.) martini* Peus Fairly common. 3-11. Cumberland (Skirwith, 28.vii.1924 (HB)): Westmorland (Witherslack, 15.vii.1959): Lancashire: Yorkshire: Cheshire: Staffs.; (Madeley, 18.ix.1936 (HB)).
- D. (P.) amphibia* (Degeer) Scarce. 5, 10. Cheshire (Cotterill Clough, 3.x.1941 (HB)): Staffs. (Madeley, 15.v.1936 (HB)).
- D. (P.) obscura* Loew Rare. 8. One record, Yorkshire, (Malham Tarn, 30.viii.1955 (D. Bryce)). Specimen in coll. Manchester Museum. The first British record was from Dumbarton, Scotland, and in a recent insect survey of the Malham Tarn area it has been found that a decided Scottish element exists in the fauna of this area.

There is only one British species not recorded from North West England, the rare *D. (P.) filicornis* Edwards, of which one record exists from Sussex. *D. (D.) dilatata* is considered to be a northern or western species but so far it has only been found in one area recorded, in addition to Yorkshire. The records, however, have been chiefly based on sporadic collecting, and a more thorough investigation should increase the distribution.

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Breeding Leaf-mining Flies and their Parasites

By G. C. D. GRIFFITHS, B.A., F.R.E.S.

I was very pleased to be asked to prepare an introductory paper on the study of leaf-mining flies (Diptera, Agromyzidae) and their hymenopterous parasites, as this is a field of study to which I would like to see more amateur workers attracted. I believe that systematic breeding is one of the most important contributions which the amateur can make to Entomology. Many groups of phytophagous insects are very specialised in their choice of hosts and can best be studied from bred material. The dipterous family Agromyzidae provides a very good instance of this point; it is a large family (over 250 British species are already known), which contains many groups of closely related species which are not distinguishable on the external morphology of the adult, but differ in their biology and the male genitalia. Their specialised biology makes it desirable to use bred material as far as possible in any systematic work.

I have attempted, too, to extend my study to the hymenopterous parasites of the Agromyzidae. Some of them are in their turn very specialised in their choice of hosts and are themselves best studied from bred material. This is especially the case with the Dacnusiini (Braconidae), where not only are the individual species restricted in their choice of hosts, but some species groups in the large genus *Dacnusa* are confined to particular genera of the Agromyzidae. The host/parasite relationship here is obviously one of great antiquity.

There is an inherent danger in this biological approach to taxonomy which I would like to warn my readers against at the outset. It is often very easy, particularly when only short series are available, to convince oneself that small observable differences between specimens bred from different hosts are of specific importance. In many groups of Agromyzidae the external morphology is inadequate for taxonomic purposes because the range of individual variation within a species overlaps that of another. The male genitalia and, particularly in the Agromyzinae, the larval morphology are often much more suitable material for study. Ideally *all* these features should be examined in taxonomic work. It is no longer adequate to rely only on the external characters of the adult.

In this paper I shall try to outline very briefly the biology of the Agromyzidae, followed by an introduction to the different groups of hymenopterous parasites which I have bred from them. I shall then discuss techniques for collecting and preservation. My aim in writing this paper has been to interest other Entomologists in this expanding field of enquiry, which I can wholeheartedly commend to anyone who would like to pit his intellect against a complex and specialised group of insects.

1. THE BIOLOGY OF THE AGROMYZIDAE (DIPTERA)

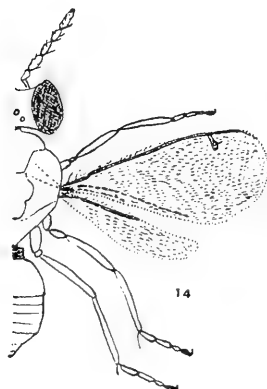
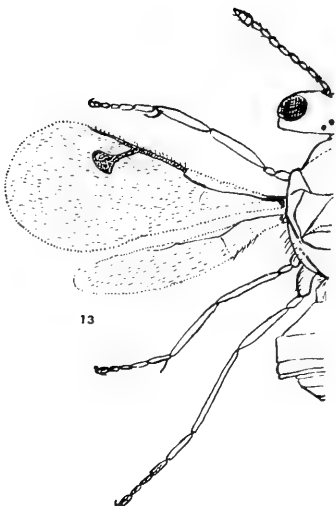
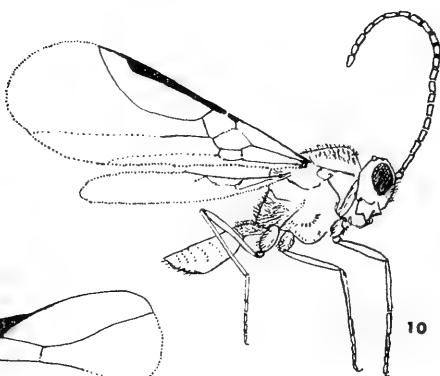
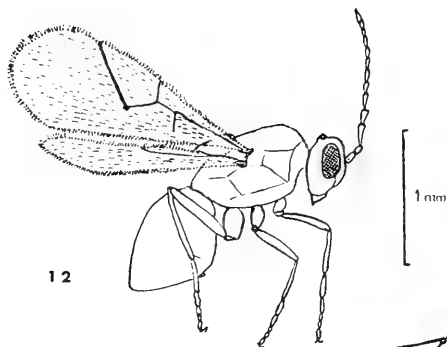
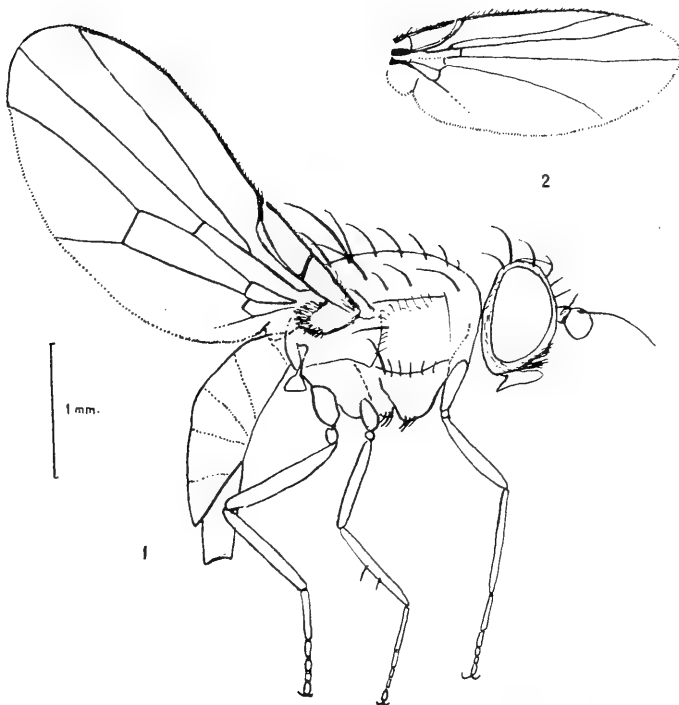
The Agromyzidae are the largest family of Acalypterate Diptera in Britain, containing over 250 species. This number of known species has been doubled over the last ten years. For the external characters by which the family can be distinguished from its relatives, reference can be made to the key in Olroyd (1949). The most important points to notice are the bristles on the head (see Fig. 1)—particularly the presence of lower fronto-orbitals and the divergent postverticals—and the wing venation (Figs. 1 and 2). The male genitalia (Figs. 3 and 3a) are very characteristic and their basic form is constant throughout the family. Features to notice are the long aedeagal apodeme (reaching as far forward as the

second abdominal segment in most species) and the large V-shaped 9th sternite, which is completely internal. The phallus is four-segmented in some groups (these segments are termed basiphallus, mesophallus, hypophallus and distiphallus according to their position), but more simplified in others. The variation in the phallus is often considerable between closely related species and it is an invaluable character for taxonomy. The ejaculatory bulb (Fig. 3a), which is attached to the rest of the genitalia by the long membranous sperm duct, and the ninth sternite too may be of importance to the taxonomist for characterising species.

The larval morphology is very constant for the family I have figured the cephalopharyngeal skeleton of *Agromyza reptans* Fall. at Fig. 4 and of *Liriomyza strigata* Mg. at Fig. 5. Variation occurs mainly in the shape of the mandibles (particularly in the number of teeth), and of the spiracles. In some groups the larval morphology can be very useful for identification—for instance in the many grass-feeding species of *Agromyza*.

The larval stages of the Agromyzidae are all feeders on living plant material. The majority of species are leaf-miners, feeding in the parenchymal tissue of the leaf, but there are also many stem-miners (species mining close to the surface of the stem), stem-borers and a few seed- and root-feeders. In the tropics there are also epidermal miners, mining exclusively in the epidermis of the leaf—perhaps the most specialised habitat of all. It is possible to recognise many of the leaf-mining species from the type of mines which they produce. I have figured as an example four different species found in Britain on *Solidago virgaurea* (Figs. 6-9). All these species attack the upper surface of the leaves of their host, but produce quite different mines. *Ophiomyia maura* Mg. (Fig. 6) produces a very long and slender mine containing large frass particles at intervals. The larva pupates in the leaf in contrast with the following species which emerge from it to pupate. *Phytobia* (*Nemorimyza*) *posticata* Mg. (Fig. 7) is a large species whose larvae produce a conspicuous blotch mine, which has a brownish appearance. *Phytomyza virgaureae* Hg. (Fig. 8) produces a simple linear mine which is whitish in appearance. The small frass particles lie in rows on alternate sides of the mine. (A related species, *P. solidaginis* Hd., produces very similar mines, but the frass particles are joined into threads). The larva of *Liriomyza eupatorii* Kalt. (Fig. 9) commences its mine with a characteristic spiral channel, by which it can easily be recognised. The species is commoner on *Eupatorium*, but is sometimes found on *Solidago virgaurea*.

As an instance of the degree of host specialisation in the Agromyzidae we might note that the garden golden-rod (*Solidago canadensis*) is attacked by only one of the species mentioned above—*Phytobia* (*Nemorimyza*) *posticata* Mg. The great majority of Agromyzid species are confined to a single genus of plants or a few closely related genera. However there are a few polyphagous species which occur very commonly. *Phytomyza atricornis* Mg. attacks a wide range of herbaceous dicotyledons—it is very common in this country on such diverse plants as *Papaver*, *Linum*, most Cruciferae, *Reseda*, *Tropaeolum*, *Vicia* and *Lathyrus*, *Linaria* and nearly all Compositae. The larva produces a linear mine which may be on the upper or lower side of the leaf. Pupation follows in the mine—a feature which allows the species to be distinguished easily from the many specialised *Phytomyza* species of the *albiceps* group which are also



- Fig. 1.—*Agromyza reptans* Fall., adult.
 Fig. 2.—*Phytomyza atricornis* Mg., wing.
 Fig. 10.—*Rhizarcha maculipes* Thom. (Hym., Braconidae, Dacnusiini).
 Fig. 11.—*Opius pallipes* Wesm., wing (Hym., Braconidae, Opiini).
 Fig. 12.—*Diglyphosema* sp. (Hym., Eucoilidae).
 Fig. 13.—*Miscogaster elegans* Walk. (Hym., Pteromalidae).
 Fig. 14.—*Chrysocharis* sp. (Hym., Eulophidae).

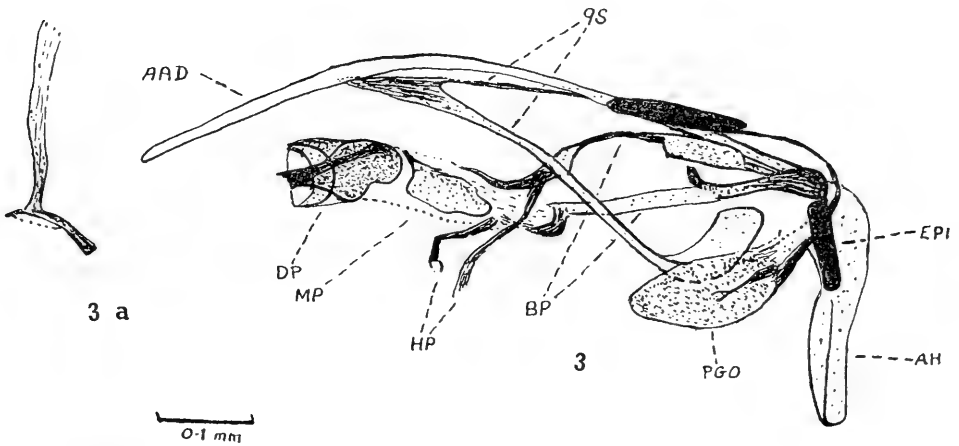
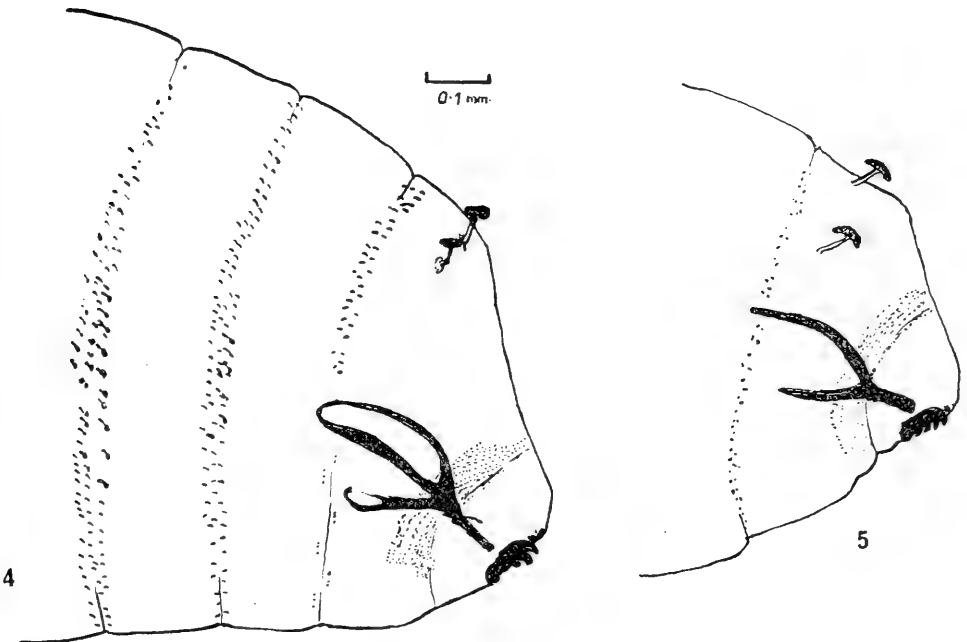
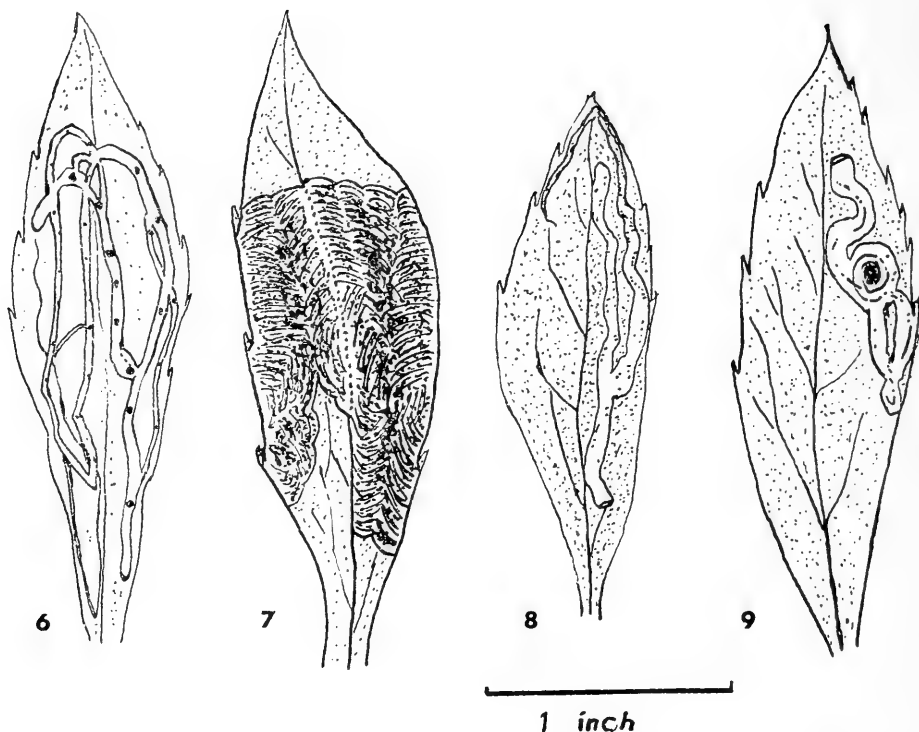


Fig. 3.—Male genitalia of *Agromyza reptans* Fall. (lateral view from left side).
 3a. Ejaculatory bulb of same.

- | | |
|----------------------|-----------------|
| AAD=Aedeagal Apodeme | BP=Basiphallus |
| AH=Aedeagal Hood | MP=Mesophallus |
| EPI=Epiphallus | HP=Hypophallus |
| PGO=Postgonite | DP=Distiphallus |
| 9S=9th Sternite | |



Figs. 4-5.—Larval head and thorax (lateral view from right side) of: 4. *Agromyza reptans* Fall.; 5. *Liriomyza strigata* Mg.



Figs. 6-9.—Leaves of *Solidago virgaurea* mined by: 6, *Ophiomyia maura* Mg.; 7, *Phytobia (Nemorimyza) posticata* Mg.; 8, *Phytomyza virgaureae* Hg.; 9, *Liriomyza eupatorii* Kalt.

found on Compositae. Another polyphagous species is *Liriomyza strigata* Mg. which is very common on Compositae, Campanulaceae and *Valeriana*, and sometimes occurs on a wide range of other dicotyledons. The larva feeds mainly in the midrib of the leaf, where it is afforded some protection from parasites.

The whole question of host selection by mining insects is a fascinating topic and is dealt with very fully by Professor E. M. Hering in his "Biology of the Leaf Miners" (1951). For the identification of mines the same author's "Bestimmungstabellen der Blattminen von Europa" (1957) is the standard work. This includes all mining insects, but excludes stem-boring Agromyzidae.

The standard work on adult Agromyzidae is Hendel's (1931-6) monograph in "Die Fliegen der paläarktischen Region". This is now unfortunately out of date, and reference has to be made to a large number of scattered subsequent papers for accurate identification. In particular the study of genitalia is putting the taxonomy of the group on a much sounder footing than formerly. I would advise any newcomer to the study of this group to have all his identifications checked by an experienced worker at first.

I cannot discuss the classification of the family in any detail in this short paper, but will confine myself to a few general remarks. Hendel's basic subdivision into two subfamilies—the Agromyzinae and Phytomyzinae—is of undisputed validity. The difference is perhaps clearest in the larval stage, for all Agromyzinae larvae have three processes of the paraclypeal phragma (see Fig. 4) in their last two instars,

while the Phytomyzinae larva (see Fig. 5) has only two. There is also a difference in the wing venation—in Agromyzinae the subcostal vein terminates in the first branch of the radius, while in the Phytomyzinae it reaches the costa. However Hendel's division of the Phytomyzinae into genera was very artificial in some respects—particularly in his lumping of some very heterogeneous groups in his genus *Dizygomyza*. Dr. J. T. Nowakowski of Warsaw is doing valuable work in recasting the classification of this subfamily and publication of his revised scheme is expected soon.

2. HYMENOPTEROUS PARASITES OF THE AGROMYZIDAE

The chief natural enemies of the Agromyzidae are the hymenopterous parasites which seek out the larva and deposit their eggs in it. Parasitised larvae usually pupate normally, and the adult parasite subsequently emerges from the dipterous puparium. Occasionally however some Chalcids destroy the host larva before it can pupate and the parasite pupa is then found unprotected in the mine channel. The groups of Hymenoptera concerned are the Braconidae (Ichneumonoidea)*, Eulophidae and Pteromalidae (Chalcidoidea) and the Eucoilidae (Cynipoidea). In this country Braconid parasites make roughly 60%-70% of all the parasites bred from Agromyzidae, and nearly all the rest are Chalcids—roughly equal numbers of Eulophids and Pteromalids. Eucoilids I have only seen bred from stem-boring *Melanagromyza* species in this country. Most of these parasites are still little known and the accumulation of bred series will be of considerable help in their classification.

(a) *Braronidae* (Ichneumonoidea)

Three groups of Braconids can be bred from Agromyzidae—the Dacnusiini, Alysiini and Opiini.

(i) *Dacnusiini*

The Dacnusiini and Alysiini form the group of Braconids classified by Wesmael as Exodontes. These are characterised by their possession of large "exodont" mandibles, which can be opened out at right angles to the side of the head. At rest their tips are well separated and they can have no feeding function. It is my personal view that they serve to split the dipterous puparium along its natural line of weakness—the suture which runs forward horizontally from the second thoracic segment on either side, thus forming a semi-circle. All cyclorrhaphous Diptera emerge by splitting this suture—hence in fact the term "Cyclorrhapha". Exodont Braconids emerge by splitting this suture in the same way as their hosts, but Opiini and other Hymenoptera carve a circular hole. The view that the mandibles serve this purpose has some circumstantial support from the fact that, as far as I am aware, all the Exodontes are parasites of cyclorrhaphous Diptera.

The host/parasite distribution of the Dacnusiini with the Agromyzidae

*There is also one record of the breeding of an Ichneumonid from Agromyzid puparia—Nowakowski, J. T., 1959, Studien über Minierfliegen, 3. Revision der in Labiati und Boraginaceen minierenden Arten aus der Gruppe der *Phytomyza obscura* Hend., mit einem Beitrag zur Kenntnis Ihrer Hymenopteren-Parasiten. *Dtsch. ent. Z. N.F.* 6 : 185-299—where two examples of *Hemiteles atricapillus* Grav. are recorded from *Phytomyza myosotica* Now. in Poland.

suggests that the association of the two groups is one of great antiquity. Most Dacnusiini are very specific in their choice of hosts and confine their attentions to a small number of related species. Some attack only a single host. Even the relatively polyphagous species such as *Rhizarcha maculipes* Thom. (Fig. 10) show a marked respect for taxonomy—this species is universally common and will attack nearly all leaf-mining Phytomyzinae: yet I have never bred it from a member of the Agromyzinae. In the large genus *Dacnusa* some species groups are associated with particular genera of the Agromyzidae. The *lateralis* group, for instance, are all parasites of *Agromyza*, while the *senilis* and *leptogaster* groups are nearly all parasites of *Melanagromyza* and *Ophiomyia*. In only one case are completely unrelated genera of Agromyzidae on the same host plants attacked—*Antrusa melanocera* Thom. attacks both *Agromyza* and *Poemyza* species on grasses—a type of host distribution which is common in the Opiini.

Dacnusiini attack almost all Agromyzidae—in fact the only species that I know which seems to escape their attention is *Phytomyza illicis* Curtis on holly (*Ilex aquifolium*). A few species are parasites of other acalypterates. The standard work on the group is Nixon's (1943-54) "Revision of the European Dacnusiini". I published a block of breeding records for this group in 1956, though there are now many more to add to this.

(ii) *Alysiini*

The Alysiini, like the Dacnusiini, are exodont Braconids, but differ from that group by their retention of a second r-m cross vein (as in the Opiini—see Fig. 11). They are mostly parasites of larger Diptera, but I have bred two species from Agromyzids. These are *Dapsilarthra balteata* Thom., attacking *Agromyza* and *Poemyza* species on Gramineae, and *D. rufiventris* Nees which I have bred from several unrelated leaf-mining Phytomyzinae.

(iii) *Opiini*

The Opiini lack the exodont mandibles of the Dacnusiini and Alysiini, and retain the second r-m cross vein (Fig. 11), though this is often weakly chitinised.

Many species of this group attack leaf-mining Agromyzids, but I have not bred them from any stem-mining or stem boring species. One species is a specialised parasite of *Phytomyza isais* Hg., which feeds in the seeds of *Odontites verna*. In general the Opiini are less specialised in their host selection than the Dacnusiini. Dr. M. Fisher of Vienna has worked on my bred material and will be publishing the results soon. There appear to be several species of *Opius* which attack a wide range of leaf-mining Agromyzids (e.g. *O. similis* Szépl.), and the host range of some other species appears to depend more on the Agromyzids host-plant than the Agromyzid itself. *O. minor* Fi. for instance was bred from *Agromyza* spp. and *Liriomyza trifolii* Burg., all on Papilionaceae. *O. rex* Fi. attacked *Agromyza* spp. and *Phytobia* (*Poemyza*) *pygmaea* Mg. on Gramineae. Many species were of course bred from only one host, but it is difficult to know at this stage whether they are all genuinely specialised or will in future be found on other hosts.

(b) *Eucoilidae* (*Cynipoidea*)

Eucoilids can easily be recognised by their wing venation and laterally compressed abdomen.

In Britain they have only been bred so far from the puparia of stem-boring *Melanagromyza* species. Mr. G. J. Kerrich refers these specimens to the genus *Diglyphosema*. An example bred from *M. tripolii* Sp. on *Aster tripolium* is figured at Fig. 12.

Members of this family appear to be commoner as Agromyzid parasites in other countries. Professor Hering of Berlin has bred them from *Cephalomyza cepae* Hg. and *Liriomyza amoena* Mg., both leaf miners, and Dr. Nowakowski bred a species identified as *Gronotoma allotriaeformis* Gir. from *Phytomyza nepetae* Hd., mining the leaves of *Nepeta cataria* in Poland. I saw several species in a small collection of parasites from South American Agromyzids bred by Mr. K. A. Spencer.

(c) Chalcidoidea

Various Chalcids belonging to the families Eulophidae and Pteromalidae occur as parasites of the Agromyzidae. My material has not yet been studied in detail, and my remarks must therefore be very tentative. I have figured (Figs. 13 and 14) an example of each family illustrating the main differences. The Eulophidae have 4-segmented tarsi and fewer antennal segments: they have no spur at the apex of the fore tibiae. The Pteromalidae have 5-segmented tarsi and more antennal segments: there is a stout curved spur at the apex of their fore tibiae. (Not all species have a large stigma as in the example figured). The most recent key of the families of Chalcidoidea is in Ferrière and Kerrich's (1958) volume in the series of "Handbooks for the Identification of British Insects". There is no recent detailed work on the two families which parasitise Agromyzids, and any bred material which can be obtained may be a great help in their study.

(i) Eulophidae

Eulophids are very common parasites of *Dizygomyza*/*Poemyza* species (on monocotyledons) and the *Phytagromyza* species found on Salicaceae: apart from these groups they have been bred from many other leaf-mining Agromyzids, but are generally not the commonest parasites. They do not occur on stem-mining or stem-boring species. I have figured at Fig. 14 a *Chrysocharis* sp. which is a very common parasite of *Phytobia* (*Poemyza*) *atra* Mg. and regularly decimates this host.

The species of this family are generally metallic green or black. An interesting exception is *Cirrospilus vittatus* Walk. which is yellow and black striped on its head and thorax. Most species of this family emerge from the puparia of their host, but the *Cirrospilus* pupa lies unprotected in the mine channel of *Phytobia* (*Calycomyza*) *humeralis* Ros. on *Aster tripolium*.

It is possible that some Eulophids, particularly *Pediobius* spp. are hyperparasites—an interesting question which will repay further study.

(ii) Pteromalidae

I have figured at Fig. 13 *Miscogaster elegans* Walk., bred from *Agromyza watersi* Sp. on *Lathyrus latifolius*. This and other species with large stigmata are common parasites of leaf-mining *Agromyza* and *Phytomyza* species.

Other forms with smaller stigmata can be bred from various stem-boring Agromyzids (*Melanagromyza* spp., *Phytomyza flavicornis* Fall. and *Napomyza lateralis* Fall.) and from Gramineae-feeding *Agromyza* and *Poemyza* species.

(to be continued)

Notes and Observations

INFESTATION OF HAWTHORNS IN CHESHIRE.—I have received from Mr. C. I. Rutherford a cutting from the Sunday Express of 24th June 1962, reporting the infestation of the hawthorn hedges on a council estate at Sale, Cheshire, by "black caterpillars". These are said to crawl up walls of houses and enter the rooms through ventilators.

I have just returned from driving some 3,500 miles in France, Austria, Switzerland and Italy, and I noticed many areas where the hawthorns were badly infested by the larvae of an *Hyponomeuta* species, probably *padella*, and considerable areas of *Oxyacanthus* were defoliated. This state of affairs certainly extended into east Kent where I noticed large stretches of the hedges in a similar state of defoliation, and I am of the opinion that this Cheshire infestation must be by one of these species. The only point that does not tie up is the migration of the larvae into houses; it is their usual habit, of course, to pupate in their webs, and it may be that journalistic enthusiasm has led the contributor to add "corroborative detail, adding versimilitude to an otherwise bald and unconvincing narrative". It will be interesting to hear of the matter from a local entomologist.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent. 11.vii.1962.

PLUSIA NI HÜBN., IN SURREY.—I would like to put on record the capture of this migrant *plusia* in my mercury vapour trap here, on the night of 1st July. The moth was a male in poor condition.—J. L. MESSENGER, Stonehaven, Wormley, Godalming. 15.vii.1962.

NOTHOPTERYX POLYCOMMATA IN YORKSHIRE.—On 17th May 1959, I was returning from the higher part of Grass Wood near Grassington where I had been taking some fresh specimens of *Colostygia salicata* from the rocks, when I noticed a female *N. polycommata* at rest on an ash trunk. She was rather worn, and only managed to lay three eggs before expiring; from these, two pupae were obtained, but no moths.

Having ascertained that the species was not mentioned in Porritt's list, I checked with Dr. Hewson who was then keeping the county records. He reported that there was only one previous record:—"Low Moor (Bradford), 27-6-19, believed introduced with moss from the coast". My specimen could therefore be regarded as the first indigenous record, but I felt that confirmation was needed that the species was established and not just a vagrant; the fact that it was fertile, and the similarity of the terrain to that where the species is found in Westmorland gave me confidence.

Several fruitless visits were paid, however, before I caught a male on 20th May this year, I had disturbed it among the ash saplings. I can only assume that this species has remained unnoticed in such a well-worked locality for so long because it is normally over before any of the species for which the wood is particularly noted are out.—C. I. RUTHERFORD, Redroofs, Oakdale, Harrogate. 25.6.62.

VANESSA CARDUI L. IN NORTHUMBERLAND.—Two *Vanessa cardui* L. were seen basking together by the castle on Lindisfarne (Holy Island), Northumberland, on the fine morning of 10th June 1962.—D. C. HULME, 1, Melton Avenue, Littleover, Derby. 21.vi.62.

CELERIO GALII ROTT. AND C. LIVORNICA ESP. IN CO. KERRY.—On the night of 6th June 1962, Mr. J. L. Messenger and I set up our mercury vapour light on the sandhills close to Glenbeigh, which is on the Kerry coast facing the Dingle peninsula. So high was the wind, however, that we decided to move to a quarry we had spotted in the adjoining mountain side half-a-mile away. About 12.30 a.m. a large hawk moth landed near the sheet, and to our amazement we found it was a female striped hawk in prime condition, but this was nothing to our astonishment when we looked through the trap on the following morning in the garden of the Towers Hotel, half-a-mile away. There among the egg cartons was an almost perfect female bedstraw hawk. I doubt whether these two species have ever been taken together on the same night in the same locality before in the British Isles. The following evening we paraded along a fine bank of rhododendrons in a local garden, and just at dusk, Mr Messenger netted a hawkmoth which was almost certainly *C. livornica*, but which escaped as he was about to box it. The next night, the 8th, in the same quarry as before, this time in the company of Rear Admiral D. Torlesse, another *livornica*, a perfect male, came to our light just after 1 a.m.

I at once communicated this good news to Mr. E. S. A. Baynes, the leading authority on Irish Lepidoptera. He informed me that according to the late Col. Donovan, *C. galii* had only been taken twice in Ireland in the last century, once at Howth in 1888. Since then, Mr Baynes has had it twice at light, a Glenageary, near Dublin, in October 1955, and September 1856, and apparently two larvae of this species were found on the East Coast in Co. Wexford and Co. Wicklow in 1961, so perhaps our capture might have been bred on the spot.

As to *C. livornica*, it has been seen much more frequently in Ireland. In that great year for the species, 1943, no less than 13 were taken at Ummera, near Timoleague, Co. Cork, between 23rd May and 20th June, by Mrs. Lucas (*Entom.*, 1944, 77: 73). In 1949 several larvae were noted on the south coast, and in 1931, two larvae found at Cloyne, Co. Cork, were bred by Miss C. Longfield.—C. G. M. DE WORMS, Three Oaks, Woking. 10.vii.1962.

THE HABITATS OF COSCINIA CRIBUM LINN. ON THE DORSET AND HANTS BORDERS.—In Vol. 72 of the Entomologists' Record at page 92, my friend, Mr. S. C. Scarsdale Brown, published a note on the localities at St. Leonard's, near Ringwood, of *Coscinia cribum* Linn., and I a further note on p. 142 of that volume. It is not my purpose to recall the difference of opinion then expressed, but to emphasise the fact that so-called modern progress had wiped out the localities in and around St. Leonard's. I had some time ago noticed that the two small rivers, Moors Water and the Crane, were being altered to effect a more rapid flow, and so lower the water table in, at any rate, the lower part of the valleys occupied by these small rivers. A few weeks ago, I had the occasion to go to Fern-down, and decided to go home by way of the Ringwood, Verwood, Cranborne roads. To my horror I found that on both sides of this road the Forestry Commission had been doing their damndest. No longer is there a lovely area of open heath, whose colour at all times, but especially in the latter months of the year, was a delight; it is just one dismal series of closely planted rectangles of fir trees enclosed in wire netting compounds and as every naturalist is only too painfully aware, that is death and damnation to both beauty and wild life. I did not attempt to walk past

the desolation to the southern side of the area to what was, in days gone by, a very boggy valley, full of *Osmunda regalis* which often ran to the astonishing height of 7 feet. I realised then the object of the work on the lower part of the Crane, to make this area less unsuitable for conifers, but it means goodbye to the Royal Ferns. After the destruction wrought by the Forestry Commission in Morden Bog, where they attempted to grow fir trees after bulldozing the edges of the bog, they probably learned that fir trees like to have their feet dry, but if they learnt that fact, which it is just possible they may have done, the lesson has been learned, as is so usual with this Commission, at the cost of much irreplaceable beauty of fauna and flora.

The action dealt with in this note is well paralleled by the damage they have done to the ancient Caledonian Forest in the Grampians around Rannoch, the way they have defaced Whinlatter Pass, and the progressive despoilation of the New Forest.—W. PARKINSON CURTIS, F.R.E.S.

ANARTA MELANOPA THUNB. IN ABERDEENSHIRE.—An *Anarta melanopa* Thunb. was caught less than twenty feet below the summit cairn of Morven, near Ballater, Aberdeenshire, at 16.30 G.M.T., on the hot, sunny afternoon of 16th June 1962. On settling, the moth hid itself among loose stones and was rather rubbed by the time I had boxed it. As this shapely hornblende hill is 2,862 feet high, the statement on page 167 of volume one of the new *South* will require amendment.

Ematurga atomaria L. was abundant on the neighbouring granite Culblean Hill (1,983 feet), and singletons of *Pandemis cerasana* Hübn. and *Ancylis unguicella* L. were taken on the 650 foot contour at the base of this hill.

Incidentally, a *Pseudargyrotoza conwagana* F. was taken at Pitfodels, Aberdeen, on 14th June 1962. I have no 20th century text book giving the distribution of the Tortrices, but Meyrick's *Handbook* (1895) gives "Britain to the Clyde, Aberdeen (?), Ireland, very common".—D. C. HULME, 1 Melton Avenue, Littleover, Derby. 21.vi.62.

LAPHYGMA EXIGUA HÜBN. AT WOKING, SURREY.—On the nights of 6th and 14th May 1962, I had single examples of this species in my trap here. I had not seen it here since 1952, but I gather that a large number of this migrant has been recorded from many parts of the southern half of Britain.—C. G. M. DE WORMS, Three Oaks, Woking. 10.vii.1962.

WICKEN FEN FUND.—Entomologists did a little better last year: £79 15/5 reached me, and was passed on to the National Trust through the British Trust for Entomology. But I am sure we can do better yet. We ought to be able to reach three figures, for what is a pound worth now in comparison with those we had before the war? In those days, the Fund regularly benefited to the extent of more than £100 each year. Our subscriptions have not kept in step with costs; can we catch up? I am sure we can.

Cheques should be made payable to the British Trust for Entomology, Ltd., Wicken Fen Fund, and sent, like other remittances, to me personally at the British Museum (Natural History), Cromwell Road, London, S.W. 7.

Thanks are specially due to those generous contributors who already send a contribution under a standing Banker's Order. I should be delighted to add to their number.—N. D. RILEY.

10. Sevenoaks, one, 1887 (Henderson, *Young Nat.*, **8**: 140); 1949 (F. D. Greenwood). Brasted, larva, June 16, 1916 (Gillett, *Diary*) (R. M. Prideaux). Seal Chart, larva (Howarth, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 71). Westerham, larva (Leston, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 72). Sundridge, plentiful, 1962 (C. G. Bruce).

11. Watlington (V.C.H. (1908)). Tonbridge, one, 1950 (H. E. Hammond). Aylesford, c. 1954 (G. A. N. Davis). Hoads Wood, plentiful, also noted flying in sun; March 11, 21, 1954 (P. Cue); four April 2, 1955 (W. L. Rudland). Sevenoaks Weald, three, 1960 (E. A. Sadler).

12. Hothfield, larva, June 13, 1931, ♂ reared (A. M. Morley). Ham Street, two, March 12, larva, May 17, 1933, five, March 17, two, March 22, 1935 (A. M. Morley); one, February 19, one, March 16, 1937 (A. H. Lanfear); three, March 1939, a larva, June 17, 1939 (C.-H.).

13. Tunbridge Wells (E. D. Morgan); one, 1957 (L. R. Tesch, *teste* C. A. Stace).

14. Woodchurch (Scott (1936)). Sandhurst (G. V. Bull).

15. Dungeness, pupa, 1934, from which imago emerged, March 24, 1935 (A. J. L. Bowes).

VARIATION.—Kentish specimens are referable to ssp. *galbanus* Tutt, which is described as having the ground colour pale green, with the markings not so prominent, the stigmata pale and indistinct.

I have two ♂♂ ab. *confluens* Klem., taken Broad Oak, 1945, and West Wickham, 1951 (C.-H.).

FIRST RECORD, 1829: Darenth (Stephens, *Haust.*, **3**: 55).

Polyploca ridens F.: Frosted Green.

Native. Woods; on oak. Mainly Wealden; local. Unusually plentiful in 1955, 1956.

1. Shooter's Hill, three larvae, 1856 (Crewe, *Ent. week. Int.*, **1**: 123). West Wickham, one, taken May 1859 (Allchin, *Ent. week. Int.*, **7**: 203). Birch Wood, larvae, July 8, 1864, "I took a great number . . . beating them from the oaks in Birch Wood" (Newman, *Entomologist*, **3**: 147).

3. Trenley Park, from five cocoons excavated from under moss at foot of oak, March 4, 1921, two moths emerged March 23, and two, March 30, 1921 (H. G. Gomm, *Diary*).

6. Near Otford* (Stephens, *Haust.*, **3**: 55).

6a. Chattenden, 1902-03, one or two larvae each year (H. C. Huggins).

11. Hods Wood (Scott (1936)); several, May 10, 1954 (P. Cue); twenty-two at m.v., April 29, 1955, the main flight from 10 to 10.30 p.m.; one, May 14, 1956 (W. L. Rudland). Holt Wood, Aylesford, in m.v. trap, one, 1953, one, 1954 (G. A. N. Davis). Sevenoaks Weald, one, at m.v., 1960 (E. A. Sadler).

12. Ham Street, ♂, May 11, ♂, May 20, 1834; eighteen ♂♂ taken at light between April 22 and May 4, 1935, by A. G. Riddell, A. G. Peyton, E. Scott, and A. M. Morley; a larva on scrub oak bush, 1947 (A. M. Morley); May 15-16, 1936, May 8, 1938 (Bull, *Diary*); several at light, 1938, a few, 1939, four nearly full-grown larvae beaten out, June 13, 1947, two worn ♂♂ at m.v. May 12, 1951, twenty ♂♂, two ♀♀, at m.v., mostly in fresh condition, May 5, 1956; all in Long Rope and Burnt Oak (C.-H.); several, 1954 (P. B. Wachter); about fifty at m.v., one night in 1955 (G. Law, *teste* P. B. Wachter); plentiful at m.v., May

3, 1956 (E. J. Hare); 1959 (de Worms, *Entomologist*, **93**: 158); five, May 6, 1960 (R. G. Chatelain).

13. Tunbridge Wells, scarce (A. D. Reed, *vide* E. D. Morgan). Goudhurst, not uncommon at light, 1955-61 (W. V. D. Bolt).

VARIATION.—Two ♂♂, taken Ham Street, May 7, 1956, are referable to ab. *erythrocephala* Esp. (C.-H.).

FIRST RECORD, 1829: Stephens, *loc. cit.*

LYMANTRIIDAE.

Orgyia recens Hübn. (**gonostigma** F.): Scarce Vapourer.

Native; probably long extinct. Woods; on oak, hazel.

1. Near Lewisham (see *First Record*). "It occurs in several places near the metropolis, as at Lewisham, Erith. . . ." (Stephens, *Haust*, **2**: 62). Bexley, "while searching the young oaks in woods, at Bexley, I came across a batch of ova of *Orgyia gonostigma*, July 10, 1898, the larvae from which are doing well at the present time" (Newman, *Ent. Rec.*, **10**: 277); the same recorder (*Ent. Rec.*, **11**: 277) states that on September 2, 1899, he found ten young larvae in the same locality as of the previous year. [West Wickham, ♂, seen flying in the sun, May 25, 1952, but suspected of being an escape, as at that time the species was being reared by several collectors in the neighbourhood (C.-H.)]

6. Greenhithe* (Stephens, *Haust.*, **2**: 62) (Curtis, *Br. Ent.*, 378).

[11. Tonbridge, two broods, bred 1896 (Bacot, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1897: 2); wants confirmation, particularly in regard to locality (C.-H.)]

FIRST RECORD, 1720: The larva "was found feeding on the *Hastle* . . . near Lewisham in Kent" (Albin, *Nat. Hist. English Insects*, facing pl. 90).

O. antiqua L.: Vapourer.

Native. Gardens, parks, waysides, hop plantations, woods, etc.; on oak, hawthorn, hop, acacia, poplar, buddleia, broom, sycamore, maple, rose, willow, elm, laburnum, cherry, apple, holm oak, polyanthus. Recorded from all divisions (once only from 15). Fairly numerous and occasionally locally abundant among deciduous trees and shrubs in urban districts, generally much less plentiful in rural areas, and probably absent from purely coniferous woodland. The statement: "Common everywhere" (in *V.C.H.* (1908)), is unsupported by the records.

The imago usually appears in one generation from July-September. Tunaley (*Ent. Rec.*, **8**: 138) records that in 1896, at Chattenden, he saw two flying on April 4; Bull (*Ent. Rec.*, **64**: 57) noted a ♀ at Broadstairs in 1950, on October 17; and Fenn (*Diary*) writes that at Lee, in 1861, several were seen on the wing on October 20, and in 1885, one as late as October 22.

The ♂ has occasionally occurred at light, and been found in m.v. traps. One, at light, Ham Street, August 8, 1952 (C.-H.); one there at light, 1956 (de Worms, *Entomologist*, **90**: 181); one, in m.v. trap, Blackheath, 1959 (A. A. Allen); and on three occasions found in an m.v. trap in the morning at Folkestone (A. M. Morley). Despite these records, however, there does not appear to be any direct evidence of a natural crepuscular or nocturnal flight, and one suspects that in each instance the moth was either disturbed, or in the case of being found in a trap, possibly entered it during daylight.

The species has sometimes been observed in the utmost profusion, particularly in its early stages. Thus, Douglas (*Ent. mon. Mag.*, 17: 114) records that though always common at Lewisham, in 1880 it appeared there in prodigious numbers; and A. M. Morley (*in litt.*) writes that in the Sandgate Road, Folkestone, on August 27, 1954, he found that a laburnum tree outside a shop had been completely defoliated, and that the nearest tree, a cherry about fifteen yards away, was as bad. Since about 1950, B. K. West has found larvae, pupae, and ova in very large numbers on rose and various cultivated shrubs in a school out-house at Crayford, and in 1954, and the year or two immediately preceding, they were in such masses there, that the ceiling became festooned with their webs.

Fenn (*Lepidoptera Data* MS.) records that in 1875, at Erith, larvae were found feeding on an evergreen—Holm oak; and A. M. Morley observes that at Folkestone in August 1954, one was taken on *Polyanthus*. A batch of ova that I took at West Wickham off *Acacia*, in 1955, produced no larvae, but numbers of a Proctupoideid which was determined by G. E. J. Nixon (Br. Mus. (S. Kensington)) as *Teleromus dalmanni* Ratz. (C.-H.).

Bacot (*Ent. Rec.*, 10: 30) says that in Kent, the larva of *antiqua* is known as the "Hop-cat"; and Anderson (*Young Nat.*, 7: 253-4) records that this is particularly so throughout the district between Footscray and Sevenoaks. The term "Hop-cat", however, is also locally applied to at least one other species of larva in Kent, notably that of *Dasychira pudibunda* L. (*q.v.*).

15. Dymchurch, one, July 27, 1948 (P. le Masurier), is the only known occurrence in this division, where it is perhaps casual.

VARIATION.—A gynandromorph, bred, East Malling, c. 1930 (A. M. Masee). In R.C.K. is a gynandromorph, left side ♂, N. Kent, June 1928. L. W. Newman.

FIRST RECORD, 1828: "A very abundant insect throughout the metropolitan district" (Stephens, *Haust.*, 2: 61). The first certain Kentish record, however, dates from 1861: Lee (Fenn, *Diary*).

***Dasychira fascelina* L.: Dark Tussock.**

Native. Shingle beach, woodland; on broom, bramble, willow, blackthorn, dock, hawthorn. Locally not uncommon in 15, where it is mainly on broom; extinct elsewhere.

In 1828, Stephens (*Haust.*, 2: 59), recorded it as: "Rather an uncommon species, occurring most frequently in the woody districts of Kent and Bedfordshire".

1. Eltham (see *First Record*). Farnborough, two larvae, 1903 (H. Alderson, in *Wool. Surv.* (1909)).

3. Canterbury* (Morris, *Br. Moths*, 1: 74).

6. Longfield, 1867 (Jennings, *Entomologist*, 4 (54)ii).

13. Tonbridge*, rare (A. D. Reed, *vide* E. D. Morgan).

15. "Romney Marsh, bred 7. 1909, R. A. N.", five specimens so labelled in E. Goodwin coll. (C.-H.). Dungeness.—A larva taken by A. M. Morley, on willow by the pits, June 2, 1928; six larvae, July 8, 1929, W. O. W. Edwards; two larvae on blackthorn, May 30, 1931; six larvae, June 4, 11, 1932; thirteen larvae, May 6, four, May 26, 1933; one larva, June 12, 1941; three larvae, June 16, 1953, two of which were stung; "In 1954, I saw two ♂♂ in D. More's m.v. trap, the morning of

August 22, a surprisingly late date" (A. M. Morley *in litt.*); thirty larvae found in late April (1952) (C. A. W. Duffield, *vide* A. M. Morley); many larvae, June 13, 1929 (Kettlewell, *Ent. Rec.*, **42**: 76); an imago at rest, July 5, 1931, several larvae, May 31, 1931 (de Worms, *Entomologist*, **65**: 58, 60); two larvae, May 13, 1937 (A. H. Lanfear MS.); several larvae, May 29, 1939 (S. F. P. Blyth); seventeen ♂♂ at m.v., by Pilot Inn, August 3, 1951; several ♂♂, two ♀♀ there at m.v., July 25, 1952; eighteen larvae on broom by the level crossing, June 1, 1956 (C.-H.); a larva found feeding on dock, June 18, 1953 (W. L. Rudland); a larva on bramble, and four others on broom, June 7-11, 1955, near the lighthouse (G. A. N. Davis); three larvae, September 22, 1955 (E. C. Pelham-Clinton); July 1957, at the bird observatory (E. Philp); 1959 (A. L. Goodson).

VARIATION.—According to Strand (in Seitz, *Macrolepidoptera of World: Palearctic Bombyces and Sphinges*, 112), *fascelina* averages 40 mm. in ♂, and 50 mm. in ♀. The Dungeness specimens may therefore be said to be exceptionally large, and in my series of some twenty captured examples, most have a wing span of approximately 47 mm. and 60 mm. in ♂ and ♀ respectively, and are, moreover, appreciably larger than any specimens from various other British localities in the series at the Br. Mus. (S. Kensington) with which I have compared them; furthermore, in addition to the above characteristic, all Dungeness *fascelina* that I have seen, show the cross lines fairly distinctly, and there is little or no marking beyond the second line. Compared with the extensive assemblage of extra-British specimens at S. Kensington, the Dungeness form appears very similar to that exhibited by a long series from Rennes, France, in Oberthür coll. (C.-H.).

FIRST RECORD, 1720: The larvae taken "on the White Thorn near Pecham and Eltham in Kent" (Albin, *Nat. Hist. English Insects*, facing pl. 26).

D. pudibunda L.: Pale Tussock.

Native. Woods, copses, avenues, hop gardens, etc.; on oak, birch, hop, willow, lime, Spanish chestnut, elm, alder, hazel, aspen, willow, beech. Recorded from all divisions, except 15. Fairly plentiful, particularly in wooded areas, but apparently scarce or casual in 2, 4, 9. "Occurs generally, but is not very common" (*V.C.H.* (1908)).

The larva, known generally in Kent as the "Hop-Dog", has been recorded as being abundant in hop gardens (Chaney (1884-87)), but is probably less so nowadays owing to insecticides. In the Tunbridge Wells area, Morgan (in Knipe (1916)), stated that the larva which "was formerly abundant has now become much less common, probably owing to the increase in the practice of hop-washing"; and the same recorder, writing some thirty years later (in Given (1946)), said that the larvae "so abundant in hop-gardens in old days, is now rarely seen on that plant, though still frequent on its other foodplants". Evidently the larva continues to be fairly numerous on hops however, since we have C. A. Stace's statement (*in litt.*, 1959), that it is still frequent at Tunbridge Wells, "especially so on hop".

Anderson (*Young Nat.*, **7**: 253-4) records that throughout the district between Footscray and Sevenoaks, the larvae of *pudibunda* are known as "hop-dogs", and those of *O. antiqua* (*q.v.*) as "hop-cats", and that both are considered friends by the farmers who imagine they devour

the "fly". About Gravesend, however, according to Clifford (*Young Nat.*, 7: 236), it is apparently the larva of *pudibunda* that bears the name of 'hop-cat'.

2. Luddenham (H. C. Huggins). Abbey Wood, 1952 (A. J. Showler).

4. Ickham (D. G. Marsh).

9. Margate, June 14, 1951 (W. D. Bowden).

VARIATION.—A form having a dark grey forewing, unicolorous or with only traces of transverse lines, ab. *concolor* Stgr., has occurred during the past fifteen years, and seems to be on the increase. The following all appear referable to this aberration:—1948: Sevenoaks (Howarth, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 38). 1952: Westwell, ♂, May 28, taken by E. Scott (C.-H. coll.). 1955: Otford, ♂, May 26 (W. B. L. Manley). 1956: Orlestone Woods, one, June 1, 1956 (R. F. Bretherton). 1959: Shorne, a "dark aberration" (Trundell, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 18).

In R.C.K. is ab. *juglundis* Hb., ♂, Kent, bred 1920.

FIRST RECORD, 1828: "Hop-gardens, Kent, common; the caterpillars called 'hop-dogs'. (Ingpen, in Stephens, *Haust.*, 2: 59).

Euproctis chrysorrhoea L. (**phaeorrhoea** Don.): Brown-tail.

Resident.¹ Hedgerows, bushy places, orchards; on sloe, hawthorn, bramble, *Hippophae rhamnoides*, rose, willow, apple, pear, medlar, *Euonymus japonicus*. Recorded from all divisions (except 5, 10), but occurring mainly in coastal areas of 2 (particularly Sheppey), 4, 15. Few records for 1, 6a, 11, 13. Local.

In 1952, the imago was noted at Dymchurch as early as June 26 (S. Wakely and T. G. Edwards), and in 1955, at Folkestone as late as August 24 (A. M. Morley).

The larva has perhaps most often been found on sloe, hawthorn, bramble, and *H. rhamnoides*. At Lydd, September 19, 1953, R. F. Bretherton found a nest on medlar; A. M. Morley has taken it on willow at Dungeness, and on June 6, 1942, he found two larvae on *E. japonicus* in the town of Folkestone. At Wye during the outbreak in 1901, both pear and apple were defoliated by the larva of this species (Theobald, *J. S.-E. Agr. College (Wye)*, 1902 (11) 51).

1. West Wickham, 1858 (Perkins, *Ent. week. Int.*, 4: 141). Bromley (Colthrop, *Entomologist*, 35: 321). Brockley, a few, 1887-90 (Turner, *Ent. Rec.*, 1: 349). St. Mary Cray, one, July 14, 1948 (A. M. & F. A. Swain coll.). Lee, one, July 31, 1954 (C. G. Bruce).

6a. Chattenden (Chaney (1884-87)); ♂, July 27, 1951 (B. K. West).

11. Yalding (*V.C.H.* (1908)).

13. Tunbridge Wells* (A. D. Reed, in Knipe (1916)).

The species is subject to vast changes in numerical strength; e.g., it was noted as being very plentiful in 1782, 1858-60, 1869, 1871, 1874-75, 1877, 1898, 1900-01, 1919, 1929, 1931-38, 1941, 1949, 1955; but as exceedingly scarce in 1855, 1880-92. In 1782, it swarmed to such a degree, that special measures were taken for fear of its becoming a serious pest, and the larvae were collected by the bushel and burned; in contrast, however, for a decade or more towards the end of the nineteenth century, *chrysorrhoea* was so scarce, that recommendations were actually made for its protection; yet again, its numbers reached dangerous proportions, and in 1901, the Board of Agriculture issued

instructions for its control.

The following notes relating to its fluctuations during the past hundred years or so, are of interest:—

1855-1901.—Harding (*Ent. week. Int.*, **8**: 123) writing from Deal on July 16, 1860, observed that in 1855 it was rare there, but that “now they swarm on every whitethorn bush”; and Briggs (*Entomologist*, **6**: 141) mentioned that in 1869, it was exceedingly common in Folkestone Warren. On May 17, 1871, larvae were infesting the hedges in the neighbourhood of Sheerness, and seemed to attack almost every plant, though giving preference to sloe and whitethorn (Mathew, *Ent. mon. Mag.*, **8**: 18); but that previous to 1868, “it was quite a rarity in this district” (Walker, *Ent. mon. Mag.*, **8**: 184). Adkin (*Entomologist*, **30**: 232) said that at Deal, in 1875, the pupae were so abundant, he could have “literally collected the proverbial wagon load”, but that some six years later he searched in vain for it there. The same recorder (*Moths of Eastbourne*, **1**: 22) however, stated that it was still abundant there in 1877, but was unobtainable in 1879; and added (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1907-08: 13) that though fairly common in the latter year at Higham (div. 2), near Gravesend, he was unable to find it at that locality for several years after.

The species underwent a term of comparative scarcity from about 1880 to 1892, and there are but few records for this period. Coverdale (*Entomologist*, **16**: 220) reported that he found the larvae not uncommonly at Dover (in 1883); Hill (*Ent. Rec.*, **10**: 154) recorded a single ♂ at light, at Broadstairs in 1885; and Fenn (*Diary*) observed a ♀, August 23, 1888, and a larva on hawthorn, July 15, 1889, both at Deal. A curious record is of several at Brockley (div. 1), between 1887-90 (Turner, *Ent. Rec.*, **1**: 349), which is close to the border of the metropolis.

From 1894, *chrysorrhoea* was evidently more numerous, and in that year, Mathew (*Entomologist*, **29**: 192) recorded that he found a few larvae at Sittingbourne. Walker (*Ent. mon. Mag.*, **33**: 185) stated that the larvae were rather plentiful in 1897 about 1 mile from Sheerness, and that it was the first time he had seen the species alive in any of its stages since 1872. In 1898, it was in profusion at Deal (Dadd, *Ent. Rec.*, **11**: 223); in 1900, in quantities at Hythe, as well as in “countless thousands” at the former locality (Reid, *Ent. Rec.*, **13**: 131); and in 1901, in great numbers in orchards in East Kent (Theobald, *Entomologist*, **52**: 171).

1902-1962.—In 1902, though still plentiful at Deal (Carr, *Entomologist*, **35**: 246), it had become much less common in the fruit plantations, and in the opinion of Theobald (*J. S.-E. Agr. College (Wye)*, 1907 (16) 53), the rapidity with which it decreased was partly due to a Tachinid parasite, *Thelymorpha vertigosa* Fl., which were bred out in great numbers.

The species seems to have been scarce in 1915, for in that year Theobald states that he could only find two larval tents, at Littlestone; but that in 1919 the nests were in countless numbers, both there and at Deal (Theobald, *Entomologist*, **52**: 168). Since 1919, it does not at any time appear to have been scarce, but in certain years was noted as particularly abundant.

A. M. Morley (*in litt.*) writes that he has never seen it in such numbers as on Sheppey, and says that in 1941, “the nests were at

close intervals along the side of the road on blackthorn, hawthorn, and wild rose, from the near side of Queensferry Bridge to the outskirts of Queenborough". And he adds that "on May 20, a rough calculation suggests that the number of larvae must have exceeded half a million". Owen (*Entomologist*, **82**:233) noted larvae in vast swarms in Sheppey in 1949, and that they were most in evidence in the south-east corner of the island. In May 1950, I noticed that the larvae were very abundant on hawthorn hedges in Sheppey, between Leysdown and Harty Ferry, but were obviously being considerably reduced, owing to the numbers of Cuckoos that were feeding upon them (C.-H.).

VARIATION.—Vallins (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 47) exhibited a ♂ with orange tail, bred from Dungeness larva taken 1948; and Morley (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 38) exhibited a ♂ taken Folkestone, 1930, having both the "body and antennae orange".

A ♂, in J. W. C. Hunt coll., taken St. Peters (div. 9), July 18, 1937, is the holotype of ab. *fumosa* C.-H., a form in which the white is tinged throughout with smoke-grey.

Specimens bearing a few isolated black dots, ab. *punctella* Strand, occur fairly frequently; but ab. *punctigera* Teich, in which the spots are more numerous and form rows, only occurs occasionally. I have 11 ♂♂, 3 ♀♀ of the former, but only 2 ♂♂ of the latter; all bred with some thirty normal specimens in 1946, from wild Dungeness larvae (C.-H.). A. J. L. Bowes (*Diary*) records that he bred several black spotted ♂♂ from Herne Bay pupae, and that at Sandwich, he took a few ♂♂, August 9, 16, 1939, all of which had black spots.

In R.C.K., are ab. *fumosa* C.-H., ♀, Folkestone, June 1900, S. G. Hills; ab. *xanthorrhoea* Oberth., two ♂♂, bred July 25, 26, 1946, Goodson.

FIRST RECORD, 1782: "The attention of the public has of late been strongly excited by the unusual appearance of infinite numbers of large white webs, containing caterpillars, conspicuous on almost every hedge, tree, and shrub, in the vicinity of the metropolis" (Curtis, *A Short History of the Brown-Tail Moth*, 3). The first definitely Kentish record, however, dates from 1828: Gravesend (Stephens, *Haust.*, **2**: 66).

¹Also classed as a migrant or suspected migrant by Williams, *et al.* (1942).

E. similis Fuessl.: Gold-tail.

Resident.¹ Hedgerows, gardens, bushy places, etc.; on hawthorn, blackthorn, rose, elm, oak, apple, pear, Spanish chestnut, willow, *Viburnum lantana*, *Hippophae rhamnoides*. Frequent; and found in all divisions. "Generally abundant" (*V.C.H.* (1908)).

Barrett (*Ent. week. Int.*, **7**: 75) noted an imago in "fine condition", at West Wickham, October 4, 1859; and D. F. Owen (per Rothamsted) recorded that he took a perfectly fresh specimen at Eynsford, September 27, 1947; seemingly both instances of a partial second generation.

The species is subject to marked numerical fluctuation; but there is no confirmed record that its numbers ever reach such vast proportions as its congener *chrysorrhoea*. Fenn (*Ent. week. Int.*, **10**: 197) recorded that in the Lee neighbourhood, though "usually a pest", it was in 1861 "practically absent"; in the same area (in 1894), it was recorded as having become "very greatly reduced in numbers" (Fenn, *Ent. Rec.*,

6: 230); and a few years later was described as "rare" there (Green, *Trans. W. Kent nat. Hist. Soc.*, 1905-06: 15). Dadd (*Ent. Rec.*, 11: 223) found the larvae of both *similis* and *chrysorrhoea* in the "greatest profusion", at Deal, June 24-25, 1899, feeding on sloe and *H. rhamnoides*; and Theobald (*J.S.-E. Agr. College (Wye)*, 1910(19)93) reported that the larvae were a pest on fruit in Kent, in 1909.

The larva occurs perhaps most frequently on hawthorn and sloe, though is often found on other trees. Kidner (*Diary*) wrote that at Sidcup, October 10, 1909, he found two groups of larvae with about eight in each group, on the undersides of willow leaves; and that he also noted the larva at this locality in June 1914 on willow. Theobald (*J.S.-E. Agr. College (Wye)*, 1899(8)46), reported that in 1898, hosts of these larvae were seen towards the end of June in Kent, feeding ravenously on the foliage of Spanish chestnut; and the same recorder (*op. cit.*, 1910(19)94), states that at Dene Park, Tonbridge, apple trees were infested with the larvae, which were actually feeding on the fruit. A larva collected from *V. lantana*, at Eynsford, produced a ♀, 1948 (J. F. Burton);

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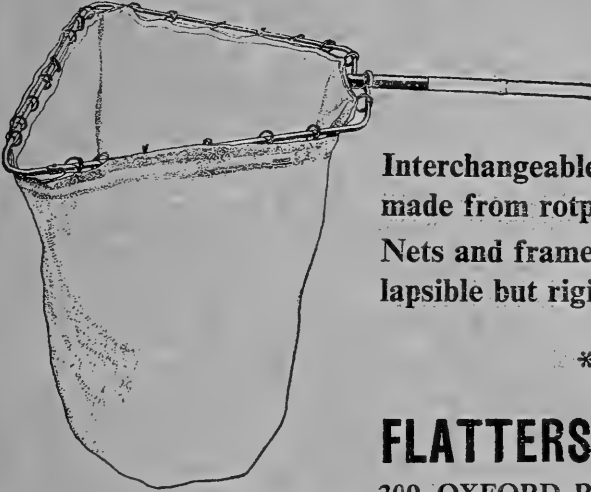
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RECORD
AND JOURNAL OF VARIATION

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

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Change and Decay

By AN OLD MOTH-HUNTER.

If one may judge by the reports of lepidopterists in various parts of this country, the populations of some of our butterflies have been considerably reduced during the last two years. The moths seem to have held their own, if the quantity visiting mercury vapour lamps is a criterion; but the supernumeraries, so to speak, have been scarce indeed. By "supernumeraries" I mean the specimens usually to be seen on fences, walls, tree-trunks and so on, and above all, the larvae normally found by the collector when searching and beating herbage, shrubs and trees. These supernumeraries I always regard as a surplus of the normal population of a species in a particular habitat. Possibly they are in the same box with those of us humans whom the insurance companies class as "accident prone"; for one reason or another they are especially susceptible to predators (including collectors) and probably none of them is a factor in the survival of their species—unless it be that they play the role of Theseus and his companions, being offered up in order to ensure the survival of those left behind.

Among the reasons put forward by collectors for the general scarcity of butterflies and supernumerary moths this year and last, the one most usually heard is "spraying". Yet for my part I doubt if this very modern practice of rendering crops immune from the attacks of insects has played any considerable part, over all the country, in the matter. Here and there, especially on roadside verges, damage has undoubtedly been done by the drift of wind-blown insecticides; but in spite of the fact that this island is now so densely overpopulated, containing 35 million more human beings than it is capable of supporting by its crops and stock, there are still some thousands of square miles which have never been sprayed at all. Why have the butterflies become scarce in these places as well?

Surely it is a matter of *climate*, that supremely important factor in the existence of lepidoptera. For of all the environmental factors which influence (or allow; which you will), organic evolution, climate is the most potent. Its effect upon an animal may not be immediately apparent; the stress of some other factor or factors may be more readily distinguished. Yet climate is the "long-term policy" in the phylogenesis of a species, and although its effects may be modified from time to time by other factors, whether intrinsic or extrinsic, it is the factor which in the last analysis determines the course of the evolutionary stream.

For many years, perhaps ever since the first collector of lepidoptera caught butterflies and set them after his fashion and stored their corpses in a box, collectors have noticed that a mild winter is succeeded by a scarcity of their quarry and conversely that a 'hard' winter is likely to keep them busy with their nets presently.

The reason for this truism is to be found in the physiology of diapause. An unusually mild winter—unusual because it is quite a long time since the average temperature, from October to April, of the ground an inch below the surface was so consistently high as it was from September 1960 to April 1961—curtails or hinders or postpones the diapause of a wintering larva or pupa. Anybody can prove this for himself by bringing his over-wintering larvae and pupae into his sitting-

room in October. He will find that a number of species, for example the Yellow Underwing, will continue to feed (provided he can find foodstuff for them, which usually is not very difficult) throughout October and November, pupate in December, and result in imagines in January and February.

Something of this kind takes place out of doors in an exceptionally mild winter. Either the onset of diapause comes too late or it does not come at all, and the insect perishes because its seasonal life-cycle has been put out of gear. In rearing lepidoptera we have, all of us, found that when once diapause has been broken it cannot be resumed should adverse conditions supervene; embryological development, once restarted, cannot be stopped arbitrarily, the insect goes on developing or it dies. And in the wild state, precocious winter development can only have one result.

There are, of course, species in which pupal development during autumn, results in the imago being developed before the normal winter cold sets in, diapause being in the imaginal stage and the adult insect emerging from the pupa-case in the spring. A search of entomological literature has failed to inform me what is the result, with these species, of a sudden considerable rise in winter temperature, prolonged perhaps for a fortnight, in their normal environment followed by a sharp and considerable fall, and whether continued cold can prolong emergence beyond the normal season of emergence and for how long. All animals must have a fairly wide range of adaptation if they are to survive; the question which interests us breeders of lepidoptera is how wide that range is, and papers on this subject—more especially where overwintering larvae are concerned—are few. My own experience with some of our commoner Noctuids has been that it needs only a few degrees of temperature to prevent the winter diapause and procure continuous breeding: which suggests that, in terms of geological time, evolution in these species is slow, and that their present range of adaptation suffices. Here again there seems to be a suggestion that a continuation of mild weather from autumn throughout the winter induces a continuation of embryological development which is, to-day, unsuitable in our latitudes. Plainly the ideal condition for an overwintering larva and pupa in our island, ensuring a plenitude of imagines in due course, is an unbroken state of diapause from autumn until spring, the diapause being brought to an end by a progressive rise in the temperature of soil and air.

I doubt if there is anything in the suggestion sometimes put forward that when the surface soil remains soft for several months in wintertime more pupae are disinterred by birds and mice, voles and moles. Presumably these predators, especially when hungry, do not waste their time searching for the proverbial needle in a haystack, and the accidental disinterring of a few more pupae than usual would hardly affect populations.

We lepidopterists are as prone to wishful thinking as those poor bodies who care nothing at all about insects; but it would be rash for us to assume that the balance of our butterfly and moth populations upset by a succession of mild winters will be righted by a few seasons of hard frosts. We all hope that even if some of our best beloved species survive only in small populations in widely scattered localities,

a series of hard winters will enable them, by means of their normal spread, to repopulate former habitats. But hope often tells a flattering tale and it is now eighty-five years since the Wood White inhabited West Essex where Spiller, collecting at Stansted in the 'seventies', felt sure that its recession was only temporary.

In a paper in *Entomologist* many years ago, Allan pointed out that the population of an insect in any given place must have what he called a 'survival density' and that if the population fell below that density the species would fail to hold its own in that place. Clearly this is what happened in the cases of those species which have been described as "dwindling to extinction"—the usual process by which, in default of some catastrophic event, an insect disappears from a certain place. So an adverse climatic factor may well bring about a diminution of numbers which reduces the population below the survival density.

Consider the Black-veined White, the Mazarine Blue the Middle Copper, the Large Copper—all widely distributed in this country in years gone by and accounted common insects in their heyday. The Black-veined White fed on a plant which grows in almost every hedge-row in this country and it was a widespread butterfly; the Mazarine Blue had two distinct races (one of which perhaps entered what is now our island across Channel Land before the last glaciation, the other across Dogger Land after it), one on the chalk above 400 feet, the other in meadows scarcely twenty feet above the sea, with a wide no-man's land between them; yet both races dwindled to extinction along with the Black-veined White. The Middle Copper (confused by Tutt with *L. dispar*, an error which has persisted in the books to this very day), was so common in the eighteenth century that England's foremost entomologist (whose collections were repeatedly inspected by his friend Fabricius between 1767 and 1780—and Fabricius knew the Middle Copper as well as he knew his hat), not only possessed it but knew where to take it, and offered to supply a correspondent with it; another lepidopterist found it flying on a North Country moorland in such plenty that he supplied his confrères with it. Yet it was virtually extinct by the end of the century. The Large Copper flew on the whole of the vast area of Fenland, from Cambridge to North Lincolnshire, perhaps even as far as South Yorkshire, as well as in Somerset and the marshlands bordering the Severn.

And what about the Swallowtail, once so common in the marshes of our southern counties (not to mention Battersea), from Kent to Devon and has been preserved for us only by man's hand—for it is now known that the Norfolk Broads are no more than artificial meres dug by generations of men who supplied fuel (peat) for the fireplaces of London as well as those in the country far to the south and the south Midlands?

And the moths—The Reed Tussock, the Gipsy Moth (which Dale took in the Somerset marshes), the Marsh Dagger, The Rosy Marsh Moth, the Orache, the Small Ranunculus, the Feathered Footman, the Many-lined, the Speckled Beauty—all extinct, and some within the memory of us older men? Moths come and go in both senses of the phrase, and if occasionally we welcome new ones from across the Channel or North Sea we must also, from time to time lament the departure of old friends. The hymn-writer who penned the line "Change and decay in all around I see" might well have been a lepidopterist.

Abnormal Coloration in *Cucullia lychnitis* Ramb. Larvae

By RAYMOND F. HAYNES.

The Striped Lychnis Shark (*Cucullia lychnitis*) is a somewhat local species, found in a few southern counties of England. Over the years I have collected odd caterpillars of the species from Black Mullein (*Verbascum nigrum*) plants, growing within a private locality (Clarendon) in the Salisbury district of Wiltshire. Due to accidents and misfortunes in rearing, I have at present only four imagines in my collection. Being anxious to acquire a slightly larger series, I keep a good look-out for more caterpillars each year. when I usually make a visit to Salisbury in early August.

The species, although undoubtedly established in the Clarendon locality is subject to annual fluctuations in numbers, as in some years I have failed to find a single caterpillar. However, this may be due to the fact that being a conspicuous creature whilst feeding on its food-plant (larvae appear to make no attempt to camouflage themselves), insectivorous birds probably take a heavy toll.

Previous to this year (1962) I had found no larvae since August 1960. On that occasion I took home about half-a-dozen, but only succeeded in rearing a couple of imagines. Not infrequently pupae of this species have a habit of going over two winters before producing moths, and from one of my 1960 pupae, I had an emergence on 30th June 1962.

On July 14th, I visited Salisbury on a day trip and carried out an inspection of the area; having scrutinised all known patches of Black Mullein, no larvae were discovered. The next occasion when I was able to reach Salisbury was August 4th. In the evening of that day I called on an old friend, Mr. C. M. R. Pitman, a native of Salisbury and a keen naturalist, who had very kindly, in the first instance, introduced me to the Clarendon locality. Between us, we proceeded to make a careful search of every mullein plant in sight. Having had no success I made my way to the nearest 'bus halt, stopping however, on the way beside a tall mullein growing within six feet of the carriageway. Mr. Pitman immediately spotted a small *lychnitis* larva, barely out of its second instar. This was of the normal type colouring. From the same plant I obtained two almost fully grown caterpillars but their appearance was so different from the normal, that it was with difficulty we recognised them as *lychnitis*.

According to Mr. W. J. Stokoe's book "The Caterpillars of British Moths", the typical coloration is described as follows:—"The caterpillar is greenish-white in colour. There is a band of bright yellow, spotted and streaked with black on each ring; usually the spots are united . . .".

These two larvae, which for purposes of description I may call A and B, were as follows:—"A" was very unlike a normal caterpillar, it was of a pale apple green hue throughout, except for the bands on the rings which were buttercup yellow. The black spots, usually such a noticeable feature, were completely absent save for a few minute dots on the head; there were also diminutive black dots marking the position of the spiracles. When found, "A" was approximately 1½ inches long; it pupated two days later.

Caterpillar "B" was not quite so extreme; although the colouring resembled that of "A", the usual black spots were more in evidence, but nevertheless were greatly deficient. The general appearance of both larvae at first gave rise to supposing that I had found a different species. For what purpose in Nature this shedding of black markings serves, is difficult to surmise, unless the idea is to make the creature less conspicuous. I shall await the emergences of the moths next summer with great interest, but almost certainly they will be typical. An abnormally coloured larva does not apparently pass on any strange characteristics to the resulting imago.

Before returning home on the dismally wet August Bank Holiday Monday, I made a careful search at another spot where Black Mullein plants grow and found four more larvae in their first instar. These quickly matured, and three have now pupated; none of them showed any signs of abnormal coloration.

Stigmella vossensis Grön. 1932: An Unknown Species New to the British Isles

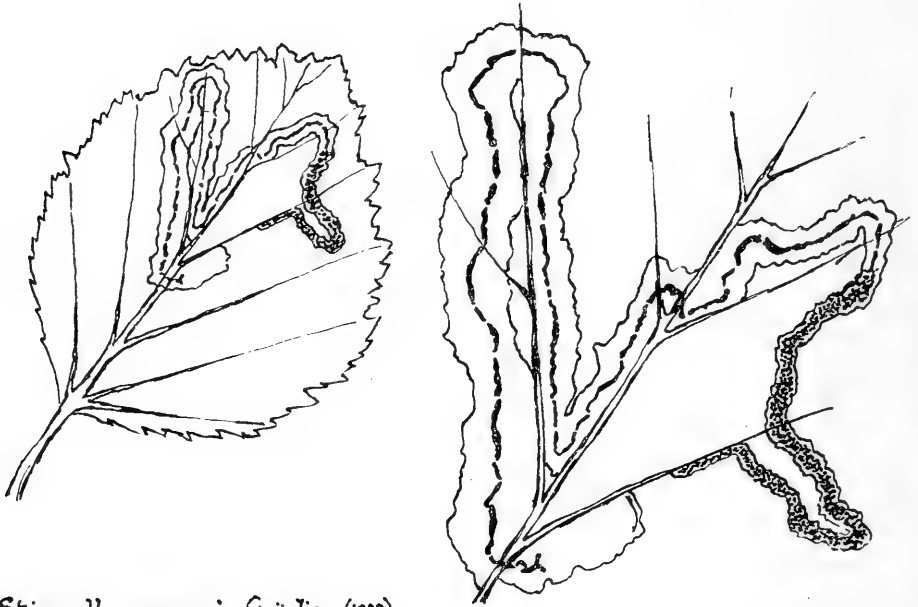
By S. N. A. JACOBS

Under date of 30th September 1958, Mr. E. C. Pelham-Clinton sent some Nepticulid mines to me for my opinion, and to my shame, these found their way into a drawer of my desk and lay there undiscovered until about the middle of July this year.

On finding the mines again, I wrote expressing the opinion that these might be referred to *St. lapponica* Wocke although the frass remained linear throughout the latter two-thirds of the mine, whereas in *lapponica* it becomes slightly diffused in the final third of the mine so that the frass pellets are to be distinguished. I sent one specimen to Mr. Carolsfeld-Krausé of Copenhagen for his opinion and in reply I received a most interesting letter, of which I give extracts below. He writes:

"Thank you very much for your kind letter and the mine enclosed. The mine was a very great surprise to me. It is the mine of *Stigmella vossensis* Grönlien (1932) which is only known from Norway, where Grönlien got some near the town of Voss in Hordaland, half-way between the Hardanger Mountains and Bergen. No imagines were reared from the mines so Grönlien established the species on the mines alone in *Norsk Ent. Tidsskr. BII*, h. 4 (1932). It has very often been vehemently discussed whether a species may be established on its mine alone and very probably such an establishment cannot be allowed, but nevertheless not quite a few few Nep. mines have been named although no one has ever seen the imagines. I shall not make up my mind as to whether it is right or wrong, but I would do just the same myself if the basis for doing it seems to be fair, and as we cannot drop a very remarkable mine because we do not know the imago, we have to keep it on the lists in some way, and the best way to do it is to name it. If one has tried to remember what Dr. Hering's "telephone numbers" may stand for, one will not care a damn for the rules and will prefer a name. Dr. Hering includes all these mines in his large work of 1957, but being an important person on the Commission on Zoological Nomenclature, he cannot use names himself for his odd mines, and so we get these troublesome numbers. I have written

him about this, but have never received a reply on the point, which I can only think means that he agrees with me but owing to his position, he cannot say so.



PC/58 *Stigmella vossensis* Grönlien (1932)

As regards *vossensis* there is absolutely no doubt that the mine belongs to a good but still not sufficiently known species, so there is no reason for not keeping the name. I write all this because I know that you in Great Britain take very great care in being correct in nomenclatural questions. To make mention of a similar case, Skala has established a species, *St. fulvomacula*, and although I thought this a figment of his imagination at first, I have found the mine here in Islev several times, though unfortunately always empty. I have no doubt, however, *fulvomacula* is really a good species, so now I am very busy trying to find the larva.

It is indeed a fine and very interesting find Mr. Pelham-Clinton has got, and that the species is new to Great Britain is only the least of the find, the most interesting is that we now have further material for meditation as regards its zoographical problems. I have always been extremely interested in problems of the immigration of the Neps to the Scandinavian peninsula, and I have made some minor studies on the topic, and from these I have always believed *vossensis* to be a North Siberian species which has entered Norway by the northern route, but now I have to change my mind.

It is to be hoped that Mr. Pelham-Clinton has tasted blood and that we may have more good news from Scotland, possibly about *St. nanivora* Pet. which might well be present there, too, and perhaps the other special Norwegian species *St. tristis* Wocke the imago of which is known but the mine is not. It is also apparently attached to *Betula nana*.

As regards Grönlien's description of the mine of *vossensis*, I cannot find it at present, but I can give it to you from memory: '*Betula odorata* (= *pubescens*) in one brood, VII-VIII. Ovum on underside. The gallery starts very broad and rather contorted, and is in the first rather short

part packed by reddish yellow frass. Later the excremental line becomes thin, black and broken; the sides of the gallery are irregularly gnawed, and the mine crosses the ribs, also often the midrib'. As you will see, this description agrees fully with P.-C.'s mine".

As regards the nomenclature rules, it is permissible to have named unknown animals by their work until 1931, but thereafter the practice is disallowed. Such a ruling surely prompts one to heresy in a case such as the present.

The mines were found on 20th July at the Black Wood at Rannoch, and might well be sought in similar sites. If, as Mr. Parkinson-Curtis has suggested, this site has been destroyed entomologically by the Forestry Commission, let it be a gruesome warning to procrastinators in general: I have taken the lesson to heart, and hope that in future I will not again transgress.

Diarsia mendica F. (*festiva* Schiff., *primulae* Esp.) f. *congener* Hüb. or f. *turbida* Hüb.

By B. J. LEMPKE

In the *Sammlung Eur. Schmetterl.*, Noct., fig. 617, Hübner figured one of the many forms of this variable species under the name of *turbida*. Tutt wrote in his table of the variation of this species (*Brit. Noct.* 2: 119, 1892): "var. *congener* Hb. (*turbida* by error)."

Turner (*Suppl. Brit. Noct.* 2: 184, 1939) remarked: "Tutt says *turbida* is an error for *congener*. I am unable to trace the basis for this statement, and have treated *turbida* as an aberration".

The solution is to be found in the publications of Hübner himself. In fig. 328 of the *Sammlung* he figured a specimen of *Mythimna comma* L. under the name of *turbida*. In fig. 618 he figured another specimen of *comma*. Under this figure the name "*congener*" was printed, and the name "*turbida*" is placed under fig. 617, a form of *Diarsia mendica*.

That these names were reversed by mistake can clearly be seen from the *Verzeichnis*. Here Hübner wrote (p. 241): "2395. *L. comma* Linn. Syst. Phal. 156. Pallens Esp. Noc. 11.1.2. *Turbida* Hüb. Noc. 328 and 618."

The double proof would, of course, have been that Hübner had cited his fig. 617 under the name of *congener* with *Diarsia festiva* (Nr. 2222, p. 222) but this is not the case. Fig. 617 is not cited at all by him. It is at any rate clear that Tutt was right, and that the names were reversed by accident. So we must write: *D. mendica* F., f. *congener* Hb., and not f. *turbida* Hb., as Turner did.

Oude IJselstraat 12III, Amsterdam, Z 2.

Scotland 1962

By R. G. CHATELAIN and B. F. SKINNER

We left London on the evening of 1st June and arrived at Aviemore fifteen hours later to find that the season in Scotland was very backward with the oaks just coming into leaf and primroses and violets still in full bloom. Fortunately, the weather brightened on our arrival and the whole week was dry with temperatures well into the seventies, although the nights were cool.

One of our main objectives was *Amathes alpicola* Zett. and we were lucky to hit on a good year for the species. Conditions were admirable

for pupae searching and the moss peeled away in neat strips, although as the pupae were newly formed it was impossible to avoid damaging some during the excavations. A few days later we again ascended the Burma Road and found that the moss had dried considerably and searching was much more arduous. Patches of snow were still present and proved a useful means of cooling weary feet. Enough pupae were harvested for our needs and, at home, the first moth emerged on 17th June.

Hyppa rectilinea Esp. was another of our quarries, but it was not until 6th June that we saw the bug—two females at sugar. The same round produced a male *Xylena exsoleta* L. The following night one male *rectilinea* was at sugar and on the 8th we had one at sugar and five at light. A female was kept for eggs; a goodly number was laid and larvae started to appear on 18th June. They are feeding up quite happily on sallow and knotgrass.

Apatele menyanthidis View. was common and encountered at rest, sugar and light and we are now breeding the species. *A. euphorbiae* ssp. *myricae* Guen., on the other hand, was scarce but unfortunately we did not realise this until we had killed the only gravid female to be taken. Prodigious searching produced three moths and m.v. a further three.

Hadena bombycina Hufn. (*glauca* Hübn.) was not as common as we had expected but it is hoped to obtain good series by breeding. The larvae of this species also seem happy with sallow.

We had not expected to do very well with the *Anartas*. *A. cordigera* Thunb. was still flying on Granish Moor but was in tatters. Three females were taken but this species does not seem to lay freely in captivity and many of the eggs were infertile. *A. melanopa* Thunb. was present at the top of the Burma Road but was difficult to net and no females were taken. *A. myrtilli* L. was just emerging and very common. One female *myrtilli* was found in cop with a male *cordigera* but the eggs were infertile.

An intensive search was made for eggs of *Endromis versicolora* L. and eventually four batches were secured. The larvae started hatching before we left.

Other noctuids noted included a few of *Hadena contigua* Schiff., many *Eumichtis adusta* Esp. and the boldly marked Scottish *Hadena conspersa* Schiff.

Geometers were not plentiful. *Ortholitha mucronata scotica* was abundant and *Chloroclysta miata* L. and *Lobophora halterata* Hufn. were well in evidence at light. A few *Lampropteryx suffumata* Schiff. and *Hydriomena ruberata* Freyer were also welcomed, together with some Pugs, none of which has yet been identified as being out of the ordinary.

We were not able to devote as much time to larva hunting as we should have liked, but beating scrubby birch among the heather at night produced *Euschesis sobrina* Boisd. and searching among grass-stems revealed *Paradiarsia glareosa* Esp. and *Erebia aethiops* Esp. We scoured bog myrtle for larvae of *Lithomoia solidaginis* Hübn. but found only four small ones. We even returned to the locality at the close of the night's operations but without success. The bog myrtle did produce a few Geometer larvae including *Horisme tersata* Schiff., *Calostygia didymata* L., one *Oporina filigrammaria* H.-S. and a few of what we hope will prove to be *O. christyi* Prout. Other larvae noted, all on heather, were *Dasyschira fascelina* L., *Lasiocampa quercus callunae*, *Amathes castanea* Esp., *A. agathina* Dup., and *Plusia interrogationis* L.

We left Aviemore on 9th June after a strenuous but rewarding week in beautiful surroundings.

Yugoslavia Revisited

By RALPH L. COE.

II.

INLAND SEAS OF NOVI GRAD AND KARIN

After a late lunch at the hotel it was time for me to leave Zadar on the daily bus to Novi Grad. It was already at the stop when I got there. My cases were strapped on to the roof, and I joined the crowd of peasants inside. We moved off through the town, and were soon out in the open country. For the first hour or so of the journey we were passing a monotonous succession of flat cultivated fields. Then the bus began to climb among bare rocky hills. We were approaching the verge of the barren region of the Karst.

Suddenly, far below on the left, I saw the vast expanse of still water that is the inland sea of Novi Grad. Between the road on which we were travelling and the water there sloped steep terraces of cultivated vines and olive trees. The sun beat mercilessly down on the bare rocky ground on our right and on the road itself. The heat in the bus was stifling, but the terraces were in complete shade and looked wonderfully cool and refreshing.

Across the water, creeping from the shore for some distance up a steep hill-side, were the huddled stone houses of the small community of Novi Grad. Behind them the gaunt ruins of an ancient fortress dominated the scene. To the east the long rugged line of the Velebit mountains stretched from north to south as far as the eye could see, their snow-capped peaks glistening against the clear blue sky.

The road fell gradually, almost to the water-level, and continued round the broad sweep of the shore until we came into the little town. The bus pulled up outside a low whitewashed building that was the local wine-shop. I had been warned that there is no hotel in Novi Grad, so I went inside to see if I could get accommodation there. I was greeted by the landlord, a small, brown-skinned man in open-necked shirt and shorts and with an old blue beret crammed on his head. He spoke no English, but I managed to make him understand what I wanted. He went away and fetched his wife, and they began to discuss the matter. In the meantime a small group of the villagers had collected in the shop. One of them went over to examine the labels on my cases. They read, 'c/o Konsul Britanski, Zagreb'. The British Consul there had given me permission to use that address in case I became separated from my luggage at any time. Amid general excitement the landlord and his wife were called over to read the labels. There was no further hesitation about taking me in, for, as I found later, the villagers believed that I was the British Consul himself!

The woman took my arm and led me outside and up some steps on to a flat concrete roof, around which were grouped her family's living quarters. I followed her into a small room. It was furnished with a huge wooden chest, which was locked, two beds and a soap-box. There was no chair or table or any cupboard for clothes. There was a stump of candle on the soap-box. That was all. The woman took me into the passage and showed me the bathroom. It had no door, and the concrete floor had yawning gaps in it. I asked for the toilet, and she took me out on the roof.

It was a sentry-box affair and the door would not close. It was overlooked by a row of windows.

I went down to the wine-shop for a meal. Peasants were sitting about at the bare wooden tables, drinking their beloved red wine from earthenware mugs. There was a stir when the landlady brought in a white cloth and spread it on one of the tables. She beckoned me over, and I sat down. She placed before me a bowl of fatty pieces of pork swimming in an oily gravy, a hunk of coarse dark bread and a jug of wine.

As I was smoking a cigarette after my meal, two men and a young woman came in and walked straight up to my table. They seemed to be people of importance. The men were in lounge suits, and the woman, an attractive brunette, looked cool in a white costume. In broken English she introduced the older man as the leading citizen in the community and the other, a small dark man with glasses, as her husband. He was the local doctor, by name Milan Vidaković. She went on to say that for her in particular this was a great day, as she was learning English and could now improve her conversation by speaking to an Englishman. I told her that each day I would be away in the hills collecting, but would be delighted to see her in the evenings. It was arranged that I should visit them for supper the next evening.

After they had left, I sat sipping my wine for a little while and then went to bed early. But not to sleep. As the evening wore on the villagers drinking in the wine-shop below became more and more noisy. It was midnight before the landlord closed the door on them. The sound of drunken singing died away in the distance. Silence came at last, and I buried my head in the pillow and closed my eyes. Just as I was falling asleep a blood-curdling cry came from the darkness outside. I had heard nothing like it before. After a moment the cry came echoing back from the rockface across the water. This went on at frequent intervals the whole night long. I learnt later that it is the cry of a night bird. The villagers call it the 'chook' or foolish one, because they say that it believes its own echo to be the cry of an answering bird, and so keeps on and on. This maddening night chorus ended in the grey light of dawn, and was followed by the braying of donkeys. By three-thirty the peasants were tramping by on their way to their little 'poljes', or plots, of olives and figs. These are mere pockets of fertile soil in the otherwise barren waste of limestone rock, sheltered from the sun by laboriously constructed stone walls. With them went their donkeys, across whose backs were slung small barrels of water for the crops and huge stone jugs of wine. The peasants work from soon after dawn until the late morning, when the pitiless heat of the sun sends them back to their homes. They spend the afternoon indoors, and a stranger wandering into Novi Grad at that time of the day would imagine that the place is uninhabited.

After my disturbed night I rose unrefreshed and went down to the wine-shop for breakfast. It consisted of greasy soup and dry bread and a weak brown liquid that tasted vaguely like coffee. Then, with some bread and cheese and a bottle of wine in my haversack, I set out for my first day's collecting. I followed a dried water-course towards the hills, but insects were scarce in the parched vegetation and I realised that I must seek my specimens inside the 'poljes'. So whenever I came across one where nobody was working, I had a quick look round to see that I was unobserved and then clambered over the rough enclosing wall of

piled-up stones. When I heard anyone coming I crouched down until they had passed. By midday all the peasants had gone home and I was able to go from one polje to another without risk of being turned out.

In one of the poljes I took a single male of a new *Syrphus*, which I have described as *novigradensis* (Coe, July 1960, Proc. R. ent. Soc. Lond. (B) 29, pts. 5-6: 73-74). This new species closely resembles the common and widely distributed *latifasciatus* Macquart, which occurred with it. Other Syrphidae occurring in the poljes were *Merodon clavipes* Fabricius, *M. spinipes* Fabricius and *Paragus tibialis* Fallén. Among a rich haul of other Diptera I netted a single female of a new species of Agromyziidae, *Liriomyza certosa* (Spencer, 1961, *Entom.*, 94: 53-55).

In the evening I tidied myself and started off for the doctor's house to keep my appointment for supper. He lived in a small building of white stone standing by the water's edge. His wife welcomed me at the door and I followed her into the sitting-room, where the doctor, clad only in a loose dressing gown, was stretched out on a couch. He jumped up with outstretched hands to greet me. We started speaking together in bad French. While his wife was preparing the meal, he took some anatomical specimens from a cabinet to show me. I was taken aback when he held up to the light of the oil-lamp a glass bottle in which a long curved bladder-like object floated in alcohol and announced, "C'est l'utérus de la femme!" Just then his wife came in to say that supper was ready. She pointed to the exhibit and asked me if it was not a beautiful specimen. I agreed.

We went through to the next room for supper. As I had feared, many strange and rich dishes had been prepared in my honour, and the Yugoslav host or hostess is very offended if you refuse anything. Dish followed dish and wine followed wine, with a glass of plum-brandy slipped in now and again. Just as I felt that I could not eat another mouthful, the woman brought in an enormous 'tortos dobos' cake, a chocolate confection of unsurpassed richness. I took a couple of bites and suddenly felt dreadfully sick. I turned to the doctor, trying hard to appear normal, and in a discreet whisper asked for the 'toileta'. He picked up the oil lamp and told me to follow him. We went out into the passage. Just as he was pointing to the toilet the wine took its toll of him, and he fell sprawling. The lamp shot to the floor, and amid the shattering of glass and general confusion I dashed into the small room and was comfortably sick without anyone being the wiser. Order was restored, a fresh lamp was lit, and the meal went on. At last the table was cleared, but wine was still being pressed upon me when at a late hour the party ended, and I went dizzily back to my lodging.

The excessive hospitality at the doctor's house had unpleasant consequences for me, for I woke up in the morning in the grip of dysentery. Before breakfast I hurried off to ask the doctor for some Sulfagvanadin tablets, a prescription that usually works wonders with this complaint. I explained my symptoms to him in French. He made rude noises to show that he understood me, and fetched me a box of the precious tablets.

As I was on my way back to the wine-shop I stopped to watch a group of boys and girls playing a game by the roadside. Each child in turn squatted down by a small pile of round pebbles and flung one in the air. Before it came down a second one was picked up with the same hand and the first one was caught. The second one was then flung up, and the pro-

cess repeated until the child was holding five pebbles. Then the whole five were flung up together and as many as possible caught on the back of the hand. This game from its simple character is probably of great antiquity. I have seen it played by Arab children in Egypt. At home, children play at 'knuckle-bones', which is very similar.

Life was indeed simple for the people of Novi Grad. Work in the 'poljes' in the morning for the majority, resting at home in the afternoon, and in the evening the wine-shop for the men and gossiping in front of the houses for the women. Day in, day out, that was the life of the adult population. For the youths and maidens there was a circle of concrete by the water-side where of an evening they danced to the tune of a mouth-organ. There seemed to be little other source of entertainment. But everyone seemed content.

Day after day during my stay the sun blazed down relentlessly, and collecting was often a torment. It was worst of all when I toiled up the steep mountain slopes to reach isolated 'poljes'. Then the sun's rays were thrown back from the bare rock with an almost insufferable heat. It was almost like being in an oven. Sometimes I saw flying over in search of shade and moisture exquisitely coloured butterflies that were a delight to the eye.

Although Diptera were by no means plentiful on these torrid slopes I took as many as eleven species of *Sarcophaga* (Calliphoridae) resting on loose stones, besides several species of Tabanidae, including *Tabanus rousselii* Macquart, *T. umbrinus* Meigen and *T. graecus* Fabricius. From a clump of low plants growing in the shade of a large rock I swept two males of a second new species of Agromyziidae, *Napomyza dalmatiensis* (Spencer, 1961, *Entom.*, 94: 55-56). In the shade of a stone wall enclosing an isolated polje a species of *Convolvulus* provided a welcome display of large blossoms, and from these I netted a series of the attractive yellow and black-bodied Syrphid, *Volucella zonaria* Poda.

The Sunday before I left Novi Grad the doctor's wife arranged for a local fisherman to take us both for a cruise in his motor-boat along the sea of Novi Grad and into the adjoining sea of Karin. It was early morning when our small party set off over the water. Soon the white buildings of Novi Grad were out of sight, as we followed a bend in the coast-line to the south. On either side rugged masses of the bare karst rock sloped down to the water's edge, gleaming white in the strong sunshine. As far as the eye could see there was no vestige of vegetation to relieve the harsh bareness of the landscape. There was no sound but for the chugging of the engine and an occasional word that passed between us. After a mile or so the waters narrowed for a short distance, then broadened again as we entered the sea of Karin. The monotony of the rocky shores became relieved here and there by patches of grass and an occasional dwarfed pine tree. Suddenly the doctor's wife drew my attention to a cluster of white cottages on the shore ahead of us. It was the small village of Karin, situated in splendid isolation at the southern end of this strange inland sea.

Our pilot steered the boat to a landing-stage, and we tied up alongside. We carried our picnic lunch ashore, and stretched out on the ground under the shade of an ancient olive tree. We had brought four bottles of the local red wine, and bread, cheese and cherries. The boatman wrenched the cork out of one of the bottles with his teeth, threw back his head and

swallowed the contents without drawing breath.

After lunch we walked along the road that led out of the village. Soon we came to the centuries old monastery of Karin. It stood back from the road in a wilderness of long grass and stunted pines. It was once an important centre of religious activity. Now its small chapel is used as a place of worship by the villagers. One old monk remains to act as caretaker. He came forward to greet us at the entrance. He was a picturesque figure with tonsured white hair and flowing brown habit with dangling tassels. We followed him through a stone archway into a cool courtyard. In the centre there was a deep well, with a raised surround of ornamental stonework, on which rested a chained bucket. We went through another archway into the dim chapel. Its interior was divided up to an unusual extent by quaint old painted screens depicting Christ, Mary and various saints. I looked through a large screen that separated off the far end of the nave. A nun was sitting at a small organ playing a hymn tune, while a group of girls in colourful costumes stood round her singing in harmony.

We followed the monk up some worn stone steps and along a narrow corridor that ran between the inner and outer walls of the building. We passed cobwebbed cells where the monks had spent their days in meditation. The passage ended in a long, low room that had been the monastery library. Packed closely along shelves on either side were hundreds upon hundreds of mouldering books and manuscripts. Some were printed many centuries ago. The stone floor was worn away in places by the tread of countless feet.

Before we left I photographed the monk sitting on a stone slab by the well in the courtyard. As we strolled back to the village we passed some girls dancing by the roadside. They wore gaily embroidered dresses and little round lace-trimmed caps. They had formed a circle round one girl and, holding hands, were moving slowly round her, their feet making deft movements to the rhythmic clapping of her hands.

We returned to the boat, cast off and headed for Novi Grad. After we had passed through the sea of Karin it was decided to make a detour and travel for a short way along the fabulous Zdrila channel, which joins these inland seas to the Adriatic. We turned sharply in a north-westerly direction towards a narrow cleft in the mountains. As we neared it the boat was caught in a powerful cross-current, but our boatman kept the helm steady and soon we were safely past the dangerous entrance to the strange channel. On either side there were great vertical walls of rock, barren and grey and honeycombed with caves. It was uncannily silent. There was no bird-song or sound of any living thing. The narrow passage twisted and turned so abruptly that at times we seemed to be heading straight for the unbroken wall of rock. At the last moment the boat would be steered deftly into the hidden continuation of the channel. The sense of isolation was overpowering. It was an unforgettable experience. All too soon it was time to turn for home. Dusk was falling as we stepped ashore at Novi Grad.

(to be continued.)

Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

The Irish Status of *Platyptilia calodactyla* Schiff. (*zetterstedtii* Zell.).

In his *List of the Microlepidoptera of Ireland* (1941) Beirne places the name of this beautiful plume in square brackets, quoting one record which he states he considers unreliable, whilst in his *British Pyralid and Plume Moths* (1952) he omits all reference to it as an Irish species. The record he quotes is one by the late Canon G. Foster of one at Valentia on the road beside the old reservoir, in 1932. There is, however, no specimen in the Foster collection, and Beirne considered the record unreliable, probably referring to the common *P. gonodactyla* Schiff.

On 29th June 1962, my wife and I were walking up a bohereen which branched off the road from Dingle to the Connor Pass on the right hand side about three-quarters of a mile from the town. The whole of the bohereen was most attractive, one side being topped entirely with honeysuckle and the other with bramble and honeysuckle mixed, whilst the foot of the banks was covered with knapweed, foxglove, golden rod and other flowers. I gave a few taps to the sides and then went ahead to look at a rather dark *Pararge aegeria* L.; when I returned, my wife told me that there was an unusual plume in the grass at her feet. I netted it and at first took it for a remarkable form of *P. gonodactyla*, but on setting it the next day thought it looked more like *calodactyla*. On my return home, I compared it with my Kentish series, and it is identical with them, a male in perfect condition. I had intended to revisit the bohereen after dinner in the evening, when, no doubt, I should have seen others, but the weather turned rather chilly, so I abandoned the idea, and the next few days were so fully occupied that I did not do so, except once in the morning, when nothing much was about.

It is very interesting to find another of our woodland insects living in the open like this; in Kent, where I have over the years seen hundreds, I have only seen it in rides in the major woods such as Blean and Ham Street, or more especially in flower-covered clearings of the second, third and fourth years where coppicing has taken place. Irish collectors will, no doubt, recall how *Pyrausta funebris* Stroem. is also usually found in the open where golden rod grows; no doubt, the damper and warmer climate has some bearing on this difference in habits.

I have been unable to trace any further records, apart from the one already quoted, the one from the Burren (*Entomologist*, **88**: 105) having been corrected as an error of identification (*Stenoptilia bipunctidactyla* Haw.) (*Entomologist*, **89**: 113). It seems to me, however, that it is quite probable that Foster's was a correct record, as the locality is within twenty miles as the crow flies from my Dingle one. As the specimen has unfortunately disappeared, it must, unhappily, always remain a matter of opinion.

Calodactyla should, I think, turn up in other places in Kerry. It is not a very lively insect, though it can usually be disturbed in the late afternoon and evening, so may have often been overlooked.

Breeding Leaf-mining Flies and their Parasites

By G. C. D. GRIFFITHS, B.A., F.R.E.S.

(continued from Page 178.)

3. TECHNIQUES FOR COLLECTING AND PRESERVING

The student of mining insects needs to keep three reference collections of different types—first the conventional collection of adult insects, preserved dry; secondly a mine herbarium; and thirdly a collection of larval slides. It is a mistake to regard the adult collection as of more intrinsic value than the others: what is needed above all is accuracy in the association of the right adult stage with the right larva and mine. I have outlined below the methods which I employ in the hope that this account may be of assistance to beginners in this field. Of course there are many other possible techniques and this account is by no means exhaustive.

Field Work

Agromyzid larvae of many species can be collected between the end of May and the end of October. The most prolific period is perhaps the end of June. During the winter months larvae of a few hardy species (such as *Phytomyza ranunculi* Schrank on *Ranunculus* and *P. ilicis* Curt. on *Ilex*) may be found and the puparia of stem-boring *Melanagromyza* spp. can be collected from the previous summer's stems. Adult Agromyzids can be swept from April to October but their period of greatest abundance is May and early June.

The most important equipment to be taken on a collecting expedition is a supply of airtight jars or tins of varying sizes—for the larger sizes the normal household preserving jars are very convenient. Mined leaves should be placed in these airtight containers as soon as they are picked to prevent them drying up, which would kill the larvae. Generally the leaves will remain suitable as food for the larvae for about a week. This time factor is not so crucial as it may appear at first sight, as larval development in the Agromyzidae is usually very rapid, and larvae which are already in their second or third instar when collected will generally pupate within this time (Agromyzid larvae are not incidentally able to transfer themselves to another leaf, when the one they are in becomes unsuitable).

It is generally better to collect large numbers of a species if possible, so that a representative series of host and parasites can be bred. Care should be taken not to mix up the larvae of different species in the same container. If they are species which leave the leaf to pupate, then there may be difficulty later in knowing which puparia came from which mines.

Some empty mines should be taken for adding to the herbarium: these should be as typical of the species as possible.

Stem-boring species are best collected as puparia, as their larval stage generally lasts longer than that of leaf-miners. Puparia of *Melanagromyza* spp. can be found from autumn to spring in the stems of many Compositae, Umbelliferae and a few other plants.

Care of Puparia

It is essential that Agromyzid puparia be kept moist, otherwise very poor breeding results will be achieved. The problem is to keep them sufficiently moist, but not in so much moisture that the adult will be damaged on emergence. As dipterous puparia do not suffer from attack by mildew, a simple solution is to place them in sealed tubes with some medium for retaining moisture. I have found white sand very suitable, as its contrasting colour allows the puparia and anything that emerges from them to be seen easily. A reasonably large tube is desirable—

I use the 3" × 1" variety—to allow the adults room to exercise and develop properly on emergence. Some form of identification mark on the tubes (or their corks) is necessary, so there can be no confusion about the origin of any resulting adults.

On emergence adult flies or parasites should be transferred to dry tubes, as they would soon decay if they died in contact with moisture. It is better to allow bred insects to die naturally, as prematurely killed specimens are liable to shrink and become distorted.

Mounting of Adults

Adult Agromyzids should be "pointed" on one of the smaller sizes of micropins, which should then be staged on polyporus strips or card. It is fairly easy to pin fresh specimens from beneath so that the tip of the point of the micropin only just pierces the mesonotum. But if the specimens have become hardened and brittle they should be pinned laterally, as the bristles of the mesonotum will snap if they are pinned from below.

Small parasitic Hymenoptera are best gummed to the tip of a pointed card. The adhesive should be smeared over the card and the insect then laid on it—adhesive must not be allowed to spread itself over the insect. Care should be taken to ensure that the head is over the edge of the card so that the mouthparts can be examined.

Empty puparia should be gummed to the card or polyporus strip used for staging. It is not advisable to pin them as they will work loose. The empty puparium can sometimes be a very valuable piece of evidence, and it should never be discarded. It is possible to reconstruct most of the characters of the larva from the puparium—including the cephalopharyngeal skeleton, which remains intact inside the puparium after the adult has emerged. With bred parasites the mounting of the host puparium is, I think, essential as a check to the data given. Without the puparium it is not possible for any future worker to make an objective check on the validity of a record, if it turns out to be controversial.

Labelling

All relevant data should be included on the label with a bred specimen. This data should include the date of collection (of larvae or puparia), date of emergence, locality, host-plant, the identity of the specimen and (for parasites) the identity of their dipterous host. I think it very important not to neglect labelling, as the trouble taken in breeding is largely negated if the details are not recorded on the labels. I do not think it satisfactory to keep the data elsewhere (e.g. in a breeding-book) as it will inevitably one day become separated from the specimens.

The Herbarium

A satisfactory herbarium of leaf-mines can be compiled without any special equipment. Fresh mines can be laid between sheets of fairly absorbent paper, and, providing that there is a little pressure on them, they will dry satisfactorily. After they have dried they can be mounted with selotape inside a folded sheet of paper—I prefer duplicating paper as it is absorbent and will remove any remaining traces of moisture. The appropriate data can be written on the outside of the sheet, and the sheets then stored in folders according to the various botanical families.

Larval and Genitalia Preparations

A similar technique can be used for preparing both larval and genitalia preparations—the basic procedure is:—

- (a) Boiling in sodium hydroxide or potassium hydroxide for about 10 minutes.
- (b) Immersion in glacial acetic acid for two or three minutes.
- (c) Removal to alcohol or clove oil.
- (d) Mounting in canada balsam or euparal

The (a) stage serves to dissolve soft tissue which would prevent proper examination of the important characters. The (b) stage neutralises traces of the caustic substances used in (a) and begins dehydration. The (c) stage completes dehydration so that the preparation is ready for permanent mounting.

Other points to notice are:—

Larvae: Before boiling it is necessary to split the skin in two or three places to allow penetration of the caustic. After the boiling stage the skins should be placed on a slide blank in water and pounded with a brush until the remains of the gut are removed. If this cannot be removed easily, it means that the skins have not been boiled enough. Agromyzid larvae will always be mounted laterally (because they are laterally compressed), but it is often useful at this stage to turn the last abdominal segment so that the hind spiracles can be seen in dorsal view. This is done by splitting off the last segment from beneath, leaving it attached dorsally only, so that it can be turned at right angles to the rest of the skin.

Larval preparations can be made more attractive and easier to work with by staining, though this is by no means essential. The method I have used (following Professor E. M. Hering) is to remove them, after their introduction to alcohol at stage (c) above, to a solution of Magenta-Red in 95% alcohol, for about three days, followed by a washing in clean alcohol to remove surplus colouring matter, and immersion in Orange G. for about five minutes. A good preparation will be pale orange in colour with the chitinised parts, tubercles, spiracles, etc., well contrasted due to their retention of the red stain.

Genitalia: The whole abdomen should be removed for making preparations of the male genitalia. If the specimens concerned are old and very brittle it may be necessary first to relax them by placing them in a container containing wood naphtha vapour for 5-10 minutes.

The skin of the abdomen should not be removed until the preparation is ready for mounting, as it protects the delicate inside parts during handling. The ninth tergite (external) is attached to the internal V-shaped ninth sternite (internal) and may be left attached or removed as desired. Care should be taken when removing the abdominal skin not to overlook the ejaculatory bulb.

Storing of Preparations: Larval preparations are best mounted on 3"×1" slides and stored in slide boxes. Genitalial preparations should be mounted on the pin with the original specimen. A convenient system which I use for mounting genitalia is to have 3"×1" cards made with a $\frac{1}{2}$ diameter circular hole at one end. The preparations are mounted over this hole between two coverslips (I find "Durofix" a suitable adhesive for joining the card to the coverslip) of a diameter a little larger than the hole, and the cards are then stored in normal slide boxes. While I am working with the preparations this arrangement is very convenient: later the cards are cut down to a suitable size around the preparation and are mounted on the pin with the original specimen.

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88a Avondale Avenue, East Barnet, Herts. 19th May 1962.

Current Literature

JOURNAL OF THE LEPIDOPTERISTS' SOCIETY, 15, No. 3 (21,iii,1962).—Contains a long paper by Paul Opler and J. A. Powell on the taxonomy and distribution of the Western American components of the *Apodemia morno* complex, with a half-tone plate. Noel McFarland contributes notes on a *Dartis* sp. (? *howardi*) with photographs of the larva and pupa. Shigeru Albert Ae writes on interspecific hybrids in black swallowtails in Japan with two half-tone plates of larvae, pupae and imagines. R. W. Holzman writes on collecting Sphingidae with a mercury vapour lamp, and T. E. Emmel writes on collecting in the Gomez Farias region of southern Mexico, while the field collecting article is by Norman B. Tindale on the use of Chlorocresol crystals for the preservation of catches in the field in condition for setting without further relaxing. The number finishes with further notes on recent literature. No. 4 (19.vi.1962)—Opens with some taxonomic notes on some Nearctic Rhopalocera, dealing with the Papilionoidea, by C. F. dos Passos. H. K. Clinch writes on the Lycaenid *Panthioides m-album* with text figures of larval and pupal anatomy and Richard Hertzman on the life history of the Saturniid *Adelocephala quadrilineata* Grote & Robinson with a drawing of the larva. B. O. C. Gardiner writes on the emergence and longevity of *Catocala fraxini* L. and the field notes are by G. W. Rawson on the rediscovery of the Lycanid *Eumaeus atala* Rober. in southern Florida, with figures of ova, larvae, pupae and imagines, together with details of the genitalia. The presidential address of Takashi Shirozu is on the study of immature stages and food plants. The number closes with further indexing of recent literature.

ALEXANOR II, No. 5 (1962).—Has a note by M. Lafitte on the *Satyrid Melanargia russiae* Esp. from the Pyrénées Orientales. C. Herbulot continues his list bringing the French Geometridae up to date. Three articles by Jean Bourgogne deal with some errors in stamps depicting entomological subjects, a further note in his list of the literature of the Lepidoptera, this time on Claude Dufay's Lepidoptera volume of his

land and water fauna of the Pyrenees Orientales, and a note on *Cucullia argentea* Hufn. C. Dufay has an article on French Noctuidae not mentioned in Lhomme's catalogue, with a plate of 24 species. H. Marion continues his revision of the French Pyraustidae, with genitalia figures. Dr. R. Durand contributes a note on the presence of *Clossiana titania lemagneni* Plantron, and R. Olivier writes on breeding *Callimorpha quadripunctaria* F. *lutescens* Stand. ab ovo.

ENTOMOLOGISCHE BERICHTEN 22, No. 7 (1,vii,1962).—Has an article by G. van Rossem, H. C. Burger and C. F. van de Bund on harmful arthropoda in the Netherlands in 1961. C. J. Fischer discusses the various works of Linnaeus. T. H. van Wisselingh writes on Macrolepidoptera in 1961, and W. J. Boer Leffel writes on *Diacrisia sannio* L., *Scotia puta* Hübn., *Mesotype virgata* Hufn. and *Aspitates ochrearia* Rossi. in the Dutch Island of Schouwen. No. 8 (1,viii,1962)—Has an obituary notice of P. van der Wiel. M. P. Peerdeman writes a survey of the flights of *Anthrographa gamma* L. from March to November 1961 with a chart which makes interesting comparison with records in this country during that period. W. M. Herbulot writes on some Tachinidae bred from Geometrid larvae from the Arnhem district, some of which are new to the Dutch list.

ZEITSCHRIFT DER WEINER ENTOMOLOGISCHEN GESSELLSCHAFT 47, No. 1 (15,1,62).—Leo Schwingenschluss writes some notes on H. Zerny's "Lepidopterifauna von Albarracin in Aragonien". Dr. L. Issekutz contributes notes of similar periods in July 1959, 1960 and 1961. Hans Reisser writes Part V of his work on the Sterrhinae. No. 2 (15,ii,1962).—F. Kasy writes on the systematic position of the Gelechiid *Chilopselaphus podolicus* Toll with figures of the wing pattern and anatomic details. Jacques-F. Aubert writes a revision of Asiatic *Xanthorhœ* (*Ordontorhœ*) *tianschanica* Alph. group including the description of a new genus and a new species, with four plates of adult insects and genitalia dissections. Franz Eichler records *Celerio vespertillio* Esp. at light. No. 3 (15,iii,1962).—Opens with a note by W. Glaser on the appearance of *Scoliaula quadrimaculella* Boh. as a species new to the Austrian list: The determination is by J. Klimesch. There is an obituary notice of Karl Predota. Jacques-F. Aubert continues his *Xanthorhœ* (*Ordontorhœ*) *tianschanica* Alph. group revision, followed by migration notes by Karl Mazzucco, and finished with the customary book notes. No. 4 (15,iv,1962).—Has an account of our friend Joseph Klimesch by Hans Reisser on the occasion of his sixtieth birthday. Jacques-F. Aubert finishes his *Xanthorhœ* paper, and Charles Boursin describes a new *Cosmia* species from the Balkans and Asia Minor which he names *rhodopsis*. There are two plates illustrating the species and its allies, together with genitalia dissections. The number ends with book notes. No. 5 (15 May 1962).—Has the opening of an account of the Macrolepidoptera of the Stubach valleys in the Saltzberg district, with a map and two plates of views of the terrain. This is by E. W. Feichtenberger. Leo Sieder describes a new parthenogenetic Psychid *Reisseronia gertrudae* with a plate, and text figures of anatomical details. Charles Boursin writes on *Lithophane semibrunnea* Haw., describing a new subspecies *wiltshirei* from Iraq. There is a plate illustrating the species and subspecies.

MICROLEPIDOPTERA PALEARTICA.—I have received from Dr. Amsel, the brochure describing this projected publication. It is proposed to bring out a volume each year, starting in 1963/64 with the Crambinae by Dr. Bleszynski and Ethmiidae by Dr. Sattler. This work is intended to carry coloured illustrations of all species by Dr. Gregor, whose watercolours of Lithocolletidae, which have appeared with his papers, are beyond praise. The text will be in German, with the general introductions in English, French and Russian. There is an imposing list of first class entomologists, specialists in their particular families, who will write up these families, and it is not intended to adhere to any order of families, but to publish the works, a volume each year, as they become available. The subscription price is set at D.M. 180 (U.S. \$43), rising to D.M. 220 (U.S. \$52, after the closure of the subscription list).

The editors are Dr. H. G. Amsel of Karlsruhe, Dr. F. Gregor of Brno, and Hans Reisser of Vienna, who will doubtless be pleased to hear from intending subscribers.—S. N. A. J.

BEETLES, by EWALD REITTER, Paul Hamlyn, London. 200 pp. + 60 coloured plates, £5 5s 0d.—The reviewing of this book presents some problems; the letterpress is a most interesting survey of the world's coleoptera, designed to inspire the beginner, and it includes the anatomy, an explanation of the metamorphosis, nomenclature and classification, together with notes on breeding. The plates are of superb quality, and these are followed by an outline history of the study of beetles from the days of Aristotle to the present day.

The whole makes a sumptuous aperitif for the budding coleopterist who may be the happy possessor of a rich relative.

The problems referred to, arise from the combination of the letterpress and the plates. The letterpress would be of great interest to the young (and not so young) coleopterist, and could be produced in an octavo size for a few shillings; the excellent plates, which are really the reason for the publication of this book are of the "Coo Look" nature, illustrating only showy species, and the work of the photographer is obviously given precedence over that of the coleopterist.

The photograph of the larva of *Megasoma gyas* Hbst. occupies a full page and shows a remarkable depth of focus for such a magnification, but from a scientific aspect, half or even one quarter the size would have done quite well. A coleopterist would say that sixty plates could well illustrate over 2,000 species, but when dealing with the world's coleoptera, even this figure is a mere drop in the ocean, so perhaps we should let the matter stay as it is and acclaim a magnificent picture book.—S. N. A. J.

NATURE CONSERVANCY—EFFECTS OF TOXIC CHEMICALS

Research is now being done by the Nature Conservancy on the side effects of toxic chemicals on the British fauna. The entomological societies are represented on the Conservancy's Entomological Liaison Committee, which is kept informed of the progress of this research, and all entomologists are asked to help in keeping the review of this subject up to date by recording new developments in their areas in the use of toxic chemicals which may harm the insect fauna of hedges, ditches, roadside verges, etc. Observations should include time, place, name of spray, method of application and brief description of habitat affected, and should be sent to Dr. N. W. Moore, Toxic Chemicals and Wild Life Section, The Nature Conservancy, Monks' Wood Experimental Station, Abbots Ripton, Huntingdon.

close intervals along the side of the road on blackthorn, hawthorn, and wild rose, from the nearside of Queensferry Bridge to the outskirts of Queenborough". And he adds that "on May 20, a rough calculation suggests that the number of larvae must have exceeded half a million". Owen (*Entomologist*, 82:233) noted larvae in vast swarms in Sheppey in 1949, and that they were most in evidence in the south-east corner of the island. In May 1950, I noticed that the larvae were very abundant on hawthorn hedges in Sheppey, between Leysdown and Harty Ferry, but were obviously being considerably reduced, owing to the numbers of Cuckoos that were feeding upon them (C.-H.).

VARIATION.—Vallins (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 47) exhibited a ♂ with orange tail, bred from Dungeness larva taken 1948; and Morley (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 38) exhibited a ♂ taken at Folkstone, 1930, having both the "body and antennae orange".

A ♂, in J. W. C. Hunt coll., taken St. Peters (div. 9), July 18, 1937, is the holotype of ab. *fumosa* C.-H., a form in which the white is tinged throughout with smoke-grey.

Specimens bearing a few isolated black dots, ab. *punctella* Strand, occur fairly frequently; but ab. *punctigera* Teich, in which the spots are more numerous and form rows, only occurs occasionally. I have 11 ♂♂, 3 ♀♀ of the former, but only 2 ♂♂ of the latter; all bred with some thirty normal specimens in 1946, from wild Dungeness larvae (C.-H.). A. J. L. Bowes (*Diary*) records that he bred several black spotted ♂♂ from Herne Bay pupae, and that at Sandwich, he took a few ♂♂, August 9, 16, 1939, all of which had black spots.

In R.C.K., are ab. *fumosa* C.-H., ♀, Folkstone, June 1900, S. G. Hills; ab. *xanthorrhoea* Oberth., two ♂♂, bred July 25, 26, 1946, Goodson.

FIRST RECORD, 1782: "The attention of the public has of late been strongly excited by the unusual appearance of infinite numbers of large white webs, containing caterpillars, conspicuous on almost every hedge, tree, and shrub, in the vicinity of the metropolis" (Curtis, *A Short History of the Brown-Tail Moth*, 3). The first definitely Kentish record, however, dates from 1828: Gravesend (Stephens, *Haust.*, 2: 66).

¹Also classed as a migrant or suspected migrant by Williams, *et al.* (1942).

E. similis Fuessl.: Gold-tail.

Resident,¹ Hedgerows, gardens, bushy places, etc.; on hawthorn, blackthorn, rose, elm, oak, apple, pear, Spanish chestnut, willow, *Viburnum latana*, *Hippophae rhamnoides*. Frequent, and found in all divisions. "Generally abundant" (V.C.H. (1908)).

Barrett (*Ent. week. Int.*, 7: 75) noted an imago in "fine condition", at West Wickham, October 4, 1859; and D. F. Owen (per Rothamsted), recorded that he took a perfectly fresh specimen at Eynsford, September 27, 1947; seemingly both instances of a partial second generation.

The species is subject to marked numerical fluctuation; but there is no confirmed record that its numbers ever reach such vast proportions as its congener *chrysorrhoea*. Fenn (*Ent. week. Int.*, 10: 197), recorded that in Lee neighbourhood, though "usually a pest", it was in 1861, "practically absent"; in the same area (in 1894), it was recorded as having become "very greatly reduced in numbers" (Fenn, *Ent. Rec.*, 6:

230); and a few years later was described as "rare" there (Green, *Trans. W. Kent nat. Hist. Soc.*, 1905-06: 15). Dadd (*Ent. Rec.*, 11: 223), found the larvae of both *similis* and *chrysoorrhoea* in the "greatest profusion", at Deal, June 24-25, 1899, feeding on sloe and *H. rhamnoides*; and Theobald (*J.S.—E. Agr. College (Wye)*, 1910 (19)93), reported that the larvae were a pest on fruit in Kent, in 1909.

The larva occurs perhaps most frequently on hawthorn and sloe, though is often found on other trees. Kidner (*Diary*) wrote that at Sidcup, October 10, 1909, he found two groups of larvae with about eight in each group, on the undersides of willow leaves; and that he also noted the larva at this locality in June 1914 on willow. Theobald (*J.S.—E. Agr. College (Wye)*, 1899 (8)46), reported that in 1898, hosts of these larvae were seen towards the end of June in Kent, feeding ravenously on the foliage of Spanish chestnut; and the same recorder (*op. cit.*, 1910 (19)94), states that at Dene Park, Tonbridge, apple trees were infested with the larvae, which were actually feeding on the fruit. A larva collected from *V. lantana*, at Eynsford, produced a ♀, 1948 (J. F. Burton); and Gomm (*Diary*), observed that in a lane at Minster (div. 9), he found six cocoons, July 19, 1915, spun up in chinks of bark of elm, from which imagines emerged July 28-August 3, 1915.

VARIATION.—The nymotype is the most numerous form in Kent, but *ab. auriflua* Hb., is apparently fairly frequent (C.-H.).

There is occasionally considerable variation in size; thus, de Worms (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1929-30: 33) records a ♂, taken near Tonbridge, August 26, 1925, with al. expanse 23 mm.; and I have a ♀ that I took at Hoads Wood, August 11, 1955, measuring 49 mm. (C.-H.).

A striking ♂, "with considerable dark scaling on forewings", taken Orlestone Woods, August 24, 1960 (West, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1960: 55), is referable to *ab. nigrostriata* Cockayne.

FIRST RECORD, 1858: Deal (Harding, *Ent. week. Int.*, 4: 141).

¹Also classed as a migrant or suspected migrant by Williams *et al.* (1942).

Arctornis l-nigrum Mull. (**v-nigrum** F.): Black V.

Probable immigrant.

Three examples only, all before 1830.

The date of the earliest recorded occurrence in the county is not known, but must have been before 1826, for in the preceding year, Curtis (*Br. Ent.*, 68) stated that the larva fed on lime and "the moth has been found upon that tree the middle of August, in the neighbourhood of Darent, Kent.

In 1828, Stephens (*Haust.*, 2: 64), referring to the few examples known to him, added: "Another specimen, I believe, was taken at Bromley, in Kent, in August 1827, and is in a collection at Birmingham". Presumably this is the same specimen as that mentioned in Curtis's *M.S. Register* on the authority of Samouelle (*per* Walker, *Ent. mon. Mag.*, 40: 193) as from "Bromley, Kent".

The only other Kentish *l-nigrum* known, is that recorded by Morris (*Br. Moths*, 1: 78), who wrote: "A locality for this species is Sole-Street House, near Faversham, Kent, where one was taken by my school-fellow, Henry Hilton"; and added: "It was for some time in my collection, and is now in the cabinet of Mr. Abraham Edmunds of Worcester, who had it from me"¹.

FIRST RECORD, 1825: Darent neighbourhood (Curtis, *Br. Ent.*, 68).

¹Morris (*loc. cit.*) states that Hilton took the specimen in his school holidays; the date of capture must therefore have been about 1825, for according to *Crockford's Clerical Directory* for 1858, both men graduated at university in 1833.

Leucoma salicis L.: White Satin.

Resident, perhaps reinforced by immigration¹. Marshes, waysides, etc.; on *Populus calix*. Recorded from all divisions (except 5, 6a). Frequent in low-lying coastal areas of 2, 4, 15; doubtful if permanently resident elsewhere; few records for 6, 7, 8, 10, 13, 14.

The species is sometimes abundant very locally, particularly in its early stages. Mathew (*Ent. mon. Mag.*, 8: 18) records that at Sheerness Dockyard in 1870, the poplar trees were almost stripped of foliage, and thousands of pupae were present in clusters of a dozen or more; elsewhere in Div. 2, H. C. Huggins (*in litt.*), writes that the larvae swarmed on one or two willows by Gravesend Hospital, c.1905. Fenn (*Diary*), noted larvae in profusion at Deal (div. 4), July 5, 1891; and Heitland (*Entomologist*, 31: 221), recorded that it was plentiful in all stages at Appledore (div. 15), in July 1899.

During the present century, *salicis* has probably been most regularly observed in div. 15, at least since the 1920's. There is a record of A. M. Swain that he took a number at Littlestone in 1901, and at this same locality, many larvae were noted by R. F. Bretherton on July 2, 1954. A. M. Morley (*in litt.*), writes that at Dungeness, there is a permanent colony, which was first noticed by him in 1929; since when, larvae and imagines have been seen by many observers, both at Dungeness and elsewhere on Romney Marsh. Dungeness, many at light, July 19, 1945 (A. M. Morley); several, July 1959 (C. R. Haxby).

In most, if not all other divisions, except 2, 4 and 15, the species is apparently seldom numerous, and only intermittent in its occurrence. A. J. L. Bowes states that at Herne Bay (div. 3), a flourishing colony was found on poplars in Station Road in 1930, but were not in evidence the next year, and no more was seen of the species until a ♂ came to light, July 31, 1935. W. L. Rudland records that the moth only occurred twice at m.v., at Willesborough (div. 12), during the period that it was operated from 1954-56, i.e., July 1, 20, 1956; and but once at m.v. at Wye (div. 12), from 1953-56, i.e., July 2, 1953. In Folkestone, A. M. Morley only noted nine at m.v. from 1951-61, with maximum of two in 1955 and 1958, and none in 1951, 1957, 1959 and 1961. In the Lewisham area 1945-47, D. F. Owen gave it as "very local and usually rare", and that larvae found in 1946 at Abbey Wood Marshes (div. 2), and Lee (div. 1), were all ichneumonated.

There are numerous records of the larva on poplar; probably mostly on black poplar, though few specify this. It has also been noted on Lombardy poplar (Chaney (1884-87)); on "weeping willow" (Jones, *Ent. week. Int.*, 10: 188); one, on white poplar, Postling Wents, near Hythe (div. 12), July 11, 1953 (A. M. Morley), and on sallow at Dungeness (C.-H.).

6. Eynsford, pupa (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1904-05: 32). Pinden (E. J. Hare).

7. Burham Down (*Trans. Kent Fld. Cl.* 1961: 1:129).

8. Folkestone Warren (Ullyett (1880)). Dover (E. & Y. (1949)).

10. *Brasted*. occasionally (R. M. Prideaux). Sevenoaks, larva on poplar trunk, 1919 (Gillett, *Diary*).

13. Tunbridge Wells, two, 1959 (L. N. Tesch).

14. Tenterden (Stainton, *Man.*).

VARIATION.—In R.C.K. is a ♀ ab *radiosa*, Gordon Smith, N. Kent, August 1922, L. W. Newman.

FIRST RECORD, 1858: "Excessively abundant on a row of poplars, on Chatham Lines" (Crozier, *Nat. Hist. Rev. (Proc. Dublin Univ. zool. Bot. Ass.)*, 5: 128).

¹Cockayne (*Entomologist*, 65: 284) suggests the possibility of reinforcement by occasional immigration. The species is also classed as a migrant or suspected migrant by Williams *et al.* (1942).

Lymantria dispar L.: Gipsy.

Probable immigrant. Hedgerows, woods, etc.; on hawthorn.

At least fifteen *dispar* have been recorded from Kent, including five that were bred from feral larvae.

The earliest known occurrence is of a worn ♀, taken by W. C. Chaney in Wigmore Wood (div. 7), c.1856 (Chaney (1884-87)). Since then it has been noted as follows:—1860: Near Ashford, taken by A. W. Mera (Mera, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 18). 1870: Chattenden Roughs, ♂, taken by J. J. Walker, July 25 (Chaney, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 50). 1885: Bexley, one taken in 1885, exhibited by Allbuury at Haggerston Entomological Soc., November 12, 1885 (*Ent. mon. Mag.*, 22: 166). N.d.: Folkestone (Ullyett (1880)). 1888: Deal, two ♂♂, two ♀♀, bred from feral larvae (Tulloch, *Entomologist*, 60: 164). 1899: Folkestone Warren, a ♂, reared August 20, 1899, from a larva casually collected in July from a hawthorn hedge (Hills, *Ent. Rec.*, 11: 345) (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1916-17: 4, 45), is in Br. Mus. (S. Kensington) (C.-H.); Sandgate, a ♂, at light, August 3 (Green, *Ent. Rec.*, 11: 306), is in my coll. (C.-H.). 1950: Cliftonville, Margate, ♂, taken by W. D. Bowden, July 10 (Bowden, *Entomologist*, 84: 60). 1951¹: Dover, ♂, taken by G. H. Youden, at m.v., July 31 (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 47; *idem*, *Entomologist*, 84: 261). 1961: Folkestone Town, ♂, at m.v., August 29, taken by A. M. Morley (A. M. Morley).

[N.d.: Adam's Well near Langton, Tunbridge Wells, one, A. L. H. Townsend; Tonbridge, one, A. D. Reed (Knipe (1916); Given (1946)). Note: R. H. Rattrey (*Entomologist*, 53: 19), records that he had the species in captivity at Tonbridge.]

FIRST NOTICE, c.1856: Wigmore Wood (Chaney, *Rochester Nat.*, 1885: 1 (7)119).

¹It is noteworthy that in 1951 the species was abnormally abundant in France (cf. Dannreuther, *Entomologist*, 85: 156; Muspratt, *op. cit.*, 85: 263).

L. monacha L.: Black Arches.

Native. Woods, copses; on oak. Mainly Wealden; probably casual in 9.

1. West Wickham, larva, 1859 (Latchford, *Ent. week. Int.*, 6: 123). West Wickham and Hayes (Birchenough, *fide de Worms, Lond. Nat.*, 1953: 126). Petts Wood, rare (S. F. P. Blyth); one ♂, 1947 (E. Evans); 1949, frequent, larvae on oak (A. M. Swain). Dartford, two ♂♂, August 24, 1946 (B. K. West).

3. Near Canterbury*, one bred from a larva taken off sugar, 1871 (Parry, *Entomologist*, 5: 394). Blean Woods, a larva, June 3, 1866 (Fenn, *Diary*). Near Herne Bay, ♀, 1926 (D. G. Marsh coll.). Chestfield, near the golf-course, "one bred and another on oak trunk" (P. F. Harris *in litt.*).

4. Ickham, one, August 23, one August 24, 1954 (D. G. Marsh coll.).

6. Eynsford, one on larch trunk, August 19, 1933 (Blair, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 32).

6a. Darenth Wood.—(Stephens, *Haust.*, 2: 57); "Mr. Desvignes has taken it at Darent" (Curtis, *Br. Ent.*, 767); one, 1861, seventeen larvae by various collectors, 1862 (Fenn, *Diary*); one larva, June 14, 1868, parasitized by two worms (Standish, *Entomologist*, 4: 98-99) (from the description they appear to have been nematode worms (C.-H.)). Cobham Woods, one, by J. J. Walker, July 28, 1870 (Chaney (1884-87)); one, 1882, one, 1889 (Pye, *Rochester Nat.*, 1896: 2 (51), 352); August 4, 1919 (F. T. Grant).

7. Westwell, four at light, August 18, 1934 (A. M. Morley); August 13, 1938 (A. J. L. Bowes); "very common lately" (E. Scott, *verbatim*, 19.xii.1954).

8. Folkestone* (Ullyett (1880)). Folkestone [Reinden Wood], ♂, ♀, taken by J. W. Walton, c. 1898 (A. M. Morley). Moderately common, Waldershare and Woolwich Wood; Barfreton (E. & Y. (1949)). Wye, September 2, 1934 (A. J. L. Bowes). Near Canterbury, larva (H. C. Huggins). Gorsley Wood, larvae, c. 1946 (R. Gorer). Dover, one, 1945 (B. O. C. Gardiner). Reinden Wood, ♂, at light, 1948 (A. M. Morley).

9. Minster, about four dozen ova found on oak trunk, October 9, 1914, from which imagines bred (H. G. Gomm, *Diary*).

10. Brasted, a few larvae (R. M. Prideaux). Westerham (R. C. Edwards). Seal Chart, larva, June 20, 1948 (Howarth, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 71). Sevenoaks, at light, 1948-49 (F. D. Greenwood).

11. Watringbury (Goodwin MS.) (V.C.H. (1908)); imago, 1934 (J. Fremlin). Hoads Wood, three at light, August 31, 1931 (A. M. Morley). Tonbridge, several larvae on oak, 1951 (H. E. Hammond). Sevenoaks Weald, larva, July 7, imago emerged July 24, 1959; imago at m.v., August 17, 1959 (E. A. Sadler).

12. Ham Street Woods.—About fifty at light, July 26, 1934 (A. M. Morley); July 20, 1934, August 20, 1939 (A. J. L. Bowes); fairly numerous at light, though mostly ♂♂; several ♀♀ at m.v., late July 1951 (C.-H.); about 12 ♂♂, August 15-20, 1960 (C. R. Haxby and J. Briggs). Chartham, one, 1949 (P. B. Wachter).

13. Southborough (M. M. Phipps, in Knipe (1916)). Tunbridge Wells.—♀, September 1885 (Bone, *Entomologist*, 18: 263); ♂, 1891 (Beeching, *Ent. Rec.*, 2: 229). Broadwater Down, one (Knipe (1916)). Adams Well, near Langton, one beaten from oak (Given (1946)).

14. Hawkhurst (Melvill, *Entomologist*, 5 (74), ii). Sandhurst; Benenden (G. V. Bull).

16. Near Sandling Junction, 1929 (Morley (1931)). Sandling Park, ♀, on oak trunk, August 25, 1942; Folkestone Town, two at m.v., 1952, ♂, at m.v., August 30, 1954 (A. M. Morley).

VARIATION.—Tugwell (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1891: 145) records a "very dark specimen", that he bred from a larva taken at West Wickham; and a ♂ ab. taken by me at Orlestone Woods, July 1951, may

be described as having the ground lightly suffused with purplish-brown (C.-H.).

A ♂ ab. in D. G. Marsh coll., bred Herne Bay, 1927, is referable to ab. *nigrilinea* Cockayne.

The following abs. are in R.C.K.:—*dorsomaculata* Lempke, 3 ♂♂, 6 ♀♀, bred from larvae, Ham Street, 1937, one, ♀, N. Kent, bred; *mediofasciata* Lempke, ♂, bred from larva, Ham Street, 1937; *eremita* Hub., 3 ♂♂, N. Kent, A. W. Mera, bred 1914, 1915, 1916; *atra* von Linstow, 2 ♂♂, N. Kent, A. W. Mera, 1914, 1915.

FIRST RECORD, 1828: Stephens, *loc. cit.*

LASIOCAMPIDAE

Malacosoma neustria L.: Common Lackey.

Resident, perhaps reinforced by immigration. Bushy places, orchards, hedgerows, etc.; on sloe, apple, plum, willow, elm, laurel. Found in all divisions, though seemingly with a preference for low-lying areas on or near the coast. Usually fairly numerous, and occasionally abundant, but subject to periods of rather marked scarcity. "Generally common; formerly too abundant in the larval state, but now much scarcer" (V.C.H. (1908)).

There appears to be only one generation; but in 1879, a single specimen was noted at light at Lee on September 18 (Bower, *teste* Tutt, *Br. Lep.*, 2: 563), an exceptionally late date.

In the past, *neustria* has sometimes reached considerable proportions, to be followed by an appreciable decline. Thus, Newman (*Entomologist*, 4: 104) writing of the metropolitan area in 1868, said that ten years previously his apple trees were annually devastated by it, but that since that period not one had been noted until the present year, when it was again swarming in his neighbourhood; and Fenn (*Ent. Rec.*, 6: 230) referring to the same area, observed that in 1894, "though formerly one of our greatest pests", it was at the time of writing comparatively scarce. In 1918, Robertson (*Entomologist*, 51: 162) recorded a plague of larvae at Faversham, there being two or three nests on every apple and plum tree; and A. M. Masee informed me that in the orchards of East Kent during the 1920's, the species became such a pest, that special prayers were said in Canterbury Cathedral for the preservation of the harvest (C.-H.).

Though intermittent in many localities, in one area at least, notably Dungeness, the species seems to be permanently established. Morley (1931), in his well-known list, has: "Not common near Folkstone, but abundant at Dungeness"; to which I can add that over the past twenty-five years, I have myself found the larval nests with greater regularity at Dungeness than anywhere else in the county (C.-H.).

It is an interesting fact that in direct contrast to the foregoing, R. M. Prideaux, who resided and collected at Brasted (div. 10) for nearly half a century, wrote (*in litt.*, 1950) that he had never once seen *neustria* there; and the scarcity of its occurrence at m.v. at Wye and Willesborough, as noted as follows by W. L. Rudland, whose traps were run with great regularity, and who moreover kept a careful record of everything that appeared, are yet a further indication that the species may be more discriminating in its choice of habitat than has been generally supposed:—Willesborough, two, 1954, two, 1955, one, 1956; Wye, one, 1953, one, 1954, none, 1955-56.

The larva has often been found on apple, plum, sloe, willow. R. G. Chatelain has noted it on elm at Chattenden; and there is an interesting record of larvae having been found on an evergreen, laurel, by G. Andrews, at Cliftonville in June 1953, from which imagines were reared by W. D. Bowden.

VARIATION.—I bred a long series from Dungeness larvae, taken June 16, 1951, and all collected from *Salix repens*: a few only were nymotypical, the majority being referable to ab. *virgata* Tutt, and ab. *pyri* Scop. (C.-H.).

Hills (in Tutt, *Br. Lep.*, 2: 549) notes that the batches from Folkestone Warren appear to have a preponderance of reddish-ochreous forms; and Tutt (*Br. Lep.*, loc. cit.) states that large broods that he bred from Farnborough were entirely fawn-coloured.

The following abs. from Kent are in R.C.K.:—♂♂—*virgata* Tutt; *cervina-virgata* Tutt; *pyri* Scop.; *vulgaris* Bork.; *rufa-unicolor* Tutt; *bicolor* Sibille. ♀♀—*cervina-virgata* Tutt; *virgata* Tutt; *pyri* Scop.; *rufa-unicolor* Tutt; *bicolor* Sibille; *annularis* Fourcroy, Bexley, one; *confluens* Selys; *fracta* Tutt, one, N. Kent, 1920.

FIRST RECORD, 1865: Abbey Wood (A. H. Jones, in Tutt, *Br. Lep.*, 2: 563). This is the earliest positive reference to Kent that I have been able to trace, though the species was doubtless first noticed in the county long before.

M. castrensis L.: Ground Lackey.

Native. Salt marshes; on *Limonium vulgare*, *Artemisia maritima*, *Plantago maritima*, *Trifolium repens*.

2. Appears to be spread over all the saltings from St. Mary's Marshes in the west to nearly to Seasalter in the east. Formerly the distribution range was less restricted and extended west as far as Erith according to Barrett (*Br. Lep.*, 2: 20); to which may be added the record of Stainton (*Man.*, 1: 156) that it occurred "on the banks of the Thames below Erith. [de Worms (*Lond. Nat.*, 1953: 127) has "Woolwich Marshes", but without particulars or authority; also "off Erith", where he says "it is still to be found", but again gives no authority]. It is perhaps now extinct on Higham and Cliffe Marshes (frequently referred to under Gravesend in the old records), for which there appears to be no definite recorded occurrence since 1871 (cf. Tutt, *Br. Lep.*, 2: 544-545).

The species is occasionally subject to intense fluctuation. Thus, Jones (in Tutt, *Br. Lep.*, 2: 543) says that "in 1871 in a field on Cliffe Marshes . . . the larvae could have been collected in thousands"; but in the same year Walker (*Ent. mon. Mag.*, 8: 185) mentions that at Queenborough, he could only find a few starved and stunted larvae although usually abundant there; and Ingall (*Zoologist*, 1655) noted a similar absence in Sheppey in 1846. Walker (*Ent. mon. Mag.*, 34: 252) states that in Sheppey, the floods of November 1897 proved disastrous to both *castrensis* and the Geometrid *Scopula emutaria* Hübn.

The imago is rarely seen wild. Walker took a ♀ on a wall opposite a lamp post, Sheerness, July 1868; Jones took a ♀ near Gravesend; Button noted one at Gravesend at light (Tutt, *op. cit.*, 2: 542); and de Worms (*Entomologist*, 69: 133) took two ♀♀ at light between Rochester and Sheppey, July 10, 1935.

Recent records of *castrensis* are:—Harty, Sheppey, three nests of small larvae, on *A. maritima* and *T. repens*, May 14, 1950; Chetney Marshes,

three nests totalling about seventy half-grown larvae, June 20, 1953; Nagden Marshes, between Faversham and Seasalter, 20-30 full-grown larvae, July 17, 1953 (C.-H.). St. Mary's Marsh, abundant, 1954 (G. A. N. Davis). Faversham, June 26, 1955 (Marsh and Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 76).

4. Herne Bay* (Daltry, in Tutt, *Br. Lep.*, 2: 545) (there is a short stretch of salt marsh, 1 m. east of Reculver, to which this may refer (C.-H.)). [(Pegwell Bay, one would expect both *castrensis* and *Leucania favicolor* Mathew to occur on the saltings here, but careful search has so far failed to reveal either.)]

VARIATION.—In a series of some sixty specimens reared from larvae collected by me near Kingsferry, June 26, 1949, the nymotype predominates, ♂ ab. *albescens* Ckne., ♂ ab. *pallida* Tutt., ♂ ab. *intermedia* Tutt., ♂ ab. *bifasciata* Tutt, occurred severally, together with two ♀ ab. *taraxoides* Bellier, two ♀ ab. *rufa-virgata* Tutt, one ♀ ab. *unicolor* Tutt, also a number of apparently un-named abs. (C.-H.).

The following abs. and abnormal specimens from Kent are in R.C.K.: ♂♂ *obsoleta* Tutt; *pallida* Tutt; *fasciata* Closs, one, Sheerness, 1899; *intermedia* Tutt; *brunnea* Tutt; *hilleri* Standfuss; *albescens* Ckne., holotype. ♀♀ *taraxoides* Bellier; *virgata* Tutt; *rufo-virgata* Tutt; *venata* Standfuss; *unicolor* Tutt; *hilleri* Standfuss. Also a halved gynandromorph, left side ♂, bred Isle of Sheppey, August 7, 1842, T. Ingall (*Entomologist*, 28: 42).

A number of other aberrations have been recorded, and were described and exhibited by Bull (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 14, 22; *op. cit.*, 1939-40: 18); several of these examples are in my coll. (C.-H.).

FIRST RECORD, 1803: "*Larva in Artemisia maritima in Insular Sheppey copiose D. Curtis—alibi rarissima*" (Haworth, *Lep. Britannica*, 1: 128).

Trichiura crataegi L.: Pale Eggar.

Native. Woods, hedgerows; on hawthorn, sloe, oak, birch, Spanish chestnut, aspen. Chiefly Wealden, and mainly, if not wholly, off the chalk.

1. [Near Peckham in Kent (see *First Record*).] Birch Wood (Stephens *Haust.*, 2: 43). West Wickham, larvae, June 1856 (Machin, *Ent. week. Int.*, 1: 91). Lewisham, 1847 (Stainton, *Zoologist*, 1915). Lee, one, on a lamp, September 5, 1862 (Fenn, *Diary*); larvae, 1875 (Fenn, in *Wool. Surv.* (1909)). Blackheath, one, taken at rest on a wall (West, *Ent. Rec.*, 18: 171). Eltham, larvae, May 30, 1882 (Bower, in *Wool. Surv.* (1909)). Near Eltham, few at light (Fenn, in *Wool. Surv.* (1909)).

2. Gravesend.—1890 (R. Adkin, in Tutt, *Br. Lep.*, 2: 496); on street lamps, odd ones every year, 1903-06, two 1904 (H. C. Huggins).

3. Herne, one 1907; Faversham*, one, bred 1903 (J. P. Barrett coll.).

6. Dartford* (Donovan, *Nat. Hist. Br. Insects*, 4: 23). Cuxton* (Tutt, *Br. Lep.*, 2: 497). Longfield 1867 (Jennings, *Entomologist*, 4 (54)ii).

6a. Cockham Wood, larva on blackthorn; larvae common on white-thorn hedges at Higham* and about Chattenden, 1875 (Chaney (1884-87)). Chattenden, larva, June 9, 1890 (Mera, in Tutt, *Br. Lep.*, 2: 495); larva, 1902 (H. C. Huggins). Near Darenth Wood* (Stephens, *Haust.*, 2: 43).

8. Folkestone* (Ullyett (1880)). Brook*, about eight at light, 1954 (C.A.W. Duffield, *teste* E. Scott).

11. Bethersden, eight bred, 1928-30, bred 1940 (G. V. Bull). Hoads Wood, larvae, 1923 (Scott(1936)); larvae, 1951 (E. Scott); ♀, 1954 (W. L.

Rudland); 1957, 1959 (P. Cue).

12. Ham Street Woods.—Scott (1936); Long Rope, larva, June 17, 1939, a few off oak and Spanish chestnut, May 1948, having a small whitish parasitical ovum attached to the skin externally; imagines occasionally at light, but only ♀♀ in my experience (C.-H.); larvae commoner than usual (de Worms, *Entomologist*, **83**: 101); larva on birch, June 10, 1946 (H. King); imago, September 12, 1954 (de Worms, *Entomologist*, **88**: 61); larva on aspen, June 3, 1956 (R. F. Bretherton); ♀, at m.v., Birchett Wood, September 16, 1953 (W. L. Rudland). Ham Street Village, 1957 (de Worms, *Entomologist*, **91**: 152). Ashford, one on fence in the town, 1937 (Scott(1950)). Shadoxhurst, one, bred 1953 (le Ray, *teste* E. Scott). Willesborough, one, September 20, 1955, one, September 7, 1956; Wye, seven, September 5-14, 1953, one, September 22, 1954, two, September 1, 28, 1955, one, September 18, 1956 (W. L. Rudland).

13. Tunbridge Wells, scarce (A. D. Reed, *fide* E. D. Morgan).

14. Cranbrook, one, 1903 (Goodwin coll.). Near Woodchurch, larva, 1931 (Scott(1936)).

16. Folkestone Town, one, September 29, 1955 (R. W. Fawthrop, *teste* A. M. Morley); one, at m.v., September 20, 1957 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 43).

VARIATION.—In R.C.K. is ab. *pallida* Tutt, one, ♀, labelled "Kent, 1898 (Smart)". Also a halved gynandromorph, left side ♀, labelled "Kent, B. 30.ix.09."

FIRST RECORD, 1720: The larva "was found on an Oak near Peckham in Kent" (Albin, *Nat. Hist. English Insects*, facing pl. 82). It is not absolutely certain that this refers to *crataegi*, so that the first positive record dates from 1795: Dartford (Donovan, *Nat. Hist. Br. Insects*, **4**: 23).

Poecilocampa populi L.: December Moth.

Native. Woods, lanesides; on birch, oak, elm.

1. West Wickham (Machin, *Ent. week. Int.*, **1**: 91); four, November 23, 1947 (C.-H.). Bexley; Bromley; Erith; Lee; Crofton Park; Orpington; Eltham (*Wool. Surv.* (1909)). Chislehurst (S. F. P. Blyth); larva, May 19, 1923 (A. R. Kidner). Dartford, not uncommon (B. K. West). Petts Wood, 1946, larvae on birch, oak (A. M. Swain); two, 1947, one, 1948, one, 1949 (E. Evans). Joydens Wood (de Worms, *Lond. Nat.*, 1953: 127). Bromley, two, November 26, 1961 (D. R. M. Long).

2. Sittingbourne; Faversham; on street lamps (H. C. Huggins).

3. Herne Bay, one, c.1919 (A. J. L. Bowes). Chestfield (P. F. Harris). Canterbury, c.1948 (J. A. Parry).

5. Chevening, two, 1917 (Gillett, *Diary*). Westerham (R. C. Edwards).

6. Greenhithe (Farn MS.). Gravesend, 1922, 1925, on street lamps (F. T. Grant). Fawkham (E. J. Hare). Meopham, fairly common, November 1959-61 (J. Ellerton).

6a. Darenth Wood (see *First Record*) (E. J. Hare). Chattenden (V.C.H., 1908); larva beaten from elm, June 1, 1925 (F. T. Grant).

7. Westwell (Scott (1936)); 1954 (C.-H.); forty-three, including both sexes, at porch light, 7.45 p.m., December 2, 1955 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 49). Boxley (A. H. Harbottle).

8. Reinden Wood (Morley (1931)). Stowting (C. A. W. Duffield). Wye, several ♂♂, 1938 (C.-H.). Bridge, c. 1946 (R. Gorer). Dover (E. & Y. (1949)).

9. Margate, street lamp, November 24, 1931 (H. G. Gomm) (P. F.

Harris).

10. Brasted (R. M. Prideaux); 1912-13; larva, 1918 (Gillett, *Diary*). Sevenoaks, larva, 1919 (Gillett, *Diary*).

11. Watlington, few specimens 1895 (H. S. Fremlin); (V.C.H. (1908)). Yalding (V.C.H. (1908)). Shipbourne (Buxton coll.). Edenbridge, 1927-28, 1930, larva, 1927 (F. D. Greenwood). Hoads Wood (Scott (1936)); c. 1952 (P. Cue). Aylesford (G. A. N. Davis). Sevenoaks Weald, November 2, 14, 23, 25, 1959 (E. A. Sadler).

12. Ham Street (Scott (1936)); larvae on oak trunks in chinks of bark, May 1948 (C.-H.). Ashford (Scott (1950)). Willesborough, one, 1953, seven, 1955, four, 1956; Wye, 112, October 27-November 29, 1953, including 11 ♀♀; 36, October 31-December 1, 1954, including 4 ♀♀; 39, November 2-27, 1955; 380, November 4-December 6, 1956, including 151 on December 2 (W. L. Rudland). Willesborough, two, 1958 (M. Singleton). Orlestone Woods, three larvae, 1959 (M. Singleton and D. Youngs).

13. Pembury (V. M. Sage).

14. Sandhurst (G. V. Bull). Hawkhurst (W. A. Lawson).

16. Folkestone (A. M. Morley).

FIRST RECORD, 1828: Lanes about Darenth and Birch Woods (Stephens, *Haust.*, 2: 44).

Eriogaster lanestris L.: Small Eggar.

Resident, perhaps native. Hedgerows, woods, bushy places; on sloe, hawthorn, birch. Local and uncertain in appearance¹. Only recorded since 1923 from S.E. Kent, and apparently not observed at all since 1951.

1. Bostall Heath, batch of ova, April 23, 1865 (A. H. Jones, *teste* Fenn, *Diary*). Abbey Wood (A. H. Jones, in Tutt, *Br. Lep.*, 2: 519), probably refers to the preceding record (C.-H.). Kidbrook; Burnt Ash Lane, Lee (West, *Ent. Rec.*, 18: 171). Bexley Woods, ova on birch branch, April 8, 1871 (B. A. Bower, in Tutt, *Br. Lep.*, 2: 506). Bexley district, abundant some years (L. W. Newman, in *Wool. Surv.* (1909)). Farnborough*, 1893 (H. Alderson, in *Wool. Surv.* (1909)).

2. Minster, Sheppey, two nests, 1923 (H. C. Huggins).

3. Herne, 1903, four ♀♀, bred by J. P. Barrett (J. P. Barrett coll.).

6. Darenth Wood*, not uncommon at times in the neighbourhood of Darenth Wood (Stephens, *Haust.*, 2: 45). Between Darenth Wood and Dartford*, nine larvae June 22, 1862 (Fenn, *Diary*). Longfield, 1867 (Jennings, *Entomologist*, 4 (54) ii). Dartford*, two, bred 1888, in Br. Mus. (S. Kensington) (C.-H.). Strood*; Cuxton* (Tutt, *Br. Lep.*, 2: 519). Greenhithe* (V.C.H. (1908)). Eynsford, larvae on sloe, June 30, 1891 (R. Adkin, in Tutt, *Br. Lep.*, 2: 518) (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1898: 90; *idem*, *op. cit.*, 1904-05: 31); four, bred 1905, B. W. Adkin, in Br. Mus. (S. Kensington) (C.-H.). Wilmington*; Little Darenth* (C. Fenn, in *Wool. Surv.* (1909)). Dartford Brent* (West, *Ent. Rec.*, 18: 171).

6a. Chattenden Roughts, larvae not uncommon (Chaney (1884-87)).

8. Folkestone* (Ulyett (1880); two taken by J. W. Walton, c. 1898 (A. M. Morley). Lyminge (S. G. Hills, in Tutt, *Br. Lep.*, 2: 519). Dover (Tutt, *Br. Lep.*, 2: 519); "once found round Dover, but has not been seen for several years" (E. & Y. (1949)).

10. Sevenoaks* (V.C.H. (1908)).

11. Maidstone* (Morris, *Br. Moths*, 1: 82). Watlington (Fremlin, in Tutt, *loc. cit.*).

12. Shadoxhurst, larval nests near Shadoxhurst in 1929 and 1933 (Scott (1936)). Near Kingsnorth, larval nest on sloe, June 21, 1946 (E. Scott).

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The Costa Del Sol, April 1962

By C. G. M. DE WORMS, M.A., Ph.D., F.R.E.S.

The Costa del Sol is a stretch of coast running eastwards from Gibraltar some 70 miles to Malaga and thence further east along the foothills of the Sierra Nevada, in fact, the greater part of the southern coastline of Spain. In April 1961, Mr. J. A. C. Greenwood had a most enjoyable and profitable collecting holiday in that area (vide *Ent. Rec.*, **74**: 72) and I was so taken with the lepidoptera that he brought back, that I was tempted to follow in his footsteps a year later. My object in writing up an account of my own experiences is to record my own observations on this delightful area and to elaborate on several of his own.

I set out from London Airport at dawn on 18th April, and touched down at Gibraltar three hours later in mist and rain. A BEA 'bus connecting with the 'plane took many travellers along the coast, putting them down at intervals at various hotels, etc. We travelled through undulating country of heathland, later interspersed with orchards of lemons, oranges and figs. We covered the 45 miles in three hours to my destination, the Alhamar Hotel at Calahonda, situated on the edge of the sea in the middle of a forest of umbrella pines. This was the headquarters which Mr. Greenwood had found so congenial and productive. But I was soon to realise that I should not be encountering the wealth of lepidopterous life that he described. The day before I arrived it was so cold that there were fires in the hotel on this most southerly shore of the mainland of Europe. The first two days were very dull and cool, but I was able to explore the countryside which consisted of undulating slopes, mainly cultivated, but with a superb and rich flora with species of wild lavender and cistus, mainly on the edge of the pines. Two small ravines with steep banks ran inland crossing the very busy main coastal road. These were veritable suntraps, and were bordered by large olive groves.

In spite of dull conditions, I was struck by the abundance of *Pyrameis cardui* L., with an occasional *Colias croceus* Fourc., and *Pieris rapae* L. But it was on Good Friday, the 20th that I was able to estimate the general local population of lepidoptera, both by day and night, as for the next four days over the Easter week-end, real summer warmth prevailed, with unbroken sunshine. It was soon to become obvious that not only was the season a very late one, but that insects were far scarcer than usual in these parts, and much more so than in the previous year. Though the countryside within a mile radius of the hotel was almost a carpet of wild flowers, it was at times possible to go quite a long way in full sunshine without seeing a single butterfly or day-flying moth, a great contrast to Mr. Greenwood's experience. But during this Easter week-end, several species appeared, though never in numbers. I was pleased to find that most attractive insect, *Melanargia ines* Hffsg., fluttering somewhat sporadically on the edge of one of the small ravines and in another colony on a small hill in the vicinity. It is much paler and more lightly marked than our Marbled White, and is only found in Southern Spain and North Africa, mainly Morocco. On the way to this hilly valley on 20th April, I netted several *Euchloe belemia* Esp. which were careering mainly over the open fields with an occasional *E. ausonia*

Hbn. distinguished by its more mottled underside. Both were very difficult to catch, except when settled. It was on the small hill already mentioned, which was covered with broom bushes, that I took the first *Maniola pasiphae* Esp., just appearing with their curious habit of flitting low down in and out round those bushes which makes them quite hard to net, *Euchloe euphenoides* Stg., often so common in these southerly regions, was virtually absent, and even *Maniola jurtina* with its very bright females referable to f. *hispulla*, was quite rare.

The fine garden of the hotel and its immediate surroundings hardly yielded any butterflies, and I saw no sign of either *Lampides boeticus* L. or *Syntharucus telicanus* Hbn., apparently so numerous there in 1961, but on the various species of vetch along the seashore were flitting lots of *Polyommatus icarus* Rott. On 24th April I made an all-day excursion by motor coach, covering some 90 miles to Granada. But the tortuous road from Malaga, over the mountain passes was mostly shrouded in mist, and as we approached Granada, our view of the Sierra Nevada was obscured by cloud and rain. The famous Generalife Gardens near the Alhambra Palace did not produce any insects owing to unfavourable conditions.

On the 28th, I made another expedition to Ronda, again by coach. The winding road over the mountains, with a good many hairpin bends, was bordered with pines and slopes of flowering cistus bushes, but in spite of sunshine I hardly saw anything on the wing. Only when we were in the garden of the Hotel Reina Victoria, at Ronda, did I see several butterflies, including *Pyrameis atalanta* L., *Papilio feisthameli* Dup., now separated from *P. podalirius* L. which it replaces in that part of Spain. But both sped over the precipitous and sheer cliffs below the hotel, before capture was possible.

April ended with some fine days after an interval of dull and wet ones, and I was once more able to replenish my series of most of the butterflies already mentioned, especially as such species as *M. ines* Hffsg. and *M. pasiphae* Esp. were now more plentiful, and on my last day, 1st May, at Calahonda, *Pararge megera* L. appeared.

During my fortnight I also paid special attention to the night-flying species. The tall, bright lamps round the hotel car park and at the entrances, which shone all night and were so productive for Mr. Greenwood, were the main source of attraction, though on several occasions there were a number of visitors after dark to my bedroom lights. But I did not see anything like the abundance that he described, in fact not a single Sphingid appeared. Among the commonest moths were *Coscinia cribraria* L. in its pure white form *candida*, together with *Thera firmata* Hbn. in a very pale form, very different from that occurring in Britain. But only two *Hoplitis milhauseri* Fab. were seen, no doubt feeding on the nearby cork oaks, while the little grey *Bryophila pineti* Staud., which Mr. Greenwood said was in numbers on the pine trunks, only came very sparsely to the lights. An interesting capture at them were two examples of *Drymonia querna* Fab., rather larger than our own two Marbled Browns, and with pure white hindwings, a very handsome insect. Other moths of interest noted during the period included *Eilema caniola* Hbn., *Eriopus juventina* L., *Cleophana diffluens* Fab., and *Eumichtis adusta* Esp.; and among the geometers, *Sterrha degeneraria* Hbn. and *S. eburnata* Wocke, together with the emeralds *Chlorissa faustinata* Mill., and *C. pulmentaria* Guen., also *Dyscia*

lentiscaria Donz., and *Earophila abruptaria* Thunb. Several of the spiny larvae of *Thais rumina* L. were found crawling about in search of sites to pupate.

I spent my last day, 2nd May, at Gibraltar in glorious weather, but little was on the wing, except a few *Pararge aegeria* L., *Colias croceus* Fourc., and *Pyrameis cardui* L. on the wooded slopes of the Rock, a marked contrast to Mr. Greenwood's account of the profusion of butterflies there.

As will have been gathered, though this part of Spain is an ideal place to stay, and a first-class collecting area, I happened to strike a very lean and somewhat disappointing season of its lepidoptera.

Three Oaks, Woking. 20.ix.62.

Notes on the Larva of *Bomolocha fontis* Thunb.

By H. SYMES

For many years I have been wanting to extend my very poor series of *Bomolocha fontis* Thunb. (*crassalis* Fab.), but have always found it a difficult moth to take in good, or indeed in any, condition. Only once have I taken it in the day-time, and that was near Newbury almost thirty years ago, and a poor specimen at that. The last time I saw it was one evening towards the end of June 1954, when the late Dr. H. King took me to Boldrewood in the New Forest, where we were joined by Captain R. A. Jackson. The moth begins to fly at dusk, and I remember wandering about through the bilberry (*Vaccinium myrtillus* L.) with a net in one hand and a Tilley lamp in the other, on the lookout for a pale shape that might or might not be *fontis*, and fervently praying not to trip up over a branch that had fallen from a beech tree overhead. I netted only one specimen myself, and believe our total bag amounted to no more than four or five, and these not all in perfect condition. And so when I was considering plans for the season during the long winter months, I determined to make a real effort to find the larva this summer. For in the end this might well be the easiest way to obtain the moth, and a bred specimen must be a beautiful creature. But nobody knew anything about the larva, except the name of its food-plant. To the best of my knowledge, none of my entomological friends, past or present had ever reared the little beast, or even seen it. Strangely enough it is not mentioned in Tutt's "Practical Hints", and there is no account of it in Buckler. What are its habits? Did it hide by day low down in the undergrowth and come up to feed at night? Or did it spin the terminal leaves of bilberry together and spend most of its time there? In this case it ought not to be difficult to collect a few larvae. I now know that it does neither of these things.

On 4th September I drove to Boldrewood with the Rev. F. M. B. Carr. He told me that once, and only once, had he ever seen the imago in large numbers, but never a larva. I began by searching the bilberry, but soon found that this was getting me nowhere. To have any chance of getting the larva in this way, one would, I think, have to lie down and wriggle through the bilberry among the adders, a task only for the very youngest of entomologists. So I switched to beating, but this was a tricky business. Much of the bilberry had been cropped short, presumably by fallow deer, and it was impossible to bring the beating tray into action except in the

case of the taller plants, most of which seemed to be entangled with bracken. However, it was not long before a larva appeared in the tray. It was quite unmistakable. In rather over half an hour I got three more. By this time a succession of sharp showers had made the undergrowth sopping wet and brought my operations to an end. Meantime Mr. Carr had been beating trees of various kinds without much success, his best find being a larva of *Apatele leporina* L. in its last instar. When I showed him my modest haul of *fontis* larvae, he told me quite frankly that he had not expected me to get any at all, though he had tactfully refrained from saying so in advance. On 8th September I went back again to the same place, and beating in dryer and much pleasanter conditions I collected eleven larvae in about an hour and a half. They were well distributed over the area and there was seldom more than one larva at a time in the tray, and never more than two. Most of the bilberry was growing in partial shade. I beat without success quite the finest bush I saw, and then knocked a larva from a scruffy little plant close by.

The larva resembles that of *Hypena proboscidalis* L. very closely, but it is a brighter green than any of the latter that I have seen, and the hairs are not nearly so conspicuous as in the illustration in the old edition of "South". When full grown it is about an inch long. On landing in the beating tray it stays perfectly quiet, but when transferred to a pill box it often indulges in a series of convulsive jerks, or rushes madly round the box. If one opens the breeding cage and disturbs the larva feeding, it immediately "freezes". It feeds by day and has a very small appetite, spending most of its time sitting quietly on the food-plant. Its colour matches the bilberry leaves so perfectly that I have found it difficult to detect one, even in a small breeding cage. Though it is not a Geometrid, its movements closely approximate to those of a typical "looper". One of the larvae I obtained on 4th September spun up on the 8th in a top corner of its wooden cage, forming a whitish cocoon. As this is a late season, I think it would be safe to assume that in a normal year the larva would be full fed by 1st September. All mine were in their last or penultimate skin.

Finally a point of nomenclature. The beautiful snout is a queer enough name in English, but I have often wondered how such an attractive moth came to be saddled with its generic name, for Bomo'lochos is a perfectly good Greek word for an unpleasant lay-about who used to lurk around the altars begging for scraps from the sacrifices.

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A suspected migration of *Loxostege frustralis* Zell. (Pyralidae).

By J. S. TAYLOR

Loxostege frustralis Zell. is well known in the Karoo districts of the Eastern Cape Province where its larva, commonly called the Karoo Caterpillar, is a serious pest of the valuable and indigenous fodder-plant *Pentzia incana*, a member of the Compositae. It has been found on other indigenous plants as well and is widely distributed in South Africa, although little is known of its biology except in the Karoo. It generally occurs in large numbers after rains.

While there is karroid country within a few miles of Port Elizabeth, it is unusual to find the Karoo Moth in numbers in the town, but on the night of 27th-28th March 1962 it was invaded by countless millions of the adults of *L. frustralis*. They were first reported from shop windows in the centre of the town and from railway trucks in the harbour area. Considerable public concern was evinced; many enquiries were received and the event was even announced on the radio. Lawns and gardens were found to be swarming with the moths, which arose in clouds as one walked along the grass verges of streets and roads, while many were to be seen at rest on the walls of buildings. The moths remained abundant throughout the day but the invasion disappeared as suddenly as it had come. By the early morning of the following day only an odd individual was to be seen, although the species was still said to be plentiful on the Hume-wood Golf Course, three or four miles to the south. Moths were also reported from the inland town of Uitenhage, some twenty-two miles from Port Elizabeth, but not so abundantly. On 27th March none were seen in the Addo district, a karroid area some thirty miles to the north. However, there had been recent reports of damage from karoo districts further inland.

The moths were of both sexes, in fresh condition, and generally perfect specimens. They were certainly not of local origin.

Such sudden invasions are typical of migratory Lepidoptera, and it would seem safe to assume that *Loxostege frustralis* is a migratory species. The three British species of *Loxostege* are at least suspected of being immigrants, and one of them *L. sticticalis* L., commonly known as the Sugar-beet Webworm in America, has been reported as migrating in large numbers under certain climatic conditions there. It has also been recorded as a migrant in Eastern Russia where flights of up to 155 miles have been known.

Climatic conditions have an important influence on the incidence of *L. frustralis* in South Africa. At Port Elizabeth there had been a moderate to fresh S.E. wind (from the sea) for at least two days before the invasion; this changed to S.W. on the night of 28th March.

Box 7011, Port Elizabeth, South Africa. 30.viii.62.

Notes from the Isle of Wight

By S. WAKELY

The Island was visited by me at the week-end 23-24 June, 1962, and several of the species of lepidoptera found were of such interest that I decided to write these notes.

My main object was to visit St. Helens, where I had found numerous empty spinings of what I thought to be *Caloptilia semifascia* Haw. on maple in 1959 (*Ent. Rec.*, **71**: 279). After my experience in 1961 of finding so many spinings on maple at Cranmore which proved to be those of *Euspilapteryx pyrenaeella* Chret. (*Ent. Rec.*, **74**: 120-1), I promised myself a trip to St. Helens at an earlier date to check up the identity of the species occurring there.

Accordingly, on 23rd June, I made the journey to Ryde, where I was met by Mr. J. Lobb, and together we went to St. Helens. The date was late, but chosen deliberately on account of the lateness of the season and the fact that Mr. Lobb had reported a fortnight earlier that no spinings were visible on the maples at Cranmore.

We soon found the characteristic spinnings at St. Helens and verified that larvae were still feeding in them, so a good sample of the "cones" was collected. Moths emerged later at home from 10th to 15th July, and proved to be *pyrenaeella*, with the emergence of a solitary *semifascia* on 26th July, which date verifies the conclusion that the latter species is several weeks later in its occurrence than *pyrenaeella*. A larva of *semifascia* found at Box Hill, Surrey, this year on 21st July emerged on 29th August, and I would like to mention that *semifascia* larvae are widely distributed in the Box Hill area although the moth is rarely seen.

To return to my account of the St. Helens visit, several tortricid pupae were found in spun leaves of maple, and from these I bred *Epinotia trimaculana* Don. and one *Ptycholoma lecheana* L., but it is not possible to state that the larvae of these species actually fed on the maple.

In the afternoon we continued our Island journey via Sandown and Newport to Cranmore. Walking from the omnibus stop to Mr. Lobb's house, we found several microlepidoptera larvae of interest to me. The roadside verges had large clumps of *Pulicaria dysenteria* growing on them and we soon found larvae of the common *Coleophora troglodytella* Dup. by looking on the undersides of leaves showing the characteristic brown blotches made by the larval feeding. Many years ago I found larvae of the very local *C. inulae* Wocke at Gurnard, a few miles away, and a search was made for this local species, and it was found to be almost as common as *troglodytella*. The larval cases of these two species have several very distinct differences. The case of *troglodytella* is carried at an angle from the leaf, whereas that of *inulea* is carried parallel to, and almost touching the leaf for its whole length. The full grown *inulae* case is also double the length of *troglodytella*, but if examined against a light, the posterior end appears to be empty. A number of larvae of *C. conyzae* Zell. were also found on the same plant. The cases of this species are much more robust looking than those of the other two species.

After tea we prospected Mr. Lobb's garden where more larvae of the three *Inula* feeding species were found. Larvae of *Acrolepia granitella* Treits. were also common on the *Inula*. The fresh mines of this species are not easily discerned on the plant, but their presence can be detected readily by the little heaps of black frass ejected from the lower portion of the mine. The brown older mines are very conspicuous, but are, of course, untenanted by the larva.

After the light trap was switched on, we decided to beat the cypress trees in the garden and were rewarded by obtaining two larvae of *Lithophane leautieri* Bois. The larvae feed on the newest growths at the tips of the branches after dark, but owing to the formation of the cypress trees and the height at which the larvae feed, it is a difficult larva to obtain. Unfortunately both my larvae died when full fed some weeks later.

Larvae of *Mecyna asinalis* Hbn. were found on the wild madder (*Rubia peregrina*), a common hedgerow plant at Cranmore. In June the larvae are full fed and may easily be found after dark feeding on the tops of the new shoots; they drop readily and in dense hedgerows are more easily seen than taken.

The most interesting moth I saw among a lot of species taken that week in Mr. Lobb's trap was a specimen of *Apamea unanimitis* Hbn.

During a walk on some heathy ground near the house, a much-rubbed specimen of *Acosmetia caliginosa* Hbn. was flushed and quickly netted. It

was good to see this local species again after a lapse of nearly forty years, when I used to take it in Parkhurst Forest and also in the Cranmore area.

It is now established that *E. pyrenaeella* occurs at both ends of the Island, at localities nearly twenty miles apart, and it would not be surprising if it were found to occur in the south of the Island along the Undercliff, whence there are already old records of the occurrence of *C. semifascia*.

Genista tinctoria (Dyer's Greenweed) is a rather common plant in the Island and it grows by the roadside at Cranmore as well as on heathy ground. Seeing larval spinings on the shoots, I collected a number of these and was fortunate in breeding out one *Agonopteryx atomella* Schiff. together with a few of the very common *A. costosa* Haw. It was the first time I had succeeded in getting *atomella* as all previous efforts had only provided *costosa*.

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Yugoslavia Revisited

By RALPH L. COE

III

MONTENEGRO REVISITED—THE VILLAGE OF KOLAŠIN

The news had got around that I was leaving the following morning, and the wine-shop was crowded that evening while I was having my supper. The villagers wanted to have a last glimpse of the Englishman. Even while I was undressing later on some women were pulling aside the curtains of my open window. I blew out the candle and got into bed. But in the middle of the night I woke to find two women in my room. They had relit the candle and were making up the spare bed. I wondered what was coming next. They went out, and came back supporting a drunken man. They took off his coat and boots, pulled down the bed-clothes and pushed him into bed. Soon his snores were adding to the usual chorus of night noises. I had just settled down again to try and snatch some sleep when a cat came through the window, went berserk and clawed down the curtains, rail and all. Then it crawled under the other man's bed and began mewling. I crawled after it and put it out of the door.

Soon after dawn the bus for Zadar pulled up outside the wine-shop. I pushed my way in with the usual jostling crowd of peasants, and managed to get a seat. By the time we set off it was an almost solid jam of humanity. All along the route people were trying to scramble aboard, but it was physically impossible.

When we reached Zadar I hurried to the hotel where I had stayed earlier, and was soon enjoying a wonderful breakfast of eggs, white rolls and butter, jam and several cups of tea. Then I went to the shipping office on the quay to book a passage on the next boat to Dubrovnik, which left at midnight. But it was closed, and a notice stated that it did not open until 11 p.m. Some Yugoslav offices keep strange hours. I reconciled myself to joining in a mad rush for tickets with the usual arguments at the counter and a last-minute dash for the boat.

I spent the day sight-seeing, and towards the appointed time joined the crowd waiting outside the shipping office. The door was opened, and everyone pushed and shoved to get in first. It was a sultry night, and

by the time I had got my ticket perspiration was dripping off me. I got on the boat with only a few minutes to spare. It was a small, overcrowded vessel, very different to the spacious 'Dalmatija' on which I had travelled to Zadar. There was an immediate rush for the quite inadequate supply of deck chairs. I managed to get one and took it up on deck. But sleep was impossible with the unholy noise of children shouting and running about. Their parents made no attempt to quieten them. But they were mostly Yugoslavs, who love to turn night into day.

The boat docked at Gruž, the landing place for Dubrovnik, the following evening, and I booked a room at the Hotel Lapad for the night. Early the next morning I caught the south-bound bus for Titograd, from where I planned to travel on to Kolasin, a mountain village in Montenegro. I was going to spend a week there. The route to Titograd lay over the spiralling mountain road above the bay of Kotor, by which I had travelled two years earlier. I had vowed never to experience its terrors again, but there is no other way to the south from the west coast of Yugoslavia. This time I occupied a seat by the driver, and was given the job of handing out large envelopes to those women passengers who showed signs of imminent sickness during the dizzy climb. We breasted the pass and descended into the wild mountain fastnesses of Montenegro.

Night was falling when we arrived at Titograd. I went straight to the Hotel Grand and booked a room. I asked the clerk what time the bus left for Kolasin in the morning. He told me 7 o'clock. I checked this with the hotel porter. He said it would leave at 5 o'clock. So I went out and enquired at the bus station, where I was told 6 o'clock. In Yugoslavia it is often a problem to find the correct time of buses. People pretend to know simply in an effort to please. This habit makes travelling to a fixed plan very difficult at times.

When I reached the bus stop in the morning, several buses were standing there. I asked a driver which one went to Kolasin. He pointed to one that was nearly full, and I got on. But while my luggage was being strapped to the roof I found that it was not going there at all. I jumped out, reclaimed my cases, and managed to scramble on the right bus just in time.

Soon after leaving Titograd the road divided. We took the left-hand fork, and quickly climbed into the mountains. It was an exciting journey, with the road winding and twisting and at times skirting some fearsome precipices. Gradually the bare and rugged scenery gave way to beautiful green hills and valleys.

As we approached Kolasin the road surface deteriorated, and a fine white dust was thrown up by the wheels. When I unpacked my cases later on I found that everything in them was coated with a thick layer.

It was late afternoon when we stopped outside the small timber-built hotel in the village. I booked a room without any difficulty. The only other guests were several Yugoslav army officers. Kolasin only boasts the one hotel. I was very comfortable there. My bedroom was simply but adequately furnished. The food was good, and unexpectedly varied for so remote a locality. There was a spacious terrace with ornamental fish-pools, and a grand view of the countryside.

Kolasin is indeed a delightful little village, and ideal for a quiet holiday. It lies in a green valley among picturesque scenery. Through it flows the broad Tara river. All around rise the majestic Bjelasica mountains, their slopes covered with ancient forests of pine, beech and

other trees. There are rich upland meadows carpeted with wild flowers. Wherever I wandered during my stay I was always discovering fresh scenes of beauty.

The waiter who served me at tea was an extraordinary man. Unlike most Yugoslavs he had blond hair, which hung over his shoulders. As he walked across the room he waggled his hips, and while serving me at table he was always putting on exaggerated postures. He was a complete misfit among the rugged men of Montenegro.

I set off the next morning for my first day's collecting. Crossing a long wooden bridge that spanned the river, I went on along a rough road that led to the mountains. I passed a straggling procession of peasants coming the other way. Some had their donkeys with them, laden with panniers of farm produce and sometimes carrying the oldest member of the family besides. It was market day in Kolasin, and most of these people had set out hours earlier from their homes in the surrounding hills. For a mile or so the road hugged the steep river bank to the left, while on the right there rose an almost vertical face of rock. Then I came to a place where the hills receded, and a flowery meadow ran up from the roadside. I clambered up to it and started collecting.

The meadow was alive with insects. There were conical ant-heaps, and over these were hovering some uncommon Syrphidae that I had not come across before in Yugoslavia. They were *Chrysotoxum vernale* Loew, *C. elegans* Loew, *Microdon mutabilis* Linnaeus and *Eumerus tricolor* Meigen. Sweeping low vegetation produced a series of both sexes of a new species of Psilidae, *Psila strigata* (Collin, 1959, *Entom.*, 92 : 241).

By midday I had made a fine haul. I sat down and began pinning away the specimens into small boxes. Suddenly a little black dog came running up, seized my net and started to worry at it. I jumped up and tried to drag the net away, but the dog held on tightly with its teeth, growling menacingly. Then I heard a shrill whistle, and looking round saw a young boy standing a few yards away. The dog let go, and ran back to him. A cow was placidly munching away at the grass on the lower slopes of the meadow. The boy came shyly up, and holding the dog by its collar, watched me pinning my specimens. When I had put my boxes away in my haversack, he sat down beside me and from a tattered satchel slung round his waist brought out a school book. It had pictures of animals, birds and insects with their names printed below in Yugoslav. He wanted me to give him a lesson in English, and handed me a pencil and a piece of paper. He pointed to a picture, and I wrote down the English word for the object. This he laboriously copied out, and then held it out to me for my approval. I glanced up and saw that the cow, with the innate curiosity of its kind, had joined our small group. The dog licked it affectionately on the face. The cow put out its long tongue and licked the dog's face in turn. They were a trio of really good companions.

After they had left, I started climbing a wooded hill above the meadow. I was pushing my way through a tangle of vegetation when suddenly there was a terrific commotion and a soldier with rifle held high above his head came leaping down from a steep bank and landed almost on top of me. As I stood there, tense and shaken, more and more soldiers came dashing by. With them I recognised some of the officers who were staying at my hotel. The soldiers were on manoeuvres all the time I was at Kolasin, and after this first frightening encounter I became used to

them appearing from all sorts of unexpected places. When I started walking back along the road a lorry full of them stopped and the driver signalled to me to jump on. I accepted the lift and held tightly on to the side while he tore along at a reckless speed over the uneven surface with the wheels at times only a few inches from the big drop to the river. I was relieved when we reached Kolasin.

A couple of miles out of the village there was a wonderful old forest where I collected several times. It covered the lower slopes of a steep mountain. Amongst the trees there were some enormous beeches of great age, their trunks almost hidden by masses of tangled moss. The ground beneath them was rotten and with treacherous fissures hidden by a thick layer of decayed vegetation. Down the mountain-side meandered an almost dried-up stream, bordered with masses of wild flowers, its deep bed composed of slimy rocks over which water still trickled.

Sweeping along the course of this stream resulted in the capture of as many as thirty-six species of Mycetophilidae. These were *Macrocera centralis* Meigen, *Mycomia cinerascens* Zetterstedt, *M. prominens* Lundstroem, *Neoempheria lineola* Meigen, *Boletina basalis* Meigen, *Leia bimaculata* Meigen, *Exechia fusca* Meigen, *Rhymosia rustica* Edwards, *R. excogitata* Dziedzicki, *Allodia alternans* Zetterstedt, *A. triangularis* Strobl, *A. verralli* Edwards, *A. sericoma* Meigen, *Brachypeza armata* Winnertz, *Cordyla brevicornis* Staeger, *C. murina* Winnertz, *Trichonta vitta* Meigen, *Phronia signata* Winnertz, *P. vitiosa* Winnertz, *Dynatosoma major* Landrock, *Zygomomyia valida* Winnertz, and no fewer than fifteen species of *Mycetophila*. The Empididae were represented by *Oedalea stigmatella* Zetterstedt, *O. zetterstedti* Collin, and *Rhamphomyia nigripennis* Fabricius. During this exciting spell of collecting I was plagued by the persistent biting of the mosquito, *Aedes geniculatus* Fabricius.

I did not see any of the wild animals that roam about these old forests, although more than once I heard a heavy body crashing through the undergrowth. There are bears, wolves and wild bears in many of the larger Yugoslavian forests, but they are so accustomed to being hunted that they usually keep well out of the way.

(To be continued.)

Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

Confirmation of the Irish status of *Homoeosoma nebulella* Schiff. In his "List of the Microlepidoptera of Ireland" (*Proceedings of the Royal Irish Academy*, 1941, 64) Beirne gives three records for this moth; Wicklow coast and Malahide and Howth, all Birchall 1866, and states that these are probably correct, but confirmation is desirable.

In "*British Pyralid and Plume Moths*", p. 86, he says it has been found on the east coast of Ireland and probably is more widely distributed in that country. So far as I am aware, these rather ancient records of Birchall's are the only ones to date, at least I have not been able to trace any others. It was therefore with considerable pleasure that I found a perfect specimen of *nebulella* in my mercury vapour trap at Dingle on 12th July 1962. My friend Dr. Beirne always held, and I agree with him, that though careless and apt to trust too much to his memory, Birchall was far more reliable than Donovan considered, and quite a number of

his records have been confirmed of recent years, such as *Sterrha muricata* Hufn.

It was, however, very unexpected to find *nebulella* on this peat formation; had it been on the sand at Brandon Bay, Inch or Smerwick, I should have been less surprised. I have always found it associated with a light soil, mostly on the brecks of East Anglia, in the Isle of Wight on chalk, and also once at Faversham in Kent on gravel. The moth has, in my experience, become in recent years a good deal rarer than formerly. Before the 1914 war it was common in the Tuddenham district; it was easy to flush a dozen or so by day when working for *Scopula rubiginata* Hufn., and in 1920 I saw it there again.

In 1926 the late Sir John Fryer wrote and asked me to help him in obtaining the larva of *H. cretacella* Rössl. in quantity if possible. He was then working in the laboratory at Harpenden on the problem of obtaining an insect to send to New Zealand to destroy the seed heads of the imported ragwort, which was becoming a dangerous pest, and explained to me that all the larvae he could get in East Anglia turned out to be *nebulella*, which was inadmissible for introduction as it showed too much tendency to become a general feeder. When I began again to work East Anglia generally and the Brecks in particular from 1933 onwards with my late friend W. S. Gilles, *nebulella* had become a scarce moth, and we seldom found more than one in a year, and since the 1939 war, I have not seen it. I have no doubt other collectors have taken it at mercury vapour light there but it can no longer be kicked up casually in a short time.

The casual importation of insects. On 12th June 1962 I was sitting reading in my front room when I felt some insect on my face. I flicked it off and was amazed to see a perfect specimen of *Laspeyresia conicolana* Heylaerts which I promptly captured and set. As there are no firs here I could not account for it at all, until my wife told me that when we had visited Wisley on 18th May she had picked up four cones from the ground and, on our return, had put them on a shelf in the room. I have little doubt the one that settled on me was not the only one to emerge, and had there been firs handy a new colony might have started.

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A Short Account of *Emus hirtus* L. in Britain

By A. A. ALLEN, B.Sc.

Emus hirtus L. is our most spectacular Staphylinid and rare enough to have been regarded, at most times, as one of the greatest prizes that can fall to the collector's lot. Reaching a length of 30 mm. or thereabouts (though of course many specimens are much smaller), and broad and stoutly built, it is unmistakable by its clothing of long, dense parti-coloured pile of black, grey, and golden-yellow; and is bound to attract the attention of even the non-coleopterist. Were it more common it would certainly merit a popular name—the obvious one being 'the bee rove-beetle' from its general resemblance on the wing (except only in the matter of shape) to a large *Bombus*. Since it flies freely in hot sunshine, and is altogether more diurnal in habits than our other large Staphylinids*, it is as likely to be so encountered as in any other way.

*With the exception, perhaps, of its closest allies *Creophilus* and *Ontholestes*.

The beetle is attracted to fresh cow- and horse-dung from late May to July as a rule, but mostly in June—very seldom in autumn—and the chance of meeting with it (almost always remote) is greatest if the weather be warm and bright.

Its British distribution has always been most restricted, with two centres, outside of which only occasional captures have been reported—as for instance at Redruth, S.W. Cornwall (autumn, 1881), and Guildford, Surrey (twice). These and other odd finds may be the result of casual immigration from the Continent; but in its two 'centres' in Hampshire and Kent there can be no doubt that it is, or was, truly resident. Curiously enough the other intervening county of Sussex appears to be without a record, so far at least as I am aware.

Whether *Emus* still survives in its old haunts in the New Forest is more than doubtful, in fact I am of the opinion that it became extinct there during the latter part of the last century. Fowler (1888, *Col. Brit. Isl.*, 2: 248) wrote, ' . . . it appears to be found at intervals, and probably occurs there every year in small numbers', but mentioned only one captor, George Lewis. The lack, however, of records from that time on, when the Forest continued to be worked with undiminished zeal by our most active and experienced collectors, hardly admits of any interpretation but the one I have suggested. As the peak period of the species in its Kentish headquarters was yet to be attained, the reason for this decline remains quite obscure. I remember Mr. W. H. Janson telling me that his grandfather, the late E. W. Janson, used to get it—mainly, I believe, on the 'lawns' at Brockenhurst—by following the horses; and I have in my collection a fine example captured by him near Lyndhurst (1.vi.1871). One was taken by G. C. Champion in late June of the same year 'just under the edge of some fresh cow-droppings amongst heath', and another by Lewis at Lyndhurst (10.vi.78). I have seen no later record than this for the Forest. It is strange, in view of Fowler's statement, that more specimens are not extant in our older collections from that source, but probably some of those without data originate from it.

The Kentish stronghold of *E. hirtus* is more extensive, yet occupies only a narrow (estuarine) strip along the middle of the northern edge of the county, comprising a small part of both vice-counties: Rochester, Chatham, Chattenden, Gillingham, Grain, Sheppey, Sittingbourne, Faversham. For some of these places the records go back to early times; but all relate to single or very few captures only (as far as is known) up to 1909, when the 'new era' of comparative plenty was inaugurated with the finding of sixteen specimens by the late Dr. Malcolm Cameron under the edges of fresh cow-dung on the Harty Marshes, Isle of Sheppey. In subsequent years series were obtained at Port Victoria and in another part of the Isle of Grain by several collectors—Donisthorpe, Harwood, Bedwell *et al.* (the last-named took it almost regularly over a number of years on numerous visits, though in very varying quantity). By 1948, if not before, it appeared to have vanished from the Port Victoria locality—a field near the hotel, where it occurred on and under horse-dung—at least, Donisthorpe and I failed to find it there that year; but only a few years earlier it was still being taken rather freely in one or two cattle-pastures on the Grain marshes by my friend Dr. A. M. Masee. Here again, however, a determined hunt for it in ideal conditions in June 1950 was fruitless (so that at any rate the oil-refinery installations on the 'island', established

some time afterwards, can hardly be held to blame for its disappearance!). Its further history is of sporadic examples from time to time in such places as Faversham Marshes, though my information here is vague—the records being unpublished; but one was certainly taken there only a few years ago. The capture of a specimen (in 1950) on the north bank of the Thames, at Benfleet, S. Essex, is of interest in being the first outside Kent for many years. It was found running amongst grass, and had probably strayed across the estuary.

At present, therefore, *Emus* has reverted to its earlier status of a highly erratic rarity. It is to be hoped that the recession is only temporary, so that, given a run of good seasons (with which I suppose we shall again be favoured *some day*) coleopterists of this and later generations may experience the same thrill as did those of the past in their first meeting with so fine a beetle.

The virtual restriction of such a powerfully flying insect to a short and narrow strip of North Kent seems extraordinary. Why, for instance, is it absent from the favoured and well-worked eastern strip from Thanet to Dungeness, where the climate is at its most 'continental', and which receives the highest proportion of immigrants?* Even within its chosen area it must be extremely local at any given time and place, seeming confined to one or two fields out of a multitude of equally suitable ones; for during its period of maximum frequency I made a number of visits to the Isle of Grain and worked for it in perfect conditions, covering a considerable area, but in vain—not then knowing its precise location in the district.

What is known of the biology of the species sheds little light on the problem. It has been recorded on the Continent as preying on dung beetles of the genus *Onthophagus*. One of these, *O. vacca* L., abounds throughout the Thames-Medway estuary area, but is widely dispersed over England; while in the New Forest the common species are *O. similis* Scriba (= *fracticornis* auct. Brit.) and *O. ovatus* L. It is very likely, however, that *Emus* does not limit itself to species of *Onthophagus* but will feed also on other dung beetles such as *Aphodius*. The larva has, almost certainly, never been recognised in this country. It may be remarked that the fresh dung which attracts the adults very seldom contains any Scarabaeids, these as a rule arriving considerably later; the first beetles to arrive are usually other Staphylinids and *Sphaeridium* spp. Dr. Masee told me that it is surprising how an *Emus*, having suddenly dropped from the air on to a cow-pat so fresh as to be practically liquid, and plunged into its depths, will after a few moments emerge at the side with its handsome coat spotlessly clean.

Mention should be made of the very early records by Curtis for Devon (locality unspecified?), Dorset (Parley Heath), Surrey (Coombe Wood and Guildford), and Norfolk (Beachamwell). There seems no reason to doubt them, but whether the insect occurred regularly or in numbers at any of the places is not, apparently, known.

I would add in conclusion that any unpublished record of this very interesting rove-beetle would be most welcome; and that if any reader living in or often visiting the part of Kent above indicated should be so fortunate as to turn it up, I should be grateful to hear from him.

*It has been found plentifully about Boulogne (see Lewis, 1879, *Ent. mon. Mag.*, 16: 90).

Notes and Observations

LAPHYGMA EXIGUA HB. IN EAST DEVON.—Among the few visitors to my light trap last night was a specimen of *Laphygma exigua* Hb. in poor condition.—F. H. LYON, Sampford Peverell, Tiverton. 9.ix.1962.

LAPHYGMA EXIGUA HB. IN SURREY.—Since my previous note in the June/July issue, I have taken six more examples of this species at m.v. in my garden. One on the evening of 28th June, two, 24th July, and one each on 29th and 30th July, and again on 1st August. On each occasion, *Nomophila noctuella* Schiff. was present.—E. A. SADLER, 1 New Farm Cottages, Knowle Lane, Cranleigh, Surrey. 5.ix.1962.

COLIAS CROCEUS FOURC. AND PYRAMEIS CARDUI L. IN IRELAND.—I have just returned from a short holiday in Co. Cork, and think it is of interest that I saw a specimen of *Colias croceus* at Lough Ine, near Skibbereen, on 5th September. On the next day I saw one *Pyrameis cardui* at Kilbrittain, Co. Cork. On both occasions, a light south wind was blowing. I gather that these immigrants are not common in Ireland.—Rev. PETER HAWKER, Cherry Willingham Vicarage, Lincoln. 11.ix.1962.

HETEROGRAPHIS OBLITELLA ZELL. IN KENT.—A single fresh ♀ of this scarce Phycitid was taken by me on 1st August on the edge of Stoke Saltings, a wild and desolate extent of saltmarsh situated between Rochester and the Isle of Grain. It appeared flying amongst *Halimione portulacoides*, and was attracted to my Coleman lamp. I have only once previously taken this species, a ♂ in 1956, in similar type of terrain, on the south side of the Isle of Sheppey (cf. *Ent. Rec.*, 68: 246).—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent.

CRAMBUS CONTAMINELLUS HB. AND ITS AB. STICHELI CONSTANTINI IN KENT.—I was very pleased and not a little surprised this year to find a strong colony of this local species virtually on my doorstep. The first specimen was noticed on 2nd August, and a few examples were still about and in fairly good condition when I last visited the locality on 2nd September. The colony occurs on a small stretch of dry flat sandy ground where the grass grows quite short, but I suspect there may be other colonies in the neighbourhood as I have taken odd specimens at places some distance away, including one on a gas-lamp. The moths fly freely at dusk, and may be found at rest at night on the short grass stems, and also come readily to light; and shortly after dusk on 13th and 16th August, in rather warm and windless conditions, they were noted in abundance in this restricted area.

Compared with Deal examples, West Wickham *contaminellus* are appreciably dusky, and Mr. Huggins, to whom I sent a series, tells me that the form is the same as that which occurs on Tresco, Scilly Isles. Many of those that occur at West Wickham are "liver-coloured", as Mr. Huggins calls them, but amongst the ♀♀, in particular, there quite frequently occur paler specimens of a rather dark putty colour; on the other hand, three ♂♂ were taken that are completely black, ab. *sticheli*.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent.

SPILOSOMA LUTEA HUFNAGEL AB. *TOTINIGRA* SEITZ IN SURREY. — On the morning of 10th August last I found in my light trap here an extremely aberrant male *Spilosoma lutea*—head, thorax and abdomen entirely black, hindwings black except for a little buff at the base, forewings black except for the veins and a small central area. It was, unfortunately, a little rubbed and lacking in fringes. Baron de Worms has pointed out to me that it is almost identical with the specimen of ab. *totinigra* Seitz caught by Mr W. Reid in Sheffield in 1951 and figured and discussed by Dr. Cockayne in this journal (*Ent. Rec.*, 63: 266 and Plate VIII, fig. 1). That was the first recorded British specimen, and I know of none since. On the Continent the form originated in Heligoland, but Dr. Cockayne regarded its connection with the well-known ab. *zatima* Cramer, from the same place, as doubtful or at best obscure. He thought that its appearance in Sheffield might have been due to a local mutation and that, if that were so, more might be taken in future. Its appearance at Ottershaw is perhaps the more remarkable because the usual form of *S. lutea* here is very pale, with a tendency towards obsolescence of the black markings. Of the two thousand which have passed through the trap since 1950, I have not before this noticed any with enough melanic tendency to be worth keeping.—R. F. BRETHERTON, Ottershaw, Surrey. 9.ix.1962.

HERSE CONVULVULI L. AT MORECAMBE.—A short note on the front page of to-day's edition of our local weekly newspaper, the *Morecambe and Heysham Visitor*, announced that "An unusual moth striped like a tiger and with a three-inch wingspan was found by Mr. Richard Brisco, of 75 Windermere Road, Lancaster, in rubbish at the North Western Electricity Board yard at Woodhill Lane, Morecambe, on Monday (10th September). He brought it to the *Visitor* office for identification. Lepidopterists can see it there". I duly went to see it, and found it to be a female *Herse convolvuli* L., in surprisingly good condition considering it had been kept alive in a small tin box for two days. Records from North-West England are few, the last to my knowledge being Dr. N. L. Birkett's report of one at Kendal on 9th August 1960 (*Ent. Rec.*, 72: 197).—C. J. GOODALL, 2 Derwent Avenue, Morecambe, Lancs. 12.ix.1962.

Current Literature

THE MACROLEPIDOPTERA OF WILTSHIRE, Baron de Worms, 1962, xv + 177 pp. + 10 plates: Wiltshire Archaeological and natural History Society. This would seem to be the first local list for Wiltshire to cover the whole county, and the task of collating the smaller lists and published and unpublished records represents no mean task. There are several very efficient entomologists resident in the county, some of them of very long standing, who have worked well together to produce this very well-produced list.

After a foreword by Mr. Egbert Barnes, the president of the Society, we have eleven pages of an enlightening Introduction, with sub-headings such as General Ecology, Analytical Review of the County Macrolepidoptera, Division of the County, Nomenclature, Aberrations. Acknowledgments, Photographs and Map.

The treatise of insects follows and each species is accorded brief but succinct mention including country and county status, distribution in the county, and notes of any special aberrations encountered. The first plate is the county map which forms the frontispiece, and the remainder, with the exception of a normal *Celerio livornica* Esp., illustrate gynandromorphs and aberrations encountered in the county.

Finally there is a table summarising the number of species in each family found in the north vice-county, the south, and in the whole county, showing the appropriate percentages of the number on the British list. 646 species of macrolepidoptera are mentioned from the county. There is also a bibliography of publications cited, and indices of both scientific and of popular names.—S. N. A. J.

BULLETIN ET ANNALES DE LA SOCIÉTÉ ROYALE D'ENTOMOLOGIE DU BELGIQUE, 98, Fasc. III, consists of part II of S. G. Kiriakoff's work on the Notodontid *Pydna* and allied genera, with four plates illustrating 65 species.

ALEXANOR 2, part 6, 1962. J. T. Betz opens with an article on partial and total melanism. Jean Bourgogne contributes four articles, two of them on current literature; the one covering P. C. Rougeot's *Les Lepidopteres de l'Afrique noire occidentale*, Fasc. IV, J. F. Aubert's *Papillons d'Europe* and G. Cola's *Guide de l'Entomologiste*; the other dealing with two Japanese publications: *Iconographia Insectorum Japonicorum*, Vol. I, Lepidoptera, by Hiroshi Inone and Masao Okano, and *Butterflies of Formosa in Colour*.

The others deal with the locality Pralognan-la-Vanoise and the Entomological Year 1961. G. Varin writes on *Erebia medusa* auct. in the Parisian basin, and C. Dufay continues his account of French moths not mentioned in Lhomme's catalogue, with a plate showing 23 insects. A continuation of H. Marion's revision of the Pyraustidae deals with *Scoparia* of the *ambigalis* group. Jean-Marie Fontenau discusses Corsica in August, and C. Herbulot mentions some Geometridae of Llanos de Urgel (Aragon) citing 42 species. Under the title of Interesting Captures, A. Dumez mentions *Hydraecia leucographa* Borkh. on 19.ix.1961 at Poce sur Cisse, Indre et Loire and *Mesographe itysalis* Wlk. from Ailefroide, Hautes Alpes, vii.1961. R. Levesque writes on collecting in Andorra, Alain Crosson du Cormier and Pierre Guerin write on *Boloria aquilonaris* Stichel in Southern Poland, and P. C. Rougeot gives an account of *Lycaena dispar* Haw. on the Oise.—S. N. A. J.

ENTOMOLOGISCHE BERICHTEN, 22, No. 9, 1.ix.1962. P. H. van de Pol writes on light traps, P. van de Wiel on Dutch beetles, and G. L. von Eindhoven on mites. Chas. S. Pall describes a new American Histerid beetle, *Saprinus mayhewi*, and other American Histeridae.—S. N. A. J.

We regret the late appearance of this issue. It is due to the sudden illness of our Editor, who is in hospital. Happily he is making good progress and expects to resume his editorial duties soon.—J. M. C.-H.

15. Bonnington, nest, June 8, 1922 (G. V. Bull). Military Canal, larval nest, 1951 (E. Scott). Near Warehorne, July 18, 1948 (E. Scott).

FIRST RECORD, 1797: "Caterpillars are not very common . . . especially in Kent" (Donovan, *Nat. Hist. Br. Insects*, 6: 74).

¹The moth has been known on the continent to remain in the pupal stage for one, two, three, five, six, and seven years (cf. Becker *teste* Newman, *Entomologist*, 1: 229), a characteristic that may to some extent account for this behaviour.

Lasiocampa quercus L.: Oak Eggar.

Native. Woods, commons, lanesides, chalk downs and cliffs, etc.; on oak, sloe, broom, bramble, hazel, ash, elm, maple, *Hippophae rhamnoides*. Recorded from all divisions. Though still fairly frequent, especially in the woods of the Weald and Blean area, it appears to be generally less plentiful than formerly, the decrease being particularly noticeable in div. 1. Few records for 4, 9, 15. "Generally distributed but getting scarcer" (V.C.H. (1908)).

There do not appear to be many instances on record of the species having occurred plentifully during the present century. In the Dover district, it is stated that in 1921, larvae were abundant on bramble over a wide area, the imago appearing in thousands, but that it has been fairly scarce there ever since (E. & Y. (1949)); and at the other end of the county, at Keston (div. 5) in 1922, larvae were noted in abundance on herbage (F. A. Swain). At Edenbridge (div. 11), a dozen or more ♂♂ were attracted to bred ♀♀ in 1933 (F. D. Greenwood; and in Old Park, Canterbury (div. 3), larvae were abundant on broom, c. 1944 (J. A. Parry). Larvae were fairly common at Fawkham (div. 6) some ten to fifteen years ago, and particularly so in 1951 (G. G. E. Scudder); and at Long Rope, Ham Street; about a dozen ♀♀ were attracted to light, end July 1951 (C.-H.).

1. Lewisham district, 1894: "Formerly abundant as larvae; now a day's work within a radius of ten miles from Lewisham would hardly yield a dozen" (Fenn, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1898: 60).

The only recent records for this division are:—Farningham Wood, two larvae, September 1930; young larva on hazel, September 27, 1934 (A. R. Kidner). Wilmington, two, bred 1939 (S. Wakely); still there (L. T. Ford, *in litt.*, x.1952). Elmstead Woods, one, August 1, 1946 (D. F. Owen). Dartford, larvae not uncommon most years throughout district (B. K. West, *in litt.*, 1952). Joydens Wood (Owen, *teste* de Worms, *Lond. Nat.*, 1953: 128).

4. Ham Marshes, one, August 5, 1889 (Fenn, *Diary*). Deal, larvae on *H. rhamnoides*, June 11, 1908; larvae, May 9, 1909 (P. A. Cardew, *Diary*).

9. Nash Court, ♀, July 20, 1925 (H. G. Gomm, *Diary*). Westgate, full-grown larva, c.1929 (C.-H.).

15. Dungeness, one taken, 1953 (R. Pank, *teste* A. M. Morley). Greatstone, larva on *H. rhamnoides*, June 1958 (Wakely, *Ent. Rec.*, 71: 94).

VARIATION.—The following abs. from Kent are in R.C.K.:—♂♂ abs. *curvata* Tutt, several, N. Kent; *latovirgata* Tutt, several, N. Kent; ab. with "elongated discoidal spot", one, N. Kent; *basipuncta* Tutt, N. Kent; *marginata* Tutt, one, "Folkestone, Aug. 1934, L. W. Newman", one, "Dover, 1896 (Morgan)". ♀♀ abs. *virgata* Tutt, several; *rufescens-virgata* Tutt, several; *ochracea-virgata* Tutt, one, N. Kent; *ferruginea* Lambillion, two, N. Kent.

Newman (*Ent. Rec.*, 10: 48) records an ab. bred 1896 from Darenth larva, "the forewings being entirely of a dull smoky colour, the transverse bar being also dull brown, . . . hindwings are of a very distinct pale brown"; Colthrup (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1902: 102) exhibited a ♂ bred from a Deal larva, "with splashes of yellow, or epaulettes, at base of forewing"; and in Br. Mus. (S. Kensington) is a ♀, labelled ab. *olivacea-fasciata* Cockll., Herne Bay, A. West (C.-H).

FIRST RECORD, 1794: Darenth Wood (Donovan, *Nat. Hist. Br. Insects*, 3: 84).

L. trifolii Schiff.: Grass Eggar.

Native. extinct. Chalk downs; on "trefoil".

6. Near Darenth Wood (see *First Record*); formerly taken in tolerable plenty by Lewin, but has not occurred in the neighbourhood of late years (Stephens, *Haust.*, 2: 40).

Ssp. flava Tutt.

Native, Shingle beach; on broom, *Hippocrepis comosa*, "dock", "clover", *Arrhenatherum elatius*. Local in 15.

[8. Folkestone.—"Cocoons under stones in Warren; in August. I do not know to what other species these can be referred" (Knaggs (1870)) ("Dover" (V.C.H. (1908)) may be based on this record). Doubtful if *trifolii* (C.-H.).]

[9. Ramsgate, common (Stainton, *Man.*, 1: 153). Probably erroneous (C.-H.).]

15. The range of *flava* in Kent extends from Greatstone to the Sussex border. It is restricted to the shingle, is chiefly maritime, and does not appear to extend inland for more than about 2 miles. Its headquarters are evidently at Dungeness and the immediate vicinity, and it has been taken principally about the level-crossing, the Open Pits, lighthouse, and the bird sanctuary.

First recorded from Romney Marsh [Dungeness] by R. Mitford, who states that he found larvae there in May 1866, "feeding in the tufts of a very wiry grass growing in the shingle above high water mark" (cf. Bond, *Proc. ent. Soc. Lond.*, 1867: lxx; Bond, op. cit., 1871: xxxix); and since noted by many other observers but until the late 1920's the locality appears to have been known to only a few. The place of capture on labels of old specimens is usually disguised as "Romney Marsh" or "East Kent", and there are many such examples in Hope Department, R.C.K., and Goodwin coll., dating back to 1871, 1896, 1903, 1909-17. Several of these are labelled "Dover", doubtless in error (they were probably received from Sydney Webb, who resided at Dover, and hence assumed to have been taken there); and a few others are labelled "Deal", also doubtless in error.

Imagines, mostly ♀♀, often occur at light, but are usually not very numerous; de Worms (*Entomologist*, 70: 80, 92: 73) however, states that it was plentiful at light, August 18, 1936, August 30, 1958. On the other hand, ♂♂ will assemble freely, and occasionally in great abundance; thus, A. J. L. Bowes (*Diary*) records that on the night of August 17, 1936, he saw 150 ♂♂ assemble to a freshly emerged ♀. It is interesting to note, incidentally, that Kettlewell (*Ent. Rec.*, 49: 45) found the habit of assembling at Dungeness to be quite different from that of *trifolii* in Cornwall.

The larva is chiefly found on a dwarf form of broom. It has also been noted on *H. comosa* (Symes, *Ent. Rec.*, 66: 288); on "grasses, dock, and clover" (A. J. L. Bowes, *in litt.*); and on *A. elatius*, by E. C. Pelham-Clinton, who writes (*in litt.*) that he noted many on this, June 6-7, 1950, mostly at night and feeding on the flower-heads. Although larvae are normally found singly, and often scattered over wide stretches of shingle; comparatively large numbers have sometimes been located within a relatively small area. Thus, on June 16, 1951, for half an hour before dusk, I noted about forty nearly full-fed larvae within an area of roughly 20 yards square; such concentrations, however, do not appear to constitute permanent colonies (C.-H.).

E. Scott informed me (*personal communication*, 1953) that the larva appears to have priority as a diet for the fledgling of the Wheatear; and that this habit of the Wheatear feeding larvae of *trifolii* to its young, was first noticed by the late bird warden Major Elliot.

VARIATION.—Tutt (*Br. Lep.*, 3: 10) distinguishes as *ab. flava*, a pale yellow form with distinct dark, transverse, pale-edged band. The form is fairly variable *inter se*, and a number of modifications have been named:—*ab. obsoleta-flava* Tutt, without any markings; *ab. pallida-flava* Tutt, with indistinct pale band between the lines; *ab. contracta-flava* Tutt, with median band constricted or interrupted. Tutt (*loc. cit.*) grouped the above abs. together as belonging to a "distinct yellow race", which he said "appears to be confined to the coasts of Kent and Sussex, between Rye and Lydd"¹, and added that it had not been noted from any other part of the Palaearctic region.

The majority of Dungeness specimens are pale fulvous, *ab. mitfordi* Ob.; and nymotypical *flava* is relatively uncommon. *Ab. obsoleta-flava*, a striking *ab.*, is comparatively rare, being approximately 1% only of the population, and of which the two examples I possess are both ♂♂. In a number of specimens in my series, there is a tendency for the ground to become fawn-grey, particularly in the ♀♀, and in this respect apparently resembling *cervina* Tutt (C.-H.).

In R.C.K. is a very large series of ♂♂ and ♀♀ from Kent, referable to *flava* Tutt (*sens. lat.*), including the following:—♂♂ *ab. pallida-flava* Tutt, fourteen, including one, "Romney Marsh", bred September 1903, "larva from S. G. Hills", and one, "East Kent, Aug. 9, 1917; L. W. Newman"; *obsoleta-flava* Tutt, twenty-one, including one, "Romney Marsh", bred July 1912, C. W. Colthrup, and one, "1896, Romney Marsh, bred", S. Webb; *contracta-flava* Tutt, eight; "*ab. contracta*", two, Romney Marsh, 1911, one, Romney Marsh, 1912; "*contracta* with elongated spot", one, "Romney Marsh, 9.8.1910, B. W. Adkin", one, "Romney Marsh, 1911". ♀♀ *ab. pallida-flava* Tutt, numerous; *cervina* Tutt, fifteen; *obsoleta-flava* Tutt, seven; *contracta-flava* Tutt, twenty-two. Also a gynandromorph, right side ♀, "East Kent, August 1923, L. W. Newman".

A number of other abs. and abnormal examples have been recorded (cf. *Proc. S. Lond. ent. nat. Hist. Soc.*, 1898: 89; 1919-20: 88; 1931-32: 91; 1932-33: 107; 1945-46: 30. *Ent. Rec.*, 26: 166. *Ent. mon. Mag.*, 8: 190). Also, a gynandromorph, exhibited by Eagles, bred from larva found by Bull at Dungeness (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1932-33: 108); and an intersex, bred from larva collected, 1949, exhibited by Christie (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1949-50: 25).

FIRST RECORD, 1793: "The larva feeds on trefoil, pupates in June, the imago coming forth the latter end of August. These larvae are to be met with on the uncultivated grassy chalk-hills of Kent, particularly near Darenth Wood; they secrete themselves under stones in the day, and come forth to feed in the evening" (Lewin, *Trans. Linn. Soc.*, 3: 3, pl. 2, figs. 1, 2). "In 1790 I kept two pupae" . . . which produced *Inchneumon chrysopus* Marsham (Lewin, *op. cit.*, 4).

¹But it appears that the range does in fact extend as far as Eastbourne; and in R.C.K., is a ♂ *ab. obsoleta-flava*, "Eastbourne, Sharp, 1909".

Macrothylacia rubi L.: Fox.

Native. Chalk downs and banks, woods (especially amongst heather), coastal sandhills, waste places, rough fields, etc.; on *Helianthemum chamaecistus*, *Poterium sanguisorba*, Wild rose, "heath", *Hippophae rhamnoides*. Recorded from all divisions, except 2, 10-11, 14 (probably present in at least the last three). Frequent in 3-8, 12-13, 15; rare or extinct in 1; few records for 9, 16. "Generally distributed, sometimes common" (V.C.H. (1908)).

Obs.—Folkestone, 1892, larvae in enormous numbers, nearly all with conspicuous white ichneumon eggs attached (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1892: 75). Deal, larvae on *H. rhamnoides* (Westwood, *per Ent. mon. Mag.*, 13: 168). North Downs, larvae on heath, etc. (F. T. Grant). Wye, hoards of larvae, autumn, 1895 (Theobald, *Ent. mon. Mag.*, 32: 39). Long Rope, Ham Street, two ♂♂ at m.v., May 30, 1950 (C.-H.).

1. Shooters Hill (Stephens, *Haust.*, 2: 39). Birch Wood (Courtney, *Entomologist*, 1: 227). Abbey Wood, one, May 14, 1864 (Fenn, *Diary*) (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1898: 60). Dartford Heath, C. Fenn; Keston, W. Barnes; Eltham, formerly common, A. H. Jones; Shooters Hill, W. West (*Wool Surv.* (1909)). [West Wickham; Keston; Hayes (de Worms, *Lond. Nat.*, 1953: 128), want confirmation].

9. Between Margate and the River Stour (H. C. Huggins).

16. Folkestone (A. M. Morley).

VARIATION.—The following abs. from Kent are in R.C.K.:—♂♂ *abs. ferruginea* Tutt, one, "Folkestone, bred 6.1903", one, N. Kent, bred 1931; *ferruginea-unilinea* Tutt, one, "Shoreham, Kent, H. H. Clarke, 3.6.11". ♀♀ *abs. pallida* Tutt, four; *grisea* Tutt, three; *labicans* Cockayne, paratype, "North Kent, vi.1919"; *cervina-approximata* Tutt, E. Kent, 1917, bred L. W. Newman.

FIRST RECORD, 1828: Stephens, *loc. cit.*

Philudoria potatoria L.: Drinker.

Native. Marshes, ditches, lanesides, woods, etc.; on *Phragmites communis*, *Calamagrostis [epigejos]*, *Carex paniculata*. Recorded from all divisions, except 9. Fairly plentiful, particularly in 2, 4, 15; but apparently extinct in 1. "Generally common, abundant at some places" (V.C.H. (1908)).

Although generally a species of wet environment, it is stated (Tutt, *Br. Lep.*, 3: 176) that around Chattenden Woods, the larvae abound in the long grass growing on the inside of all hedges in quite dry situations; and according to Stockwell (in Tutt, *op. cit.*, 3: 177), typical habitats at Dover, are hedgerows, thickets, copses, and banks.

The larva is frequently found on Reed (*P. communis*); it was also noted plentifully on *Calamagrostis*, in a ditch at Cliffe, June 11, 1939 (A. R. Kidner); and on *Carex paniculata* near Hothfield Lake, autumn 1954 (E. Scott). Occasionally, the larvae are noted in extreme abundance; thus, Courtrice (*Ent. mon. Mag.*, **4**: 37) records that at Folkestone, in 1867, they might have been "gathered literally by pints".

1. The species has not, to one's knowledge, been observed in this much-worked division for over 50 years, a remarkable fact considering the number of references to its widespread occurrence here between 1860 and 1896, of both larvae and imagines. Tutt (*Br. Lep.*, **3**: 167, *et seq.*) gave the following localities: Lee, Lewisham, Erith, Bexley, Eltham, Kidbrook, and Burnt Ash. Also recorded from Sydenham (Sellon, *Ent. Rec.*, **2**: 164) (Buckle and Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1898: 60); Farnborough (Alderson, in *Wool. Surv.* (1909); and Bexley district, common (Newman, in *Wool. Surv.* (1909)). In the spring of 1909, Sperring found larvae at Shooters Hill (*Ent. Rec.*, **22**: 13); its last known appearance in the division.

VARIATION.—The nymotype is the commonest form of the ♀ in Kent, but ab. *lutescens* Tutt is frequent; and ab. *diminuta* Tutt is probably the commonest form of the ♂, though many ♂♂ that I have seen might be called nymo-typical (according to the description of the ♂ type of *potatoria* as fixed by Lempke)¹. In my series are several ♀♀ abs. from Sandhurst, bred by G. V. Bull, two of which closely approach typical ♂ coloration, also one of an unicolorous pale brown which is perhaps referable to ab. *inversa* Caradja. A ♂ ab. *berolinensis* Heyne, taken by me at light, Ham Fen, near Deal, July 2, 1955, is only the third yellow ♂ to have been noted in the county (C.-H.).

Newman (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1897 (2): 149; *Ent. Rec.*, **10**: 48) described and exhibited a ♂, bred from among 600 larvae taken at Darenth, 1896, as "of yellow coloration, somewhat similar to that usually found in the ♀s, the antennae, also, are of the same colour"; and Ovenden (*Ent. Rec.*, **18**: 18) recorded that from a larva found in the Rochester district, he bred in 1905, a ♂ of "the coloration of the lightest ♀s".

In R.C.K. are the following abs.:—♂ ab. *lilacina* Cockayne, paratype, E. Kent, 1929, L. W. Newman. ♀ abs. *berolinensis* Heyne, several, Dymchurch, 1932; *lutescens* Tutt, several; *obscura* Closs, one, Deal, bred 1938; *obsoleta-potatoria* Tutt, one, Bexley, 1903.

A number of other abs. have been recorded (cf. *Entomologist*, **24**: 223, **26**: 50, **69**: 133, **72**: 241; *Ent. Rec.*, **2**: 203; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1891: 130, 1910-11: 141, 1931-32: 88; Tutt, *Br. Lep.*, **3**: 161-162).

FIRST RECORD, 1828: "Sundridge, Kent, in plenty" (Ingpen, in Stephens, *Haust.*, **2**: 52).

¹Cf. Lempke, in *Ent. Rec.*, **62**: 1-11, for much valuable information on the variation of this species; also, Cockayne, in *op. cit.*, **62**: 65-66.

Gastropacha quercifolia L.: Lappet.

Native¹. Hedgerows, bushy places, orchards, marshes; on blackthorn, hawthorn, apple, dogwood. Not usually a plentiful species, but markedly more numerous some years.

Obs.—Newman (*Ent. Rec.*, **12**: 219) states that in Kent, he normally found larvae early in April, low down on the stems of blackthorn, that they were always on the young wood, and particularly favoured hedges

that had been cut down, or a bank where there were young suckers among grass. He added that he had occasionally found it on apple, once on dogwood, but that the principle foodplant is blackthorn.

1. Recorded from many localities in this div. Recent records are:— Bexley (Edwards, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1944-45: 13). Dartford, fairly common throughout district (B. K. West). Petts Wood, both sexes frequent at light, 1947-49, scarcer 1950 (E. Evans). West Wickham, 1951 (E. Trundell). Footscray, larvae, 1949 (J. F. Burton). Orpington, 1954 (L. W. Siggs); four, 1957 (R. G. Chatelain).

2. Gravesend, larva and imago; Faversham, larva (H. C. Huggins). Dartford (B. K. West).

3. Herne, ♂, bred 1903, J. P. Barrett (J. P. Barrett coll.). Herne Bay, occasional; July 22, 1936 (A. J. L. Bowes). Eddington, as many as three or four at light in a night, c. 1950 (D. G. Marsh). Whitstable (P. F. Harris). Broad Oak, ♂, at light, July 21, 1938, larva on apple, c. 1940, ♂, at light, July 22, 1951 (C.-H.).

4. Deal; Ham; Sandwich; single specimens (E. & Y. (1949)). Ickham, quite plentiful at light (D. G. Marsh, *in litt.*, 1962).

5. Westerham (R. C. Edwards).

6. Springhead (E. Andrews, in Chaney (1884-87)). Greenhithe (Farn MS.). Gravesend, larva and imago (H. C. Huggins); larvae on stems of sloe, April 12, 1914, larva, May 9, 1919, larva, April 5, 1926 (F. T. Grant). Ryarsh, larvae, 1934 (J. Fremlin). Eynsford (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 33, 1934-35: 10). Pinden, common (E. J. Hare).

6a. Darenth Wood (see *First Record*). Chattenden, larva, 1904 (Ovenden, *Ent. Rec.*, 16: 159).

7. Westwell, ♂, July 7, 1945, very common, mid July 1946 (E. Scott) (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 168).

8. Folkestone Warren (Knaggs (1870)); one, July 30, 1946 (R. Fairclough, *teste* A. M. Morley). Brook; Wye (C. A. W. Duffield). Dover, one, 1954 (B. O. C. Gardiner). River, one (E. & Y. (1949)).

9. Ramsgate (Willson, *Entomologist*, 23: 139). Margate, larvae, 1901 (Colthrup, *Ent. Rec.*, 13: 306); 2 ♂♂, bred 1905, ♂, bred 1907 (J. P. Barrett coll.); larva on hawthorn, June 18, 1931 (H. G. Gomm, *Diary*).

10. Sevenoaks, 1949, at light (F. D. Greenwood).

11. Tonbridge (Raynor, *Entomologist*, 6: 79). Yalding; Maidstone (V.C.H. (1908)). Bethersden, larva (Scott (1936)). Aylesford (G. A. N. Davis). Sevenoaks Weald, one, July 1, 1960 (E. A. Sadler). Hoads Wood (P. Cue).

12. Sellinge, imago, 1930, larva, 1931 (Serpyll, *teste* A. M. Morley). Mersham and Kennington, larvae (Scott (1936)). Wye, one, July 10, 1953, three, July 21-August 19, 1954, none, 1955, one, July 23, 1956; Willesborough, two, July 21-24, 1954, one, July 18, 1955, four, July 22-August 15, 1956 (W. L. Rudland). Ham street, one, July 20, 1934, by W. O. W. Edwards, one, July 11, 1947 (A. M. Morley). Orlestone Woods, one, July 22, 1938, about 12 ♂♂ at m.v., July 6, 22, 27, 1951 (C.-H.). Ashford (P. Cue).

13. Southborough (M. M. Phipps, in Knipe (1916)). Tunbridge Wells, on lamp-post, August 1948 (R. Crowson, in Morgan, *Lepidoptera of Tunbridge Wells* MS.).

14. Hawkhurst; Sandhurst (G. V. Bull). Hawkhurst, three, 1952 (B. G. Chatfield). Iden Green, two at light, 1951 (H. Boxall).

15. Dymchurch, 1952 (Wakely, *Ent. Rec.*, **65**: 43). Appledore, August 6, 1956 (W. L. Rudland). Dungeness, 1955 (de Worms, *Entomologist*, **89**: 93); one, 1957 (Haxby, *teste* A. M. Morley).

16. Folkestone, cocoon found in gooseberry bush, by D. Smith, May, from which ♀ emerged, July 9, 1945 (A. M. Morley); 3 ♂♂, 1951 (Morley, *Ent. Rec.*, **64**: 170); ♂, July 23, 1952, two, 1954, one, 1958, one, 1960 (A. M. Morley).

VARIATION.—A ♂ taken by me at Orleston Woods, 1951, is almost mark-
ingless, lacks the normal violet gloss in the marginal area, and the
darkness towards the costal margin, and may be transitional to ab. *pallida*
Spuler (C.-H.). In a ♂ ab., taken by R. G. Chatelain, Orpington, 1957,
the markings are very pronounced and blackish.

The following abs. are in R.C.K.:—♂ abs. *purpurascens* Tutt, two,
Kent; *suffusa* Tutt, three, Bexley; *hoegei* Heuacker, one, "Kent, 1918".

Also in R.C.K., are two remarkable melanic ♀♀, labelled "North Kent,
bred vii.1954, R. L. E. Ford", which may be described as having the upper
and undersides strongly suffused with blackish-grey, markings outlined
darker, but with cilia of more or less normal coloration (C.-H.).

FIRST RECORD, 1798: Darenth Wood (Donovan, *Nat. Hist. Br. Insects*, **7**:
43).

¹One noted on N. Goodwin Light Vessell, 7 miles off Ramsgate, August 2, 1954
(T. Rouget, *teste* French, *Entomologist*, **88**: 129) suggests migration.

BOMBYCIDAE

Endromis versicolora L.: Kentish Glory.

Native, extinct. Open woodland heaths; on birch. Recorded from 1,
6, 6a, 10-12.

Apart from a few doubtful reports, the Kentish Glory has not been
seen in the county since 1861, is now certainly extinct, and has probably
been so for a very long time. It formerly occurred on heather-birch
terrain in central and west Kent, and its range extended from Ashford
in the east to well into the metropolitan area. So far as can be judged, it
appears to have been generally fairly scarce.

Early Records.—The earliest recorded occurrence is to be found in
Wilkes (*120 Copper Plates of English Moths and Butterflies*, 41), who
wrote: "The Glory of Kent . . . was found about the Middle of April, 1741,
flying in a Wood in the Day-time, near Cookham, by Westram in Kent.
It was taken by William Constable". The only other reference to the
species in Kent during the 18th century is that of Donovan, who in 1796
(*Nat. Hist. Br. Insects*, **5**: 63-64) made the following observation: "We
cannot hesitate to suppose that this Moth has been found in England
several times, particularly in Kent, but none of these remain at this
period in the collections of the curious".

19th Century Occurrence.—J. P. Neale (*Trans. ent. Soc. Lond.* (1812),
1: 324-5), who appears to have made quite a study of the species, wrote:
"The larva of Bombyx Versicolor here delineated was beat off the Birch in
Darent wood, near Dartford in Kent, June 6th, 1805, . . . the perfect
insect . . . appeared 20th of March following, . . . a Collector has since had
two of the same, both of which came forth crippled". "From that to
the present period I have continued to search for more Larvae of this
Moth; but my endeavours were ineffectual till the spring of 1810, when

in the same wood I beat another". "The two before alluded to were taken in the same wood, and a third (a female) by another person".

In 1828, Stephens (*Haust.*, 2: 34) stated that for several successive years he found the larva at Darenth-wood; in Dale coll., according to Walker (*Ent. mon. Mag.*, 45: 107), there is a ♀, labelled: "Old Standish, 1820, Darenth Wood"; and Edward Newman (*Ent. Mag.*, 1: 319) observed that in 1832, about mid-April, he saw numbers of ♂♂ on the heathy common on the south side of Birch Wood. No further mention of the species in Kent appeared until 1857, when Stainton (*Ent. week. Int.*, 2: 10) wrote in reply to a correspondent: "We have known the larva of the insect to be taken at Dulwich Wood [probably just over the border in Surrey], but that was before the Crystal Palace came to its present locality . . . Birch Wood and Darenth Wood are probably now the *nearest* metropolitan localities". Possibly by this time however, *versicolora* had already become extinct at these two places, for Stainton does not include them among the localities for the species in his Manual.

In Maidstone Museum are two ♂♂, each labelled as having been bred from "ovum found at Watringbury in 1859 by the late R. H. Fremlin". The history of these insects was given by S. G. Reid, who wrote (*S. E. Nat.*, 1904: 51): "My friend Mr. R. H. Fremlin informs me that he found a batch of 15 to 20 eggs . . . near Watringbury, many years ago, all of which were successfully bred, the perfect insects being given away to friends. There is I believe no subsequent record of the occurrence of this fine species in this neighbourhood, and Mr. Goodwin has recently taken freshly emerged females up to the woods where the eggs were found without any 'assembly' resulting, so that it is probably extinct at the present date".

What appears to have been the last authentic occurrence of *versicolora* in Kent, took place at Ashford in 1861. On April 5 that year, J. Dowsett wrote (in *Ent. week. Int.*, 10: 35): "A capture of this splendid insect was made here by a friend of mine at the beginning of this week; it flew to the gas-light between 8 and 9 p.m., and he has given it to me".

[West Wickham Wood, one flying, May 3, 1867; identification very uncertain (Blackburn, *Ent. mon. Mag.*, 4: 42). In 1916, C. H. Williams (*Proc. Lond. nat. Hist. Soc.*, 1916: 20) exhibited a series stated to have come from Sevenoaks, no further particulars were published however, and if genuine Kentish specimens, they were presumably very old.]

FIRST RECORD, 1773: Wilkes, *120 Copper Plates of English Moths and Butterflies*, 41.

[(**Bombyx mori** L.: Mulberry Silkworm.

Doubtless an escape.

1. "Mr. J. Jenner Weir exhibited a specimen of *Bombyx mori* L., bred from a cocoon found by him on a mulberry tree growing in his garden at Beckenham, Kent, and remarked that the cocoon was placed against the trunk, and had not the usual loose silk around it He had made every possible inquiry to ascertain whether any one in the neighbourhood had been rearing silkworms, but no one appeared to have been doing so". It was remarked that the wings of the specimen were fully developed, which was not usual with those reared in captivity; Mr. South adding, that in Japan there were two forms—a domesticated one and a wild one (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1891: 135).]

SATURNIIDAE

Saturnia pavonia L. (*carpini* Schiff.): Emperor.

Native. Woods, commons, bushy places, heaths, waste places, etc.; on bramble, sloe, birch, hawthorn, hazel, oak, "sweet briar", elder. Mainly distributed in north and west Kent; apparently scarce and of rather uncertain appearance.

Note.—Not included by Scott (1936, 1950) for the Ashford district; nor by Embry and Youden (1949) for the Dover and Deal areas; and apparently extinct in the Folkestone area.

1. Birch Wood (Anon., *Ent. Mag.*, 3: 309). West Wickham, ten ♂♂ assembled, April 18, 1857 (Barrett, *Ent. week. Int.*, 2: 29). Farnborough (Alderson, in Tutt, *Br. Lep.*, 3: 339). Keston (Colthrup, in Tutt, *loc. cit.*). Hayes Common, ♀ (W. A. Cope). Lee, bred 1861 (Fenn, *Lep. Data MS.*). Near Bromley, ♀ at light, April 24, 1868 (Jenner-Fust, *Ent. mon. Mag.*, 5: 24). Pauls Cray Common, larvae on birch, June 15, 1889 (Fenn, *Diary*). Chislehurst, pupa, cocoons spun on heather, October 11, 1891 (Bower, in Tutt, *Br. Lep.*, 3: 335). Eltham, 1880 (A. H. Jones, in Tutt, *Br. Lep.*, 3: 319). Plumstead (West, in Tutt, *Br. Lep.*, 3: 339). Abbey Wood, 3 ♂♂ assembled, 1952 (A. J. Showler). Upper Belvedere, ♀, 1952, ♂, 1954 (R. G. Rigden, *teste* A. J. Showler). Bexley, 1893 (Lathy, in Tutt, *Br. Lep.*, 3: 337); common (L. W. Newman, in *Wool. Surv.* (1909)). Dartford Heath, April 25, 1870 (Bower, in Tutt, *Br. Lep.*, 3: 335); not uncommon, 1909-10 (H. C. Huggins).

2. Gravesend (H. C. Huggins); brood of larvae on sloe, June 1946 (B. K. West). Stone Marshes, one half-grown larva found on hawthorn, June 2, 1952 (J. F. Burton).

3. Canterbury* (Morris, *Br. Moths*, 1: 92). Blean, brood of larvae on sloe, 1922 (L. T. Ford); odd imagines (J. Shepherd). Calcott, ♀, April 17, 1949; Broad Oak, ♀, taken flying at dusk at edge of wood, May 21, 1950 (C.-H.). Rough Common, Canterbury, one, c. 1947 (A. G. Mackonochie). Swalecliffe, one (J. Shepherd). South Street, Whitstable, larvae on bramble, many ♂♂ assembled (P. F. Harris); several in P. F. Harris coll., labelled, Whitstable, 1942-47 (C.-H.).

6. Rochester district*, not common (Chaney (1884-87)). Otford (Newman, in Tutt, *Br. Lep.*, 3: 339). Greenhithe* (V.C.H. (1908)). Gravesend, ♀, May 6, 1912, thirty-one larvae, August 2, 1913, two ♂♂ assembled April 29, 1914, thirteen larvae on sloe, June 11, 1915, ♂ assembled, May 5, 1916, batch of ova on sloe, May 18, 1925 (F. T. Grant). Longfield (Jennings, *Entomologist*, 4 (54), ii); ♀, at street light, April 15, 1949, ♀, April 17, 1952 (G. G. E. Scudder). Pinden, larva occasionally (E. J. Hare). Cuxton* (Tutt, *Br. Lep.*, 3: 339). Stone* (Bower, in Tutt, *loc. cit.*). Fairseat, one, April 9, 1961 (J. Ellerton).

6a. Darenth, larvae on blackthorn, June 18, 1861 (Jones, *Ent. week. Int.*, 10: 187). Chattenden, larval nest on hazel, June 21, 1884 (R. Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 42); larva on oak, June 1, 1896 (Bower, in Tutt, *Br. Lep.*, 3: 319).

7. Sittingbourne, larva; Faversham, larva (H. C. Huggins).

8. Folkestone Warren, larvae on bramble (Knaggs (1870)). Folkestone*, two larvae on sweet briar, 1892 (Russell James, *Entomologist*, 26: 50); young larvae, May 1897 (Lane, in Tutt, *Br. Lep.*, 3: 337); ♂ seen, Canterbury Hill, May 7, 1928, ♂ seen, Golf Course, April 30, 1932, both by A.M.M., one, seen by E. C. Joy, May 7, 1933 (A. M. Morley).

10. Brasted, July 6, 1901 (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1901: 22). Near Sevenoaks, ♂♂ assembled (W. A. Cope).

13. Tunbridge Wells Common, larvae, 1913 and 1918 (H. Hockey, *teste* E. D. Morgan) (W. A. Cope). Groombridge, larvae on elder, August 3, 1888 (Blaber, in Tutt, *Br. Lep.*, 3: 319).

16. Lower Sandgate Road, Folkestone (Knaggs (1870)); larvae swarming on bramble bushes "in the hollow past the turnpike gate" (Ullyett (1880), 10).

VARIATION.—The following abs. from Kent are in R.C.K.:—♂♂ abs. *lutescens* Tutt, one, N. Kent, 10.v.1909, L. W. Newman; *subobsoleta* Tutt, one, Bexley, bred 1942, one, N. Kent, bred May 1927; *ochraceofasciata* Schultz, several; *decorata* Schultz, one, N. Kent, 1905, L. W. Newman; ab. "inner wavy line hind wing obsolescent", one, "R. H. Rattray, Kent, 11 May 1914". ♀♀ abs. *trans. ad rosacea* Newnham, several; *flavomaculata* Schultz, one, "Bexley, bred March 1912, L. W. Newman". Also, ab. *nigrescens* Cockayne, holotype ♀, Tunbridge Wells, 1878, J. A. Clark (*Entomologist*, 42: 319, 84: 245; and presumably the one exhibited by J. A. Clark at Haggerstone Ent. Soc., November 1886, and recorded in *Young. Nat.*, 7: 248).

A gynandromorph, mostly ♂, N. Kent, May 4, 1909, in R.C.K., is probably the one described as a partial gynandromorph, Bexley, 1909, which was recorded and exhibited by L. W. Newman (cf. *Ent. Rec.*, 21: 185; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1909-10: 78).

FIRST RECORD, 1836: Birch Wood (Anon., *Ent. Mag.*, 3: 309).

DREPANIDAE

Drepana binaria Hufn.: Oak Hook-tip.

Native. Woods, parkland, etc.; on oak. Frequent in 1, 6a, 10-14.

Obs.—Imagines of the second generation were particularly plentiful at m.v., at Orlestone Woods, the end of July 1951, including many ♀♀ (C.-H.). The larva has been recorded as having been found on oak, Sidcup, October 14, 1912 (A. R. Kidner).

3. Whitstable (P. F. Harris). Blean Woods (D. G. Marsh). Eddington, ♀, September 7, 1945; Broad Oak, ♀, at light, September 9, 1945 (C.-H.).

4. Ickham (D. G. Marsh).

5. Westerham (R. C. Edwards).

6. Gravesend, one, 1910, at street lamp, one, 1912 (F. T. Grant). Fawkham, one larva (E. J. Hare).

7. Wigmore Wood (Chaney (1884-87)). Long Beech Wood (Scott (1936)). Westwell, 1951, 1953 (E. Scott). Boxley (A. H. Harbottle).

8. Reinden Wood (Knaggs (1870)). Wye* (Scott (1936)). Stowting (C. A. W. Duffield). Woolwich Wood (E. & Y. (1949)).

15. St. Mary-in-the-Marsh, one at car lights, July 31, 1948 (P. le Masurier). Dungeness, one, August 5, 1959 (R. G. Chatelain).

16. Folkestone Town, at m.v., three, August 20-25, 1951, three, July 30-August 18, 1953, three, May, three, August 12-September 2, 1954, three, August 6-29, 1955, three, August 3-8, 1959 (A. M. Morley).

VARIATION.—Second generation specimens occur more frequently in my experience, and are noticeably smaller and darker, being referable to gen. aest. *aestivaria* Lempke. A ♀ of the spring form, Ham Street, June 5, 1954, has al. expanse 36 mm. (C.-H.)

FIRST RECORD, 1835: Birch Wood (J. Standish, in Curtis, *Br. Ent.*, 555).

D. cultraria F.: Barred Hook-tip.

Native. Woods, particularly those on chalk; on beech. Frequent in 6, 7.

Obs.—It appears that the imago very occasionally comes to sugar, a single instance of this having been noted at Chatham (Esam, *Ent. Rec.*, 7: 90). The larva has been recorded as having been beaten from beech at Shoreham (S. F. P. Blyth); also five larvae on beech, Culverstone (div. 6), October 10, 1922 (F. T. Grant).

1. West Wickham (Wells, *Ent. Rec.*, 3: 35). Bexley, scarce (V.C.H. (1908)). Keston, one imago and several larvae beaten, September 1951 (W. A. Cope). Orpington, 1954 (L. W. Siggs). Greenwich Park, one, August 10, 1953 (J. F. Burton). Bromley, several at m.v., 1960-62 (D. R. M. Long).

5. Chevening, several, May 8-26, 1912; 1918 (Gillett, *Diary*). Westerham (R. C. Edwards).

6a. Knights Place (Pye, *Rochester Nat.*, 1896: 2 (51), 352).

8. Dover, 1900 (Stockwell, *Entomologist*, 34: 26); one, 1954 (B. O. C. Gardiner); one, September 9, 1962 (G. H. Youden). Cooting Down, near Barham, ♀, May 13, 1930 (Morley (1931)), Barfrestone; Kearsney; Whitfield (E. & Y. (1949)). Wye; Brook (C. A. W. Duffield). Chilham, June 10, 1951 (W. D. Bowden).

10. Seal (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1905-06: 41); one, on fence, 1913 (Gillett, *Diary*). Brasted, occasionally at light (R. M. Prideaux); larva, 1916 (Gillett, *Diary*). Westerham (Carr and Turner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1924-25: 107); 1934 (J. L. Atkinson). Sevenoaks, 1946 (F. D. Greenwood). Knole Park, one imago, August 24, 1956 (A. A. Allen).

11. Watlingtonbury, fairly common (V.C.H. (1908)). Aylesford (G. A. N. Davis).

12. Chartham (P. B. Wacher). Wye, one, June 11, twelve, August 11-26, 1953; one, May 27, one, August 4, 1954; one, June 8, three August 18-24, 1955; one, May 28, 1956 (W. L. Rudland). Ashford, May 19, 1954 (P. Cue).

13. Tunbridge Wells district (Cox, *Entomologist*, 4 (62), ii).

14. Tenterden, one (Beale, *Zoologist*, 4130). Cranbrook, one, 1956, taken by D. Streeter (C.-H.).

16. Sandling Park, taken by D. Saunders, 1929 (Morley (1931)).

VARIATION.—Second generation specimens apparently occur more frequently than those of the first brood, and are noticeably smaller and darker, being referable to gen. aest. *aestiva* Speyer.

FIRST RECORD, 1853: Tenterden (Beale, *Zoologist*, 4130).

D. falcataria L.: Pebble Hook-tip.

Native. Woods, commons, etc.; on birch, alder. Fairly plentiful, particularly in the Weald, and recorded from all divisions, except 5 (probably present), 15; once only from 9, where it is perhaps casual. "Generally distributed and not scarce" (V.C.H. (1908)).

Regularly double-brooded, imago appearing May-June and again in August. In 1961, Long (*Ent. Rec.*, 73: 133) recorded one at Bromley, April 17.

The larva has mostly been found on birch. S. Wakely took larvae at West Wickham, 1927-30, on alder as well as on birch; and M. Enfield states that he found a colony of *falcataria* in 1959, in a small alder wood at West Ashford (div. 12).

9. Margate (P. F. Harris).

VARIATION.—Rather variable, particularly with regard to the ground colour. In a ♂ and ♀ that I have, taken Ham Street, July 29, 1946, and end July 1951 respectively, the ground is of an unicolorous deep brownish-ochreous, similar to that of *D. harpagula* Esp.; in another ♂ and ♀, from the same locality, taken May 1950, June 15, 1951, respectively, the ground is abnormally pale, having forewings of a pale straw, hindwings almost white, and may be referable to ab. *pallida* Stephens; the latter two specimens contrast strongly with a ♂, also from Ham Street, taken June 5, 1954, in which there is dark fuscous suffusion, especially on the forewing (C.-H.).

The following abs. and named forms from Kent are in R.C.K.:—ab. *ochracea* Lamb., *gen. vern.*, four; *tenuistrigaria* Lempke, *gen. aest.*, several; ab. *infernalis* Hoffmann, one, Bexley, bred 1906; "diaphanous" ab., 3 ♀♀, N. Kent, one ♂, Bexley.

FIRST RECORD, 1834: Darent and Birch Wood (Stephens, *Haust.*, 4: 6).

D. curvatula Borkh: Youden's Hook-tip.

Vagrant?

8. Dover.—A single ♀ taken by G. H. Youden in m.v. trap in his garden, August 13, 1960. From this, D. G. Marsh obtained ova, and in October 1960, twenty pupae, from which three imagines emerged, November 1960, and twelve others, April 17-25, 1961. Altogether 2 ♂♂, 13 ♀♀ were bred, a number of which were exhibited at S. Lond. ent. nat. Hist. Soc., October 28, 1961, and there first recognised by C. G. M. de Worms as *curvatula* (Youden and Marsh, *Ent. Rec.*, 74: 44, pl. 1, figs. 1-6).

FIRST RECORD, 1960: Dover (G. H. Youden).

D. lacertinaria L.: Scalloped Hook-tip.

Native. Woods, heaths; on birch. Frequent in 1, 6a, 10-12; apparently rather uncommon in 3-8, 13-16; probably casual in 15. "Generally distributed and not scarce" (V.C.H. (1908)).

3. Between Milsted and Canterbury* (Morris, *Week. Ent.*, 3: 285). Blean, several, 1902-04 (J. P. Barrett coll.); two, bred 1934 from larvae (J. L. Atkinson). Bysing Wood (H. C. Huggins). Sturry, one, 1915, larvae on birch, August 23, 1919, from which three reared 1920 (H. G. Gomm). Herne, one, May 17, 1942 (P. F. Harris). Eddington, occasionally at light (D. G. Marsh).

4. Ickham, one, July 28, 1956 (D. G. Marsh).

5. Downe (de Worms, *Lond. Nat.*, 1953: 131).

6. Longfield (Jennings, *Entomologist*, 4 (54), ii). Culverstone, twelve larvae on birch, September 18, 1924 (F. T. Grant). Eynsford (Blair, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 33). Shoreham, larvae, 1940 (H. E. Hammond). Fairseat, July 30, August 12, 1960 (J. Ellerton).

7. Park Wood, near Rainham (Chaney (1884-87)). Westwell, August 6, 1945, May 21, 1953 (E. Scott).

8. Folkestone* (Ullyett (1880)). Denton (Morley (1931)). West Wood, one, May 5, 1933 (A. M. Morley). Bridge, c. 1946 (R. Gorer). Waldershare (E. & Y. (1949)).

13. Tunbridge Wells, one, 1958 (L. R. Tesch, *vide* C. A. Stace).

14. Tenterden (Beale, *Zoologist*, 4130). Sandhurst (G. V. Bull). Hawk-hurst, singletons, 1952-53 (B. G. Chatfield).

15. Dungeness, ♀ at m.v., August 3, 1951 (C.-H.).

16. Folkestone Town, one, August 30, 1951, one, August 21, 1952, one, August 5, 1957, several, August 7-September 4, 1958, several, August 1959-60; all at m.v. (A. M. Morley).

VARIATION.—Schulze (*Berl. ent. Zeitschr.*, **57**: 118-119, pl. 3, figs. 10-12) described and figured ssp. *tacoraria* on the basis of 3 ♂♂, West Wickham, May 14, 1896, 2 ♀♀, Darenth Wood, May 17, 1896. The main distinguishing features appear to be its small size; and in ♂♂, absence of dark freckling, and lack of subterminal line on forewing. Note:—In my series of Kent spring brood *lacertinaria*, which includes 4 ♂♂, 1 ♀, from West Wickham, in addition to specimens from other localities; al. expanse of ♂♂ is 30-33 mm., and of ♀♀, 33-35 mm.; in more than half the number of ♂♂, there is considerable dark freckling on forewing, and in many the subterminal line is fairly clearly indicated; two ♂♂, West Wickham, May 1951, are fairly strongly dusted with silvery-grey, and thus seem to approach ssp. *scincula* Hübn. in appearance (C.-H.).

In R.C.K. is ab. *erosula* Lespeyres, ♀, "Bred Fordwich, Vaughan sale", ♂, North Kent, July 1922.

FIRST RECORD, 1834: Darenth Wood (Stephens, *Haust.*, **4**: 5).

Cilix glaucata Scop.: Chinese Character.

Native. Hedgerows, woods, bushy places; on hawthorn, bramble. Found in all divisions. Fairly plentiful, and apparently well distributed throughout the county. "Generally common" (V.C.H. (1908)).

On the basis of light captures alone, specimens of the aestival brood normally appear much more numerous than those of the darker vernal generation *obscurata* Lempke.

Gillett (*Diary*) records breeding an imago, March 29, 1918, from a larva taken at Chevening on hawthorn; the larva has also been taken by A. A. Allen, at Blackheath, on bramble as well as on hawthorn.

FIRST RECORD, 1860: Dartford Heath (Allchin, *Ent. week. Int.*, **7**: 188).

ARCTIIDAE

NOLINAE

Nola cucullatella L.: Short-cloaked.

Native. Bushy places, hedgerows, wood-sides, orchards, gardens; on sloe, hawthorn, apple, plum. Fairly frequent, and found in all divisions.

I have frequently beaten the larva in fair numbers from sloe and hawthorn, but do not often see the moth, the only times being occasionally at m.v., and once on a fence beside a hawthorn (C.-H.). H. C. Huggins states that he has noted imagines sometimes swarming on plum trunks in orchards at Faversham. A. M. Morley has mostly observed imagines at m.v., but never in large numbers, also one at rest on a horse chestnut, at Folkestone. F. T. Grant records a larva in a garden at Gravesend on apple, May 24, 1926.

VARIATION.—In R.C.K. is ab. *fuliginalis* Steph., several, "England, Kent, Bexley, R. L. E. Ford, 1954". I have two extreme examples of *fuliginalis*, in which the ground is unicolorous blackish, bred by H. J. Turner, Brockley, 1890 (C.-H.).

FIRST RECORD, 1859: Tenterden (Stainton, *Man.*, **2**: 157).

N. strigula Schiff.: Small Black Arches.

Native. Woods; [on oak].

Normally single brooded, but in 1951, J. L. Atkinson took one on September 19, a very late date, and suggestive of a partial second generation.

1. West Wickham Wood (Douglas, *Zoologist*, 3183). Joydens Wood, one, August 1, 1887 (Fenn, *Diary*); five, 1922, one, 1925, all at rest on trunks (L. T. Ford). Bexley, one, 1899 (Carr, *Entomologist*, 33: 46).

3. Bossenden Wood, one, July 12, 1925, two, July 16, 1925 (H. C. Huggins). Clowes Wood, five, 1935, one, 1936, one, 1937, one, 1943 (P. F. Harris). Blean Woods, one fresh specimen, taken September 19, 1951 (J. L. Atkinson).

6. Greenhithe* (Farn MS.); (V.C.H. (1908)). [Gravesend], one (Button, *Entomologist*, 5: 221).

6a. North Kent [Chattenden], 1875 (Tugwell, *Entomologist*, 8: 293). Chattenden Roughs, not common, sometimes at sugar (Chaney (1884-87)). Darenth Wood, 1856 (Harding, *Ent. week. Int.*, 1: 76); one, in Hope Dept. (Woodforde, *Entomologist*, 54: 9); noted up to 1910, but very scarce (H. C. Huggins).

7. Chatham* (Stainton, *Man.*, 2: 157).

[8. Hawkinge, June 19, 1910 (Bell, *Ent. Rec.*, 22: 176) (The locality and early date strongly suggest *Celama confusalis* H.-S. (q.v.) (C.-H.).)]

11. Hoads Wood (Scott (1936)); August 3, 1954, one, July 13, 1955 (P. Cue).

12. Ashford neighbourhood (Chittenden, *Proc. ent. nat. Hist. Soc.*, 1899: 107). Ham Street Woods (Scott (1936)); one, July 15, 1939, one, July 22, 1946, about 12, July 6-7, and as many again July 20-30, 1951, one, June 21, 1952; all at light in Long Rope (C.-H.); two, July 21, 1939, one, June 23, 1946; one, by R. Lovell (in 1953) (A. M. Morley). Bourne Wood, nine one night, 1953 (G. H. Youden, *teste* E. Scott).

13. Kilndown, one, July 10, 1937 (G. V. Bull).

14. Tenterden, two (Beale, *Zoologist*, 4130).

FIRST RECORD, 1851: Douglas, *Zoologist*, 3183.

N. albula Schiff. (**albulalis** Hübn.): Kent Black Arches.

Resident. Woods, bushy places, waste land, etc.; on dewberry. Mainly maritime and sub-maritime. Local.

4. Sandwich, ♂, worn, flying at dusk, August 1, 1948 (C.-H.). Ickham, one, August 3, 1954 (D. G. Marsh).

6a. Chattenden¹.—1859, two, July 10, two, July 15, taken by W. H. Allchin and W. Chaney (see *First Record*; *Ent. week. Int.*, 6: 188, 8: 5, 9: 59; Chaney (1884-87)); one, July 1860, by W. H. Allchin (Stainton, *Ent. Ann.*, 1861: 86); very common in 1874, according to A. H. Jones; less common in 1875, but eight taken by C. Fenn, and a few by other collectors, July 13, 1875 (Fenn, *Diary*). At Chattenden Roughs, 1876, so common that one might easily have taken a hundred larvae in an afternoon from dewberry leaves in spring, or forty moths during twilight in July (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1926-27: 50). Larvae not uncommon [at Chattenden], 1880 (Porritt, *Entomologist*, 13: 163). "The keeper told me that the second plantation *albulalis* comes out a fortnight later than in the old locality" (Fenn, *Diary*, 21.vi.1884). Twelve taken by

Auld, July 1894 (Fenn, *Diary*). Four imagines taken in 1902 [at Chattenden], "in as many evenings" (Ovenden, *Ent. Rec.*, **18**: 18). Huggins (*Ent. Rec.*, **65**: 308-9), in an interesting article on this species at Chattenden, states that Peek, the keeper, took a moth in 1901, and three larvae in 1902. It is noteworthy that there is no definite record of the occurrence of *albula* at Chattenden between 1860 and 1874², or since 1902 (C.-H.).

8. Folkestone (Ullyett (1880)). Walmer, one, 1914 (H. G. Gomm coll.). Haddling Wood, near Dover, two at light, July 1937 (Embry, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1937-38: 22). Dover, one, July 1950 (B. O. C. Gardiner); singletons in garden at m.v., August 12, 1953, July 4, 1957, August 10, 1958, July 4, 8, 1959, July 16, 28, 1960 (G. H. Youden). Folkestone Warren, three, July 30-August 1, 1946 (R. Fairclough). Wye Downs, ♀, at light, July 24, 1949, taken by C. A. W. Duffield (Scott (1950)).

9. Margate, July 20, 1919 (H. G. Gomm, *Diary*).

12. Ham Street.—One, July 1950 (E. J. Hare); one, 1951 (G. Law); one, at m.v., Long Rope, June 27, 1952 (C.-H.); one, June 24, 1953 (W. L. Rudland); one, August 5, 1954 (P. B. Wachter); one, July 1959, in the village (de Worms, *Entomologist*, **93**: 177). Ashford Town, one, July 21, 1955, at light in garden (P. Cue).

14. Tenterden, six, c. 1855 (S. C. Tress Beale, *Diary*). Sandhurst, one, July 13, 1952 (G. V. Bull).

15. Dymchurch, fifteen, July 1-10, 1952, on some waste land (Wakely, *Ent. Rec.*, **65**: 42; Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 40); in 1953 and 1954, saw many and took ten good specimens (G. H. Youden). Dungeness, one, July 18, 1947 (R. Demuth, *teste* A. M. Morley); one, August 1954 (Michaelis, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 37); one, August 5, 1955 (de Worms, *Entomologist*, **89**: 93); one, July 28, 1956 (W. L. Rudland); one, 1959 (C. R. Haxby, *teste* A. M. Morley). Greatstone, one, 1957 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1957: 15); one, at light, August 1960 (D. Youngs).

VARIATION.—In my series of eighteen Kentish *albula*, including sixteen from Chattenden, are three examples assignable to *ab. fascialis* Spuler, bred Chattenden, 1899 (C.-H.).

In R.C.K. are *ab. nivalis* Caradja, two, "North Kent, received from F. J. Hanbury, 1907"; *ab. fascialis* Spuler, two, Kent.

FIRST RECORD, 1859: "On the 15th of July last I captured two fine specimens of this insect, also one a few days previously; the former were flying amongst long grass during hot sunshine; the latter was beaten up later in the evening" (Allchin, *Proc. ent. Soc. Lond.*, 1859: 77)³. This is also the first record for Britain.

¹The following references to this species in Kent, probably allude to Chattenden: *Entomologist*, **7**: 180, **8**: 218, 292; *Ent. mon. Mag.*, **11**: 68, **12**: 166.

²The statement by Bird (*Entomologist*, **6**: 238) that specimens were taken by Packman, July 1872, "no great distance from Dartford", possibly refers to Chattenden.

³But recorded in error as *Celama trituberculana* Bosc (*centonalis* Hübn.), cf. *Ent. week. Int.*, **8**: 5.

Celama confusalis H.-S.: Least Black Arches.

Native. Parks, woods, orchards, etc.; foodplant unknown. Mainly on chalk. Apparently extinct in West Kent.

Obs.—Imagines have been mostly found by day, at rest on tree trunks. The species is normally single brooded; in 1950, however, P. B. Wachter took an imago in good condition on July 14, a very late date.

1. West Wickham Wood, June (Douglas, *Zoologist*, 3183); May 1857 (Tugwell, *Ent. week. Int.*, 3: 11); one, June 6, one, June 29, 1861 (Fenn, *Diary*). Bostall Wood, May 16, 1865 (Fenn, *Diary*). Erith Wood (Fenn, in *Wool. Surv.* (1909)), may refer to the preceding record. Joydens Wood; Birch Wood (Fenn, in *Wool. Surv.* (1909)).

3. Blean (V.C.H. (1908)). Bysing Wood (H. C. Huggins). Whitstable (P. F. Harris).

4. Ickham, one, June 11, 1959 (D. G. Marsh).

6. Greenhithe* (Farn MS.).

6a. Darenth Wood, June 23, 1860 (Fenn, *Lepidoptera Data MS.*); one, May 31, 1863 (Fenn, *Diary*); May 1863 (Leigh, *Week. Ent.*, 2: 135). Cobham Wood, 1910 (H. C. Huggins); one, May 23, 1913, two, June 4, 1913, June 9 and 16, 1914 (F. T. Grant).

7. Not uncommon in and about Wigmore Woods, May 10-20 (Chaney (1884-87)). Woods near Chatham* (Ovenden, *Ent. Rec.*, 21: 31). Chatham, one or two, 1908 (Poundall, *teste* E. D. Morgan). Sharsted, 1927 (H. C. Huggins). Westwell, one, May 19, 1948, and of fairly regular occurrence since (E. Scott, *personal communication*, 1954).

8. Folkestone* (Ullyett (1880)). Ellinge, ♀, June 9, 1928 (Morley (1931)). Folkestone Warren, two, May 26, 1929, one, May 21, 1933, several, May 27, 1938; Reinden Wood, five, May 21, one, June 26, 1929, four, May 28-29, 1930 (A. M. Morley). Folkestone*, one, June 2, 1945 (E. D. Bostock). Dover, one, 1896, one, 1898, two, 1932 (H. D. Stockwell coll.). Dover to Deal, "found all over the district in moderate numbers" (E. & Y. (1949)). Ewell Minnis, May 30, 1932 (J. H. B. Lowe). Tilmanstone, one, June 7, 1934; Wye, two, May 28, 1928; Brook, one, May 8, 1937 (A. M. Morley). "Common on the downs from Brook to Crundale" (Scott (1936, 1950)). Whitehill Wood, Bridge, one, July 14, 1950† (P. B. Wachter). [Hawkinge, one, June 10, 1910 (Bell, *Ent. Rec.*, 22: 176); recorded as *Nola strigula* Schiff., but very probably *C. confusalis* in view of early date and locality (C.-H.).]

9. Margate.—June 24, 1915, one, June 4, 1919, one, May 1, 1920, two, May 7-8, 1921 (H. G. Gomm); common on sycamores in Northdown Park (P. F. Harris); two, May 28, 1951 (W. D. Bowden). St. Lawrence, May 31, 1949 (A. H. Lanfear).

11. Watlington, two (E. Goodwin coll.).

12. Ashford, frequent at light, 1951-55, several, early May 1957 (P. Cue); one, May 12, 1954 (E. Scott); 1958 (de Worms, *Entomologist*, 92: 69). Wye, one, May 29, 1953, one, May 28, 1955; Willesborough, three, May 14-26, 1954, one, June 7, 1955, one, May 31, 1956 (W. L. Rudland). Ham Street Village, 1960 (de Worms, *Entomologist*, 94: 159).

13. Tunbridge Wells district, scarce (Knipe (1916)); usually scarce (Given (1946)). Near Groombridge (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1932-33: 85).

16. Folkestone Town, on trunks, etc., two, May 1, 8, 1944, one May 1, 1945, two, May 14, 24, 1947, one, May 16, 1952; at m.v., four, 1953, one, 1954, two, 1956, four, 1958, one, 1961 (A. M. Morley).

FIRST RECORD, 1851: Douglas, *Zoologist*, 3183.

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AND JOURNAL OF VARIATION

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

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Notes on Collecting in 1962

By H. SYMES, M.A.(Oxon).

The travesty of a summer which we have just experienced came as a nasty shock to those who believed that a cold winter is likely to be followed by a fine summer and a good season for entomologists, as has often been the case. Personally, I did not find 1962 much, if any, worse than its predecessor, but my activities this year were restricted to the day-time, and it may be that night operators have a different tale to tell.

March was a cold month and passed without my seeing a single lepidopteron. On 2nd April I found an *Orthosia stabilis* Schiff. on the pavement not far from my house, and next evening there was one on willow in the garden. Three *O. gothica* L. were on this willow on 12th April, one of them being an unusually large and well-marked specimen. Two *gothica* came to the willow on 17th April. On 23rd, I saw a *Nymphalis io* L. in the garden, and next day two *Pieris rapae* L. I made three visits to the New Forest with the Rev. F. M. B. Carr to look for *Celastrina argiolus* L. On 25th April we did not see any, and as everything seemed to be about three weeks late, it was presumably not yet on the wing. On 3rd May we saw four, but they were flying high, and none was taken. The species was certainly scarce this year, and I have not heard any reports of the second brood being seen.

On 1st May, Mr. Carr and I went to Badbury Rings and took *Pararge aegeria* L. on blackthorn flowers, of which there was a remarkable profusion. Mr. Carr beat two larvae of *Lasiocampa quercus* L. from small hawthorns and I found a batch of the eggs of *Orgyia antiqua* L. on a withered leaf of dogwood (*Cornus sanguinea* L.). On 17th May we went there again; wind and showers kept butterflies at home and made larva beating difficult. Our total bag was one *Trichiura crataegi* L. and one *Allophytes oxyacanthae* L. Mr. Carr found a lovely *Selenia tetralunaria* Hufn. ♀, which obliged him with a batch of fertile eggs. On 22nd May, we paid our usual visit to Whiteparish. Frequent showers again interfered with beating, but we did enough to realise that larvae were uncommonly scarce. Quite apart from the chance of finding an *Apatura iris* L., one can nearly always pick up a *Brachyonycha sphinx* Hufn. or two, but we did not see this or any of such common species as *Orthosia munda* Schiff. or *O. cruda* Schiff. One small green larva, beaten from willow and unidentified at the time, turned out, when the moth emerged on 18th July, to have been *Zenobia retusa* L. During the afternoon, we decided to drive on the Test Valley and look for larvae of *Plusia chryson* Esp. In a good locality for this species we found plenty of the foodplant, Hemp Agrimony (*Eupatorium cannabinum* L.) at just the right stage for searching, but could not see any leaves with their mid-rib bitten through, hanging down and providing shelter for the larva. After I had searched one plant which showed signs of having been eaten, I saw a larva on the ground beneath it. That was the only one we found.

On 30th May, Mr. Carr and I went to the New Forest to look for *Hemaris tityus* L. I thought I caught a glimpse of one. Several species of *Rhopalocera* were seen, including *Pararge megaera* L., *Lycaena phlaeas* L., *Erynnis tages* L., and *Pyrgus malvae* L. On 5th June we paid a second visit to this locality, and Mr. Carr took two *H. tityus*. Next day, in beautiful weather, Mr. R. W. Watson drove Mr. Carr and me into the heart of Dorset to look for larvae of *Eriogaster lanestris* L. We made our way

slowly along the country lanes for some time without seeing a nest, but then in quick succession we found four, three on hawthorn and one on blackthorn. After lunch, we proceeded to Hod Hill, where we found several other entomologists and plenty of *Euphydryas aurinia* Rott., *Lysandra bellargus* Rott., and *Aricia agestis* Schiff., and one or two *Vanessa cardui* L. Mr. Carr took one *Parasemia plantaginis* L. On 12th June I drove with Mr. Carr to a locality near Glanville's Wooton, and at Sturminster Newton we saw a badger run across the road a few yards in front of us, at about 11 a.m. B.S.T. We found plenty of *aurinia* rather past their best, a few very fresh *Argynnis selene* Schiff. and some *Hemearis lucina* L. On 21st June, I drove to Morden Heath with Mr. Carr, who took two *Dyscia fagaria* Thunb. *Diocrisia sannio* L. was not yet out. That day I found a *Hemerophila abruptaria* Thunb. on our garden fence, surely a very late date. I had previously seen one on 3rd June. On 26th June I met Mr. D. R. M. Long in the New Forest and we looked for *Bomolocha fontis* Thunb. (*crassalis* Fab.) at Bolderwood, but without success. In another locality we took one *Eustrotia uncula* Cl. Later in the day I found nine larvae of *Orthosia gracilis* Schiff. var. *rufescens* on bog myrtle (*Myrica gale* L.). On 28th June, Mr. Carr and I went to Morden Heath, but as there was nothing of interest there we drove on to Hod Hill, where we found more moths on the posts than I have ever seen there before: one *Sphinx ligustri* L. ♀ (which laid a large number of eggs), one *Apatete psi* L. (or possibly *tridens* Schiff.) with the trident and other black marks on the forewings extremely faint, three *Hadena serena* Schiff. and five *Cucullia umbratica* L. (This must have been a good season for *serena*, a moth which I had not seen for more than twelve years, as I took one on a pine trunk at Morden Heath on 17th July and saw another on a pine trunk in Boscombe on the 18th). I also took a *Pyrgus malvae* L. in perfect condition (another very late date), a *Meristis trigrammica* Hufn. sitting on the ground, and saw two *P. plantaginis* of which I took one ♂.

On 3rd July Mr. Carr and I paid another visit to the New Forest and looked without success for larvae of *C. argiolus* on holly berries, which are plentiful this year. We also failed to find *B. fontis* at Bolderwood. Then we went to the locality for *E. uncula* but saw only two. Here we put up two or three *D. sannio* ♂♂. On a post at Holmesley I found a *Polia nebulosa* Hufn. On 10th July we went to Morden Heath. *D. sannio* was out, but scarce. I saw only three males, of which two were remarkably small, probably due to the cold weather when the larvae were feeding up. One that I took was not so large as the second brood males that I reared in 1960. Mr. Carr took one female that laid fewer eggs than is normal. We did not see anything of *Coscinia cribraria* L., but *Plebejus argus* L. was very plentiful. There must have been a recent invasion of *Plusia gamma* L., of which I saw at least fifty, and this is the only time this year when I have seen them in any numbers. Some of them were unusually small and pale. We also saw a few *Nomophila noctuella* Schiff. Our next visit to Morden Heath was on 17th July, when we saw about half-a-dozen *Sterrha muricata* Hufn., of which I took two beautiful specimens. *Maniola tithonus* L. was abundant. On 18th July I found a *P. nebulosa* on a pine trunk in Bournemouth, and, on the 22nd, a very pale one in my garden, on a silver birch trunk, where it was most inconspicuous. On 31st July, Mr. Carr and I went to the New Forest, and as the weather was too dull for butterflies we beat for larvae. I got twelve *Panolis flammea* Schiff., one *Lymantria monacha* L. (a very late date: the imago, a ♂, emerged on 30th August), one *Notodonta anceps* Goeze and

one *Drymonia dodonaea* Schiff.

On 3rd August I spent a short time at Morden Heath. It was very windy and my visit was cut short by rain. I took a *Phytometra viridaria* Cl. and saw a *S. muricata*. A spell of bad weather followed. On 9th August I met Brig. Warry and Miss Pengilly, and we searched for larvae of *Cucullia lychnitis* Ramb., but without success. Rain curtailed our activities. We met again at Badbury Rings on 16th August. The weather was dull and windy, unfavourable to butterflies and to beating. We found three larvae of *Macrothylacia rubi* L. and half a dozen of *S. ligustri*, which seemed to prefer small isolated privet bushes to those growing in a hedge. On 22nd August I paid my first visit to Hod Hill for two months. Mr. Carr came with me, and took two *Vanessa cardui*, one of which was a very brightly marked specimen. I was pleased to see two *Polygonia c-album* L. *Lysandra coridon* Poda was out in good numbers and fine condition. On 29th August I went to Morden Heath in optimistic mood to search for larvae of *Heliothis maritima* Gras., but as I had not seen the imago this year it was hardly surprising that I failed to find any. Two *N. noctuella* were seen, but nothing else of any interest. Proceeding to the Badbury Rings area, I found *Gonopteryx rhamni* L. in fair numbers, and was interested to see a group of six *P. rapae* on the flowers of a single plant of Black Horehound (*Ballota nigra* L.). I have always regarded this as a dull, dingy-looking plant with a disagreeable smell, and had no idea that it was attractive to lepidoptera. *G. rhamni*, however, did not visit it. August ended on a good note. On 31st, a beautiful day, I met Brig. Warry at Hod Hill. We saw two *V. cardui* and a number of *G. rhamni*, including several females. There were a few newly-emerged *L. bellargus* (males only) and plenty of *L. coridon*, some of them quite fresh. I took two aberrations, both of the *obsoleta* form but quite different from one another.

During the first week of September I made two expeditions to the New Forest and collected fifteen larvae of *Bomolocha fontis* Thunb. Bilberry keeps fresh for several days, but when the leaves begin to drop off the twigs, it may be assumed that it is no longer fit for larval consumption, and so on the 14th September I paid a hurried visit to the Forest to procure a fresh supply of food, and as five larvae had already died (one had been 'stung' and two, I think, had been injured in beating), I spent rather more than an hour beating bilberry and collected seven more larvae, one of which was by far the smallest I had seen. I suspect that a good many will prove to have been 'stung'. On 18th September I saw, through a flimsy, transparent cocoon, a newly-formed pupa: the abdomen was light brown and the front part was green, turning later in the day to dark brown. But two other cocoons contained a smaller white cocoon that was clearly that of a parasite.

On 11th September I drove to Bloxworth to meet Brig. Warry, who, while beating without much success for larvae, took a very dark specimen of *Sarothripus revayana* Scop. Unfortunately, the weather was foul—even by 1962 standards—and steady rain made us call it a day early in the afternoon.

On 17th September, Mr. Carr and I went to Hod Hill. It was a fairly sunny day, but there was a distinct touch of autumn in the air, and when the sun was obscured by heavy clouds that threatened rain more than once, conditions on the Hill were very bleak. In spite of that, we saw a good number of butterflies: *Pararge egeria* L. and *P. megaera* L., *Maniola jurtina* L., *Coenonympha pamphilus* L., *Vanessa atalanta* L.

V. cardui L., *Aglais urticae* L., *Aricia agestis* Schiff., *Polyommatus icarus* Rott., *Lysandra coridon* Poda, *L. bellargus* Rott. and *Lycaena phlaeas* L. We did not, however, see any *G. rhamni*, that had been plentiful on 31st August. I took a *bellargus* ♂ in beautifully fresh condition, with a well-marked row of black spots on the outer margin of the hind wings, and an *icarus* ♀ with unusual markings. We also beat a few privet bushes and obtained five larvae of *Craniophora ligustri* Schiff., and I found an almost full-fed larva of *Apatele tridens* Schiff. on hawthorn.

Driving to the New Forest on 19th September, I caught sight of a large larva of *Smerinthus ocellatus* L., its pale green standing out conspicuously against a background of darker sallow leaves. I got out of the car and soon found two more larvae. On 22nd September I visited Bloxworth with Mr. Carr and we beat for larvae. Our principal objective was *Tethea duplaris* L. of which we got four: besides these we collected nine *Anagoga pulveraria* L. and one *Lophopteryx capucina* L., beaten from hazel. A small, black, hairy larva, beaten from sallow, I thought to be one of the Footmen, but after changing its skin it turned out to be *Colocasia coryli* L. I beat another just like it, but from birch, when I paid a second visit to Bloxworth on 25th September, and met Brig. Warry. We had an interesting day with our beating trays, and obtained a mixed bag that included *Pheosia gnoma* Fab. (3), *L. capucina* (2), *T. duplaris* (2), *Dasychira pudibunda* L. (only one!), *Drepana falcataria* L. (2), *D. lacertinaria* (1), two or three *Bena fagana* Fab., and *A. pulveraria* (6). Brig. Warry beat a lovely *Citria lutea* Strom. from sallow, and we saw a number of *G. rhamni*, mostly on the flowers of devil's-bit scabious (*Scabiosa succisa*), and two or three *V. atalanta*. At a certain stage of its growth, the larva of *duplaris* bears a close resemblance to that of a species of saw-fly that also feeds on birch. They both spend most of their time curled up, but I noticed that *duplaris* has its head inside while the saw-fly has its head outside.

On 27th September, I saw a full-fed larva of *S. ligustri* on a hedge near Ringwood. There followed two or three stormy days, but on 4th October, in weather that would have been a credit to August, I went to the New Forest with Mr. Carr to beat for larvae. We devoted most of our attention to birch. Larvae were scarcer than they had been at Bloxworth, but we obtained a good variety, including *Pheosia tremula* Clerck (1, on aspen) and *P. gnoma* (1), *L. capucina* (2), *Pterostoma palpina* Clerck (1, on aspen), a few full-fed *Phalera bucephala* L., *D. falcataria* (2), and *D. lacertinaria* (1), a few *B. fagana*, *A. psi* (2), and a green Noctuid about the size of the *fagana*, which we could not identify at the time. After consulting Buckler, I believe it to be *Hadena contigua* Schiff. There were also a number of Geometrids, mostly *Deilinia pusaria* L. Some of the larvae were extraordinarily small for the time of year, especially the *gnoma* and one of the *capucina*. Despite the warm, sunny weather, the only butterflies seen were three *G. rhamni* and one *N. io*.

It seems to be generally agreed that the season has been a poor one for most butterflies. Of the spring or early summer species, I saw very few *P. egeria* and *P. megaera* and, incredible as it may seem, only one *Anthocharis cardamines* L. As already stated, *C. argiolus* was very scarce. Of the Satyrids, *Maniola tithonus* L. was far and away the most abundant, and was plentiful in such different localities as New Forest enclosures, Morden Heath and Hod Hill. It was much commoner than *M. jurtina* L. *Satyrus semele* was in fair numbers, *Coenonympha pamphilus* L. rather less plentiful than usual, and little was seen of *Aphantopus hyperanthus*

L. Of the Fritillaries, *Argynnis selene* Schiff. and *E. aurinia* were plentiful in the right localities, but *A. euphrosyne* was very scarce. On the one day when I might have expected to have seen it, *A. paphia* L. did not appear. I saw two or three *A. cydippe* L. and only one *A. aglaia* L., a ♀ taken by Brig. Warry at Bradbury Rings on 16th August. Of the Vanessaids, larvae of *Aglais urticae* L. were abundant at Hod Hill on 6th June, and the imago was plentiful there in September. I saw more of *P. c-album* than last year, but that is not saying much. Four came to buddleia in my garden on 5th, 15th and 30th August and 8th October. I saw two at Hod Hill. Several others were seen in Bournemouth. I did not see *Limenitis camilla* L. but it was reported to be plentiful in one of the enclosures in the New Forest. Of the Blues, *Plebejus argus* L. was abundant, both at Morden Heath and in the New Forest. *A. agestis* was plentiful at Hod Hill, but *Polyommatus icarus* Rott. seemed to be scarcer than usual. *L. coridon* and *L. bellargus* are holding their own at Hod Hill. *Lycaena phlaeas* was rather scarce, and *Callophrys rubi* L. was the only Hairstreak I saw. Of the Skippers, *E. tages* and *P. malvae* were on the wing from the end of May until the middle of July. *Ochlodes venata* Br. & G. and *Thymelicus sylvestris* Poda were less abundant than usual. *Hesperia comma* L. was not seen. It appears to have vanished from Hod Hill and Badbury Rings.

I have referred to the unusually late appearances of one or two insects: to these must be added a *Spilosoma lutea* Hufn. found on a wall near my house on 13th August, and, I think, newly emerged.

It has been a disappointing season for larvae. Many that I have found have been singletons, including *T. crataegi* and *M. oxyacanthae* (Badbury Rings), *P. chryson* (Test Valley), *Dasychira pudibunda* (Bloxworth), *Apatele leporina* L. (Ferndown), *A. aceris* L. (Boscombe), *A. tridens* (Hod Hill), *P. tremula*, *P. palpina*, *N. anceps*, *D. dodonaea*, *L. monacha* and *H. contigua* (all New Forest). On the other hand, I have seen more larvae of *S. ligustri* than for several years.

In my experience, the infestation of larvae by parasites has been exceptionally heavy this year. I do not know whether this has been the case in general, or whether I have merely been unlucky. Out of twenty-two larvae of *B. fontis*, eight were 'stung'. Most of these were able to spin their fragile, transparent cocoon, and then, after two or three days, a single green parasite grub could be seen inside the cocoon, shorter than but otherwise as large as its host. A day or two later, this grub spun a tight-fitting white cocoon, inside which it turned into a light-brown pupa. In one or two cases, the *fontis* larva failed to spin up, but lay on the floor of the cage: the parasite broke out in due course but always died.

Other larvae that suffered severely from parasites were *O. gracilis*, *P. flammea*, the only two *A. leporina* that came into my possession, and *H. contigua*.

A pleasanter feature of the season has been the scarcity of biting flies, such as the cleg, *Haematopota pluvialis*, and the huge *Tabanus sudeticus*, which are often a perfect pest in the New Forest enclosures and other woodland areas, but one can endure these if they are accompanied by plenty of desirable lepidoptera.

In conclusion, I saw more Vanessaids in my garden during the second week in October than in the whole of August and September. They were attracted to Michaelmas daisies and physotegia, and consisted of *V. atalanta*, *V. cardui*, *A. urticae*, *N. io*, and *P. c-album*: once they were joined by a *G. rhamni* and always by several *P. gamma*.

52 Lowther Road, Bournemouth, Hants

Random Notes for 1962

by Col. H. G. ROSSELL

This note, for what it is worth, is in compliance with a further editorial request to "fill a gap". As regards immigrants, Bodinnick has had a poor year in general, in contrast to Polperro, six miles away, where Mr. Puckey has entertained several V.I.P.s. No doubt, however, he will himself discourse on these. We think Polperro is on a regular migration route, and that at Bodinnick we have only those travellers who mistake the sign-posting. Anyway, this season I can only report one *Rhodometra sacrarica* L., an unlimited number of *Laphygma exigua* Hübn., from May onwards, the usual August flight of *Lithosia quadra* L., one *Heliothis peltigera* Schiff., and a few *Leucania unipuncta* Haw., and *L. vitallina* Hübn. These were all from the two m.v. traps I maintain in my garden and on the adjacent cliff. Results might possibly be better were this cottage actually on the coast instead of a mile up from the Fowey estuary.

As regards local species, the continual rain and bitter winds of spring and early summer, retarded emergence by at least three weeks, as I think, judging by later experience, was more or less universal. However, I completed a small series of *Leucania putrescens* Hübn., and Dr Goodall took some *Hadena barrettii* Doubl., when staying here in June, while Dr. Clarke captured Bodinnick's annual *Antitype xanthomista* Hübn., at the end of September. Singletons of *Jodia croceago* Fabr. and *Tiliacea citrago* L., have, for the first time, turned up in the trap in the last few days.

I started my collecting travels this year by joining Dr. Clarke at Cambridge, whence he most kindly had organized a short tour of the Fens and Breck. My heart sank when I saw the half-frozen East Anglians detraining at Liverpool Street. Nor were my fears unjustified, as on the night of 31st May we had 13 degrees of frost in Wood Walton, and nearly froze in our gumboots. The only pleasant feature was the number of nightingales (also cuckoos, with whom we associated ourselves) singing, presumably to keep themselves warm. Needless to say, no moth flew, and we packed (after a quick look at Wicken—not seen by me since schooldays in 1909—and an unproductive visit to Monkswood) to visit Brandon, with not much better results except for a small series of *Mesotype virgata* Rott. at Grimes Graves. Lamping produced little but derisive woodcock roding over the light. We decided to return to Oxford, so, being joined by Mrs. Clarke in Cambridge, we arrived at Studley on 5th June, picking up a single *Leptidea sinapis* L. at a picnic lunch in Salcey. The frost had treated Studley more kindly, and a few days of collecting, most kindly organized by Dr. Clarke, produced several species of great interest to me—notably, two larvae of *Strymon pruni* L., and three of *Thecla betulae* L., which Dr. Clarke subsequently reared with his usual skill and generously gave me. We also had a most successful morning with *Lycaena bellargus* Rott. in Berkshire.

On Whitsunday I went by coach to Bournemouth to stay with a friend, who among other kindnesses, took me for a picnic to Corfe Castle. We subsequently walked down to the coast at Winspit where I took a few *bellargus* and *Cupido minimus* Fuesll., while my hostess discovered a large clump of "wild" gooseberry bushes which yielded enough fruit for our supper.

I went home, again by coach, in time to entertain Dr. and Mrs. Goodall for a few reasonably successful days and nights. One of our endeavours was to obtain some live females of a certain butterfly which is locally threatened by the depredations of the Forestry Commission, for Mr. Heslop to release on his land in the hope that it may become established there. The day was overcast, and it was the eyes of the lady of the party (who had never seen the insect before) which spotted the butterflies camouflaged on the bents and grasses. It was thus that we were able successfully to send to Somerset, two females found "in cop".

The Goodalls left for Morecambe on 21st June, and I followed by train on the 26th, Dr. Goodall, with his usual kindness, meeting me at Lancaster and driving me to Witherslack, where Mr. and Mrs. Tierney received me at the Derby Arms with their constant consideration and hospitality. I had lured Dr. Clarke, who had not collected in the North before, to Witherslack, and he and Mrs. Clarke, with her sister and brother-in-law, Mr. and Mrs. Austin, arrived on 30th June. We had a most pleasant and successful fortnight, the party being joined by the Rev. G. Ford and Mrs. Ford of Balsham, later, Mr. Ford was fortunate in taking *Hyppa rectilinea* Esp. near Windermere, a first record I believe.

We took, among many other species, *Tethea fluctuosa* Hübn., and *Plusia interragationis* L. (the last, a first record), at Newby Bridge, by Windermere, and all the usual species occurring on Meathop Moss, except *Carsia paludata*, for which we were too early. My bag of *Anarta myrtilli* L. (which normally is too quick for me), was entirely due to Mr. Austin who, though not a collector, is always ready to take a net, and is far more dexterous with it, or with a pill box, than some I could name. A scramble up Langdale Pikes (which I was supposed to direct, but on which I was soon outpaced by Dr. Clarke, whose net, much like the "Excelsior" banner, was always waving several hundred feet above the two of us toiling below), produced only four *Erebia epiphron* Knoch., and two *Parasemia plantaginis* L., the day becoming overcast. This was, however, balanced by a visit to Grey Knotts above the Honister Pass, a much easier proposition, as we were able to drive to 1,200 feet, while the remaining 1,000 feet was an easy slope on which our ladies had no difficulties. Here, *epiphron* was flying in quantity, and I am afraid to say how many were netted and boxed (Mr. Austin had 7 in his net at one time). After releasing about 50%, we still had a series each, and enough for my friends in Cornwall. Collecting time was limited by the gathering clouds, but even after *epiphron* had ceased flying, our ladies spotted many at rest on the short mountain grass. I have long maintained that the wandering collector's most essential equipment should include one or more capable ladies, whose quickness of recognition far surpasses dull male vision. Discretion, however, should be exercised in introducing her or them to difficult ground on moss or mountain, since the following exchange is burnt into my memory—"R., we are *not* enjoying ourselves!" "It's all right girls, quite dry and safe this way". *Splash!!!*

The view of Great Gable, Helvellyn, Skiddaw and Scafell from the crags on the summit was magnificent. We were joined at lunch by a wandering foxhound who accepted a share in a gentlemanly way. Dr. Goodall again guided us to many excellent collecting spots, including Sandscale on the N. Lancashire coast, where we took two good *Dasychira fascelina* L., and among other desiderata, *Heliothis albicolon* Hübn., a first record for that place; and Arnside Knott in pursuit of *Phothedes*

captiuncula Treits., and the *salmacis* variety of *Aricia agestis* Schiff., which we also found at Grange-over-Sands.

Dr. Clarke and I had, for quantity, one really first-class night in Black Tom's Lane, where we were joined by two young collectors up for the night from Blackpool, and were able to give them a lot of moths they needed. As seems usual nowadays, their sugar had been a complete failure.

On 12th July, I left Witherslack for Stirling to spend another fortnight with my old friend Mrs. Home at Aberfoyle. The trap (which I am told has become one of the recognised features on the Glasgow-Trossachs road), did not yield as well as usual, though I was able to send to friends a fair number of *Plusia bractea* Schiff. I had previously written to the local Forester, Mr. Ross, in the hope of getting up 2,000 feet or over for a night on Ben Venue or another of the local mountains, which I believe have not yet been explored with m.v. However, the weight of my little generator (which has given as good service as the one I referred to in last year's note, consistently failed me), limited me to the Forestry Landrover tracks, which in that area do not go over 1,200 feet. I was most kindly driven up the Mentieth Hills, and lamped from dusk to dawn at 1,250 feet, being picked up again at 6 a.m. There was a keen wind blowing and a nearly full moon, so results were not as hoped, though two *P. interrogationis* and two very dark *Trichiura crataegi* L., were taken. The dawn over the Trossachs at 4 a.m. was wonderful, with the grouse waking in the heather all around, but I was glad of my borrowed plaid.

The following night, Mr. Ross drove me into the heart of the great Flanders Moss below the Stirling road (the largest peat moss in Scotland, and said to have once been Rob Roy's hideout for stolen cattle). Here I took two perfect, very dark *Eurois occulta* L., three *D. fascelina*, and two *Dyscia fagaria* Thunb., among other species. Again both sunset and dawn were splendid with the three Bens—Lomond, Venue and Ledi—looming into the sky. There was no wind, but a sudden queer half hour's chill at 1.30 during which not a moth flew.

I collected in the Mentieth Hills by day on several occasions, as in past years, finding *Caenonympha tullia* Müll., ssp. *scotica* Stgr. (rather worn) on the mosses at 1,100 feet or over, a contrast to its ssp. *philoxenus* Esp., which flies at Witherslack at sea level. There was little else of note flying except *Argynnis aglaia* L. and *A. euphrosyne* L., and a very few *P. interrogationis*, on the heather. After a very pleasant fortnight I came home on 26th July and had the pleasure of putting up Dr. Clarke in late September—the weather was vile, but he took a few moths he wanted.

The only noteworthy incident occurred when lamping on the beach near Polperro, where a most inebriated lady appeared out of the night sat on the moth sheet, and told us her life-story, including her more interesting divorces.

Old School House, Bodinnick, by Fowey, Cornwall.

ACHERONTIA ATROPOS L. IN CUMBERLAND.—I recently had given to me a fine male Death's-head Hawk which had been found at Millom in South Cumberland about the end of April this year. The donor was unable to give me full details of the capture. I may add that I have not heard of any other *atropos* being noted in this district this year.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 30.ix.1962.

Notes from Camber, Sussex

By S. WAKELY

A pleasant holiday was spent at Camber from 21st July to 4th August, 1962. A number of particularly interesting Pyrales were taken as well as other species.

Our bungalow was situated near the sand dunes to the east of Camber, and a number of moths were taken at m.v. there, although weather conditions were not really ideal. Results at sugar were very poor and included nothing of note. The best results were obtained at dusk with the help of a Tilley hand-lamp—the type with reflector which gives a powerful beam of light.

I was very keen to know how to take *Gymnancla canella* Schiff. in its natural haunts and I knew one spot at the west end of Camber where its foodplant (*Salsola kali*) occurred and where in previous years I had found the larvae. Several visits were paid to this spot at dusk, but it was not until the 27th that I succeeded in seeing and capturing a specimen. The next night I caught another. I had expected to find the moth flying round or resting on the clumps of *Salsola*, but it was not to be, and it is possible I was too early for the main emergence owing to the lateness of the season. Otherwise the moth must have been even more rare than I had thought.

Mr. Tweedie, who lives about a mile away, joined me on several nights and I decided to let him have the next *canella* which came my way. When I did manage to net another (as I thought) it seemed darker and smaller than the others, but I passed it over to him. On the 31st I took two others, followed by one on 1st August, another on the 2nd and on arriving back at the bungalow found another on the sheet under the m.v. These last five were all darker and smaller than the first two *canella* and it was not until I examined them later at home that I realised they were *Heterographis oblitella* Zell.—the species that turned up in numbers in May 1956, near Pitsea, Essex (*Entomologist*, **89**: 152-4). This species had been classed as a very rare immigrant, but my five specimens were in perfect condition and it seems probable that they had been breeding locally—probably in the adjoining salterns. As far as I know this is the first time this moth has been taken in Sussex.

On several nights, moths swarmed at the seedheads of the marram grass, which was sometimes sugared after drawing several heads together and placing a rubber band round them. The 27th was particularly good—the only night when I saw *Agrotis ripae* Hb. really common. *Leucania litoralis* Curt. and *Agrotis vestigialis* Hufn. were not uncommon on the marram, with *litoralis* also appearing occasionally at m.v. Only one *Euxoa tritici* L. was seen—probably an early one.

Other species taken with the aid of the hand lamp included: *Apamea oblonga* Haw. (two on the salterns), *Scopula emutaria* Hb., *Anerastia lotella* Hb., *Homoeosoma saxicola* Vaugh., *Aphomia sociella* L., *Platytes alpinellus* Hb., *Zeiraphera insertana* F., *Argyritis pictella* Zell., and *Bryotropha desertella* Dougl.

On the 24th, Mr. Tweedie invited me to accompany him on a trip in the evening. We went to Beckley, and soon got the generator running and the light fixed up. It was a really good night and among the species noted were: *Tethea duplaris* L., *T. ocularis* L., *Euproctis chrysorrhaea* L.,

Miltochrista miniata Forst., *Apoda avellana* L., *Cucullia gnaphalii* Hb., *Paracolax derivalis* Hb., *Eana incanana* Steph., *Spilonota laricana* Hein., *Paltodora cytisella* Curt., *Sophronia semicostella* Hb., and *Coleophora spissicornis* Haw.

Pupae of *Nephopteryx genistella* Dup. were quite common spun up in webs on gorse on the west side of Camber. I have met with this local species at many places from Dorset to Kent, but never in such numbers as at Camber.

Pediasia aridellus Thunb. (*Crambus salinellus* Tutt.) was a species which really surprised me. I first netted one on the dunes, then another on the salterns. The lamp was placed on the ground while the latter was boxed, and I boxed another half-dozen which fluttered about in the beam of the light. Then one was seen freshly emerged and drying its wings. On looking round I was amazed to see others drying their wings on the grass. Every few feet there was either a moth at rest or one drying its wings. The grass the moths were resting on was obviously its foodplant and I am grateful to Mr. C. A. Stace, who identified it as *Puccinellia (Poa) maritima* (Huds.), a grass already known as the foodplant of this local species. A few nights later, at the same spot, scores of others were seen again, many drying their wings from recent emergence. I had previously thought this a comparatively rare species occurring chiefly in small numbers, but one lives and learns!

On the 31st I was joined by Capt. Ellerton. He wanted *Leucoma salicis* L., pupae of which I had seen a few days previously spun up on willow in a nearby hedge. On visiting the spot not only pupae were found, but also larvae and several of the moths at rest on the leaves. Pupae of *Euproctis chrysorrhoea* L. were also common in webs in the hedges. In the afternoon we all went to Dungeness, some *Mesotype virgata* Hufn. being taken at Lydd on the way. At Dungeness, a few larvae of *Calophasia lunula* Hufn. were found. We arranged to meet again next day when we had a trip to Appledore, where larvae and pupae of *Nonagria sparganii* Esp. were found in stems of the reed mace.

At our m.v. light at the bungalow several insects of note were taken, including: *Tethea duplaris* L., *Cossus cossus* L., *Arenostola elymi* Treits. (one only), *Earias clorana* L., *Semiothisa alternaria* Hb., *Parapoynx stratiotata* L., *Chilo phragmitellus* Hb., *Phalonia rubigana* Treits. (*badiana* Hb.), *Acleris comariana* Z., *Dichrorampha alpinana* Treits., *Calypha purpurana* Haw., *Aristotelia lucidella* Steph., *Agonopteryx propinquella* Treits., and *Argyresthia brockeella* Hb.

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New Records for British Ants, 1961-1962

By C. A. COLLINGWOOD

Several interesting discoveries have been made since my last notes on this subject (Collingwood, 1961a) and seem worth enumerating here.

Formicoxenus nitidulus Nyl. This was discovered in strength in the Old Wood of Meggernie in Upper Glen Lyon, mid-Perths. A number of males were promenading on the domes of two nests of the wood ant, *Formica aquilonia* Yarrow, 15/9/62. This adds a new locality and county to those already given for Scotland (Collingwood, 1961b). I also

had the pleasure of re-discovering *F. nitidulus* near Nethy Bridge, again with *F. aquilonia* in the same neighbourhood where Donisthorpe took it after much search in 1913. Mr. L. Weatherill tells me that he has also seen *F. nitidulus* near Aviemore in the same vice-county. This rather elusive little inquiline has still to be recorded from large areas of Britain where wood ants are to be found.

Myrmica ruginodis Nyl. This was the only ant seen when passing through Co. Fermanagh in June this year. It is now recorded from every vice-county and island group in the British Isles.

Myrmica rubra L. This was taken in S. Tipperary, near Tipperary itself.

Myrmica sulcinodis Nyl. A single worker was taken in late October, 1961, on the slopes of Dunkery Beacon, S. Somerset.

Myrmica sabuleti Mein. There are specimens in the Dublin Museum from S. E. Galway, a new vice-county record. Other new records include Ballymacomma, E. Cork and Rhyd Llanfair, Denbighshire, 5/62.

Myrmica schencki Em. I found this ant in 9 localities this year in S.W. Ireland where it is certainly much more common than it is in England. New vice-county records include Cong, E. Mayo, 2/6/62, where I took a worker on a limestone outcrop above the river; and Deal, E. Kent, 29/7/62, where I found it on the golf course, rather to my surprise. One of the Irish colonies was located under a stone at Murrough, Co. Clare. On disturbance, the workers promptly attacked a group of 8 dealate *Lasius flavus* queens sharing the same stone. I recorded *M. schencki* from a peat track in Somerset in 1960. The species was still there in 1961 but I was unable to find it again this year when the site was largely over-run by *M. rubra*. The suppression of *M. schencki* may have been due to direct aggression by *M. rubra* which is very abundant in the neighbourhood, but the two species do not normally occur in the same sort of habitat; *M. schencki* is usually found in full sun exposure and it is at least as likely that the overgrowth of grass and other plants rendered this place unfavourable and correspondingly more favourable to the other species. I have noted another unusual juxtaposition before, where a nest of *M. schencki* in the Wyre Forest, Worcs. was adjacent to one of *M. lobicornis*. Here it was the *M. lobicornis* which had disappeared by the following year.

Myrmica puerilis Staercke. I visited Deal again to follow up my discovery of this ant there in 1961 (Collingwood, 1962). I only found one nest at that time, but on this occasion, 29/7/62, several nests were seen on either side of the path between the golf course and the sea bank, and it is evidently well established there. *M. sabuleti* was also present in the neighbourhood, but not *M. scabrinodis* which would easily be confused with the very similar *M. puerilis* without careful examination.

Myrmica lobicornis Nyl. Two nests of an almost black form of this species were disclosed under stones at Maryloch, Selkirks., 21/9/62.

Leptothorax acervorum Fab. New records include Tunstall, E. Suffolk, Radwinter, N. Essex, 6/61, Cong, E. Mayo, Glengort, Limerick, and Murrough, Clare, 5/6/62, and Rhayader, Radnor, 9/62. A nest of this ant was found in the Mourne mountains, C. Down, consisting of normal brood and 13 ergatoid or microgyne queens without workers. Donisthorpe (1927), describes a curious queen taken by Butterfield, near Keighley, Yorks., which had no trace of a petiole or postpetiole. I have an exactly similar specimen taken from a normal nest of *L. acervorum* at Cromford,

Derbyshire, 23/7/62. The gaster is joined directly to the epinotum by a neck, just as Donisthorpe described. No other queen was found in the nest which contained normal workers, males and brood.

Tetramorium caespitum L. New records include Hamptsworth, S. Wilts., 9/61, and Knockadoon Head, E. Cork, 5/62. I am told that Mr. D. P. Walls has also taken this species in E. Cork in recent years. It is quite common on the Mizen peninsula of W. Cork, but it has not yet been found on the west coast north of there.

Lasius niger L. This was abundant at Loughross Point, W. Donegal, 6/62, the most northerly Irish locality to date.

Lasius brunneus Latr. This was found in some oak trees near Fleet, N. Hants. As in most other *L. brunneus* localities, *Leptothorax nylanderi* Foerst. was also present on the same trees nesting under bark.

Lasius flavus Fab. This was common at Cong, E. Mayo, 5/62.

Lasius mixtus Nyl. New records include Wern Gron, Merioneth, in the vicinity of a thriving *L. fuliginosus* colony, Murrough, Co. Clare and Cong, E. Mayo, 5/62. This ant was also found at Sneem, S. Kerry and Strand Bridge, Wicklow. It is apparently much more common in Ireland than *L. umbratus* sensu Donisthorpe. *L. mixtus* has also been taken recently at Hartland, N. Devon, and Bath, Somerset, confirming older records for these vice-counties.

Lasius fuliginosus Latr. A colony was found at the base of an oak tree near Redlynch, S. Wilts.

Formica rufa L. I saw a nest of this species about 25 years ago near Llandiloes, Montgomeryshire. I have only recently been able to confirm this record from scrubby oak woods in the same neighbourhood, and also from a wooded hillside near Machynlleth in the same county, 5/62.

Formica lugubris Zett. This was found in great strength along an oak wood just outside Rhayader, Radnorshire, on the mountain road leading towards the Devil's Bridge. This interesting site is far to the south of recorded localities in N. Wales and England. Wales does not seem to be much visited by ant enthusiasts, and many areas of woodland have probably yet to be explored.

Formica fusca L. This was taken at Holme, Huntingdonshire, 7/62. There are specimens in the Dublin Museum from Howth, Co. Dublin, and a single queen from Meath. These are the only two additions to the known county distribution in Ireland. I searched for it in the counties of Wicklow, Wexford and Waterford, but could only find *F. lemani* Bond. So far, *F. fusca* appears to be common only around Glengarrif and Killarney in Cork and Kerry respectively.

Formica sanguinea Latr. I had the pleasure of finding a small nest of this species in a bank in the Hamptsworth Heath area of S. Wilts., 9/61. This seems the most likely of our more conspicuous *Formica* species to turn up in fresh localities.

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A Rare Form of *Aporophyla australis* Boisd and Migrant *Leucanias* at Dungeness, Kent, in October 1962

By A. J. WIGHTMAN, F.R.E.S.

I spent the first four days of October at Dungeness, working sugar and not light apart from a Primus lantern, which I carried around and to which a few months were attracted. The weather was extremely good, with no wind and temperature above 60°F.; there was heavy rain on the 3rd, but this cleared up at dusk, and the moths swarmed in. Having all day to prepare my round I sugared 250 posts and used the same posts on all four evenings.

Very large numbers of moths visited the sugar and I estimate that during the four evenings over 2500 *Phlogophora meticulosa* L. alone put in an appearance. Among the more interesting species *Leucania vitellina* was fairly common and I counted in all twenty-five, of which the bulk of specimens were referable to ab. *pallida* Warr-Stz., but a few were very large and dark, a form between typical *vitellina* Hb. and the highly red ab. *saturator* Dnhl. of *L. albipuncta* I counted twenty-two, all of a brownish ochre form, which I take to be the type form. As I was not taking either of these two *Leucanias*, apart from the high colour *vitellina*, some may well have paid several visits to the sweets and have been counted more than once.

My real quest was for the very dark form of *Aporophyla australis* L., nearly unicolorous black examples of which had been taken by Mr. R. E. Scott of Dungeness last year at m.v. light, and in this I was successful. The form varies somewhat in the intensity of the black, some examples being dark brown, much the tone of the allied *Aporophyla lutulenta* and the size of the insects also varies greatly. I have examples of this form from East Suffolk which came from the recently disposed of collection of P. J. Burton, and there is a record from Sandwich. An insect taken there by Mr. A. J. L. Bowes is figured in *Ent. Rec.* 52: 33, where on the authority of H. J. Turner it is called ab. *ingenua* Freyer. There are two figures in Seitz *Pal. Noct.* Vol III, plate 30, named as ab. *ingenua* Fr., which to me represent these dark British forms, but in the supplement to that work the correctness of this determination as ab. *ingenua* is questioned, Count Turati having supposed that a second and larger species might be represented by those figures. As *australis* is a very variable species as to size, size alone could not sustain this supposed second species; but it may be that there are other points and that Turati was right in doubting that the figures were *A. australis*. Jules Culot *Noctuelles et Geometres d'Europe* Vol. I of the Noctuae has a really good figure of the dark Dungeness and East Suffolk forms which is a good deal blacker than the Sandwich example, and this figure is taken from an insect in the Turati Coll, from Sicily.

Barrett records a very dark form of *Aporophyla australis* from the Isle of Wight, in *Lepidoptera of the British Isles*, Vol. IV, page 282, which had been taken by L. Prout, and it seems therefore that these dark forms occur in small numbers in many different areas, and may well be very widely distributed, but only likely to be recorded from areas where the species is sufficiently plentiful to be examined in large numbers, for

although Dungeness is well known to be an area where darkish forms occur, the Isle of Wight and Sandwich are reputed to be pale form areas, and the dark blackish forms must certainly occur in Cornwall where all the specimens seem dark compared to the forms usually found on the South Downs.

Considerable numbers of *Vanessa atalanta* visited my sugar patches at Dungeness by day, and in the evenings many were to be found apparently asleep on the posts, and were easy to examine critically, and all I found were in bred condition. As there were no nettles at or very near to this spot, it is possible that these butterflies had assembled for migration, but they were resident for the period of my stay as the numbers seen on the three dry days and evenings were much the same each day.

Butterflies in Provence and in England

By S. R. BOWDEN

I have recently returned from a visit (primarily photo-botanical) to the Provençal Alps. What is, in fact, most surprising about the Alpine countries is that everything is just as one had been told it would be. Butterflies are incredibly numerous and our rarities seem to be especially common. In late May and the first days of June the common white butterflies were *Leptidea sinapis* L. and *Aporia crataegi* L., *Graphium podalirius* L. was commoner than *Papilio machaon* L., *Cyaniris semiargus* Rott. the commonest blue. Having an interest, I went after several butterflies that I thought might be *Pieris napi* L., but all were *Pontia daplidice* L. It becomes clear very rapidly that the limitation of a collection of Lepidoptera to British-caught specimens is just another expression of the Englishman's well-known determination to make his pleasures as difficult as possible.

It is too late for me to begin a European collection, even if I still thought I could do any good with it. I did catch a good many species, but I should not add to scientific knowledge by listing such casual captures here. A much more comprehensive recent list for very much the same area, though about six weeks later in the year, has been given by G. Hesselbarth and H. G. Allcard (*Ent. Rec.*, 68: 88-91). I identified my specimens with reasonable proximity from Le Cerf's little book, *Atlas des Lépidoptères de France, I, Rhopalocères* (1960), which I found more convenient to handle in the wilds than my backless copy of Lang's *Butterflies of Europe* (1884). Whether, after all this time, it is more reliable, I do not know. One would also like much additional information, which it could easily have included.

A butterfly which we saw repeatedly, but never in circumstances that allowed a capture, was a white admiral. Whether the insects were *Limenitis camilla* or *sibilla* or both I cannot be sure. Even specimens would not necessarily have decided the matter, as Le Cerf (like Lang) calls our white admiral *sibilla* L. (and the other *camilla* Schiff). I thought that this question was settled long ago in favour of *camilla* L.

It was somehow disconcerting to find *Colias hyale* L. a common resident. When, on the way home on 6th June, I tried to capture a female in Haute-Saone, I soon found that males much outnumbered females, though this was not the beginning of the flight period. The same discrepancy is often found in *Colias croceus* Fourc. when it has invaded

England—as though some difference in behaviour has led to a separation of the sexes and falsified the ratio. Perhaps someone will do more than speculate as to what this difference may be.

Presumably *Colias croceus* is a migrant even in Provence and we saw very few indeed. *Vanessa cardui* L. was numerous at widely separated places and probably was migrating northwards; during a short stop about fifteen miles east of Aix-en Provence (very light S.W. wind) I noticed several dozen flying past in the expected direction and only one apparently aimless. Two seemed to be chasing one another, but even if so did not lose much northerly speed. This was on 2nd June; on the following day we noticed many *cardui* going north over Mt. Ventoux (30 miles N.E. of Avignon).

On 29th May, east of La Palud (Basses-Alpes), I picked up a large *Parnassius* larva feeding on *Sedum* by the roadside. This travelled round with us in the car, feeding voraciously when taken out for an airing at our many stops and biding its time, until three days later in the Esterel it deserted its box, which I had placed for maximum sunshine on a mountain road. I have no doubt it found plenty of *Sedum* if it still wanted any.

An incident that may illustrate either the omnipresence of supposed rarities, or an extreme of unfortunate coincidence, occurred near Séderon on 3rd June. While I was rather idly examining the less spectacular weeds by the roadside, I put up my hand and grasped a young tree. Feeling something crush slightly, I withdrew my hand and found on it a viscous yellow fluid. On the far side of the trunk was a pupa of *G. podalirius*, showing the wing-pattern fully developed. It had certainly been within a day of emergence.

It was during another roadside stop, this time N.W. of Annécy on 5th June, that we made an observation that might perhaps have been made at home, since it concerned *Gonepteryx rhamni* L., not *cleopatra* L. A male brimstone flew about us repeatedly and ultimately drew my full attention. I then noticed that it appeared to be attracted to the light yellowish-green cap of our vacuum flask. I moved the cap around the vicinity, but in each place the butterfly soon found it—even on the warm car-bonnet. Finally, after fluttering inside the cup for some time, *rhamni* decided that something was lacking which it had hoped to find, and lost interest. Strictly scientifically, what took place in the butterfly when it 'lost interest'? For those who wish to take the matter further, the colour of the plastic was close to Munsell ref. 7.5 GY 8/5.

A spring emergence of *Lysandra coridon* Poda, the males perhaps slightly duller than ours, was flying in many places (for example on Mt. Ventoux on 3rd June) though it was not as generally distributed as *L. bellargus* Rott. Presumably *coridon* is single-brooded farther north in France, as Le Cerf gives only July-August for its flight.

The time has surely come for some study of the different European populations of *coridon* (including perhaps the Spanish *hispana* H.-S. and *albicans* H.-S.), somewhat on the lines of Mr. F. V. L. Jarvis's work on British *Aricia agestis* Schiff. (*Ent. Rec.*, 70: 141-148 and 169-178; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 94-103). Major A. E. Collier's results (*Ent. Rec.*, 73: 71-73) imply that even English *coridon* is potentially double-brooded, and that the tendency is sometimes not without unfortunate practical effect. How much does our blue differ in this respect from the Provençal insect, and how would each behave in the other's

environment? However important temperature and day-length may be, one would expect some quantitative genetic difference. Experiments might be unexpectedly rewarding, but only an amateur is ever likely to be able to afford the time that they would demand. Time presses, as the chalkhill blue's few remaining English localities diminish. One of the most interesting of European butterflies is not to be neglected merely because the attention that its imaginal variation received in the past from our insular specimen-hunters now seems rather pointless.

Redbourn, Herts. June 1962.

Notes on Microlepidoptera

By H. C. Huggins, F.R.E.S.

Crambus contaminellus Hübn. This difficult insect is now being found in a good many southern localities, where no doubt it was previously overlooked. Its flight is of very short duration at dusk and it is difficult to disturb by day, so that unless one turns up at light to show it exists locally it may pass unnoticed for years. Further, it does not seem to wander to any great extent. It is found about two miles from this house at Leigh-on-Sea, but I have never found one in my trap here. The closely related *C. salinellus* Tutt is equally secretive by day, and of as short a flight at dusk, yet, although its haunts are at least four miles away as the crow flies I take one or more every year in the garden and Mr. D. Down has taken it at m.v. in the heart of the town.

Another strange point about *contaminellus* is the prevalence to-day of the black ab. *sticheli* of Constantini. I have a specimen taken at Leigh-on-Sea in 1950 and in the past three years have heard of two series of captures in the London area. So far as I know apart from my odd Leigh specimen, it was not known in this country till 1960, the only dark specimens I have seen taken before that date were of a rich dark brown, quite unlike *sticheli*, and were from Deal sand-hills. It might be inferred from the London captures that *contaminellus* is succumbing to the spread of melanism which has overtaken so many insects, but the blackest *sticheli* I have seen were caught by me in 1960 on the pure white sand at Tresco, Isles of Scilly, where the chalk white forms of *Agrotis ripae* Hübn. occur. As Mr Wackford Squeers remarked: "She's a rum un, is nature".

Agdistis bennetii Curt. The remarkable powers of flight of this frail-looking insect never cease to surprise me. On 8th August the night was very hot and overcast with a light south west wind, and no fewer than five *bennetii* came to my trap here. The nearest salting is at Leigh-on-Sea, three miles as the crow flies. It is somewhat spoilt by various commercial activities and I have not seen *Crambus selasellus* Hübn. there since 1934 and *C. salinellus* Tutt has always been an absentee, but *bennetii* is still common enough, so I suppose mine came from there. However, to cap this, Mr. D. Down had nearly a dozen on the same night at his m.v. light in the heart of Westcliff, to reach this the moths would have to have flown over four miles and passed several roads lit with sodium or in one case mercury vapour lamps.

Old Irish micro records. A friend has asked me why, now that I have taken *Platyptilia calodactyla* Hübn. in West Kerry, I still consider that Foster's record cannot definitely be adopted, as his insect is missing. The answer to this may be found in Dr. Beirne's "List of the Microlepidoptera

of Ireland," p.58. Both the Johnson and Foster collections are extant, and Beirne found that many insects in them were wrongly identified, which was by no means re-assuring. Worse still, however, in the case of a number of species recorded by both these collectors, no specimen was to be found in the collections, and it appeared possible to Beirne that they had subsequently corrected their identifications but not their records.

COLEOPTERA

Notes on Coleoptera

by A. A. ALLEN, B.Sc.

Stenelmis canaliculata Gyll. (Elmidae)—This exceedingly interesting addition to the British List is brought forward in the *Ent. mon. Mag.* for June 1960 (96: 141-3) by M. F. Claridge and B. W. Staddon, who give a very full account of its discovery in Lake Windermere, with ecological and other details, and excellent drawings of the larva and perfect insect. As they point out, Canon Fowler, as long ago as 1889 (*Col Brit. Isl.*, 3: 375) wrote: ". . . it is most probable that *Stenelmis* at least will be at some future period, established as British"—a 'prophecy' destined to be fulfilled seventy years later. A specimen was first taken by Mr. A. Amsden (4.vii.60), which led to its being found in some numbers, together with its larvae, under flat stones in about 18 inches of water. Only a very high degree of localization could account for so distinctive a member of our fauna having escaped notice for so long—assuming it to have been with us from early times, which there is not much reason to doubt; and indeed, the authors of the above paper state that all their specimens came from the one small area, while intensive search at other, and apparently similar places along the lake edge, yielded none. The hypothesis of a more recent arrival in this country cannot, perhaps, be altogether ruled out, but there seems to be no evidence that Elmids ever migrate over long distances.

As a further instance of very restricted range and high localization in the family, one may mention the curious spidery-looking *Macronynchus 4-tuberculatus* Müll., for many years known only from a short stretch of the river Dove in Derbyshire, but discovered much later in the river Teme in Herefordshire (whence most of our present-day specimens come).

Of another species, *Riolus sodalis* Er., there is but one British example on record (S. Devon); it may have been a casual adventive, but it is more likely just extremely local and thus overlooked—besides which, it is not nearly such a distinctive insect as either of the other two mentioned.

S. canaliculata is the 'giant' among the British species, reaching a length of 4.5 mm., and cannot possibly be mistaken for any other by reason of its elongate parallel form and squarish channelled thorax with prominent and truncate front angles; the elytra too, are furnished with strong raised lines. The larva is very elongate and resembles that of *Latelmis volckmari* Panz.

Two new 'British' weevils of conifer plantations.—Two examples of *Otiorrhynchus niger* F. were taken in June 1950, in Rockingham Forest, Northants., by beating young trees of Sitka spruce (see Thompson and Styles, 1958, *Ent. mon. Mag.*, 94: 183). These trees were grown from seed imported from British Columbia, but the beetle is a native of central

and southern Europe, living on various conifers. It somewhat resembles a small *O. clavipes* Bonsd. or *fuscipes* Ol.—species which are not conifer-feeders in Britain—but, among other differences, is more rugose and has dark knees to the red legs.

At the same time and place, Mr. Styles took, also from the Sitka spruce, a specimen of *Polydrusus impar* Gozis—a species found commonly in France on pine and spruce, and recorded as spreading northward in the last fifty years. It is a handsome and easily recognised species, 6-8 mm. long and clothed with fine, hair-like golden-green to partly-blue scales, except on the first and last elytral interstriae; the scutellum is conspicuously whitish, and the legs yellow-brown. (See Thompson, 1959, *ibid*, 95: 15.)

It may be premature, as yet, to claim these two weevils for the British list; but, while it may of course be that neither species will recur here, it is on the whole more likely that they will both be found again, probably before long, and will succeed in establishing themselves. Even if so, they are unlikely to become serious pests in this country. At any rate, coleopterists having easy access to plantations of young conifers, especially in the southern half of England, should keep a good look-out for either of them.

Two other Continental beetles associated with these trees, and known to have been lately extending their range north-westward, may be briefly mentioned as not unlikely to occur here eventually. They are *Laricobius erichsoni* Rosen., a small but taxonomically interesting species, and the very large Scolytid *Dendroctonus micans* Kug. (which in Denmark, etc., has developed a strong liking for Sitka spruce, but appears not to be a major pest). The former belongs to a family, Derodontidae, hitherto unrepresented in Britain, and is beneficial in feeding on aphides destructive to conifers.

A postscript on Polydrusus prasinus Ol., etc.—Since writing on the British status of this species (1959, *Ent. Rec.*, 71: 156) I have found three more specimens in collections beyond the three already referred to—one of them actually turned up in my own, of all the unlikely places! It was purchased some 30 years back, along with very many other 'good things', from the late E. W. Janson's collection, but was among a number of beetles put away in a corner of an odd drawer for further inspection, and forgotten at the time of writing. Presumably, I had doubted its identity for some reason, but examination now proves it to be a genuine (and very fine) *P. prasinus*. On the back of the card is scrawled 'Llandud 5/65', which clearly fixes it as having been taken by Sidebotham at Llandudno at the same time (or at any rate in the same month) as the examples in the Power collection from that place mentioned in my note. There is, moreover, a specimen in the Champion collection bearing a label 'ex coll. Sidebotham', and yet another in the Sharp collection without data—these also in the British Museum. It thus transpires (what is not specified by Fowler, *Brit. Col.*, 5: 202) that at least four specimens, and very probably more, were taken in the above Welsh locality. (There may, for instance, be others in Sidebotham's own collection in the Manchester Museum.) The fact, therefore, that the species bred there seems certain, and its position on our list decidedly strengthened.

Among the more noticeable points serving to distinguish this beetle from the superficially rather similar *Phyllobius maculicornis* Germ., which has been mistaken for it (cf. Fowler, *l.c.*), the following should be

added to those already given by me: the shortness of the antennal scape, the presence of the frontal impression, and the absence of erect pale hairs on the elytra towards apex.

Regarding *Cassida prasina* Ill., whose status I reviewed in a note following that already cited, I may add here that Mr. Lionel Cowley has kindly written to say that the Welsh specimen is in fact (as I had rather supposed) in the Tomlin collection at the National Museum of Wales, Cardiff, and is labelled 'Candleston, May 1889'. I have since inspected the single examples in the Sharp and Champion collections. The former, with only a number beneath the card, is doubtless one of those on which Fowler's Scottish record was based, and there should be at least one or two further specimens from this source extant. The Champion specimen is labelled 'Otterbourne/Hants/H.S.G.,' and is, thus, evidently that recorded as taken by Gorham at Twyford—the two places being only about three miles apart.

DIPTERA

A Few Notable Diptera from Surrey and Kent 1962

By A. A. ALLEN, B.Sc.

Two additions to the list of flies of Bookham Common.—As the Calliphorid *Pollenia vagabunda* Meig. is so rare in Britain and I had already taken a specimen at Clandon, Surrey, two years ago (1961, *Ent. mon. Mag.*, **97**: 88), I was astonished to come across it again so soon afterwards at Bookham Common (in the same county) on 13th April of the present year; the more so as the Diptera of the locality have been well worked and this species not previously found. Moreover, not just a single specimen but at least four were seen that day, of which I managed to capture two. All were sitting on tree trunks in the sun; those caught on oaks in the woods near the station, the others on birches in a more open heathy area. Its common congener *P. rudis* F. (from which the present species is readily known by its bluish abdomen with the shifting patches less broken up, its altogether darker aspect, and average larger size) occurred, more freely of course, in the same situations. On a later visit (26.iv) no further *P. vagabunda* were seen; on the trunks then the dominant fly was the glittering gold green Tachinid *Gymnochaeta viridis* Fln. Considering its previous British history—a mere handful of specimens from scattered localities—it is hard to avoid the conclusion that *Pollenia vagabunda* has of late years been increasing and spreading in Surrey, and may now be in process of colonizing the Bookham area. Oxshott (in coll. B.M.) should, by the way, be added to the few places cited in my 1961 note where the species has been taken.

On my second visit to the Common this spring, as above, I netted among some old grass tussocks in an open place by the side of a path through the woods a Muscid fly which proved to be *Phorbia grisea* Ringd. (Anthomyiinae). The host plant of this species appears to be *Molinia caerulea*, which was almost certainly the grass just mentioned. The specimen was kindly determined by Mr. E. A. Fonseca, and represents another addition to the published list for Bookham Common (Parmenter, 1949, *Lond. Nat.*: 98-133; supplement: (?date) *ibid.* **39**: 66-76).

Ditricha guttularis Meig. at Box Hill.—This Trypetid seems far from common in at least the metropolitan district, if not the south-east generally. Niblett (1956, *The Flies of the London Area* (3, Trypetidae): 1955, *Lond. Nat.* (Reprint 101): 86) records it from four localities only, all in the Surrey sector of the area: Bookham Common, Farthing Down (Coulsdon), Fetcham, and Lacey Green. Although Box Hill is just outside the London Area as defined (a 20-mile radius from St. Paul's) it may be worth reporting the capture of three examples of the fly by sweeping there on 1st August where its foodplant, *Achillea millefolium*, grows scattered about the bottom of Juniper Valley near the entrance from Headley Lane.

Gonioglossum wiedemanni Meig. new (?) to N.W. Kent.—Another Trypetid which seems quite scarce in this part of the country; it is not in H. W. Andrews' *List of Trypetidae taken in North Kent* (1939, *Ent. Rec.*, 51: 153-5), and in the 1956 list for the London area cited in the preceding note the only records are for five Surrey localities. At Abbey Wood on 2nd July—the occasion of first taking *Solva marginata* as under—I had the satisfaction of finding a specimen of *G. wiedemanni* in my net after sweeping in a hedge where some white bryony—its foodplant—was trailing; but on neither this nor later visits were any further specimens forthcoming. The plant was not as luxuriant as in several places nearer here where, however, I have never seen the fly. It appears to be a local species of very irregular frequency, and to have a rather short adult life so that the imagines are not often met with at large, except in odd individuals; but is occasionally to be bred in numbers from the berries.

Solva (= *Xylomyia*) *marginata* Meig. in a new suburban locality.—A strong colony of this interesting Stratiomyid was found at the beginning of July on and about old black poplars on the edge of a large housing-estate occupying what was formerly part of the Abbey Wood Marshes, near Plumstead. A dozen examples were collected—a week later they were much fewer. Most likely, from the great numbers of empty puparia or larval skins present under the bark of one quite dead poplar, the species might at suitable times be considerably more abundant—perhaps rather earlier in the year. No living larvae or pupae were discovered; they doubtless occur in the rotten interiors (the outer wood, even when dead, being hard). The flies are sluggish, sitting about on the trunks and amongst any foliage near at hand, and only rather reluctantly taking to the wing even when disturbed. They were not to be found on wholly dead trees, nor on quite sound ones, but only on some of those which were partly dead or dying; three flies was the most yielded by any single tree.

S. marginata tends to be erratic in occurrence and used formerly to be regarded as very rare and as attached to decayed poplars in Cambridgeshire, but was once or twice taken in profusion. Later records are far more scattered and include such places as London (Bedford Park and the grounds of the Natural History Museum, singly). Mr. L. Parmenter once took a specimen while travelling on a bus, and further tells me that the nearest locality to Abbey Wood, where he knows it to have occurred, is Beckenham, also in N.W. Kent. The late Mr. Philip Harwood records in his diary the capture of three specimens in his garden at Wimborne, Dorset, between 6.30 and 7 p.m. on 23.vii.56, and another the next day at the same time. This suggests the possibility of habitual evening flight. Probably the species has been oftenest obtained freely by breeding.

Acrocera globulus Panz. at Darenth, Kent.—On 21st June I took a specimen of this curious little spider-parasite by beating apple trees in an orchard at Darenth Wood (the scene of so many captures, mostly in earlier times, of choice insects of various orders) whilst in search of certain weevils of the genus *Anthonomus*. Though the afternoon was warm, the fly was extremely sluggish, even seeming at first to be dead, but was not in fact so since it clung motionless to the cork of its tube until killed the next day. This quiescence (unless, indeed, it had been induced by the impact of my beating-stick!) appeared rather to be normal, reminding one in that respect of some of the small Stratiomyids such as *Pachygaster*. The species, no doubt, is the least uncommon of our three British Cyrtidae; and to judge from the localities attached to the long series in the British Museum—including one so near to Darenth as Dartford—is widely spread in at least the south-eastern districts, yet is, I believe, seldom found anywhere in any numbers.

Notes and Observations

ABNORMAL COLORATION IN COLOUR OF CUCULLIA LYCHNITIS Ramb. Larvae.—I was interested in the note under the above heading by Raymond F. Haynes in the September number, page 192. This species is very abundant in West Sussex in some seasons, and then almost absent for a year or so, due I am sure, to the fact that the foodplants *Verbascum nigrum* and *V. lychnitis* are most plentiful on waste ground, and are liable to disappear from their known stations for a year or so and then appear again at a different spot in the same area, and also to the fact that this species often lies over as a pupa for up to seven years occasionally, and for two or three years quite often.

This is a most variable larva, and while the figure mentioned as representing the usual form in W. J. Stokoe's book does represent a very common form, it is only one among many variants. I have taken the form described by Mr. Haynes, it is figured by Buckler, Vol. VI, figs. 3 and 3a on plate XCVII. Having examined many hundreds, if not thousands of these larvae, in the search for unusual forms, I can say that the larva of this species can be unicolorous yellow, apple green or pale green, and from these extremes have a marking that is anything between these rare extremes to the Stokoe figure mentioned, and thence to very heavily black-marked bands, as figured by Buckler in figure 3d. The imagines of this species are not so varied in colour, but nevertheless there are a number of shade variations.—A. J. WIGHTMAN, Pulborough, Sussex.

NOTES ON SOME LEPIDOPTERA AT BROMLEY.—I wonder if any reader has had difficulty in rearing *Morma maura* L.? In the autumn of 1960 I found half-a-dozen young larvae on ivy-blossom when inspecting it for the more usual reason, and last winter I found a half-grown larva crawling up a roadside fence. All these larvae fed up easily enough on dock and, in the spring, on hawthorn. During the winter they appeared to eat whenever the weather was mild. Nevertheless, none of these larvae pupated. They formed loose cocoons in a mixture of earth and peat which had proved satisfactory for larvae such as *Lampra fimbriata* Schreber which had been brought through the winter with them. In each case, the larvae appeared to have died while in the process of pupating as the pupal

integument was partially evident. They appeared to have been attacked by mould, but I am unable to say whether this was the reason for, or the result of their demise.

Sterrha vulpinaria H.-S. has been unusually evident in my garden this year. I have noticed some 14 specimens in and around my m.v. trap, compared with only 1 last year. All my attempts at obtaining eggs have failed. I do not know whether this species lays less readily than its allies or whether my separation of females from males has been faulty. On the other hand, I was pleased to get plenty of eggs from a female *Sterrha straminata* Borkh. These were laid in a curious manner—either one or several eggs up to about four being attached to the top of a slender filament fixed at the base to the surface of the box in which the moth was confined—somewhat reminiscent of lacewing eggs. I did not observe the actual egg-laying or how the filament was produced. It would be interesting to discover exactly what advantage this particular moth obtains from the method of deposition, but I do not suppose that anyone has found an egg of this species in nature. Does any related species have a similar habit.—D. R. M. LONG, White Croft, Mavelstone Close, Bromley Kent. 15.x.1962.

PAPILIO MACHAON LINN. IN KENT.—On 26th August 1962, a specimen of *Papilio machaon* Linn. was caught whilst visiting Sweet William (*Dianthus*), by hand, by Geoffrey Howe, aged 5, in his garden at Bexleyheath. The specimen, now rather the worse for wear, has been examined and is ssp. *gorganus*.—A. J. SHOWLER, 28 Lynsted Close, Bexleyheath, Kent.

EUPITHECIA INTURBATA Hb., at CHATTENDEN.—Although *Eupithecia inturbata* Hb. is usually associated with large maples, two larvae were beaten from the branches of a young tree at Chattenden, Kent, on 25th May 1962. Both had spun up by 30th May, and one moth emerged on 26th July. Is this insect really restricted to large maples, or is it that a large tree is easier to beat and provides more flowers for less effort on the part of the beater?—A. J. SHOWLER, 28 Lynsted Close, Bexleyheath, Kent.

VANESSA CARDUI LINN. IN KENT.—The first *Vanessa cardui* Linn. of the year was noted at Shorne, Kent, on 13th June 1962. Three more were observed on the following day, two at Cobham and one at Wilmington. On 15th, five were seen around Eynsford and Shoreham, and one more was reported from Chatham, whilst on the next day, two were noted at Tunbridge Wells. On 17th, a specimen of *V. atalanta* Linn. was seen ovipositing on nettle in Joydens Wood, Bexley. The evidence suggests a fairly widespread migration into Kent during this period, borne out by the fact that both insects have been quite common during September.—A. J. SHOWLER, 28 Lynsted Close, Bexleyheath, Kent.

NEW FOREST IMMIGRANT LEPIDOPTERA, 1962.—I have been spending the summer in the New Forest, and early in June when visiting Mr. F. W. Gardner of Brockenhurst he showed me a superb long series of *Laphygma exigua* Hübn. in remarkably fresh condition which he had taken on the night of 6th-7th May at his m.v. trap there. He told me that on going out to the trap in the morning there were, at a rough estimate, at least one hundred specimens of this species in and around the trap, and that the birds in all probability had taken at least as many! Small numbers of this species were recorded widely from several Southern English localities

on this particular night and subsequently, but Mr. Gardner's massive record seems to indicate that the centre of the immigrant wave on that night may well have been the Hampshire coast line. This supposition is supported by the fact Mr. L. W. Siggs of Minstead also had a large number in his trap on the same night. Small numbers of *L. exigua* continued to enter all our New Forest traps throughout the summer in decreasing numbers and condition, and I found no evidence of a subsequent home bred generation.

In June *Vanessa cardui* L. was common in gardens, and a few fresh specimens appeared in September, together with a few *V. atalanta* L. *Nomophila noctuella* Schiff. and *Plusia gamma* L. were common but not swarming throughout the summer, and the latter at least produced a good autumn brood. Mr. F. W. Gardner also took a good female *Rhodometra sacraria* L. on 31st July in his m.v. trap. We both also had one or two *Leucania vitellina* Hübn., mine coming unexpectedly to m.v. in the depths of one of the enclosures! *Caradrina ambigua* Schiff. was abundant in good condition in September, and these may well have bred locally. One very worn *Palpita unionalis* Hübn. entered my m.v. trap on 14th September at Lyndhurst.—Commander G. W. HARPER, R.N.(Retd.), Neadaich, Newtonmore, Inverness-shire. 10.x.62.

SALDULA PALLIPES F. (HEM.-HET.): A CORRECTION.—In a note in 1958, *Ent. Rec.*, 70: 197-8, I recorded the jumping bug *Saldula pallipes* F., among other species of the genus, from Lymington Salterns (S. Hants.) and Yarmouth (I. of Wight). Since that was written, however, it has been established that most maritime and estuarine records of this species actually refer to *S. palustris* Doug.—a species so nearly related as to be scarcely separable in individual cases, yet now thought to be distinct. (Cf. Southwood and Leston, 1959, *Land & Water Bugs of the British Isles*: 333.) As expected, all my exponents of *pallipes* from the above places turn out to be *palustris*—as kindly confirmed by Mr. R. J. Izzard of the Dept. of Entomology, British Museum. It is desirable therefore to make this correction.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 14.x.62.

ZYGAENA PURPURALIS BRÜN. ON THE ISLE OF EIGG.—It is well known that a colony of *Zygaena purpuralis* Brün. occurs on Rhum, and Campbell has introduced the insect on Canna, but I have seen no mention of its occurrence on either of the other Small Isles. Muck is rather low lying and the least likely of the islands on which to find it, but on 31st July 1961, I was fortunate in finding one *purpuralis* at rest on a patch of Thyme on the rocky south coast of Eigg. This is a late date for the moth, and no others were seen, so I am unable to suggest how common or otherwise it might be.—A. J. SHOWLER, 28 Lynsted Close, Bexleyheath, Kent.

NORTHERN LIMIT OF XYLOMIGES CONSPICILLARIS LINN.—While collecting in Randan Wood, Worcs., on the night of 2nd of June 1962, with my friend E. A. B. Stanton and his son John, I had the good fortune to find *X. conspicillaris* Linn. crawling in the herbage some two yards from the edge of the m.v. sheet. From other records at my disposal it would appear that this is the most northerly limit to date, only being 15 miles South-West of Birmingham.—L. J. EVANS, 73 Warren Hill Road, Birmingham, 23.

SCHRANKIA COSTAESTRIGALIS STEPH. IN WORCESTERSHIRE.—On another occasion at Randan Wood (17.vii.62) we were just packing up when John Stanton picked up what he thought to be a micro, but it was not until the insect was being set that it was found to be *S. costaestrigalis* Steph. A new record for this area.—L. J. EVANS, 73 Warren Hill Road, Birmingham, 23.

Current Literature

WATER BEETLES AND OTHER THINGS, HALF A CENTURY'S WORK. By Frank *Balfour-Browne*. 8½" × 5". Pp. viii, 219, 4 figures and 7 tables. Blacklock Farries & Sons Ltd., Dumfries. N.D. Price 25/-.

It is unfortunate that the date of publication is not shown. A reader in years to come may not look through the bibliography, but if he does he will find (on p. 158) a reference to a publication of 1960 and from this infer that the book appeared soon after (in 1962 in fact).

The Historical Introduction tells the story of the author's career and makes interesting reading.

In Chapter II he discusses the lists of Marsham, Stephens, Schaum, Hamlet Clark, David Sharp and Fowler. He then deals with the additions since 1887 and concludes with some amusing references to nomenclature.

Chapter III is headed "The County and Vice-County System". It gives a very readable account of the various attempts to devise a system and it explains in detail the Typomap of the British Isles. This explanation will, one hopes, often be consulted. There follows an account of "My Method", most instructive and written in the author's lively style. This Chapter has its own bibliography, as also have Chapters VII and VIII. Now a peculiarity of the book is that Chapter IX is entirely devoted to bibliography. It covers over 60 pages and will be of the greatest value to the student but he must be careful because the items listed in the earlier bibliographies are mostly (perhaps wholly) omitted from Chapter IX.

The Chapters dealing with Habitat (V) and Types of Collecting (VI) will be eagerly read by those studying water beetles. There is much with which some will disagree in Chapter VII where the author treats of the origin of British water beetle fauna but it is enjoyable reading. He concludes his text with a Chapter entitled "Problems" chiefly devoted to Classification and to Reproduction: Sexual and Parthenogenetic. This last is numbered "3" for no apparent reason but once again the treatment is a delight to read, whether one agrees or not.

In this book there is much for the general entomologist, more for the coleopterist and still more for those interested in water beetles. For them it is altogether indispensable. In addition to the usual general index there is at the end an Index of Authors which should be useful. But the great joy of the book is the feeling one gets that here in truth is an account of Half-a-Century's Work, an account written by one who knows his subject and has known his places and his people.—T. R. EAGLES.

ERRATUM.—I must apologise for an error in the penultimate paragraph of the article "Scotland 1962" in the September issue. The reference to *Horisme tersata* Schiff. should, of course, have been to *Scopula ternata* Schrank.—R. G. CHATELAIN.

Nudaria mundana L. Muslin Footman.

Resident, perhaps native. Woods, wet places, gardens; foodplant unknown. Scarce and uncertain in appearance. Apparently extinct in W. Kent.

1. Lewisham, 1845 (Stainton, *Zoologist*, 1194). Hither Green, Lee, two, July 27, 1861, sixteen taken, July 17, 1862; Eltham Swamp, abundant, July 14, 1866 (Fenn, *Diary*). Blackheath, on fences (W. West, in *Wool. Surv.*(1909)). Sydenham, quite common (Barrett, *Br. Lep.*, 2: 199).

2. Gravesend* (see *First Record*). Greenhithe* (Farn MS.).

3. East Blean, 1926 (H. G. Gomm, *Diary*). Ridgeway (A. J. L. Bowes). Whitstable, several ♂♂ (P. F. Harris). Broad Oak, one, August 2, 1946, one, July 31, 1948; both at light (C.-H.).

4. Deal, one, July 28, 1891 (Fenn, *Ent. Rec.*, 2: 203). Minster*, 1914 (H. G. Gomm, *Diary*).

6a. Darenth Wood (Stephens, *Haust.*, 2: 84). Chattenden Roughs (Chaney (1884-87)).

7. Darland Hill; Wigmore (Chaney (1884-87)). Boxley, one, "Boxley, E. Bartlett", in Maidstone Mus. (C.-H.). Bearsted (G. Law, *teste* E. J. Hare). Westwell, 1948 (E. Scott).

8. Folkestone* (Ulyett (1880)). Stowting (C. A. W. Duffield). Stelling Minnis, one, July 15, 1931 (G. H. Youden). Haddling Wood, Waldershare, two, July 16, 1937 (E. & Y.(1949)).

10. Sundridge, July 1825 (Ingpen, in Stephens, *Haust.*, 2: 84).

11. Yalding (V.C.H. (1908)). Wateringbury, eight (E. Goodwin coll.). Hoads Wood, August 3, 1954 (P. Cue).

12. Hothfield (H. C. Huggins). Near Sellenge (Morley (1931)). Hinxhill, July 24, 1934 (A. J. L. Bowes). Wye* (Scott (1936)). Birchett Wood, Ham Street, one at dusk, July 16, 1932 (A. M. Morley); at light, July 24, 1934 (A. J. L. Bowes); July 27, 1951 (E. H. Wild). Brook (Scott (1950)). West Ashford, two ♀♀, taken along a hawthorn hedge, August 1960 (M. Singleton and M. Enfield).

14. Sandhurst, July 17, 19-21, 23, 30, 1932, July 10, 20, 26, 1933, July 24, 1934, July 16, 1935, July 4, 13, 16, 1937, July 19, 1939, July 3, 1943, July 5, 1945, July 12, 19, 1949, July 7, 15, 20, 1953; mostly noted at light, but not seen here previously to 1932, i.e., from 1923-31 (Bull, *Diary*). Hunts Wood, one, July 27, 1951 (G. H. Youden).

FIRST RECORD, 1809: ". . . prope Gravesend Com, Cantii, copiosissime" (Haworth, *Lep. Brit.*, 2: 156).

Comacla senex Hübn.: Round-winged Footman.

Native. Marshy places, carr; foodplant unknown. Extinct in 1.

1. Lee (see *First Record*); eleven, July 16-17, 1863 (Fenn, *Diary*) (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1898: 58); disappeared soon after 1878 (R. Adkin, in *Wool. Surv.* (1908)) (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1934-35: 56, 126). Eltham (V.C.H. (1908)); may refer to the preceding records.

2. Fairbrook Alders, near Faversham (Morris, *Br. Moths*, 1: 46). Dartford Marshes, one, July 20, 1887; three, July 6, 1889 (Fenn, *Diary*). Greenhithe (V.C.H. (1908)). Shorne Mead (H. C. Huggins). Higham, July 29, 1926 (F. T. Grant). Sittingbourne, several, June 26, 30, 1949 (C.-H.). Aylesford, 1954 (G. A. N. Davis).

4. Deal (Harding, *Entomologist*, 2: 194); July 9, 1891 (Fenn, *Ent. Rec.*, 2: 203). Sandwich (V.C.H. (1908)). Reculver, not uncommon on sedges,

♂ ♂, ♀ ♀, July 21, 23, 1935 (A. J. L. Bowes). Westbere, a few, July 23, 1946 (C.-H.). Ickham, plentiful at m.v. (D. G. Marsh).

6. Springhead, common (H. C. Huggins).

7. Bearsted (G. Law, *teste* E. J. Hare). Westwell, 1951 (E. Scott) (Scott, *Ent. Gaz.*, 5: 123).

11. Hoads Wood, c. 1953 (P. Cue).

12. Near Canterbury*, one, at sugar (Parry, *Entomologist*, 5: 394). Hothfield Bog, common; Hinxhill (Scott (1936)). Orlestone Woods, two, July 2, 1946 (C.-H.). Brook, 1951 (C. A. W. Duffield, *teste* E. Scott). Willesborough, one, August 3, 1954 (W. L. Rudland). Ham Street, 1959 (de Worms, *Entomologist*, 93: 177).

13. Tunbridge Wells (Morgan, *Lepidoptera of Tunbridge Wells MS.*)

14. Tenterden (Morris, *Br. Moths*, 1: 46).

15. Appledore, very plentiful, July 1898 (Heitland, *Entomologist*, 31: 221). Dungeness, one, August 15, 1931, ten at dusk, July 23, 1932, many at dusk, August 3, 1934, one, August 4, 1935, three, August 11, 1946 (A. M. Morley); common at the ponds, August 5, 1934; July 22, 1935; August 6, 1938 (A. J. L. Bowes); fairly common, 1949 (Morley, *Trans. Folkestone nat. Hist. Soc.*, 1949: 17); four at light, 1956 (R. F. Bretherton); one, August 19, 1958 (E. C. Pelham-Clinton); 1959 (C. R. Haxby). Dymchurch, one, July 7, 1933 (A. M. Morley); 1952 (Wakely, *Ent. Rec.*, 65: 44).

16. Folkestone Town, one, at m.v., 1954 (R. W. Fawthrop, *teste* A. M. Morley); one, at m.v., June 4, 1960; one, at m.v., June 7, 1961, "both unusually early dates" (A. M. Morley) (these abnormally early appearances are very remarkable (C.-H.)).

FIRST RECORD, 1861: Manor Farm Lane, Lee, "Stainton says he has taken it at the sallow pit" (Fenn, *Diary*, 2.viii.1861).

Miltochrista miniata Forst.: Rosy Footman.

Native, Woods; foodplant unknown. Frequent in 3, 6a, 10-14.

Obs.—Usually fairly numerous at light in Orlestone Woods, and on a good night, as many as 20-30 may be noted (C.-H.). Stone-in-Oxney (div. 14), one by day, July 4, 1933, near the border of div. 15 (A. M. Morley).

1. The only comparatively recent records for this division are:—West Wickham, at sugar, 1926 (S. Wakely); 1951 (E. Trundell). Lessness Abbey Woods (Newell, *Trans. Plumstead & Dist. nat. Hist. Soc.*, 1931-32: 12); 1953 (J. Green). Woolwich (de Worms, *Lond. Nat.*, 1953: 138); refers to the preceding occurrence. Dartford district (B. K. West). Farningham Wood, several, June 26, 1959 (R. G. Chatelain).

2. Sheppey, one, June 16, 1868 (J. Walker MS.).

4. Ickham, not uncommon at m.v. (D. G. Marsh).

5. Halstead, 1925 (Frampton, *Entomologist*, 59: 173).

6. Pinden (E. J. Hare).

7. Westwell, July 5, 1932 (Bull, *Diary*). Boxley, 1953 (A. H. Harbottle).

8. Folkestone* (Ullyett (1880)). Reiden Wood, 1882 (Salwey, *Entomologist*, 15: 198); two at light, July 27, 1948 (A. M. Morley). Whitehill Wood, near Bridge, one, July 6, 1930 (A. M. Morley). Near Waldershare; Dover (E. & Y. (1949)).

16. Folkestone Town, ♂, at m.v., July 2, 1952; one, by R. W. Fawthrop, at m.v. (in 1954) (A. M. Morley).

VARIATION.—The ab. in which the wings are pale yellow without any trace of red, *flava* de Graaf (= *crocea* Bign.) appears to be rare, and only

two specimens from Kent are known:—Orlestone Woods, ♂, June 27, 1952 (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 21); Holt Wood, Aylesford (div. 11), 1956 (Davis, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 25).

FIRST RECORD, 1829: Near Darenth Wood (Stephens, *Haust.*, 2: 91).

Setina irrorella L.: Dew Moth.

Native. Chalk downs and undercliff, shingle beach; foodplant unrecorded. Very local. Doubtless long extinct in 1; probably casual in 11.

1. "Several specimens have been caught on Dartford-common and near Birch-wood" (Stephens, *Haust.*, 2: 99).

6. Near Rochester* (see *First Record*). Shoreham, one, 1904 (R.C.K.). Shoreham; Otford (V.C.H. (1908)). Kemsing, one taken, June 1938 (A. M. Swain).

8. Dover.—"taken in some plenty", near Dover, June 1851 (Spilsbury, *Zoologist*, 3289). On the downs between Dover and St. Margaret's Bay, four; June 27-28, 1908 (P. A. Cardew, *Diary*). In 1932, J. H. B. Lowe, B. Embry, and A. M. Morley found between eighty and ninety larvae in April below Shakespeare Cliff by day; from those kept by A. M. M., 3 ♂♂, 6 ♀♀ were bred June 24-July 10 (A. M. Morley). Deal.—1858 (Baldwin, *Ent. week. Int.*, 4: 134); 1859 (Harding, *Ent. week. Int.*, 6: 91). St. Margaret's Bay, one, by J. W. Tutt, August 1, 1890 (Fenn, *Diary*). Folkestone.—Nineteen, June 1858 (Drury, *Ent. week. Int.*, 4: 102); 2 ♂♂, June 5, 1859 (H. Tompkins MS.); August 1-2, 1860 (Fereday, *Ent. week. Int.*, 9: 139); Warren, common, 1869 (Vaughan, *Ent. mon. Mag.*, 6: 94); common in the Warren towards the shore (Knaggs (1870)); July 1898 (Butler, *Entomologist*, 31: 243); in 1932, a larva, May 18, below the Royal Oak (A. M. Morley); two there, April 23, 1962 (C.-H.). Folkestone Warren.—One, at dusk, July 24, 1931, one, July 22, 1935, one, July 1, 1937, two, June 25, 1946, two, June 26, 1948 (A. M. Morley); a larva, below Capel, April 23, 1938, a larva, August 30, 1952, 2 ♀♀, July 2, 1955 (C.-H.); two imagines, May 25, 1953 (A. H. Harbottle).

11. Holt Wood, Aylesford, one at m.v., 1954 (G. A. N. Davis).

15. Dungeness.—Larva not uncommon on stones, 1935, 1938 (H. C. Huggins); locally very abundant in the Bird Sanctuary, June 22, 1938 (A. G. Peyton, *teste* A. J. L. Bowes); 20-30 disturbed from rough herbage by the Hope and Anchor, July 4, 1950, all in good condition (A. M. Swain); three, June 6, 1950 (E. C. Pelham-Clinton); June 30-July 3, 1954 (R. F. Bretherton); July 28, 1956 (W. L. Rudland); at light, July 7-8, 1959 (C. R. Haxby, *teste* A. M. Morley).

VARIATION.—In R.C.K. are the following abs.: *signata* Borkh., one, Folkestone, 1879, one Folkestone, 1885; *brunnescens* Hirschke, one, Kent, 1883, one, Dungeness, bred H. B. D. Kettlewell, 1938; *andereggii* H.-S., one, "Shoreham, 1904". Also, a heavily streaked ♂ ab., "Folkestone", "Coll. Boot of Derby".

All Dungeness specimens that I have seen have been of particularly good size; I have 1 ♂, 5 ♀♀, taken by A. G. Peyton, June 19, 1938, al. exp. of ♀♀ 25-28 mm., ♂ 31 mm. (C.-H.).

FIRST RECORD, 1816: "Taken copiously near Rochester in 1816, and the following year" (Henslow, in Stephens, *Haust.*, 2: 99).

Cybosia mesomella L.: Four-dotted Footman.

Native¹. Woods, heaths, carr, etc.; foodplant unknown. Mainly off the chalk. No recent records for W. Kent, and apparently extinct in 1.

1. Birch Wood (Stephens, *Haust.*, 2: 100). West Wickham (Barrett, *Ent. week. Int.*, 4: 109). Pauls Cray Common, one, June 26, 1888, one, July 15, 1893 (Fenn, *Diary*); fairly common, 1911 (S. F. P. Blyth). Chislehurst (A. H. Jones, in *Wool. Surv.* (1909)), probably refers to St. Pauls Cray Common (C.-H.). Bexley dist. (L. W. Newman, in *Wool. Surv.* (1909)).

3. Blean Woods, twenty-four taken, June 10-11, 1865 (Fenn, *Lep. Data MS.*). Near Canterbury*, a few at sugar (Parry, *Entomologist*, 5: 394). East Blean Wood, Church Wood, and Clowes Wood, 1922-27 (H. G. Gomm, *Diary*). Mincing Wood, 1934 (A. J. L. Bowes). Timber Wood and Paddock Wood, common, 1938-39; Great Hall Wood, 1949; Church Wood, one, June 13, 1953 (C.-H.).

4. Ham Fen, five, July 9-11, 1891 (Fenn, *Ent. Rec.*, 2: 203); one, c. 1955, one, July 3, 1960 (C.-H.). Deal (E. & Y. (1949)).

6. Greenhithe* (Farn MS.).

6a. Darenth Wood (Stephens, *loc. cit.*); one, June 21, 1862 (Fenn, *Diary*). Chattenden, two, July 16, 1869 (Walker MS.); one, June 24, 1884 (Fenn, *Lep. Data MS.*); two or three annually, 1902-10 (H. C. Huggins) [Chattenden] (Porritt, *Entomologist*, 7: 181).

8. Folkestone* (Ullyett (1880)). Near Barham, one, 1926 (E. & Y. (1949)). Elham (W. E. Busbridge). West Wood, one, 1935 (C. J. Goodall, *teste* A. M. Morley); one, beaten out of spruce, June 19, 1950 (A. M. Morley).

10. Brasted, July 6, 1901 (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1901: 22). Sevenoaks (W. E. Busbridge).

11. Yalding (V.C.H. (1908)). Hoads Wood, 1951, common, 1953 (E. Scott); 1956 (C.-H.). Aylesford, c. 1954 (G. A. N. Davies).

12. Ham Street Woods.—(Scott (1936)); of regular occurrence in many parts of Orlestone Woods, particularly so in the more open places, and heathy spots (C.-H.); June 2-5, 1950 (R. F. Bretherton); June 10, 1960 (R. G. Chatelain). Brook* (Scott (1936)); 1951 (C. A. W. Duffield, *vide* E. Scott). Wye, one, June 22, 1956 (W. L. Rudland). Hothfield, July 6, 1957 (Philp, *Bull. Kent Fld. Cl.*, 3: 8).

13. Tunbridge Wells district (Cox, *Entomologist*, 4 (62), ii). Tunbridge Wells (E. D. Morgan). Groombridge (*Bull. Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 59).

14. Tenterden, common (Stainton, *Man.*). Hunts Wood, one, July 9, 1949 (G. H. Youden, *teste* A. M. Morley). Hawkhurst, two, 1952-53 (B. G. Chatfield).

15. Dungeness.—A. L. Goodson informed me that near the Lighthouse on the night of June 29-30, 1954, he and G. Rance of Tring Mus. witnessed at m.v. the sudden appearance around midnight of about a hundred *mesomella*; the visitation lasted for about half an hour, nearly all were *ab. flava* de Graaf, and at times they appeared in such numbers that it was like "golden rain" (C.-H.); at light, July 7-8, 1959 (C. R. Haxby, *teste* A. M. Morley).

VARIATION.—I have frequently noted *ab. flava* de Graaf (*flava* Preiss) at Blean, and I also possess five *flava*, taken Ham Street, 1951 (C.-H.).

FIRST RECORD, 1829: Stephens, *loc. cit.*

¹Possibly also an occasional migrant, judging by the extraordinary visitation at Dungeness on the night of June 29-30, 1954.

Lithosia quadra L.: Four-dotted Footman.

Probable immigrant. Woods, etc. Recorded from all divisions, except 3, 5-7, 14.

Altogether some sixty to seventy examples of *quadra* have been noted in Kent, all imagines so far as is known. It is interesting to observe that none was reported for the period 1908-34, but that in 1951, after a severe thunderstorm, the insect appeared in southern England over a very wide area, and in Kent alone a total of twenty-seven individuals (27 ♂♂, 1 ♀) was seen; thus strongly indicating a migratory movement from abroad, resulting in widespread invasion.

The earliest reference to the species in Kent is by Stephens (*Haust.*, 2: 97), who gives Darenth and Birch Woods as localities. Thereafter, it was recorded as follows—(1853): "Kentish coast" [Deal], exhibited by H. J. Harding at Society of British Entomologists, September 6, 1853 (*Zoologist*, 4071). 1856: Near Dover (Harding, *Ent. week. Int.*, 1: 132) (St. Margaret's Bay (Tutt, *Br. Moths*, 67), and "near Dover" (S. Webb, in *V.C.H.* (1908)), may both refer to Harding's record); New Brompton, near Chatham, ♀, July (Chaney (1884-87)). N.d.: Ramsgate (Stainton, *Man.*). [c. 1870]: Folkestone neighbourhood, one, by Mr. Blackhall (Wellman, *Entomologist*, 13: 241). 1872: Sheppey, ♂, beaten out of ash tree (Walker, *Ent. mon. Mag.*, 9: 162). 1875: North Kent [Chattenden], July, "rare visitor to sugar" (Tugwell, *Entomologist*, 8: 292) (Chattenden Roughs, rare (Chaney (1884-87))), may refer to Tugwell's record); Darenth Wood, exhibited by Messrs C. & S. Channon at South London ent. nat. Hist. Soc., November 4, 1875 (*Ent. mon. Mag.*, 12: 167). 1880: Between Folkestone and Sandgate, ♀ (Wellman, *Entomologist*, 13: 241) (Folkestone (Ullyett (1880)), may refer). 1891: New Cross, ♀, July 18, taken by A. E. Cook (Cook, *Entomologist*, 24: 196). [c. 1895]: Folkestone Town, "J. W. Walton said that there had been a small invasion and he had taken some at street lamps"; "W. J. Austen told me several were taken in Folkestone" (A. M. Morley, *in litt.*). 1902: Maidstone, ♂, August 12, J. Lower, in Maidstone Mus. (C.-H.). 1906: Chattenden, ♂, July 4, beaten out by H. C. Huggins (C.-H. coll.). 1907: Tunbridge Wells, ♂, on sunflower in Queens Road (E. D. Morgan). N.d.: Bexley (C. Fenn, in *V.C.H.* (1908)). 1935: Ham Street, ♂, June 26 (H. C. Huggins). 1938: Dover, ♂, at sugar, August 5, ♀, August 15, taken on the cliffs (Embry, *Entomologist*, 72: 15). 1939: Ham Street, ♂, August 20, taken by Russell James (Bowes, *Ent. Rec.*, 52: 77); ♀, at light, August 21 (H. C. Huggins); Sandwich, one, taken by T. Robinson (A. J. L. Bowes).

1951: Margate, ♂, July 31 (W. D. Bowden); Dover, eight ♂♂, August, at m.v. (Youden, *Entomologist*, 84: 261); Folkestone Town, ♂, July 31, ♂, August 4 (Morley, *Ent. Rec.*, 64: 171); Brook, three ♂♂, July 31 (Duffield, *Ent. Rec.*, 63: 179); Aylesford, ♂, ♀ (G. A. N. Davis); Dungeness, ♂, August 4 (C.-H., *Ent. Rec.*, 63: 247); Orlestone Woods, three ♂♂, August 1, two ♂♂, August 2 (C.-H., *Ent. Rec.*, 63: 247); one ♂, August 3, one ♂, August 7 (E. J. Hare); two ♂♂, August 3 (G. Haggett); ♂, August 3, H. S. & P. J. Robinson (R.C.K.); Folkestone Town, ♂, September 25 (R. Lovell).

1953: Ham Street, one ♂, July 6 (E. J. Hare). 1955: Dover, ♂, August 16, at m.v. (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955, 47); Folkestone Town, ♀, September 23, 1955, taken by R. W. Fawthrop (A. M. Morley). 1956: Dover, ♂, July 27, ♂, July 31, both at m.v. (G. H. Youden); Wye, ♀, at m.v., July 27 (W. L. Rudland); Ham Street, ♂, August 2 (D. G. Marsh); Folkestone Town, ♂, August 13 (A. M. Morley). 1957:

Ashford Town, ♂ (P. Cue). 1960: Shorne Ridgeway, ♂, June (E. Trundell); Folkestone Warren, June 29, ♂, at m.v. (Mere, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1960: 15); Ham Street, ♂, June 24 (de Worms, *Ent. Rec.*, 72: 246).

VARIATION.—In R.C.K. is a ♂ ab. *luteomarginata* Lamb., Ham Street, August 3, 1951.

FIRST RECORD, 1829: Stephens, *Haust.*, 2: 97.

Eilema deplana Esp. (**depressa** Esp.): Buff Footman.

Resident. Wood borders and bushy places on chalk; foodplant unrecorded. Local. Probably in more localities than the records indicate and perhaps increasing.

6. Near Kemsing (Carrington, *Entomologist*, 13: 77).

7. Westwell, ♂, July 26, 1951, taken by E. Scott (C.-H., *Ent. Rec.*, 63: 299); two, 1952, one, August 7, 1953 (E. Scott), ♂, August 10, 1956 (Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 36). Boxley, one, 1953 (A. H. Harbottle). Kings Wood, Challock, two larvae beaten from ancient yews by L. C. Bushby, May 27, 1956 (Scott, *Trans. Folkestone nat. Hist. Soc.*, 1956: 5); "resulting from Bushby's discovery of the larvae on May 27, he and I together later collected 6-8 larvae, three of which I took and bred two months, June 29, July 5, 1956" (P. Cue, *in litt.*).

8. Dover, one, in m.v. trap, in garden, July 1, 1952 (G. H. Youden). Betteshanger, two ♂♂, at light, July 6, 1957 (R. F. Bretherton).

9. Margate neighbourhood, several specimens exhibited by S. A. Blenkarn, December 14, 1911 (Blenkarn, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1911-12: 89).

FIRST RECORD, 1880: Carrington, *Entomologist*, 13: 77.

E. griseola Hübn.: Dingy Footman.

Native. Marshy places, damp woods; foodplant unknown. Extinct in 1.

1. Eltham Swamp, three, July 20, 1865; Lee, one, July 21, 1865 (Fenn, *Diary*).

2. Greenwich Marshes, one, July 19, 1865 (A. H. Jones, *teste* Fenn, *Diary*). Greenhithe (Farn MS.). Gravesend, one at street lamp, July 21, 1914 (F. T. Grant). Burham Marsh, near Aylesford, one, 1954, one, 1955 (G. A. N. Davis).

3. Between Whitstable and Chestfield, singletons, 1936, 1942-43, 1946 (P. F. Harris).

4. Deal neighbourhood*, 1858 (Baldwin, *Ent. week. Int.*, 4: 133). Minster Marshes, three, August 11, 1915, one, July 28, 1921, four, July 25, 1925, one, August 9, 1927 (H. G. Gomm, *Diary*). Sandwich (V.C.H. (1908)); July 30, 1951, three, August 3, fairly common, August 30, 1954 (W. D. Bowden); August 5, 1957 (R. F. Bretherton). East Stourmouth, four in bushes by day, July 28, 1933 (A. M. Morley). Ham Fen, about twelve at light, August 6, 1950 (C.-H.). Ickham, plentiful at m.v. (D. G. Marsh).

6a. Chattenden, odd ones, 1902-10 (H. C. Huggins).

7. Wigmore Wood, uncommon (Chaney (1884-87)). Westwell, one, August 5, 1952 (E. Scott).

8. Folkestone Warren, 1882 (Salway, *Entomologist*, 15: 198). Kingsdown, one, August 15, 1884 (Fenn, *Lep. Data*, MS.). St. Margarets, 1890 (Fenn, *Ent. Rec.*, 1: 204). Folkestone*, one, August 16, 1907, in Br. Mus. S. Kensington (C.-H.). Whitfield, one, 1933 (E. & Y. (1949)). Reinden Wood, one at light, July 27, 1948 (A. M. Morley).

9. Ramsgate, one, c. 1914 (J. W. C. Hunt). Birchington, ♀, August 8, 1915; Quex Park, one, August 19, 1915; Nash Court, one, August 13, 1915 (H. G. Gomm, *Diary*).

11. Yalding (V.C.H. (1908)). Wateringbury (Goodwin MS.). Hoads Wood, 1951, August 6, 1953, 1954 (E. Scott); 1956 (P. Cue).

12. Near Canterbury*, a few at sugar (Parry, *Entomologist*, 5: 394). Canterbury*, one, 1904, five, 1906, two, 1907 (F. A. Small coll.). Ham Street, July 1934 (A. J. L. Bowes); two, Orlestone Woods, 1960 (C. R. Haxby). Brook; Hothfield; Little Chart (Scott (1936)). Chartham (P. B. Wacher); 1958 (P. Cue). Willesborough, one, July 12, 1954; Wye, one, August 15, 1953 (W. L. Rudland).

13. Broadwater Down, one at light (Townsend, *vide* E. D. Morgan).

14. Great Heron Wood, one, July 23, 1949 (C.-H.).

15. Hythe, four among reeds by the canal at dusk, July 27, 1929, with W. O. W. Edwards (Morley, 1931); W. Hythe, common, 1956, six, 1957 (P. Cue) Dymchurch, one, August 12, 1932, one, July 28, 1933 (A. M. Morley); 1947 or 1948 (P. le Masurier); two, 1952 (Wakely, *Ent. Rec.*, 65: 43). Dungeness, at light, July 30, 1932 (A. M. Morley). Military Canal near Kenardington, one, August 1959 (M. Enfield).

16. Folkestone Town, at m.v., one, 1951, two, 1952, three, 1953, two, 1954, three, 1955, none, 1956, one, 1957, four, 1958, two, 1959, none, 1960-62; in 1951, one September 5, a late date (A. M. Morley).

VARIATION.—Of ab. *flava* Haworth (= *stramineola* Doubleday), a very distinctive yellow form, so frequent in many parts of the range of this species in England, it is remarkable that the only known occurrence in Kent is of one taken by D. G. Marsh, at m.v., at Ickham (div. 4), July 18, 1961 (C.-H.).

FIRST RECORD, 1858: Deal neighbourhood (Baldwin, *Ent. week. Int.*, 4: 133).

E. lurideola Zinck.: Common Footman.

Native. Woods, gardens, marshes, etc.; foodplant unknown. Found in all divisions; generally fairly common. Rather scarce in 1; few records for 2, 15. "Getting scarce" (V.C.H. (1908)).

Obs.—G. A. N. Davis states that at Holt Wood, Aylesford (div. 11), it is "commoner than *L. complana*". At Ham Street, July 14, 1934, twenty noted at light (A. M. Morley); many at m.v., 1946, 1951 (C.-H.).

The feral larva has been noted on three occasions:—Broad Oak (div. 3), one, full-grown, in my garden at sugar, on a lichen-covered apple trunk, July 3, which produced a ♀, July 23, 1946 (C.-H.); Margate (div. 9), one taken June 17, from which an imago was reared, July 6, 1951 (W. D. Bowden); Farningham Wood (div. 1), one, nearly full-grown, May 22, imago reared June 22, 1957 (A. A. Allen).

1. Recent records for this division are:—Dartford, 1952 (B. K. West). West Wickham, one, August 12, 1953 (E. Trundell); ♀, at house light, August 1962 (C.-H.). Orpington, one, 1955 (L. W. Sigs). Lee, one, 1961 (C. G. Bruce).

2. Gravesend district (H. C. Huggins).

15. Dungeness, ♂ at light, ♀ at sugar, both July 26, 1935 (A. M. Morley); ♀ at m.v., July 25, 1952 (C.-H.); July 7, 1959 (C. R. Haxby). Greatstone, "fairly common at light", August 1960 (D. Youngs).

FIRST RECORD, 1859: Near Deal (Harding, *Ent. week. Int.*, 6: 140).

E. complana L.: Scarce Footman.

Resident, perhaps native. Woods, heaths, chalk downs, etc. [on *Lotus corniculatus*.] "Scarcer than formerly" (V.C.H. (1908)).

1. Dartford Heath (Jenner, *Week. Ent.*, 2: 197); 1867 (Wormald, *Ent. Ann.*, 1868: 113); common (B. K. West); larva swept from heather, June 6, 1959 (R. G. Chatelain). Abbey Wood, one, August 30, 1862 (Fenn, *Diary*). Sydenham (Sellon, *Ent. Rec.*, 2: 164). St. Paul's Cray (Carr, *Entomologist*, 33: 46). Bexley dist., rare; Bostall Heath; Plumstead Common; Pauls Cray Common; Blackheath; Chislehurst (*Wool. Surv.* (1909)). Chislehurst, three, August 4-6, 1909; one, August 18, 1910; not seen since (S. F. P. Blyth). West Wickham, at sugar, 1926, 1929 (S. Wakely); one, August 12, 1953 (E. Trundell). Belvedere, 1954 (C. Hards, *vide* A. J. Showler). Farningham Wood, June 26, 1959 (R. G. Chatelain).

2. Between Kingsferry and Chetney Marshes, seven fresh specimens including a pair *in cop.*, June 26, 1949 (C.-H.).

3. Canterbury, a series at sugar (Parry, *Entomologist*, 5: 394); *complana* exhibited by A. U. Battley at North London Natural History Soc., September 29, 1896 (*Ent. Rec.*, 8: 224). Blean (V.C.H. (1908)); larva, imago reared July 19, 1924 (H. G. Gomm, *Diary*). Bossenden Wood, 1927, larva on oak stump (H. C. Huggins). Whitstable (P. F. Harris). Den Grove, July 14, 1939; Broad Oak, July 27, 1946, July 31, 1948 (C.-H.).

Near Deal* (Harding, *Ent. week. Int.*, 1: 163, 6: 140) (Baldwin, *op. cit.*, 4: 133). Deal, a few along dyke sides (Fenn, *Ent. Rec.*, 1: 204).

5. Westerham (R. C. Edwards).

6. Greenhithe* (Farn MS.). Cuxton* (Tutt, *Ent. Rec.*, 4: 249, 275). Eynsford, one, July 4, 1934 (Kidner, *Diary*). Fawkham (E. J. Hare).

6a. Darenth Wood (see *First Record*). Chattenden Roughs, one, July 12, 1857 (Chaney (1884-87)).

7. Westwell, July 21, 1934, August 4, 1945, July 19, 20, 22, 23, 24, 1946 (G. V. Bull, *Diary*). Boxley, 1953 (A. H. Harbottle).

8. Many records for this division, particularly for the coastal areas. The following are among the more interesting:—Dover, a larva, 1857, imago reared (Turner, *Ent. week. Int.*, 3: 13). Dover Cliffs, larva, May 1, imago emerged July 5, 1932, larva, May 23, imago emerged July 6, 1934 (J. H. B. Lowe). Dover district, "larvae may be found in company with those of *irrorella*" (E. & Y. (1949)). Folkestone.—July 24-August 1, 1858 (H. Tompkins MS.); "Not uncommon in Warren; July. Larvae on *Lotus corniculatus*; May" (Knaggs (1870)); on paths leading to the Warren, two larvae, April 30, two larvae, May 20, 1932, they were fed on faded leaves of *L. corniculatus*, and the imagines emerged July 5-August 19; on paths leading to the Warren, a larva, April 4, 1948, imagines numerous, 1935, about 30 imagines at night, June 30, 1936 (A. M. Morley). Reinden Wood, several, July 27, 1948 (A. M. Morley). Chilham, not uncommon, by beating hawthorn bushes on the downs, July 23, 1936 (A. J. L. Bowes). Brook (C. A. W. Duffield).

9. Quex Park, July 18, 1932 (H. G. Gomm, *Diary*).

11. Aylesford (G. A. N. Davis). Hoads Wood (P. Cue).

12. Ham Street.—Is of regular occurrence, and usually fairly numerous at light. Occasionally abundant, as in 1934, when A. M. Morley (*in litt.*) wrote that he and three others counted 70 at dusk and light, July 20; and on July 22, when A. J. L. Bowes (*Diary*) noted that "it almost entirely replaces *lurideola*", adding that it "swarmed at car lights, July 22, 1934". Very common at m.v., August 15-20, 1960 (C. R. Haxby

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Lepidoptera of the Isle of Wight.—I am preparing a new County list using a card index, and would be most grateful for records since 1906 of ALL species with FULL data (e.g. numbers of commoner species are important).—*R. P. Knill-Jones, "Brooklands", Freshwater, Isle of Wight.*

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine:

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CHANGES OF ADDRESS to the TREASURER.

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ENTOMOLOGIST'S
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AND JOURNAL OF VARIATION

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

with the assistance of

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Dingle in 1962

By H. C. HUGGINS, F.R.E.S.

In a former note (*Ent. Rec.*, 73: 203-6) I gave an account of the expedition made in 1961 by Mr. E. S. A. Baynes and myself to Inishvickilaun in the Blaskets in search of *Euphyia bilineata* L. ssp. *isolata* Kane. Although we saw one, which we were unable to catch, I was not satisfied until I had taken the moth, and resolved to go again in 1962 to look for *isolata* and also for any more of the Dingle *Cryphia muralis* Forst. I might be lucky enough to find.

This year I sent a moth trap in advance, for use in the month I proposed to stay in Dingle (June 27-July 24) which arrived all right, but unfortunately, I also sent some luggage in advance in a suit case and put the choke in this, but the suitcase went astray until we had been twelve days at Dingle. I was therefore not able to set the trap at once. After nine days I was rescued by the great kindness of Mr. Baynes, who, on hearing of my misfortune, posted his own choke to me from Dublin, but it was maddening to have the fine weather and heavy overcast nights, and be able to do nothing.

I may perhaps at the outset deal with the two main objects of my visit, *isolata* and *muralis*. As I have previously pointed out a visit to Inishvickilaun is no joke, and can only be attempted under ideal conditions, owing to the difficulty of landing. I was at Dingle for twenty-eight days, and only on five was sailing possible, and on three of these the boat could not go. On 1st July, an ideal day, I got across and saw no less than four *isolata*, all males, without getting a chance to make a stroke at one. Only one of these came from a possible position and then went straight up the cliff, the rest I disturbed by dropping rocks over the edge into favourable places, and none came near me. On 8th July we fixed a party, but sailing was impossible, but on the 15th I was able to get across again; it was a lovely day, but our stay was cut short as mist began to rise about 4.30, and we did not wish to spend a night under the shelter of Great Blasket waiting for it to clear. I was thus only two hours on the island, but luckily I took a spare net and Mr. S. Nolan who owned the boat, came ashore with me and left the rest of the party to go pollack fishing with his boatman. Almost directly after I landed, whilst Mr. Nolan was having a swim, I put up an *isolata* by rock-dropping, which flew into a very nasty place, where I left it. After this I gave Mr. Nolan the spare net and in about an hour-and-a-half, by working all possible (and nearly impossible) places, we each got a male *isolata* in fresh condition. I also had a great disappointment, I put up the only female I have seen, and it flew over comparatively accessible ground, straight to a small clump of bracken. Had I rushed it, I should most probably have caught it, but I resolved to make a "sitter" of it and let it settle in the brackens. After taking a deep breath or two, I advanced to the bracken and utterly failed to put it up, either by beating or by puffing a whole pipe of tobacco into it, so the moth must have gone down a narrow cleft amidst the bracken roots. On our rather hurried return to the boat, owing to the mist, the fishing party, having caught some thirty pollack, came ashore and one of them, Mr. J. Ringrose (a cousin of the celebrated show jumper) started up the cliff to try to look into a puffin's hole. In so doing, he put up the *isolata* I had given up as too dangerous, directly we landed; it went up to a still more hazardous place, but he

came down, grabbed my net, and going up like a steeple jack, caught it and brought it down. I had told him not to go as no moth was worth the risk, but he did it and the moth is now in my collection. It will thus be seen that on my second trip I also saw four, but this time got three, all males. Of the nine specimens in all I have seen on Inishvickilaun, all except one were males. The males are very small, much smaller than Kane's old ones from Tearaght; the females, judging by the one brought back by Mr. Flynn in 1953, and given by Mr. Baynes to the R.C.K. collection at Tring, and the one I saw flying, are of normal size. The moth appears to be both rare and secretive, it only lives on cliff faces, most of which overhang and are completely inaccessible, and I think that the female lives in clefts and is not easy to disturb. The whole island is difficult ground, there is only one path from the shore to the top, and this is a rather nasty one; a member of the fishing party, who was wearing leather shoes, thought it safer to go up in his stockinged feet.

Whilst we were at Benners, the wife of one of the 1953 ornithological expedition came there for the night and sat with my wife and myself for dinner. She told us that her husband's party arranged to go on a Friday, and be picked up on the following Sunday, but it was not until the Saturday a week later that they could be taken off. After Tuesday, all provisions ran out, and they lived on half-raw rabbit and pollack frizzled over a primus stove!

The Inishvickilaun *isolata* males seem to be exactly alike, almost jet black with a fine metallic shine on the forewings. The nine *isolata* I have now seen were the only *bilineata* I saw on the island; there are no yellow or brownish ones as in other Irish cliff localities, and none whatever anywhere on the island but on the cliffs and rocks. It is evident that the accounts given by Bower and Westropp, that Kane found only *isolata* on the Tearaght, are quite correct, and that it is a true subspecies arising from a different genetic make-up than the fine dark aberrations (ab. *ethelae* Huggins, ab. *hibernica* Prout, etc.) existing in very small numbers amongst the yellow ones on some mainland cliffs.

Muralis was later in 1962 than usual and did not appear until 14th July. After that we saw it every day, but as in 1961, we found it very scarce. In all, we saw 22, including one cripple, which did not average one for an hour's searching, and none came to the trap. This year's work confirmed my previous opinion that the Dingle *muralis* is a very distinct race. In the two years, I have seen in all, 35 specimens, and none is of the typical black-patterned form. The Dingle ones are all dull mottled green or greenish-grey, with the exception of a very occasional rare aberration. My wife took a second ab. *nigra* Huggins, and I took one of the very rare ab. *castanea* C. & W. so far only known from two Cork specimens taken by Westropp. In addition, we took three blackish-green insects of the same pattern as *nigra* and *castanea* except that the whole ground colour was blackish-green. These appear to be quite new, but are too near *nigra* in my opinion to require a name.

On our arrival at Dingle on 27th June we immediately saw *Vanessa cardui* L. and *Nomophila noctuella* Schiff. with a few *Plusia gamma* L., all in bad condition. These extended from the Connor Pass at the back of Dingle, as far as Sleah Head. They gradually became less, although after the trap began working, *gamma* and *noctuella* appeared every night until the night of 14/15th, when a tremendous fresh invasion of both, particularly *noctuella*, took place. On the 15th, Inishvickilaun was

plastered with *noctuella*, which proved a nuisance when I was working rough places for rarer things. I also took three very worn *Laphygma exigua* Hübn. in the trap in the town. I was too late for the invasion of the rarer hawks in the district.

Baron de Worms has suggested (*antea* 187) that his *Celerio galii* Rott. taken at Glenbeigh on 6th June might have been bred on the spot. I do not think that this is likely, as apart from the fact that western Ireland is much too wet to make a good colonising site for immigrants, the winter of 1961-62 was the worst in the memory of man in Kerry. Although there was not the frost and snow of 1916-17 and 1946-47, a continuous cold wind played havoc with the tender and subtropical plants which usually flourish there. The feature of this part of Ireland is the enormous unchecked growth of the fuchsia hedges, sometimes fifteen feet or more in height. In spring 1962, many of these had been killed to within four feet of the ground. I have been visiting south-west Ireland on and off since May 1914, and I have never seen such havoc before, although I was there in May 1917 and May 1947 after both these extreme winters.

A few words may prove interesting on the remaining fauna observed on Inishvickilaun. Moths seen in addition to *isolata* and *noctuella* already mentioned, included a fair number of *Polychrosis dubitana* Steph. (*littoralis* Westw.) and *Argyroploce cespitana* Hübn. *Cespitana* was small and very pale in colour, quite unlike the brilliant form found on the rocks of the Dursey peninsula, and *dubitana* was below the average in size, whereas in Bantry Bay, on the rocks off Adrigole, it is larger than anywhere else I have been. From a small bag of seed-heads of *Silene maritima* I obtained ten larvae of *Hadena caesia* Borkh., a number of *H. lepida* Esp. ssp. *capsophila* Dup., four larvae of *Eupithecia venosata* Fab. and a few of a *Cnephasia*, probably a form of *C. conspersana* Dougl. but these must await examination of the genitalia. All the *venosata* pupated successfully, but in packing my pupae away before our return I crushed one unfortunately, as they are almost certainly the ab. *plumbea* Huggins I described recently (*antea* p. 171).

The *caesia* on Inishvickilaun are the so-called blackish form which occurs all along the coasts of west Cork and Kerry. I bred one from Adrigole some years ago, and one from Sleah Head which emerged on the journey to Dingle from a larva taken the previous year, and also two from Inishvickilaun a day or so later.

There seems to be a good deal of unnecessary difficulty about rearing *caesia*. Many people, probably following Donovan (p. 50), search for the larva under the prostrate stems of *Silene*. This is tiring and disappointing; one or two in an hour is a good average, and of these, probably two-thirds are parasitised. I have found an easy way is to collect a bag of seed heads, about a pint was all I took in 1962, and turn them out on a newspaper every day, when young larvae will appear. I put these separately in a two-ounce tobacco tin, with a few layers of cellulose wadding at the bottom, and feed them on either *Silene maritima* or sweet William; they feed readily on either, and when full grown get below the surface of the wadding and pupate without trouble. I keep the pupae perfectly dry in the house, and near emergence time, put them in moss in a large glass-lidded metal box with a piece of wet sponge in one corner. I had three pupae from last year when I set out for Ireland, and took them in a box like this, and all emerged successfully, one in the

train just outside Fishguard, and two in the hotel at Dingle. *Caesia* is often said to be a cannibal, but I have not found it to be so, although, to take no chance, I isolate my larvae. On more than one occasion, however, when feeding half-grown larvae with seed heads of *Silene maritima*, a small larva has emerged from these and been found uninjured in the box with the larger one. I have no doubt that a larva will eat a newly-formed pupa whilst it is still soft, but *capsophila* and others will do the same, and I do not regard this as evidence of habitual cannibalism in captivity.

I have already dealt with my confirmation of the status of *Platyptilia calodactyla* Schiff. and *Homoeosoma nebulella* Hübn. as Irish insects (*antea* 202 and 218-9). One other most disconcerting incident concerning a knothorn must be recorded. On 18th July on opening the trap, I saw a *Phycita betulae* Goeze in perfect condition walking on the egg cartons. When I went to box it, it dropped to the bottom, and when I began to look for it I saw a very large perfect *Plusia bractea* Fabr. quivering its wings preparatory to taking flight, so I immediately boxed the *bractea*, and when I turned back to the trap the *betulae* had disappeared and I never saw it again. I had intended taking it as I had no Irish specimen, but on reaching home I found it is hitherto unrecorded from Ireland. As there were several specimens of *Dioryctria fusca* Haw. present every morning in the trap, I feel that it is quite inadvisable to record the *betulae*, although I take both species in my garden trap here every year, but I am mentioning this to put other Irish collectors on the *qui vive*.

Other captures that may be of interest are: *Spilosoma lubricipeda* L. (*menthrastris* Esp.) very common, from white to yellowish buff. I also took a female, from which I obtained eggs, of a dirty buff colour with the veins outlined in pale grey. *Phalera bucephala* L., common; I took the only aberration I have ever obtained, with the buff marking greatly extended towards the anal angle. *Eumichtis adusta* Esp. several, almost uniform blackish-brown. *Caradrina taraxaci* Hübn., common; about one in four of the very dark blackish form mentioned by Kane as occurring on the Kerry coast; I have not seen it before. *Perizoma blandiata* Schiff., three; not an insect usually associated with gardens, where it was found in the trap. I have usually found it on limestone in the Burren, but Donovan gives several peat localities. *Eupithecia pulchellata* Steph., several in the trap, all ssp. *hebodium* Sheldon. *E. goossensiata* Mab., two in the trap, both of the typical small form. *E. distinctaria* H.-S., one, rather large and dark; on the cliff face at Slea Head. *Cleora repandata* L., common: mostly greyish, but rather small; none like the beautiful dove-grey insects I used to take at Glengarriff.

INFESTATION IN DORSET.—I was interested in Mr. Jacobs's note (*antea* 186). One night about the middle of August, my mercury vapour light sheet and myself were almost completely covered with *Hyponomeuta padella* L., but I thought it strange that only one female could be seen amongst the swarm. Two nights later, there were not more than a dozen *padella* to be seen. The following week, numerous small beetles covered the sheet, and since then, the crane fly has had it all its own way, and even on 25th October I counted over fifty. It is high time that macro-lepidoptera came into their own again.—Brig. H. E. WARRY, Upwey, Dorset. 3.xi.1962.

On Learning Latin

By A. D. IRVIN

“Learn the Latin names, then, even if you don’t pronounce them correctly”.

The above quotation comes from P. B. M. Allan’s excellent little book, *A Moth Hunter’s Gossip* (Watkins and Doncaster, 1947); I wonder, though, whether Mr. Allan appreciates the magnitude of this task in this post-Latin era, and when Latin is no longer an essential subject in gaining entry to most universities. To quote South: “The number of moths occurring in the British Islands is well over two thousand” (The Moths of the British Isles—Warne, 1961); of these, some eight hundred are grouped as macro-lepidoptera, there are approximately seventy butterflies on the British list, and if one includes family and sub-family names, the number of Latin names the budding entomologist has to learn (assuming he confines himself at first to macro-lepidoptera) is something like one thousand; if he is really ambitious, and collects micro-lepidoptera as well, he must learn about three thousand Latin names.

Any lepidopterist who rises above the “stamp collecting” variety, will appreciate the need for learning the Latin names of the insects he studies, so that his hobby will be on some form of scientific basis.

There are two ways in which one can learn the latin names; the first is to sit down with a check-list, pencil and paper, and write out and commit to memory all the one thousand or three thousand names—there must be very few entomologists who tackle their hobby in this way, and one wonders whether their prime interest is entomology or etymology. The second way to learn the Latin names is gradually to acquire (rather than learn) them by catching the insects, reading the literature, and talking with other entomologists.

I have caught, read and talked “bugs” for some ten years now, and have learned the Latin names of the Rhopalocera, and about as many Heterocera (about fifteen per cent. of the names I should know). Much of the fault in this respect lies with myself, my lack of time, my laziness, and my inherent dislike of Latin; but apart from myself, I feel there are two other reasons for my lack of knowledge. The first is the decline of the use of Latin in schools and literature, and the second is the use of Latin in the entomological literature of to-day. The former is beyond the control of entomologists, but the latter is very much in their control.

Entomologists of the older generation were brought up on books in which very little consideration was given to the English names of the insects, in fact, some of the earliest works were written entirely in Latin; also, many of these men will have had a far greater knowledge of Latin even before they began entomology, than the average person leaving school to-day. The times have changed now, but unfortunately the literature has not changed accordingly, to cater for the younger generation of entomologists who wish to be scientific in their approach to such a fascinating subject.

Most of the current entomological journals refer to insects solely by their Latin names, and when I glance through them I am often not sure whether I am reading about a moth, a beetle or a dragonfly, until some remark such as “the eggs are laid in fast-running water” or “the larvae live in fresh horse manure”, helps to enlighten me. When I have some spare time and am able to read the journals more thoroughly, I am

tremendously hampered by my lack of Latin; one article I read recently, about four pages long, took me two-and-a-half hours, and involved looking up eighty-three Latin names to find out which insects were being discussed. Unfortunately, I do not often have as much time as this, and lose much of the benefit from these articles. I am extremely envious of those who know their Latin and immediately are able to picture the insect in question; how much more enjoyable it would be for me and others in my position, if we could say "I have never caught so-and-so as late as that" or "my larvae of such-and-such preferred elm", without having to spend so long looking up the Latin name, and then writing the English one in the margin, before we know what is being talked about.

While most of the entomological journals use only Latin names, the majority of standard reference books use primarily English ones. Anyone to-day who wishes to start collecting and studying lepidoptera, will go out and buy the standard works, and because the English names are printed first, and in heavy type, and the Latin names in italics afterwards, the majority of people will learn the English names first, and secondly, if ever, the Latin ones. When the entomologist wishes to expand his knowledge, he will then think in terms of entomological journals, but to his dismay, his beloved insects have all assumed different names; if he is a true entomologist, he will only pale slightly at the task of learning another set of names (and perhaps he has acquired some already), but for some, the task may be too great and they will either revert to the English names or perhaps "walk no more". What a pity that such men should be lost to entomology, when they might, perhaps have become Haworths or Tutts, if in their young and tender days they had been weaned less abruptly.

No serious entomologist will deny the importance of learning the Latin names—but how I wish it wasn't such a task for those of us brought up on English names and with limited Latin knowledge. With this plaintive cry, may I make two very humble pleas for the younger generation of entomologists:

- 1) That the authors of the standard works on entomology should place the Latin name first, in heavy type, and the English name in brackets afterwards.
- 2) That the contributors to the entomological journals should, where possible, give the popular English names of insects mentioned, in brackets after their Latin name, or when an insect is mentioned more than once in an article, to insert the English name after it the first time and subsequently just use the Latin one.

With regard to my first plea, I realised that the English names are placed first in most of the present standard works in an effort to popularise entomology; but I feel that this perhaps goes too far in the opposite direction. Those who take up entomology seriously, are greatly hampered by the undue emphasis on English names, and in many cases finish up having learned both English and Latin names, whereas many of the older generation have never bothered with the English at all. There will always be entomologists of the "stamp-collecting" variety who will not bother with Latin names, but how many of these would have become true entomologists, if in their early days they had been given more opportunity of learning the Latin and hence going on to read more scientific literature?

There are some very beautiful and descriptive English names of Lepidoptera, and some very clumsy Latin ones; but the Latin must come first (however difficult it may be) if one's hobby is to rise above "stamp-collecting". We must never drop the English names, but we must remember that entomology should be a scientific subject, therefore it should be treated on a scientific basis, and, as our forefathers have chosen Latin as the scientific language, we must use that language before any other.

My final plea, therefore, to all writers on entomology is: "Please make Latin easier for us, the English-speaking ignorami, to learn". (There—I'm learning already!)

Downing College, Cambridge.

Yugoslavia Revisited

By RALPH L. COE

IV

THE FAR SOUTH AGAIN AND GOLEM GRAD, THE STRANGE ISLAND

My week at Kolasin passed pleasantly, and all too soon the time came for me to resume my journey to the south. Early one morning I left Kolasin by bus for Peć. As we started off the air was delightfully cool. But as the sun rose higher the heat inside the crowded vehicle became stifling, while a choking dust spiralled up from the road. Relief came when we reached a place where a river ran by the road and spread wide into an uneven rock basin. The bus stopped and everyone got out and laid down on their stomachs to bathe their faces with the cooling water and to suck it down their parched throats. It was comical to see all the prone bodies scattered alongside the road.

From Peć I went on by train to Skopje, arriving there soon after midnight. I managed to book a room at the Hotel Makedonija for the three nights that I planned to stay at the Macedonian capital. I spent my time there in studying the insect collections at the local museum.

When I got up one morning I took the rare luxury of a hot bath. But the plumbing at Yugoslav hotels is not always all that it should be. You must be prepared for anything to happen. This time I turned on the tap marked 'toplo' (hot) and cold water gushed out. The 'hladno' (cold) tap ran hot. In due course I stepped from the bath and pulled out the plug. A fountain of hot water shot up between my legs from a grating in the floor! I put back the plug hastily.

Ordering food in a restaurant can also have unexpected results. One day I ordered 'rumstek' for lunch, which is usually a safe choice. But this time, after a long delay, the waiter brought along a frying pan with a fried egg in it and put the lot down on my table. He placed it there so triumphantly that I had not the heart to complain. Besides, I knew from past experience that the language difficulty would probably have caused one or both of us to lose his temper before things were sorted out.

I finished my work in Skopje and moved on further south to spend a week at Lake Ohrid. This time I went by bus instead of taking the train to Bitola and going on by bus from there. As a result I was able to see some fresh places. Among them were the picturesque town of Tito Veles with its old Turkish houses and Prilep, thriving centre of the Macedonian tobacco industry. Then came Bitola, and from there we took the winding mountain road over which I had travelled to Ohrid two years before.

But that time the journey was by day. Now it was less pleasant, for dusk had already fallen as we started climbing into the mountains. The driver had been at the wheel for over eight hours without a break, and as the bus was turning a particularly nasty bend he dozed off. The bus swung towards a precipice that yawned on our left. We were less than a foot from the edge when a man sitting by the driver leaned over and twisted the steering wheel round just in time. A few weeks later I was shown a newspaper cutting with a picture of a wrecked bus lying on its side at the foot of this same precipice. Fifteen passengers had been killed in this awful accident. I wondered if it was the same driver.

At Ohrid I found that a palatial new hotel occupied the site where the old-fashioned Hotel Bellevue had been when I was there before. No expense had been spared in its construction. In front stretched a paved courtyard with an ornamental fish-pool in one corner. The majestic entrance hall had massive pillars of imitation marble. But although it was the height of the summer season I found only two or three guests there when I arrived. Perhaps by now the vast expenditure of government funds on this luxury hotel has been justified, but at that time the lack of local amenities for the tourist would hardly encourage anyone to pay a second visit.

For instance, walks along the shore from the hotel would be a great source of enjoyment. But when I set off in one direction my way was soon barred by a barbed wire fence. I crept under it, but a soldier came running up and signalled me to turn back. It was military land, and trespassing was forbidden. If I wanted to go further I would have had to make a detour inland for over a mile before I could get back to the shore.

I tried walking the other way, but after a few hundred yards I reached a point where a canal ran into the lake. When I was at Ohrid before I was able to cross it by means of a wooden bridge. The bridge was still there, but when I started to cross over I almost stepped into space, for the further half had either been removed or possibly swept away by winter storms. There was no warning notice.

My room at the hotel was comfortable enough, but there was no supply of hot water. There was a spacious dining-room from which one looked out in all directions through sheets of plate glass reaching from floor to ceiling. The kitchen was separated off by a glass partition so that the diners could see everything that was going on there. When I sat down for my first evening meal a group of waiters were standing about in a corner with nothing to do. One of them came across to take my order. I chose a meat dish, sweet, coffee and liqueur. After a long wait, he came back with the entire meal on a tray. The coffee was cold long before I was ready for it.

I started off for my first day's collecting by way of the old part of the town, which I had not explored on my previous visit. Built on the slopes of a steep hill, it is a maze of narrow cobbled lanes with centuries old white-fronted houses of Turkish and Macedonian origin, many falling into ruin. I climbed higher and higher along ever twisting paths until the houses were left behind and I reached the wooded summit of the hill. It was dominated by the massive walls of a ruined castle. To the north there was a sweeping view of vast cultivated valleys with a background of high mountains. I began collecting in the sheltered space inside the walls, as there was a strong wind blowing. The ground was covered with grasses and several different sorts of wild flowers. To my surprise the blossoms

swarmed with the common Syrphid, *Eristalis tenax* Linnaeus, which breeds in sewage. It was strange to find this moisture-loving species on the summit of a high hill. But the explanation was simple enough. All that remained of the castle besides the walls was a gloomy dungeon, which I discovered had been used as a lavatory for a very long time. Also visiting the flowers were two interesting species of the Stratiomyiid genus *Lasiopa villosa*, Fabricius and *L. balius* Walker (= *tenuirostris* Walker). The characters separating these closely allied species had not hitherto been properly understood, and my later study of the long series that I captured on this occasion enabled me to separate them correctly. (Coe, 1960. "Notes on the Stratiomyiidae". *Bull. Mus. d'Hist. Nat. Belgrade, ser. B, Livre 16*: 47-48.)

While I was collecting I was joined by three fascinating little girls who lived in old Ohrid. The castle ruins was their playground. They ran about on top of the crumbling walls with a complete disregard of danger. When I sat down to eat my sandwich lunch they came and joined me. Their eyes opened wide when I brought out a bar of English chocolate from my haversack, and they all held out a grubby hand for a piece. They looked thin and hungry, and their clothes were patched and torn. But they were full of life. One was Macedonian, one Croatian and the other Bulgarian. Ohrid has many nationalities among its population. There are Turks and Albanians as well.

One evening as I was sitting in the hotel lounge, a swarthy, middle-aged man came in and introduced himself as Dr. Vasil Lahtov, a local archaeologist. He said that he had written a paper on his subject, and was including a summary in English. Hearing that an Englishman was staying in Ohrid he had hurried along to ask me to check the English part for him. He placed the manuscript on the table. I practically rewrote it for him, for the English was simply terrible. He went away a happy man.

I was collecting in the castle ruins one day when I looked up and noticed an armed policeman eyeing me suspiciously. He went away without saying anything, but turned up at the hotel in the evening to see my passport. Any foreigner who behaves differently from the ordinary tourist is invariably an object of suspicion, and my entomological activities never failed to raise doubts in the official mind. The Yugoslav policeman is very different from our own. For one thing, he is inclined to be arrogant, and he is armed. One is acutely aware of the revolver that he carries in a holster strapped to his belt. He also carries a truncheon, which I have seen used on a single occasion. It was on a dark night when a policeman aimed a blow with this weapon at a cheeky boy and nearly hit me by mistake.

I spent most of my time at Ohrid collecting inside the castle walls. It was almost the only place in the district where the natural fauna and flora had survived. The lowlands were so intensively cultivated that it was little use collecting there. Besides, peasants were everywhere in the fields, and no sooner did they spy my waving net than they crowded round, curious to see what I was doing.

From Ohrid I went on by bus to spend a week at Otesevo, the workers' holiday resort on the shore of beautiful Lake Prespa. Nothing had changed since my visit two years before. The clerk at the reception office recognised me, and gave me a hearty welcome. I managed to book the same room as before, with the verandah overlooking the lake. A

professional entomologist from Belgrade, Dr. Slobodan Glumac, had arranged to join me for my week at Otesevo. An old friend, he was the finest type of Yugoslav, cultured, intelligent, and with a bubbling sense of humour. I looked forward immensely to having his company. He arrived soon after me, and booked an adjoining room. It was a great boon to have a Yugoslav with me who also spoke good English. Another advantage was that I was charged less for my accommodation and meals. In Yugoslavia there is one price for tourists and a much lower one for their own people.

The day after our arrival, Slobodan and I went collecting in an oak wood above the lake. Suddenly we found ourselves in the middle of a war-time 'planting' of anti-personnel bombs. It was a nasty situation, especially as many of the weapons were almost hidden by dense undergrowth. We picked our steps cautiously until at last, to our relief, we got clear of the area. From there we climbed with some difficulty up a steep slaty hill slope, and were soon busily netting a long series of the large Asilid, *Selidopogon diadema* Fabricius. This handsome species has the abdomen in the male wholly shining black, and in the female with the last few segments reddish. It is extremely hard to capture, making short flights and settling only momentarily on the ground.

That evening as we sat at supper on the terrace overlooking the lake there was dancing to the music of a small band. One Macedonian dance was new to me. It was performed entirely by men. About twenty of them stood in a long line, holding hands. The band struck up, and with graceful side-steps the dancers gradually formed a hollow circle. When this was completed a narrower circle was formed inside the original one, and so on until it seemed that they would never unravel themselves. All the time they held hands. The key man at either end flourished a handkerchief above his head with one hand, holding the other on his hip. Slowly the intricate pattern unwound, until the dance ended with all the dancers in a single line again.

Whenever we sat down to a meal there were always groups of men placing cards at the tables. Breakfast, lunch or supper, it was always the same. As soon as they had finished eating, out came a pack of cards. When I asked Slobodan whether they had money on the games, he said that they invariably do, although the government prohibits this form of gambling. But the law is only rarely enforced in this respect nowadays. When it was rigidly kept the men used to flip a matchbox from one end of the table to the other and gamble on which way up it landed. Sometimes the card players would start arguing over some points of the game, and what began as a mild squabble would work up to a crescendo with everyone shouting at the top of their voices. Then just as a fight seemed imminent they would suddenly calm down and go on playing. This is typically Yugoslav. They argue with a vociferous show of passion, and you can see that they love it.

My main object in revisiting Otesevo was to collect insect specimens on the small island of Golem Grad, close to the Albanian shore of Lake Prespa. The Yugoslavs claim Golem Grad as their own territory, but the Albanians resent this. Actually the frontier passes through the island. My imagination had been stirred by an account that I had read of this island in an old travel book. It was described as rising sheer from the water to a considerable height, with only a small cove where a landing

could be made. It was said to be rich in ancient trees and with a wealth of wild flowers.

But when Slobodan tried to hire a rowing boat for us to visit the island, his request was met with the utmost suspicion. So many political refugees from Yugoslavia have escaped to Greece by rowing across the great lake. It only meant a slight deviation to the south-east when we were out of sight of Otesevo and we could land on a desolate stretch of the Greek shore. Slobodan was persistent, and at last the hotel manager said that we could go on the condition that we had a military escort. We readily agreed to this, and it was arranged that we should go on the following day. But when we went down to the shore at the appointed time no boat turned up. The manager explained that the boat had been needed elsewhere, and we must wait until the next day. This went on for several days, until we despaired of ever getting to the island. On the day before we left Otesevo, however, we were overjoyed to find a motor-boat waiting for us. We stepped aboard, followed by a soldier carrying a rifle. A grizzly old man took the helm. The engine started up, and we were off. Gradually the little settlement of Otesevo receded in the distance, and we drew nearer and nearer to the rugged mountains of Albania.

As we approached the Albanian shore a dark mass rising from the water resolved itself as the disputed island of Golem Grad. True to the description that I had read it rose from the water in an apparently unbroken line of unscalable cliffs. But suddenly a small sandy cove came into view. The bows of the boat swung towards it, and presently we ground ashore. We pulled the boat up on the beach, and walked to the base of a tremendous cliff that loomed above. In the rock face there was a slanting cleft, hidden from the lake. A rough path ran up it to the tree-covered plateau of the island. We started climbing in single file. Along the path huge snakes lay basking in the hot sun. At our approach they uncoiled and slithered away into the dry undergrowth with a rustling sound. At the top a fantastic scene stretched before us. The plateau was a veritable jungle of overgrown vegetation. Everywhere were great spreading mulberry trees, incredibly old, their trunks bound tightly in the strangling grip of massive ivy branches, some as thick as a man's arm.

The soldier and the pilot stretched themselves on the ground in a shady spot by the top of the path, while Slobodan and I went off to explore the island. It was disappointing to find that all the plants had finished flowering. Instead tiny prickly seeds stuck to our clothes as we pushed our way through the tangled undergrowth. It was impossible to avoid them. They were everywhere. Before long our trousers were covered with a solid layer of the seeds. It took us over an hour to pick them off afterwards, for they clung so tenaciously. A large black hare leapt up in front of us, and vanished in the undergrowth. The island was overrun with them.

We came to a tiny church, close by the cliff edge. It was obviously very old, but in a wonderful state of preservation. The outside walls of smooth plaster were decorated with frescoes of biblical scenes, so faded that the details could hardly be made out. Inside we found the walls and ceiling to be similarly decorated. There was one large fresco of a saint with flowing locks and long plaited beard, his head encircled by a halo. Rudely scratched over his face and on other parts of the walls

were various initials. According to Slobodan the Albanians had occupied the island during the last war, and it was their soldiers who had desecrated the place. At one end there stood a tiny shrine with a figure of the Virgin Mary. Before it lay a posy of withered flowers.

We walked on until we had reached the southern end of the island, which was the nearest point to the Albanian mainland. Range upon range of bare desolate mountains reached away into the far distance. There was no sign of life or habitation. Close to where we were standing a great mulberry tree lay uprooted by the cliff edge, its branches jutting out into space. In turn we stretched ourselves out along a stout branch and gazed at the wild scene below. The rockface fell sheer into the lake. A multitude of gulls rose with harsh cries from the water.

It was time for us to go back and join the others. As we retraced our steps we were startled to hear a shot ring out. Presently the soldier appeared from the trees holding by the hind legs the body of a fine black hare. We found the old man asleep under the tree where we had left him. We all went down the cliff path, pushed out the boat and clambered aboard. Soon we were heading back for the mainland. Slobodan and I had not caught many specimens, but it had been a wonderful day. We vowed to return to Golem Grad on some future occasion during the flowering season, when the island must be a paradise for the dipterist. My outstanding capture on this present visit had been a series of both sexes of a new species of Trichoscelidae, *Trichoscelis coei* (Bequaert, 1960. *Bull. et Ann. Soc. R. d'entom. Belg.*, 96 (3-4): 61-64). This handsome little Acalypterate was swept from mixed vegetation beneath a mulberry tree.

Early the next morning we left Otesevo by bus for Bitola, the first stage on our long journey north to the capital city of Belgrade.

(To be continued.)

Aviemore 1962

By F. A. NOBLE, F.R.E.S.

Saturday, 9th June

Mr. and Mrs. King and myself started for Aviemore from Birmingham at 4.40 a.m. The weather through England was fine and warm; but there was rain through the Cairngorms and at Aviemore it was cloudy. Apparently they had been having good weather there; but, as so often happens, my arrival heralded the commencement of three weeks of cloudy, gusty weather.

Sunday, 10th June

This day was spent acclimatizing ourselves and visiting favourite haunts in the area such as Tromie Bridge, Bridge of Dulsie and Daltulich Bridge where some ephemeroptera were taken.

Monday, 11th June

During the day we visited the Culbin Sands. The weather was cloudy; but as is so often the case in this district, very warm. A search was made on the birches for the larvae (or ova) of *Endromis versicolora* L., but without success. I had taken larvae here the first week in June two years previously. *Lycaena phlaeas* L. was flying over the blossoms of *Armeria maritima*, and along the rides through the pines *Parasemia plantaginis* L. was found.

In the evening the mercury vapour lamp was used near Aviemore, and posts were sugared. The temperature at 11.20 was 61°.

LIGHT: *Lycophotia varia* Vill., *Lophopteryx capucina* L., *Harpyia furcula* Cl., *Ortholitha umbrifera* Prout., *Lampropteryx suffumata* Schf., *Electrophaes corylata* Thun., *Gonodontis bidentata* Cl., and *Drepana lacertinaria* L.

SUGAR: *Tethea duplaris* L. (many), *Hada nana* Hufn. (3), *Hadena contigua* Schf. (1), *Eumichtis adusta* Esp. (many), *Apatele menyanthidis* View. (3), *A. euphorbiae* Schf. ssp. *myricae* Guen. (4), *Rusina tenebrosa* Hübn. (1), *Apamea crenata* Hufn. (1), *A. obscura* Haw. (1), and *Hyppa rectilinea* Esp. (5).

Throughout the whole of the three weeks I was in Scotland *corylata* was one of the commonest moths, and several specimens of the variety *albocrenata* Curtis were seen. A female of this var. was retained for her egg-laying propensities. She had none.

E. adusta was another common moth, and until the last few nights was the most abundant species on the sugar. It varied considerably in size and markings.

Tuesday, 12th June

The morning was spent recovering from the previous day, and setting specimens that had been taken.

In the afternoon we visited Loch-an-Eilean which, despite its popularity, is one of the loveliest in the area. Here I saw a specimen of *Dyscia fagaria* Thun. which was very worn, also *O. umbrifera*, *Ematurga atomaria* L., *Bupalus piniaria* L., and *Semiothisa liturata* Cl. In this area by the shore of the loch I captured a number of ephemeroptera. There are three different species, but I have not had the time to identify them.

In the late afternoon we went to Loch Vaa. Nothing was seen in the way of lepidoptera, but the Demoiselle-fly, *Enallagma cyathigerum* Charp., was common.

At night we sugared, but did not have the light. At dusk the usual species were flying with the addition of *Cosymbia albipunctata* Hufn. Throughout the holiday a number of specimens of this moth were taken, usually with a pale grey ground colour, but sometimes with a faint pinkish tint.

SUGAR: *H. rectilinea* (many), *E. adusta* (many), *A. obscura* (2), *A. crenata* (3), *A. myricae* (2), *Euplexia lucipara* L. (1), *Hadena thalassina* Hufn. (2), *Diataraxia oleracea* (1), *H. nana* (1), *R. tenebrosa* (5), *Ochropleura plecta* L. (1), *T. duplaris* (many).

Wednesday, 13th June

The day was cloudy and windy, but I could wait no longer to visit a favourite haunt of mine, the Findhorn valley up to Coignafearn. In the mountains a herd of Red Deer was seen, and a buzzard with its prey, which it dropped upon being disturbed by myself. Very few moths were seen, those recorded being:—*Epirrhoe tristata* L. (1), *Hydriomena coerulea* Fab. (several), and *Colostygia pectinataria* Knoch. The last two species were taken in an alder plantation on the side of the valley. The larvae of *Eupithecia sobrinata* Hb., *Thera cognata* Thun. and *T. juniperata* L. were beaten from *Juniperus communis*.

In the evening we sugared again at Aviemore and had the mercury vapour light going. Mr. Gibb and his two sons accompanied us. The results were as follows:—

SUGAR: *O. plecta* (1), *E. lucipara* (1), *Apatele leporina* L. (1), *A. myricae* (2), *A. crenata* (2), *E. adusta* (many), *H. rectilinea* (6), *H. contigua* (1), *H. thalassina* (2), *Apatele psi* L. (2), *H. nana* (3), *T. duplaris* (7), *E. corylata* (3), and *C. albipunctata* (1).

LIGHT: *E. adusta* (3), *D. lacertinaria* (1), *Lyncometra ocellata* L. (1), *E. corylata* (many), *Selenia bilunaria* Esp. (1 ♀), *Gonodontis bidentata* Cl. (3), *Biston betularia* L. (4), and *C. albipunctata* (3).

Thursday, 14th June

In the afternoon we tackled the Kinrara Hill Road, and walked to its summit. The weather was cloudy with intermittent sunshine, and almost gale-force winds. This made the journey rather toilsome, but the view from the top was well worth the effort. There were several mountain hare about and also a Golden Plover. On the slopes at the summit we grubbed about amongst the Reindeer Moss and found a number of pupae of *Amathes alpicola* Zett. These have since emerged and are very beautiful specimens.

Friday, 15th June

A visit to the valleys of the Dee and Don via the Lecht Road was made this day. By the Dee we saw *Coenonympha pamphilus* L., *E. atomaria* and *O. umbrifera*. From bushes of Juniper we beat larvae of *T. juniperata*. Near Loch Kinord, in Aberdeenshire, *E. atomaria* was abundant, there being a wide variety of markings in both male and female. The Demoiselle-fly, *E. cyathigerum*, was common and I obtained also a specimen of *Pyrrhosoma nymphula* Sulz.

Returning over the Lecht Road we halted at the summit to visit a patch of snow. Cloudberry, *Rubus chamaemorus*, was growing here in profusion, as also was Crowberry, *Empetrum nigrum*. *Eupethecia satyrata* Hb., the moorland form, was flying here in quantity. We saw also a raven, buzzards and another golden plover.

In the evening, work again at Aviemore, but sugar only. *O. plecta* (3), *Apamea sordens* Hufn. (3), *E. lucipara* (2), *A. obscura* (6), *H. nana* (3), *R. tenebrosa* (2), *E. adusta* (many), *H. contigua* (2), *H. thalassina* (several), *A. crenata* (several), *A. psi* (1), *A. leporina* (1), *A. menyanthidis* (2), *T. duplaris* (many), *E. corylata* (7), *Eupithecia nanata* Hb. (1), and *Semiothisa notata* L. (1). One specimen of *Xanthorhoe montanata* Schf. was netted.

Saturday, 16th June

The morning was spent in setting, letter writing and being generally lazy. In the afternoon we went over the Cromdale Hills past Lochendorb, along the Dorbach Burn and on to Daltulich Bridge over the Findhorn. Here we saw a red squirrel which refused to have its photo taken, and chattered in a most angry fashion. Lepidoptera were absent, but a fine collection of bryophytes was gathered.

At night we were sugaring again, and had the mercury vapour lamp going also.

LIGHT: *E. adusta* (1), *E. corylata* (many), *E. nanata* (several), and *L. varia* (3).

SUGAR: *Ceramica pisi* L. (1), *Hadena bombycina* Hufn. (1), *H. thalassina* (4), *E. adusta* (many), *R. tenebrosa* (several), *O. plecta* (2), *H. rectilinea* (several), *A. sordens* (1), *A. obscura* (3), *A. crenata* (5), *A. psi* (1), *H. nana* (1), *T. duplaris* (several), *E. corylata* (several), *Cabera exanthemata* Scop. (1), *E. satyrata* (1), and *L. varia* (1). There were also a number of caddis flies and the plecopteron, *Isoperla grammatica* Poda.

Three specimens of *C. albipunctata* and one of *D. fagaria* were netted.

It was a windy night with a moon and clear sky. The temperature at 11.0 p.m. was 52°, but by 1.0 a.m. this had fallen to 45°.

Sunday, 17th June

In the morning I was at the Rothiemurchus Episcopal Church, and after the service searched the slopes of Craigellachie opposite Kinakyle. Nothing was to be seen.

In the afternoon we encircled the Monadhliaths going to Spean Bridge, Fort Augustus, Errogi, Daviot and back to Aviemore. Between Errogi and Daviot, Bog Myrtle was beaten and the larvae of *Colostygia didymata* L. were obtained.

The evening was cloudy and promised good mothing. At 11.30 p.m. the temperature was 53° and by 1.45 a.m. it had risen to 55°.

LIGHT: *E. nanata* (many), *C. exanthemata* (1), *E. corylata* (many), *L. capucina* (1), *E. adusta* (8), *Laothoe populi* L. (5), *O. umbrifera* (7), *Opisthograptis luteolata* L. (1), *Cabera pusaria* L. (4), *A. crenata* (3), *Leucania comma* L. (2), *L. varia* (3), *G. bidentata* (2), *R. tenebrosa* (5), *H. nana* (2), *B. betularia* (3), *L. ocellata* (1), *C. albipunctata* (1), *Pheosia gnoma* Fab. (1), and *Xanthorhoë designata* Hufn. (1).

SUGAR: *R. tenebrosa* (several), *E. adusta* (many), *A. sordens* (4), *A. crenata* (5), *A. obscura* (5), *O. plecta* (3), *A. leporina* (1), *E. lucipara* (2), *H. thalassina* (several), *H. nana* (2), *T. duplaris* (many), *C. pisi* (1), *H. rectilinea* (several), *L. comma* (2), *L. varia* (1), *E. corylata* (many), *E. nanata* (2), and *E. satyrata* (1).

On the sugar also were *Sialis lutaria* L. (Alder Fly) and *Chloroperla torrentium* Pictet—one of the Stone Flies. Both these species were on the sugar throughout the whole period of the holiday.

Monday, 18th June

This was a lazy day. We set about beating for larvae near Carr Bridge in a most half-hearted fashion, and in consequence obtained very little. In the early evening we were by the River Druie and captured one specimen each of *Eupethecia helveticaria* Bdv. and *Perizoma blandiata* Schf.

Tuesday, 19th June

In the afternoon we went to the Ryvoan Pass and climbed a stream to its source. Mosses and liverworts were abundant. On the downward journey the larvae of *Lasiocampa quercus* L. were found feeding on *Calluna vulgaris*. The only lepidoptera seen flying were specimens of *E. atomaria*. This was not surprising as there was a strong wind and occasional showers.

Driving back to Aviemore we stopped by some *Cytisus scoparus* and found the larvae of *Chesias legatella* Schf.

Wednesday, 20th June

The weather was not very promising; heavy clouds and rain threatening. At first we went to Glen Tromie where the only moth to be seen was *H. coerulata*. This was abundant amongst the alders by the river. Despairing of sunshine in this area we went north to Dulsie Woods in the County of Nairn. Here there was an improvement in the weather. We followed a stream which was sheltered from the wind, and found the afternoon quite pleasant. A number of ephemeroptera were flying (I hope to report on these at a later date), and so also were *E. corylata*, *E. atomaria*, *E. satyrata*, *E. montanata* and *Cabera pusaria* L. On Birch we found the larvae of *Colotois pennaria* L. and *L. quercus*. With regard to the latter species over the last eleven years I have found the larvae on birch more often than any other plant.

Along the stream, bobbing up and down on the stones, was a dipper.

At night the light and sugar were in use again at Aviemore.

DUSKING: *C. albipunctata* (2), *S. notata* (2), *C. pusaria* (2), *C. umbrifera* (several), *E. corylata* (many), *L. ocellata* (several), *O. luteolata* (1), and *T. duplaris* (several).

SUGAR: *O. plecta* (2), *Diarsia festiva* Schf. (2), *E. adusta* (many), *A. obscura* (many), *H. contigua* (1), *H. thalassina* (3), *H. nana* (2), *A. crenata* (many), *A. sordens* (4), *R. tenebrosa* (7), *L. varia* (1), *E. lucipara* (2), *C. pisi* (2), *L. comma* (4), *H. rectilinea* (many), *T. duplaris* (many), *E. corylata* (several), *L. ocellata* (3), and *E. nanata* (2).

LIGHT: *L. capucina* (5), *Notodonta dromedarius* L. (1), *E. adusta* (2), *R. tenebrosa* (several), *L. populi* (2), *P. gnoma* (1), *H. nana* (1), *T. duplaris* (many), *E. corylata* (many), *E. nanata* (several), *C. pusaria* (3), *S. notata* (1), *B. betularia* (2), *G. bidentata* (1), *L. ocellata* (3), *C. albipunctata* (2), and *O. umbrifera* (1).

Thursday, 21st June

The morning was spent setting, but in the afternoon we went north to Daviot and then along the road towards Fort Augustus. We stopped beside the road beyond the Flichity Inn, and near Easter Croachy. The hillside here was covered with *Myrica Gale* and there were several geometer larvae feeding on it. Again I obtained the larvae of *Ypsolophus costella* Fab. It appeared to be abundant here, and some of the imagines which have emerged are albinistic. On the ling there were larvae of *Trichiura crataegi* L. and *Hydriomena furcata* Thun.

Higher up the hill, beyond the Bog Myrtle, I captured specimens of *Gymnoscelis pumilata* Hb., *E. satyrata*, *E. nanata* and another *Eupithecia* as yet unidentified. Also there were specimens of *E. atomaria* and *Anarta myrtilli* L.

Friday, 22nd June

Although it was gusty, and at times there were heavy clouds, I decided to tackle the Kinrara Hill Road again. At the summit I obtained more pupae of *A. alpicola*, but saw no other lepidoptera. I lunched at the side of a wee lochan where Mountain Azalea was just beginning to bloom. I had intended searching a wider area for *alpicola*, but the wind increased in velocity and it commenced to sleet. Discretion, I felt, was the better part of valour and began to descend.

On the downward journey I had the good fortune to see a bird that was new to me; this was the Pied Wheatear, *Oenanthe leucomela*.

In the evening Mr and Mrs. King returned to Birmingham.

Saturday, 23rd June

To-day, for the first and only time on my holiday, I saw *L. quercus* flying over the heather in Aglaia Valley (my name). Also captured, *C. pusaria* and *Erynnis tages* L.

The afternoon was spent at Dulsie Woods where *E. satyrata* was abundant. The only new species seen was *Lomaspilis marginata* L. There were a few ephemeroptera flying or resting on herbage at the side of the stream, and on a boulder in the middle of the burn I found a freshly emerged specimen of the Dragonfly *Cordulegaster boltonii* Don.

Sunday, 24th June

It poured with rain all day. The mountains disappeared and we were left on a flat, wet plain. However, it cleared for a while in the evening and I decided to sugar. At 11.15 p.m. the temperature was 44° and at 12.30 a.m., when it had commenced to rain again, it had dropped to 43°.

SUGAR: *E. adusta* (32), *A. crenata* (5), *A. obscura* (4), *D. festiva* (3), *R. tenebrosa* (4), *Polia tincta* Hb. (3), *E. nanata* (1), and *E. corylata* (1).

FLYING: *O. umbrifera* (1) and *X. montanata* (1).

Monday, 25th June

A day of showers and blustery winds and so, as usual when it is wet, I headed north east. At Findhorn it was dry and warm with a strong wind. I found nothing of interest in the realm of Insecta, but took various photographs of flowers growing on the sand-dunes.

Near Forres I beat the larvae of *legatella* from Common Broom, and *H. furcata* from Ling. At Drynachan, County of Nairn, I saw a male Twite and photographed a young Woodcock.

Tuesday, 26th June

The doctor informed me that I was suffering from rheumatism and so had to take things easy. In the afternoon I went to Dulsie Woods where the only new species recorded were the imago of *Xanthorhoe spadicearia* Schf., and the larva of *Amathes agathina* Dup. The last named was, of course, stung.

Wednesday, 27th June

In the morning I followed the burn at the side of the Kinrara Hill Road. There was not a great deal about although the weather was warm. I saw *E. corylata* and *O. umbrifera* flying, and feeding on birch the larvae of *L. quercus* and *Erannis defoliaria* Cl.

After lunch I went to the marsh and pine wood near Doorback, beyond Nethybridge, but there was nothing to be seen flying. Larvae of *Achlya flavicornis* L. were feeding on birch.

From Doorback I went to Grannish Moor where *Bupalus piniaria* L. was flying in quantity, also *O. umbrifera*, *E. corylata* and a *Scoparia* species.

At night light and sugar were in operation again at Aviemore. At 11.30 p.m. temperature was 51°, at 12.45 a.m. 50°.

SUGAR: *A. obscura* (many); *A. crenata* (many), *A. sordens* (2), *E. adusta* (not so many), *T. duplaris* (many), *O. plecta* (3), *P. tincta* (1), *L. varia* (3), *A. psi* (2), *A. leporina* (1), *H. nana* (1), *L. comma* (2), *E. lucipara* (1); *H. rectilinea* (7), *D. festiva* (3), *R. tenebrosa* (several), *Diarsia rubi* View. (1), *Diataraxia oleracea* L. (1), *Thyatira batis* L. (1), *E. corylata* (several), *E. nanata* (1), *L. ocellata* (1), and *Thera obeliscata* Hb. (1).

LIGHT: *E. adusta* (2), *A. crenata* (3), *T. duplaris* (1), *R. tenebrosa* (1), *L. varia* (4), *E. corylata* (several), *B. betularia* (2), *L. ocellata* (2), *O. umbrifera* (3), and *C. pusaria* (1).

Up to this night *E. adusta* had been the commonest moth on the sugar, but now *A. obscura* took the lead.

Thursday, 28th June

In the afternoon I went to the now spoilt Cairngorm. I failed to find any lepidoptera, but there were plenty of empty beer cans, and even discarded thermos flasks.

Sugar and light again in the evening. At 11.30 the temperature was 51°, but by 1.0 a.m. this had dropped to 45°. Windy.

SUGAR: *E. adusta* (many), *A. obscura* (many), *A. crenata* (many), *P. hepatica* (9), *C. pisi* (1), *D. festiva* (4), *O. plecta* (2), *L. varia* (2), *R. tenebrosa* (several), *H. rectilinea* (1), *L. comma* (3), *Triphaena pronuba* L. (1), *T. duplaris* (1), *E. corylata* (3), *L. ocellata* (1), and *E. nanata* (1).

LIGHT: *E. adusta* (2), *L. populi* (1), *P. gnoma* (2), *R. tenebrosa* (2), *L. varia* (3), *L. ocellata* (3), *Alcis repandata* L. (1), *Eupithecia vulgata* Haw. (1), *E. nanata* (1), *O. umbrifera* (1), *B. betularia* (1), and *E. corylata* (1).

There were also three ephemeroptera on the sheet belonging to the genus *Caenis*.

Friday, 29th June

This was my last day at Aviemore. It was still and warm, with cotton-wool clouds in a deep blue sky. For the first time butterflies were about in numbers. I saw: *Pieris napi* L. (I had seen this several times during the holiday), *P. brassicae* L., *Lycaena phlaeas* L., *Polyommatus icarus* Rott., *Aricia agestis* Schf. var. *artaxerxes*, *Argynnis selene* Schf., *Coenonympha pamphilus* L., and *C. tullia* Müll. was seen by another entomologist at the hotel.

A beautiful day, but it was sad that it should be the last.

CELASTRINA ARGIOLOUS L. IN DORSET.—In my garden in Upwey, and in the garden on the opposite side of the road, the holly blue in spring is usually fairly common, but from my observations, the second brood depends on the time of emergence of the spring brood. If the spring brood emerges in April, there is a chance of a second brood. This is because the spotted flycatcher has not yet arrived. Here, this bird arrives regularly between 6th and 8th May, and devours every butterfly on the wing, except cabbage whites.

This year I saw the first holly blue on 2nd May and the last on 8th May, the day after the flycatchers arrived. This year, I did not see a single holly blue of the second brood. It will be interesting to see the result in 1963.—Brig. H. E. WARRY, Upwey, Dorset. 3.xi.1962.

Which Dagger Are You?

By The Rev. F. M. B. CARR

Are you *Apatele psi* Linn. or *Apatele tridens* Schiff.? The specimens in my cabinet, not having been submitted to a genitalia specialist, for the most part remain mute. The few that bear the legend *Apatele tridens* can give a satisfactory reply without having their tails cut off with a carving knife. I have known them from their larvahood, but they are few indeed, most of the larvae of *A. tridens* I have taken having been attacked by something deadly.

The rest of my "daggers" are lumped together as *A. psi*, whether bred or taken as moths. A disgraceful state of affairs, which ought to have been remedied long ago, at least so far as acquiring an authentic series of the commoner species. Box every dagger you see until you get a fertile female. But surely never were daggers so scarce: up to 9th August I had only seen one, and that was a male. On that day I journeyed to Hod Hill in Dorset. The weather was anything but promising; it was more like winter than many a winter day, cold and sunless. Never a thought of daggers had I in mind; I climbed the hill, and the weather went from bad to worse, and a strong cold wind became a gale, but there, on a post, sat a dagger, and I boxed her. Then down came the rain, and down came I, and got drenched in the process. I looked at my dagger, who had already deposited a number of her almost transparent, bun-shaped eggs on the glass of the box.

She did me proud, laying about 80 eggs. On 17th August they hatched, the larvae, like the eggs, being nearly colourless, but with some of the segments darker. In a few days the larvae were altogether darker, and by 24th August I was nearly sure, and of course very pleased, that these larvae were not *A. psi* but *A. tridens*. Three days later, this was confirmed: they had an orange-red dorsal stripe, a white cross on the 12th somite, and the 13th was bright red.

I gave Mr. H. Symes 21 larvae. I had few, if any casualties, and the larvae began making their cocoons in rotten wood and sawdust on 15th September.

Flat F.8, Pine Grange, Bournemouth.

The Genus *Apion* Herbst and some other notable Weevils in East Kent

By JOHN PARRY, M.P.S.

For some years now I have sporadically collected coleoptera in Kent, particularly in the Canterbury and Ashford districts of East Kent. I have seldom recorded observations in the entomological journals, and although I should like to claim altruistic motives for this (i.e. to preserve local species from attacks by the human race) this does not quite ring true where coleoptera are concerned, and I must confess therefore that this is not the truth: rather I have taken much more pleasure in seeking and finding species for myself than in recording such captures when made. If you like, I have been lazy.

In taking up the study of the coleoptera I have followed the accepted pattern and assaulted one particular group at a time. Enthusiasm for

each group has been prefaced by the fortuitous discovery of some species of that group that is regarded as a particular prize, the group of interest at that time being immediately dropped in favour of the new.

The first section that I attacked in earnest was the sub-order Rhynchophora, the incitement being the discovery one day (23.vi.1949) on the banks of the Basingstoke canal at Fleet, Hants, of a number of the rare *Tapinotus sellatus* Fab. The group is so large that I attacked first a convenient sub-section, namely the genus *Apion*, and the following is an account of the species found.

I concentrated on a small area within a 10 mile radius of Canterbury, and in all I came across 60 of the 78 species that may be accepted as indigenous to this country within this small area. This would seem to indicate a very general distribution of this genus. Whilst those species not mentioned were diligently sought for, this does not mean that they are necessarily absent, since some species are so local that every field would have to be quartered before this could be said.

Twenty-one species were fairly abundant and well distributed, viz.

- *1. *A. miniatum* Germ. (dock). (*Rumex obtusifolius*).
- *2. *A. frumentarium* Pk. (*Rumex acetosella*).
- *3. *A. malvae* Fab. (*Malva sylvestris*).
- *4. *A. ulicis* Forst. (Gorse).
- 5. *A. nigritarse* K. (*Trifolia* generally but particularly hop trefoil, *Trifolium campestre*.)
- 6. *A. flavipes* Pk. (all vegetation in woods, abundant on *Mercurialis perennis*).
- *7. *A. viciae* Pk. (*Vicia cracca*).
- 8. *A. aestium* Ge. (*Trifolia* especially clover).
- 9. *A. pisi* Fab. (vetches, mainly *V. cracca*).
- *10. *A. aeieium* Fab. (*Malva sylvestris*).
- 11. *A. seniculum* K. (*Trifolia*).
- *12. *A. ononicola* Bach. (*Ononis repens* and *O. spinosa*).
- 13. *A. apricans* Herbst (*Trifolia*, especially clover).
- *14. *A. carduorum* K. (thistles).
- *15. *A. onopordi* K. (thistles).
- *16. *A. radiolus* Marsh (*Malva sylvestris*).
- *17. *A. ervi* K. (*Lathyrus pratensis*).
- *18. *A. curtirostre* Germ. (*Rumex acetosella*)†.
- *19. *A. hydrolapathi* K. (dock).
- 20. *A. loti* K. (*Lotus corniculatus*).
- *21. *A. simile* K. (birch *Betula*).

*As far as could be ascertained, specific to the plant named in parenthesis.

†generally found on *R. acetosa* (A.A.A.).

A further 27 species were easily discovered, but their distribution was very localized, and with most of them only a few (but at least three) localities were found. This was often due to localization of the food plant, and in the case of *A. fuscirostre* Fab., *A. limonii* K. and *A. meliloti* K. the weevil was found only where the foodplant grew in sufficient abundance. These were:—

- *22. *A. fuscirostre* Fab. (broom) (*Cytisus*).
- *23. *A. rufirostre* Fab. (*Malva sylvestris*).

- ?*24. *A. difforme* Germ. (swept from vegetation where *Polygonum* was always present but the insect was not actually found thereon).
25. *A. varipes* Germ. (on *Trifolia* but found on the coast abundantly where only *Ononis* and hare's foot clover (*T. arvense*) are present).
26. *A. assimile* K. (*Trifolia* chiefly).
27. *A. pomonae* Fab. (*Vicia sepium* and other species).
- *28. *A. subulatum* K. (*Lathyrus pratensis*).
- *29. *A. craccae* L. (*Vicia cracca*).
- *30. *A. stolidum* Germ. (*Chrysanthemum leucanthemum*).
- *31. *A. hookeri* K. (*Matricaria chamomilla*).
- *32. *A. confluens* K. (*M. chamomilla*).
- *33. *A. vicinum* K. (*Mentha aquatica*).
- *34. *A. atomarium* K. (*Thymus serpyllum*).
- *35. *A. limonii* K. (*Stachys limonium*).
- *36. *A. immune* K. (broom (*Cytisus*)).
- *37. *A. striatum* K. (broom (*Cytisus*)).
- *38. *A. filirostre* K. (*Medicago*).
- *39. *A. ononis* K. (*Ononis repens* only).
40. *A. punctigerum* Pk. (*Vicia* spp.).
- *41. *A. marchicum* Herbst (*Rumex acetosella*).
42. *A. aethiops* Herbst (*Vicia* spp.).
43. *A. waltoni* St. (swept from herbage including *Vicia* but not *Anthyllis*).
44. *A. reflexum* Gyll. (swept with *waltoni*).
- *45. *A. vorax* Herbst (*Mercurialis perennis*).
46. *A. meliloti* K. (*Melilotus*).
47. *A. virens* Herbst (*Vicia* spp.).
- *48. *A. tenue* K. (*Medicago*).

In this group *A. vicinum* is worthy of note. Although found in three separate localities, individuals were few in number and had to be carefully sought for.

The remaining twelve species were found in one or two localities only, and then only after the most intensive and widespread search had been made for them over the whole area. They are:—

1. *A. urticarium* Herbst. This was found in numbers in an old orchard near Whitehall, Canterbury, 20.vii.1952. This orchard had been quite neglected for many years and was later to produce for me both *A. millum* Bach and *A. semivittatum* Gyll. This coincidence led me to speculate whether the rarity of these species, the foodplants of which are very abundant, might be due to an inability to migrate to new pastures when disturbed. Dr. Masee suggested to me that *A. urticarium* was often not found because of its preference for the smaller of the two stinging nettles, *Urtica urens*, but I did not find this to be so. *Urtica urens* was present here and the creature was to be found on it, but it was much more abundant on *U. dioica*.

2. *A. rubens* Steph. Six specimens only were found (9.viii.1950) at roots of *Rumex acetosella* in rough pasture. Similar to *A. frumentarium* Pay. at first glance, it is at once separated by its slender parallel-sided elytra and by its smaller size.

3. *A. cruentatum* Walt. One only was taken, in June 1950, amongst a number of *A. frumentarium*, but undoubtedly this is *cruentatum*. *A. frumentarium* from all localities were examined without finding any more *cruentatum*.

4. *A. semivittatum* Gyll. This was found in the orchard mentioned above on *Mercurialis annua* where the soil had been half-heartedly dug and a few vegetables planted. The colony is still there. About 30 were taken on the first occasion (27.vii.1952).

5. *A. laevicolle* Kirby. I took *laevicolle* in large numbers in the autumn of several seasons by beating an old hawthorn hedge near Littlebourne. The summer time produced no particular growth of any legume which could be the foodplant; the foodplant may be polygonum, but I was quite unable to trace any of this weevil on the ground at all. The obvious explanation is that the species feeds on hawthorn, which explanation is rather unsatisfactory. It is more likely that it ascends into the hedge to hibernate.

6. This same hedge supplied a number of *A. curtisii* Steph., but again I am in the dark as to the foodplant. Sweeping and searching the grass verge on both sides of the hedge produced no beetles whatsoever at any season of the year, but about thirty were taken by sweeping mixed vegetation including clover and vetches at Canterbury on 14.viii.1950.

7. *A. flavimanum* Gyll. I could not find this species anywhere on wood sage, but at two localities I found it on the flower-heads of marjoram. At Wye, near Ashford, I found about 30 by sweeping marjoram after finding an individual on that plant (21.vii.1950), and at Canterbury, six by visual searching (16.vii.1952).

8. *A. millium* Bach. (= *annulipes* Wencker). I obtained considerable numbers from a mass of very short stunted *Prunella vulgaris* on 9.x.1952, in the old orchard mentioned under *A. urticarium*. It was searched for intensively elsewhere but was not found. It was still present the next spring and summer, but appeared more abundantly in the next autumn.

9. *A. gyllenhali* Kirby. Two specimens only were taken by sweeping at Whitstable.

10. *A. violaceum* Kirby. This species, so abundant in other counties, was apparently absent altogether except for one specimen I have labelled "Chilham 7.iii.1948". I have never taken it since.

11. *A. pubescens* Kirby. A series was taken from willow on the Old Park golf course at Canterbury on 8.vii.1952, and the species may still be founfound there.

12. I have a single specimen of *A. lemoroï* Bris. taken by sweeping a grass verge with *Lathyrus*, *Medicago*, vetches and clover at Bridge, near Canterbury. Perhaps this species is of wider distribution than was at first thought.

I found that the host plants given by Joy (1932, *A Practical Handbook of British Beetles*, 1: 164-173) were accurate with the particular exception of *A. flavimanum*, which was found only on marjoram and could not be swept from *Teucrium* anywhere. *A. curtisii* was found in abundance when there was no *Onobrychis*, but where there may have been the previous year.

Some of the absences were undoubtedly due to the absence or scarcity of the foodplant, for example, *Genista* is scarce, though a little was found in the Weald and at Whitstable, and *A. genistae* was absent; *Astragalus glycyphyllos* is rather scarce though there is a nice patch in the Faversham area, and *A. astragali* was absent.

Many of the species I found were easily bred by collecting seed pods of the particular plant (usually a legume) in the region where I had found an adult, and keeping them in a well-ventilated cage sprayed with a very

little water from time to time. The adults emerged usually within a month, together with the usual miscellany of *Bruchus* and *Sitona* species, though some overwintered within the pods if allowed to do so. I obtained the impression that the generations were endless unless the foodplant's short cycle or some other factor interfered.

Hibernation always occurred in the adult phase, at the roots of vegetation often far removed from the host plant. This might indicate an autumn migratory tendency, since at other periods the more specific forms are hardly ever found away from the foodplant. However the foodplant *may* have been there and died, or the insect may have been carried to the foreign spot by winds or flood debris.

Some species have a habit of ascending hedgerow shrubs in autumn and can be beaten therefrom. It is frustrating to find them in numbers there and to be unable to trace the food plant nearby.

Amongst other *Rhynchophora*, the following may be of interest:—*Gymnetron rostellum* Herbst with a single specimen of *G. melanarium* Germ in heads of *Matricaria chamomilla* and *Anthemis cotula*, in one locality only, Petts Bottom, near Canterbury. *G. linariae* Panz. is locally common throughout, and so is *G. beccabungae* L. *G. rostellum* has to be dug out from the flower-head.

Pissodes notatus F. and *P. pini* L. was abundantly found with *Ips sexdentatus* Börn. in hordes under pine bark at Littlebourne.

Liparis germanus Pz. is locally common at the roots of *Heracleum sphondylium*.

Magdalis armigera Geof. and *M. carbonaria* L. I have found to be locally common on elm and birch respectively. The former seems to favour old trees, and the latter the young birch that springs up in woodland after clearing.

Tropideres sepicola F., common in dead boughs of oak in several localities, was a pleasant discovery.

I once bred from very small larvae a number of the large relative of this species, *Platyrhinus resinusus* Scop. (= *latirostus* F.); the larva lives in the fungus *Daldinia concentrica* and a number of the growths gathered showed marks of the woodpecker's beak. Since the fungus is conspicuous, the larva is presumably very frequently attacked in this way, and although in appearance very helpless (rather like the larva of the common cockchafer but with the head bent backwards), it appears to have developed a mode of defence. When disturbed the head is moved back sharply, and at the same time the jaws give forth a loud snap. I myself was deterred from handling them by this, and a bird might well be frightened also. When ready to pupate, the larva bores through the fungus into the supporting twig, and makes a long pupal gallery down the centre, overwintering within the twig in the adult state. I found larvae and pupae of *T. sepicola* around Canterbury within the wood of oak branches, and the larva resembles that of *P. resinusus*, probably also feeding on a fungus and pupating within the solid wood.

As Mr. Parry's paper contains a number of original observations of special interest to the coleopterist, a few brief comments may perhaps be in order.

Firstly his finding of the two very local Apions, *laevicolle* and *curtisii* (whose foodplants are not securely identified), in numbers on a hawthorn

hedge in several successive seasons is specially noteworthy. As this was always in autumn, it seems not improbable that it was connected with hibernation; I have occasionally beaten Apions such as *flavipes* (and once *varipes*) out of evergreens, thick ivy, etc., between November and March, but only by odd specimens. The two species in question, however, more often occur in quite open situations far from hedges or trees—usually near the coast—and so presumably hibernate, as a rule, at roots of herbage in their breeding-places or not far away. (I have taken *laevicolle* at roots of *Ononis* and other low vegetation at Deal in October.) At the same time I would agree with Mr. Parry's observation that Apions *do* rather often hibernate at a distance from the host plant and that there may be mass movements in autumn towards suitable hibernacula—as has been found to occur in a number of Hemiptera-Heteroptera species, for example.

On the other hand, the phenomenon of congregating periodically on bushes or trees unrelated to their foodplants, not only in autumn, but in spring and summer too, is well known in this and some other weevil genera; but not previously recorded, I think, in these two species. Its purpose, however, appears to be quite unknown. One may mention in this connection *A. cracca*, *gyllenhali* and *flavipes*; also *laevigatum* Payk. (= *sorbi* F.) which is more often so encountered than on its true hosts. Another striking case is afforded by *A. pubescens* Kby., which is constantly found upon willows, yet has also occurred freely amongst low herbage a long way from such trees and has in fact been stated (on the continent) to breed in species of *Trifolium*. The whole matter presents a curious problem, and one not easy of solution.

Mr. Parry's perplexity at finding *A. flavimanum* on the "wrong" plant—marjoram instead of wood sage, its alleged host—is understandable. However, my experience with this species is entirely comparable, except that I find it also on *Calamintha*, besides *Origanum*. I have long been of the opinion that the customary attribution of *Teucrium* to *A. flavimanum* is incorrect, at least as regards south-east England and published a note to that effect in 1960 (*Ent. mon. Mag.*, 96: 166). It is satisfactory to have one's own findings thus independently corroborated.

The most notable *single* capture by Mr. Parry is undoubtedly *A. lemoroi* Bris., the last species of Apion to be added to our list; it had been recorded previously only from Effingham (Surrey) and near Cambridge, and lives on knotgrass (*Polygonum aviculare*) in stubble fields in autumn.

Mr. Parry is to be congratulated on having discovered what is probably the primary foodplant of *Gymnetron rostellum* in Britain, and also its breeding site. Earlier data were vague and unreliable, and though Joy gives *Filago* this now seems doubtful. Its occurrence in heads of *Matricaria*, etc., confirms a German record of Reitter's for that plant. The finding of a single *G. melanarium* in the same situation is, however, more puzzling, since the association of this species with *Veronica chamaedrys* appears well established, and I am therefore inclined to regard it as accidental.

For the Anthribids, *Tropideres sepicola* and *Platyrrhinus resinosus*, Mr. Parry's interesting notes on certain aspects of their biology, especially as to the true habitat of the former in all stages, and a remarkable defensive habit of the larva of the latter, provide valuable additions to our knowledge of these rare species in Britain.—A. A. ALLEN.

Sirex noctilio F., A Recent Introduction in South Africa

By J. S. TAYLOR

In January 1961 a portion of 6" × 2" timber of Baltic origin in a Port Elizabeth timber yard was found to be infested by a wood-boring insect and was handed over to the local office of the Division of Plant Control and Quarantine. Subsequently the infested piece of timber, together with some living insect material, was passed on to the Entomologist's office.

The infested portion of timber measured some eighteen inches in length and contained a number of burrows and flight holes 2 to 3 mm. in diameter. With the timber were three adult female siricid wasps and one living pupa, while a few days later a male wasp and another female emerged. The piece of timber is being kept intact in case of further emergences.

The siricid was identified as being *Sirex noctilio* F., otherwise known as the Steel-Blue Wasp or Horntail (Step, 1932). It is a common European species, and has been recorded as a timber pest in Germany and Northern Europe where it causes serious damage in the forests. It also occurs in Britain where its numbers are often augmented by shipments of timber from abroad. It is not thought to be indigenous there and is not of major economic importance.

This wood-boring wasp was introduced into New Zealand about 1900 and became a serious pest; it has also been recorded in Canada. It is usually found in pine, but will attack spruce, silver fir and larch as well. There is a fairly extensive literature and most authors state that sickly trees are preferred by the insect. Felled timber and poles are likewise subject to attack.

The eggs are deposited under bark in tunnels a quarter of an inch in depth and the larvae bore through the softwood to the hardwood and even into the pith (Clark, 1933). Chrystal (1928) states that the incubation period occupies 3 to 4 weeks, the larval period c. 21 months, and the pupal period 5 to 6 weeks; the total period from egg to adult taking c. 2 years. The average number of eggs dissected from large females was from 300 to 400, and up to six oviposition tunnels were found in one square foot of bark. Duffield (1927) mentions that the larvae bore into the hardwood, and generally pupate just below the bark, the adults emerging the following spring. The larval galleries spoil the wood for technical purposes. A German author (Scheidter, 1923) gives the number of eggs per female as c. 400, and adds that very few males were found among some hundreds of females. Poles are preferred for oviposition because the relatively short ovipositor is unable to pierce the thick bark. Painting with carbolineum or creosote will prevent attack on freshly-felled timber, but felled or broken trunks should not be left about as they are used for breeding by the wasp. In Germany, woodpeckers are the principal natural enemies. The horntail has been satisfactorily controlled in New Zealand by introduced parasites, notably by *Rhyssa persuasoria* L., a large species of ichneumonid from Europe (Cawthorn Institute, 1946).

S. noctilio does not appear to have been observed in South Africa before, and there are only three other records of Siricidae in the archives of the Division of Entomology, all concerning interceptions in timber of foreign origin. One was *Xeris spectrum* L., ex crate wood from Germany; another involved unidentifiable specimens in American lumber; and the

third was probably *Sirex gigas* L., in German crate wood. In this connection Mr. R. B. Benson of the British Museum of Natural History and an authority on Siricidae writes as follows: "I am most interested, but not in the least surprised, to hear of *Sirex noctilio* being found alive in South Africa in timber of Baltic origin. I have no actual note of this or any other siricid being introduced previously into South Africa, and it may be the first, although I have not had time to make a thorough search. There are, of course, two native species of siricid in tropical Africa belonging to the endemic genus *Apotremex*, but these species are presumably on hardwood trees. The introduction of *Sirex* or other *Siricinae* is fraught with danger in South Africa, because of your introduced conifers. So far as I know, *S. noctilio* only feeds on trees of the Pinaceae, and would perhaps readily attack your species of *Pinus*".

It remains to be seen whether this wood-boring wasp becomes established in South Africa. Few, if any, individuals can have escaped on this particular occasion but other introductions could easily take place and remain unnoticed. Should this wasp become established and assume serious proportions the introduction of *Rhyssa persuasoria*, which has been so effective in controlling it in New Zealand, would appear to be the obvious remedy.

ACKNOWLEDGMENT

The writer is much indebted to Mr. R. B. Benson of the British Museum of Natural History, London, for information on the distribution and status of *S. noctilio*.

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The Treasurer's Appeal

With the December issue of 1961 I made an appeal to all subscribers who pay by cheque to subscribe by Banker's Order, and I had a fairly good response. Nevertheless I wish to appeal again. Many subscribers can save themselves and the treasurer much trouble and expense by using a Banker's Order.

I will, on request, send a Banker's Order for 1963 onwards to subscribers. It is payable on 1st February each year and can be cancelled at any time should the necessity arise.

I also hope that subscribers not using a Banker's Order will send me their subscriptions before 1st February. If a subscription is not paid before the end of February I shall assume that the *Record* is no longer required and will withhold the March and further issues. This applies also to those who subscribe through subscription agencies.

I assure subscribers that I am not being high handed in this matter; the *Record* has to pay its way even though it is not run for profit, and your co-operation will be sincerely appreciated.

Notes and Observations

DEILEPHILA LIVORNICA ESP. IN GLOUCESTERSHIRE.—On the morning of 28th July I was pleased to find a specimen of *Deilephila livornica* Esp. in my mercury vapour trap, which was set in the garden of my home at Rodmanton Manor, Cirencester, Gloucestershire.—JASPER BIDDULPH, c/o C. N. C. ADDISON Esq., Warre House, Eton College, Windsor, Berks.

A VISIT TO BROWNSEA ISLAND.—On Saturday, 13th October, one hundred and forty members of the Dorset Naturalists' Trust were allowed, by courtesy of the National Trust, to visit Brownsea Island. Most of us spent about four hours on the island and were taken round in small groups. The Warden told me that he had recently taken four *Leucania vitellina* Hübn. and one *Lithophane leautieri* Boisd. at sugar. I was not surprised at the latter, for there are some magnificent specimens of *Cupressus macrocarpa* on the island, far and away the largest I have ever seen. I was also told that *Limenitis camilla* L. is found there, honeysuckle being abundant, but no fritillaries of any species. I think it is not unlikely that there may be a colony of *Coscinia cribraria* L. on Brownsea, as the island lies midway between Parkstone and Studland, two localities where it occurs. There is plenty of heather, most of it so tall and dense as to be almost impenetrable, and this much-harassed species would receive a measure of protection. The heather, some of it still in flower, was interspersed with masses of golden gorse (*Ulex nana*) in full bloom. There were thickets of rhododendrons of prodigious size, and we walked along a tunnel that had been cut through them. Besides conifers, there were plenty of deciduous trees, chiefly oak, beech, sycamore, lime and birch, with a few willows and aspens on the low ground. There may have been others which I do not remember. But the only lepidoptera which I saw that day were a *Vanessa atalanta* L. sunning itself on a brick wall and three very dead moths: *Noctua pronuba* L., *Apamea monoglypha* Hufn. and *Plusia gamma* L. Finally, I was particularly pleased to hear that the resident squirrels are red ones.—H. SYMES, 52 Lowther Road, Bournemouth. 17.x.1962.

OTHER OCCURRENCES OF *HERSE CONVOLVULI* L. IN 1962.—Dr. Goodall's most interesting report of the finding of a convolvulus hawk moth in rubbish at Morecambe on the 10th September 1962, reminds me that a week or two ago I was turning over the pages of *Country Life* (October 11th issue). In this was a letter from Mr. C. C. Petch, of Brill, Bucks., in which he described the finding of a similar moth on the passenger's seat of his car at Dinas Cross, in Pembrokeshire on, I believe, the 16th September 1962, or thereabouts (I quote from memory). The intruder had been sat on by his wife, but happily without further damage, apparently, than the loss of a few scales.

Mr. Petch described himself as "a keen collector for many years", but the sex of the insect was, I believe, not given. He also referred to an earlier report in a London daily paper of one taken in the London area, but the newspaper correspondent was no entomologist, as he published a photograph of a *Herse convolvuli* L. and gave it the caption, "death's-head"!

I remember, in September 1960, in central Italy at Lerici, how the convolvulus hawks came to the petunias every evening punctually at 7.20

p.m., and with such regularity that you could almost set your watch by them. By about 7.45 they had usually completed their evening repast and disappeared, and I used to wonder what they did with themselves for the rest of the night.

In this country it appears almost impossible for them to breed, and it would be interesting to know how many recorded instances there are of the larva having been found in Great Britain.—J. H. REDFERN, Brackens, 78 Park View Road, Lytham, Lancs. 14.xi.1962.

LATE APPEARANCE OF *OPISTHOGRAPTIS LUTEOLATA* L. IN DORSET.—A specimen of *Opisthograptis luteolata* L. came to my light at Upwey on 5th October, and on the 22nd I flushed one from a hedge while beating. On the same day I beat two small larvae of this insect from oak.—Brig. H. E. WARRY, Upwey, Dorset. 3.xi.1962.

LATE EMERGENCE OF *LYSANDRA CORIDON* PODA.—A cold and wet latter end of the summer sometimes has its consolations as it tends to prolong the butterfly collecting season well past the last official day of summer and into the autumn. For some reason, which may well be connected with this season's weather, the main emergence of *Lysandra coridon* Poda on a certain Wiltshire down did not take place until the end of August and early September. At the height of its main period of emergence the butterfly was particularly common on the down although it showed no tendency to vary. Captain Jackson and myself visited the colony for what we thought was to be the last time on 29th September. It was a hot and particularly fine and warm day, but both sexes were still well represented, although numbers naturally had fallen off considerably from the peak period. Two pairs were noted *in cop.* with the females wings still limp.

That same night we suffered a 70 m.p.h. gale accompanied by torrential rain, the latter lasting, with varying degrees of intensity, for several days. To-day, 7th October, a cold and foggy morning developed into a bright and sunny afternoon, so much so, in fact that I was tempted to make a further visit to the down. For various reasons I did not get there until nearly 4 o'clock, then the sun was already low, but in spite of this I was delighted to find that there were still plenty of butterflies about—I netted six perfectly fresh *coridon* males and examined a number of females, many of them being recently emerged, but alas, all quite ordinary. For the most part, they were competing with a number of silver ys, small tortoiseshells, meadow browns, and a few painted ladies for what scabious flowers were still out. Again two pairs were seen *in cop.* but this time, only in one case was it the lady's first marriage. The majority of the meadow browns were in very good condition and several pairs were seen *in cop.*

From the foregoing, I am wondering whether I shall be looking for *L. bellargus* Rott. in November, but whether this materialises or not, the results of to-day's expedition are, I feel, most unusual.—Major-General C. G. LIPSCOMB, Crockerton House, Nr. Warminster, Wilts. 7.x.1962.

MIGRANTS IN BERKSHIRE.—I would like to record the capture in my light trap here of one *Leucania albipuncta* Schiff. on 21st September, and one *Leucania vitellina* Hübn. on 3rd October, both in excellent condition. During the latter part of September, eight *Laphygma exigua* Hübn.

were found in the trap, most of them only in moderate condition.—Air Marshal Sir ROBERT SAUNDBY, Oxleas, Burghclere, Nr. Newbury, Berks. 21.xi.1962.

LAPHYGMATA EXIGUA, AN APPEAL.—In yet another year of scarcity of lepidoptera, particularly migrant lepidoptera, the presence of so many *Laphygma exigua* Hübn. is of particular interest. This moth, which was first recorded in Britain in 1856, has only twice before exceeded two hundred records per year, that was in 1906 (235) and 1958 (300). In both these years there was almost certainly an early immigration followed by successful breeding during the summer. It is probable that the same situation has occurred again. An immigration into southern England occurred in early May and these moths gave rise to large numbers of offspring in August and September. In view of the fact that 1962 is likely to be a record year for this moth, I would very much appreciate details of any records, and also records of other immigrants which occurred at the same time.—R. A. FRENCH, Rothamsted Experimental Station, Harpenden, Herts. 14.xi.1962.

AN IRREGULAR PAIRING OF TIPULIDAE.—Among numerous Tipulids in my mercury vapour moth trap on 28th August 1962, was a ♂ *Tipula paludosa* Meigen in cop. with a ♀ *T. fulvipennis* Deg. The smaller wing-length of the former (16-25 mm.) made a striking contrast.—L. W. SIGGS, "Sungate", Football Green, Minstead, Lyndhurst, Hants. 19.xi.1962.

ON BREEDING ALAPTUS PALLIDICORNIS FÖRSTER (HYM. CHALC. MYMARIDAE).—In September 1960 I collected some egg-masses of a species of Psocoptera on aspen in my garden in Bournemouth. Later in the month I bred out about thirty imagines of a Mymarid. Samples were sent to Dr. W. D. Hincks of Manchester Museum, but in consequence of his untimely death, I was unable to obtain an identification from him. However, as a result of the assistance of Debauche's monograph, I am satisfied that they are *Alaptus pallidicornis* Förster, a known parasite of Psocid eggs. The species belonging to this genus are the smallest known insects; one, *A. magnanimus* from India, measures only 0.21 mm. The British species, *Alaptus minimus*, measures about 0.4 mm. in length, while *pallidicornis* is about 0.45 mm. These two rank as the smallest known British insects.

It is impracticable to mount members of this genus dry, owing to their minuteness; it is necessary to use a slide, preferably a cavity slide, which prevents distortion.

Reference: Debauche, H. R. 1948. Etude sur les Mymarommidae et les Mymaridae de la Belgique (Hymenoptera Chalcidoidea). *Mem. Mus. Hist. Nat. Belg.*, **108**, pp. 248, 24 pls.—S. C. S. BROWN, 454 Christchurch Road, Bournemouth. 16.xi.1962.

IMMIGRANT SYRPHIDAE.—We have had two waves of immigrants to this district, but nothing so spectacular as the vast swarms I reported before.

Up to 13th August, insects were scarce in the garden and hover flies quite infrequent. On the 13th, the garden was full of hover flies and white butterflies (mainly large whites) so much that my wife and a neighbour remarked on "all the flies everywhere". I could detect no settled direction of flight, but the butterflies were swarming in from the south east, from whence there was a steady breeze. A friend, about a mile-and-a-half east of here reported "great swarms of flies—two sorts,

black and white, and small, black and yellow". Perhaps I was on the edge of a mass immigration. The flies gradually thinned out to what one might call a normal summer density.

On 31st August, vast numbers of white butterflies again appeared coming from the south east. Again there were many more large than small whites. My Brassicas and Nasturtiums were plastered with masses of large white eggs—five batches on one Nasturtium leaf! Many more hover flies came in.—W. H. SPREADBURY, 3 Sherwood Road, Seaford, Sussex.

A random sample swept from a bush of *Bupleurum fruticosum* by Mr. Spreadbury consisted of *Scaeva pyrastris* L. a black and white hover fly, and the yellow and black hover flies *Syrphus balteatus* Deg. and *S. corollae* Fab.—L. PARMENTER.

LAPHYGMA EXIGUA AND LEUCANIA VITELLINA AT MUDEFORD, HANTS.—Two examples of *Laphygma exigua* Hübn. came to light at Mudeford in 1962; the first, just recognisable, on 2nd June, and the second in good condition on 15th July.

One *Leucania vitellina* Hübn. came to treacle in the garden on 26th September.—Rev. F. M. B. CARR, Flat F.8, Pine Grange, Bath Road, Bournemouth. 17.x.1962.

THE HABITS OF BOMOLOCHA FONTIS THUNB.—With reference to Mr. Symes's note on this moth (*antea* 211) I have several times found it quite easy to disturb in the day. In 1936, W. S. Gilles and myself went to a locality near Minstead, where the late L. T. Ford had found it. The place was planted with old Scots firs, about 30 feet apart, with an undergrowth of bracken and rather tall bilberry. It was a very hot day, and although the copse was no more than 100 yards long by 30 broad, we put up 30 or 40 moths (it was difficult to tell whether some were not those previously roused). They were rather difficult to catch as they zigzagged very quickly in the bright sunlight, but we each caught about a dozen; oddly enough, we only took one male apiece. They were nearly all in very good condition; one or two were chipped by the bracken and dead pine boughs. I do not think I could find the place again, as I destroyed the locality directions about ten years ago and did not mark the way, as we went by car.

Fontis is pretty common in the demesne at Glengarriff, Co. Cork, and in one place, very easy to get. On the road from Glengarriff to Kenmare is a lodge and gate leading into the demesne. After passing through the gate, the path leads over a foot-bridge across the river, and almost immediately after has, on the left side, a tall overhanging bank with a fringe of heather and bilberry on the top. A rattle with a stick in the hollow caused by the overhang produces *fontis* fairly frequently, and it zigzags across the path to the hollies on a rather sharp drop on the other side. It is not difficult to catch as the path is clear, although on a sunny day, the dapple of light from the leaves of the hollies and oaks is rather misleading. In the same place are plenty of *Lygris populata* L., *Chloroclystis debiliata* Hübn., and very occasionally an *Angeronia prunaria* L., a very scarce insect in Ireland.

The oak and birch trunks on the side of this path are the best locality I have found for the scarce ab. *verkruzeni* Heynm. of the very local Kerry slug, *Geomalacus maculosus* Allman. This is a yellow form

with black spots which is very difficult to obtain; the usual form found on the rocks is the ab. *allmani* Heynm., black with yellow spots. On a wet day the slug may be found crawling up the tree trunks in the rain; it is not seen in dry weather. This need not make any malacologist despair; he will get all the rain he wants at Glengarriff. On one occasion, my wife and I stayed there five weeks, and had some rain each day.

Fontis is thinly scattered all over the demesne, with concentrations in suitable localities. I have always found it fairly easy to disturb, but as in walking up pheasants, the hen rises more readily than the cock.—H. C. HUGGINS, F.R.E.S., 65 Eastwood Boulevard, Westcliff-on-Sea.

EMUS HIRTUS L. IN THE SOUTHEND DISTRICT.—I read with great interest Mr. Allen's paper (*antea* 219-221) on this remarkable beetle, and see that he only gives one Essex record, at Benfleet in 1950. I can add another fairly recent one to this, at Shopland, near Southend, in 1947. Shopland is about two miles from Southend, on the road to Wakering and Barling marshes.

In 1951, Mr. D. Down, a keen entomological member of the South Essex Natural History Society, told me he had a queer beetle, like a devil's coach horse, covered with golden hair, which flew across the road at Shopland and collided with a fence, so that he was able to pick it up. This occurred about the middle of June 1947. I recognized it at once from the description, but at my request, he brought it to me a few days later, and as I anticipated, it proved to be a fine *E. hirtus*. I recorded this in *The Entomologist* (84: 264).

Although a chance capture such as this is not likely to have been the only local specimen, I think that the beetle is very rare here, if indeed it was not a stray from Sheppey.

Until quite recently, I worked all the local marshes pretty regularly from 1932 onwards, at Benfleet, Leigh-on-Sea, Barling, Paglesham and Canewdon (Creeksea), and although I do not collect beetles, I always keep my eyes open for anything unusual, and I do not think I would have overlooked this striking insect flying in the sun.

I remember that when I was at Horning in 1923, the late Oliver Janson told me he had taken a number on Sheppey, but he did not mention the date.—H. C. HUGGINS, F.R.E.S., 65 Eastwood Boulevard, Westcliff-on-Sea.

Current Literature

From the South African Department of Agriculture, I have received four books of its ENTOMOLOGICAL MEMOIRS.

Vol. 4, Part 1, "The Morphology and Bionomics of the European House-borer, *Hylotrupes bajulus* L.", by H. J. R. Durr, D.Sc. (1957), gives a very full account, profusely illustrated with photographs and line drawings, of this insect and its habits.

Vol. 4, Part 2 (1956), is entitled "Studies on the Insecticidal and Aricidal Properties of New Systemic and Non-Systemic Chemicals", by E. H. W. Lochner, B.Sc., which deals very fully with the subject and, in addition, gives interesting techniques for handling these small subjects and keeping them in place for experiments.

Vol. 5 is on Genera of the Mymaridae with illustrations of some of these minute Chalcids.

Vol. 6 is on the Taxonomy of the African Membracidae, and part 1 covers the Oxyrhachinae, by A. L. Capener. It consists of 164 pages and is profusely illustrated with anatomical drawings and illustrations of upwards of sixty species of these "thorn bugs" showing both frontal and profile views, and with dorsal views where these illustrate particularly distinctive features. There are also illustrations of the immature stages of some species.

S. N. A. J.

ROBBER FLIES OF THE WORLD. THE GENERA OF THE FAMILY ASILIDAE. Frank M. Hull. *Smithsonian Institution Bulletin*, **224**. Parts 1 & 2. Washington D.C. 1962.

These two volumes of 907 pages, 2 photographs and 2571 figures (by Mr. Arthur Smith and the author) form a monumental work on this family of predatory flies. 212 pages are devoted entirely to figures of antennae, wings, head, male and female genitalia of representative species of the genera. The brief introduction of 19 pages treats chiefly of the morphology of the adult flies but short paragraphs deal with such matters as prey, mimicry and larval habits. The lack of information on the immature stages is emphasized in that the larvae and pupae of only some 50 species have been studied by about 50 authors whereas 4761 species in 400 genera and subgenera are known in the world. The family has been studied for 200 years and Dr. Hull's bibliography covers this period with 1344 titles by over 380 authors.

Keys are provided to the subfamilies, tribes and then down to each genus. A description of every genus is given quite fully and the type species is stated. Twenty-three of these genera are newly described by the author who is already responsible for 16, including his *Oldroydia*, named after Mr. H. Oldroyd of the British Museum (Nat. Hist.).

L. P.

VIDENSK. MEDD. FRA DANSK NATURH. FOREN, **124**. 1962.—Contains another study on the habits of crane-flies, Tipulidae, by Dr. Axel M. Hemmingsen of Strødam Biological Laboratory, Hillerød, Denmark. It is entitled "Copulatory Adaptions of male Hypopygium to female Tergal Ovipository Valves (Cerci) in Certain Crane-Flies (Tipulidae)". It has 22 excellent photographs of *Pales quadrifaria* Mg., *Cylindrotoma distinctissima* Mg. and of the following species of *Tipula*: *paludosa* Mg., *luna* Westh., *pruinosa* Wied., *lateralis* Mg., *fulvipennis* Deg., *variicornis* Schum., *scripta* Mg., *unca* Wied., *staegeri* Nielsen, *juncea* Mg., *caudatula* Lw., *lunata* L., *cava* Riedel, *dilatata* Schum., *livida* v. d. Wulp, *lesneri* Pierre. These help to illustrate his remarks on many species of *Tipula* and a few related species in the family Tipulidae. The mating habits are described and their relation to the genital armature is discussed. The paper includes distribution data on several species, many of them occur in Great Britain.

It is in English and concludes with a useful list of references. This is the fifteenth paper in our language on the Tipulidae by this author. They are well worth the interest of the many collectors of Tipulidae in this country as a large number of the flies dealt with are found in both Britain and Denmark.

L. P.

and J. Briggs). Warehorn, July 17, 1937 (*Bull. Diary*). Willesborough, one, 1954, eight, 1955, none, 1956; Wye, nine, 1953, nine, 1954, five, 1955, two, 1956 (W. L. Rudland). Ashford Town (P. Cue).

13. Bedgebury, July 10, 1937 (*Bull. Diary*). Tunbridge Wells, imago in the town; larva found on Tunbridge Wells Common (Morgan, *Lepidoptera of Tunbridge Wells* MS.).

14. Sandhurst, July 17, 1932, August 6, 1951; Benenden, July 13, 1937, August 4, 17, 1939, August 5, 1946 (*Bull. Diary*). Hawkhurst, 1952 (B. G. Chatfield).

15. Dymchurch, 1902 (Browne, *Entomologist*, **35**: 269). Dungeness, ♀, at m.v., August 3, 1951 (C.-H.).

16. Folkestone Town, at m.v., five, 1953, seven, 1954, one, 1956, one, 1957, one, 1961; none, 1951-52, 1955, 1958-60 (A. M. Morley).

VARIATION.—Tutt (*Ent. Rec.*, **13**: 359; *Br. Moths*, 68) states that "one finds, as a rare aberration, occasional specimens of *L. complana* in Kent, with the superficial appearance of *sericea* [*E. sericea* Gregson] very strongly developed".

FIRST (PUBLISHED) RECORD, 1829: *Lithosia depressa* Stephens, one "taken at Darenth-wood about ten years since" (i.e., c.1819) (Stephens, *Haust.*, **2**: 96).

E. pygmaeola Doubl. (*lutarella* auctt., non L.): Pigmy Footman.

Native. Coastal sandhills; foodplant unknown. Local.

Note: The larva (including that of s.sp. *palifrons* Zell.) does not yet appear to have been found in Britain.

4. Distributed from Deal to Sandwich Bay, occurring mainly near the shore, and apparently nowhere ranging inland for more than about a mile. Mostly noted at light, or at rest at night on grass stems or at marram; also, occasionally at sugar.

First discovered by H. J. Harding, at Deal, c. 1842 (cf. Harding, *Zoologist*, 2547); and subsequently recorded as fairly plentiful by many observers during the 19th century. Known as the "Deal Footman" (1907, South, *Moths Br. Isles*, 185). In 1898, according to Conquest (*Entomologist*, **32**: 21), it was still fairly abundant and occurred over a large area of sandhills. However, construction of the golf-course about the turn of the century on the site of its habitat, evidently caused much concern for both this and other local specialities, and a contemporary note by Webb (1899) stated that "it is now in some danger of being exterminated". Since then though, it seems, the resulting golf course "rough" may have helped to some extent to conserve it.

V.C.H. (1908) has: "Deal, formerly abundant; getting scarcer". Perhaps a true prophecy, since there appear to be few references to its occurrence during the period that followed to 1930. P. A. Cardew (*Diary*) took it at Deal, July 24, 1908; and two at Sandwich, July 19, 1909, "on the ground near the hotel". Metcalf (*Entomologist*, **47**: 244) records that he found numbers at Deal in 1914; and H. G. Gomm (*Diary*) mentions finding one on St. George's golf course, July 25, 1923.

A. M. Morley (*in litt.*) writes that in 1931, he and Proudfoot found five at night on August 10, at the Deal end of the sandhills; and in 1933, with J. H. B. Lowe, he noted on July 16, about 100 at dusk and at light, at Sandwich Bay. Noted by many observers since, e.g., August 20, 1936, in fresh condition; August 16, 1939 (A. J. L. Bowes); at Sandwich Bay; July

27, 1939; July 25, 1946; about 20 in fresh condition, including several *in cop.*, July 2, 1949 (C.-H.).

VARIATION.—The records show that *pygmaeola* is occasionally subject to extreme variation, particularly regarding colour of forewings. Thus, Barrett (*Br. Lep.*, 2: 217) mentions (a) one of a "pure silvery-white"; (b) one "entirely of a dark smoky-grey, approaching to slate-colour"; and another (c) "entirely grey". Tutt (*Ent. Rec.*, 6: 220) gives the colour range as from bright golden-yellow to almost black; and adds (*Br. Moths*, 70) that occasionally dark forms occur with a pale costa.

I have never seen any of the striking abs. mentioned above in the many collections that I have examined, and would be interested to know if they still exist, as they must, I consider, be pretty rare. One that I have, a ♂, taken July 27, 1946, has grey hindwings, darker in the costal area, and greyish forewings (C.-H.).

Ssp. *pallifrons* Zell.

Resident. Shingle beach; foodplant unknown. Very local.

15. So far as is known, the distribution of *pallifrons* in Britain is confined to Dungeness and its immediate vicinity, where it appears its range does not exceed some two miles in length. It occurs mainly between the lighthouse and the level-crossing, about the Long Pond, and has also been seen at the Open Pits. The records do not, however, show that the distribution extends as far north as Lydd-on-Sea coastguard station, nor west to reach the Hope and Anchor, though it is quite likely that it does so.

First noticed by H. B. D. Kettlewell on August 5, 1931, who records that he took two ♂♂, at his car lights at the level-crossing (cf. Kettlewell, *Ent. Rec.*, 44: 8-9). Observed fairly regularly since, and is sometimes not uncommon, particularly at light:—August 6, 7, 1935, "I have seen it coming freely to light both at the level-crossing and at the pits, and out on the shingle half-way to the pits" (A. J. L. Bowes). On August 3, 1951, I saw it in abundance on the rough ground between the Pilot Inn and the old railway to the lighthouse; some were at rest on grass, but the majority came to my roving Coleman lamp (C.-H.). About 100 on P. Cue's sheet, in 1955 (A. M. Morley). Thirty, at light, July 27, 1957 (R. F. Bretherton). One, August 18, 1958 (E. C. Pelham-Clinton). July 6, 1959, July 30, 1960 (de Worms, *Entomologist*, 93: 177, 94: 162). Two, at rest on *Silene otites*, July 22, 1960 (R. G. Chatelain).

VARIATION.—Broadly speaking, the form differs from typical *pygmaeola* by its larger size, and pale yellow (not pale straw) forewing. Seitz (Pal. Bomb. and Sphinges, 68) says that, compared with *pallifrons*, *pygmaeola* is "perhaps a separate species"; and Draudt (in Seitz, Suppl. Pal. Bomb. and Sph., 68) writing some thirty years later, emphasised this by saying that they were probably specifically distinct. According to Pierce and Beirne (*Genita of Br. Rhop. and Larger Moths*, 56), however, there are no differences in the genitalia.

Morley (*Trans. Folkestone nat. Hist. Soc.*, 1958-59: 9) states that on an average, specimens have become smaller since the original pair were taken at Dungeness, and tentatively suggests that the race there may represent a relatively recent immigration from the Continent, and a rather rapid change to something like the type, though yellower and with less grey shading on the forewings. These observations would have been

of greater value, however, had they been accompanied by detailed comparisons of a more precise nature, based on material taken over the years.

In my series of twenty-four *pallifrons*, all taken in 1951, several examples are very similar in appearance to typical *pygmaeola*. In general, however, the specimens are larger and of a deeper yellow, the al. expanse of the largest, a ♂, measuring just over 32 mm. Six, all ♂♂, are of a deep golden-yellow (C.-H.).

FIRST (PUBLISHED) RECORD, 1847: *Lithosia pygmaeola*. "This small species, which appears to be new, has been taken on the coast of Kent among rushes" (Doubleday, *Zoologist*, 1914).

E. caniola Hübn.: Hoary Footman.

Perhaps resident, though apparently now extinct¹. Shingle beach; foodplant unrecorded.

15. Romney Marsh².—Between 1866 and 1871, "while hunting for these larvae [*Lasiocampa trifolii*], Mr. Mitford's son found smaller caterpillars, which produced *Lithosia caniola*" (Bond, *Proc. ent. Soc. Lond.*, 1871: xxxix). In Meldolla coll. are three labelled "Romney Marsh, 1895" (Woodforde, *Entomologist*, 54: 12). In Br. Mus., S. Kensington, are three *caniola* labelled "Romney Marsh, S. Webb, 16.2.96" (C.-H.). "In May, the larvae of *Lithosia caniola* have been found commonly on Romney Marsh, on the low plants growing on the shingle just above high-water mark" (1901, Tutt, *Practical Hints*, 1: 35).

FIRST (PUBLISHED) RECORD, 1871: Bond, *Proc. ent. Soc. Lond.*, 1871: xxxix.

¹It is interesting to note that in 1939, a ♂ (now in my coll.) was taken by the late Dr. G. V. Bull on July 23, on Rye Golf Course, just over the Kent-Sussex border (C.-H.).

²Possibly some of the *caniola* so recorded may have occurred just in Sussex. In R.C.K., are five small specimens, labelled "Rye, Sussex, R. H. Mitford"; and Barrett (*Br. Lep.*, 2: 221) has "near Rye, Sussex; and at Romney Marsh, Kent".

E. sororcula Hufn.: Orange Footman.

Native. Woods; foodplant unrecorded. Rather scarce; much more plentiful some years. Apparently extinct in N.W. Kent.

1. Birch Wood (Stephens, *Haust.*, 2: 94). West Wickham, one, May 1859 (Allchin, *Ent. week. Int.*, 7: 188). Joydens Wood; Birch Wood (C. Fenn, in *Wool. Surv.* (1909)). Bromley (H. Alderson, in *Wool. Surv.* (1909)).

3. Thornden Wood, one, June 4, 1902 (J. P. Barrett coll.). Pine Wood, one, June 2, 1904 (J. P. Barrett coll.); c. 1946 (J. A. Parry). Blean (V.C.H. (1908)). Sturry Woods, several, 1913 (Spiller, *Entomologist*, 46: 318). Den Grove, one, 1938 (C.-H.).

6. Birling, one, 1905 (H. C. Huggins).

6a. Swanscombe Wood, twenty-four, 1848 (Hodgekinson, *Zoologist*, 2328). Greenhithe*, one, May 23, 1859 (Fenn, *Diary*). Darenth Wood, 1856, 1858-59 (Harding, *Ent. week. Int.*, 1: 76, 4: 84, 6: 75); one, May 30, 1863 (Fenn, *Diary*) (W. West, in *Wool. Surv.* (1909)). Chattenden, one, June 12, 1884 (Fenn, *Diary*); not uncommon (Chaney (1884-87)); 1899 (Russell James, *Ent. Rec.*, 12: 102); 1901-10 (H. C. Huggins).

7. Belmont, 1926-27 (H. C. Huggins). Westwell, June 2, 1923 (Bull, *Diary*) (Scott (1936)).

8. Chilham Downs, one, June 10, 1922 (Gomm, *Diary*); one, May 22, 1938 (C.-H.). Sole Street, June 8, 1935 (J. H. B. Lowe). Brook; Crundale (Scott (1936)). Barham, one, taken by B. Embry (A. M. Morley). Dover district, "widespread, not uncommon" (E. & Y. (1949)). West Wood, ♂, beaten out of spruce, June 19, 1950 (A. M. Morley); one, May 13, 1961 (D. G. Marsh).

11. Tonbridge (Morris, *Br. Moths*, 1: 50). Hoads Wood (Scott (1936)); 1955, 1956 (W. L. Rudland). Aylesford (G. A. N. Davis).

12. Ham Street.—One, May 31, 1932, one, May 26, 1933, one, May 22, thirty at light, June 1, 1934, one, May 24, 1936, one, May 29, 1946, one larva, September 9, 1946 (A. M. Morley); larvae, August 5, 1934 (*de Worms*, *Entomologist*, 68: 103); common at light, June 1, 1935 (A. J. L. Bowes); May 12, 1936, June 11, July 3, 1937 (Bull, *Diary*); about twenty rather worn ♂♂, at light, June 6, one very worn, June 11, 1938, one, May 25, 1951, one at m.v., May 31, 1958; all in Long Rope (C.-H.); two, 1960 (M. Singleton & D. Youngs). Kingsnorth (Scott (1936)). Chartham, one, 1952 (P. B. Wachter). Wye, eight, May 26-June 11, 1953, twelve, May 25-June 29, 1954, not seen 1955-56; Willesborough, one, May 27, 1954, not seen 1955-56 (W. L. Rudland).

13. Tunbridge Wells, one, 1857 (Andrews, *Ent. week. Int.*, 2: 77); May 13, 1943 (Morgan, *Lepidoptera of Tunbridge Wells* MS.). Pembury dist. (Cox, *Entomologist*, 4 (61), ii). Southborough (M. M. Phipps, in Knipe (1916)).

16. Folkestone Town, one, June 14, 1952, one, June 28, 1953, one, June 1956 (A. M. Morley).

VARIATION.—Howard (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1949-50: 10) exhibited an ab. taken by A. G. Peyton, June 1, 1934, near Ashford [Ham Street], and which was described as "dull brown in colour instead of the usual orange".

FIRST RECORD, 1829: Stephens, *loc. cit.*

***Pelosia muscerda* Hufn.: Dotted Footman.**

Resident, perhaps extinct. Fens, marshes; foodplant unknown.

Note.—Although specimens were frequently labelled "Deal", "Eastry", "E. Kent", or just "Kent", in order to disguise the true locality, there is no evidence (excepting the single record for 15) that the species was ever found anywhere in Kent other than at Ham Fen.

4. Near Deal [Ham Fen] (see *First Record*). Ham Fen.—A few taken by H. Vaughan, 1891 (Fenn, *Diary*, 11.xii.1891); two fresh specimens, "by mothing along ditchside", August 8, 1892, one fresh specimen, August 17, 1892 (Fenn, *Diary*; *idem*, *Ent. Rec.*, 3: 285; *idem*, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1892: 48); one, "Eastry, Kent, 1903", one, "Kent, 1907", both in Meldola coll. (Woodforde, *Entomologist*, 54: 12); I have nine from E. D. Bostock coll., labelled "Kent, 6.07, Lister", and presumably taken by W. K. Lister, who resided at Eastry (C.-H.). In R.C.K., are several of Lister's specimens labelled E. Kent, 1905, 1907; in Goodwin coll., are seventeen specimens from "East Kent", including fourteen by T. Blest and E. Goodwin, August 1907, and three, bred E. Goodwin, August 1908; Blest informed me that his and Goodwin's *muscerda* came from Ham Fen; W. A. Cope told me he saw *muscerda* in numbers at Ham Fen in 1908 and 1909, and showed me about twelve specimens in his coll. from there so

dated, some of which he had bred from ova (C.-H.). Five, labelled "Eastry Kent", followed by the date, three on July 30, 1910, two on July 25, 1911; all from an old collection (G. H. Youden).

15. Appledore, on the marsh, July 1898 (Heitland, *Entomologist*, **31**: 222).

FIRST RECORD, 1887: "Dykes near Deal" (Webb, *Dover, Deal and District Descriptive Pictorial*, 9).

Atolmis rubricollis L.: Red-necked Footman.

Resident, perhaps native. Woods, etc. [on *Pleurococcus naegelii* on oak, fir, beech]. Uncertain in appearance; usually scarce. Apparently extinct in N.W. Kent.

1. Near West Wickham (Simson, *Ent. week. Int.*, **1**: 116). West Wickham, ♀, June 8, 1860 (H. Tompkins MS.); bred 1861, from "larva feeding on oak" (Huckett, *Ent. week. Int.*, **10**: 51—the record does not make it clear whether this or Darenth Wood is intended (C.-H.)); two larvae, August 24, 1861 (Fenn, *Diary*). Near Lewisham [West Wickham], "larvae common on fir" (Fenn, *Ent. week. Int.*, **10**: 195), Petts Wood, beat two larvae from oak, August 31, 1861 (Fenn, *Diary*). Shooters Hill (W. West, in *Wool. Surv.* (1909)).

3. Canterbury* (Morris, *Br. Moths*, **1**: 54). Sturry, June 10, 1914 (H. G. Gomm, *Diary*).

4. Ickham, one, June 28, 1957; one, July 3, 1958 (D. G. Marsh).

6a. Darenth Wood (Stephens, *Haust.*, **2**: 198); two, June 21, 1862 (Fenn, *Diary*).

7. Wigmore, one, on larch trunk, June 1854 (Chaney (1884-87)). In Maidstone Mus. are:—One, "Boxley, E. Bartlett" [c. 1890]; one, "Boxley Hill, 18.vi.1917, H. Elgar" (C.-H.). Hollingbourne, not uncommon in heat-wave year of 1921, from May 29-June 22 (H. C. Huggins). Westwell, three larvae resting or crawling on branches of beech, September 18, 1932, from which an imago was reared June 10, 1933 (A. M. Morley); noted annually 1945-53, but altogether only a few (E. Scott, *personal communication*, 19.xii.1954); one, July 1, 1957 (G. H. Youden).

8. Martin, swarming in a pine wood, July 1, 1856 (Harding, *Ent. week. Int.*, **1**: 116). Deal.—G. H. Youden has four old undated specimens labelled "Deal", given to him by H. D. Stockwell, and which he says probably came from S. Webb coll. (C.-H.). Shepherdswell (V.C.H. (1908)); (W. E. Busbridge). Near Whitfield, scarce (E. & Y. (1949)). Atchester Wood, near Elham, one, June 15, 1930; Dover, three at m.v. trap in garden, June 21, 1951, the only occasion here (G. H. Youden). Elham (W. E. Busbridge). Reinden Wood (Knaggs (1870)). Bridge, c. 1946 (R. Gorer). Wye (Scott (1936)); (C. A. W. Duffield).

9. St. Peters, one, at m.v., June 30, 1956 (W. D. Bowden).

11. Holt Wood, Aylesford, one at m.v., 1953 (G. A. N. Davis). Maidstone Town, one, July 16, 1955 (E. Philp).

12. Ham Street.—At light, June 18, 1934, June 30, 1935 (A. J. L. Bowes); one, at light, Long Rope, July 2, 1946; ♀, June 13, 1947, beaten out of oak bush in Burnt Oak; ♀, June 6, 1948, beaten out of sloe bushes, in Long Rope (C.-H.); June 11, 1937 (Bull, *Diary*); one, July 4, 1938 (A. H. Lanfear); one, June 30, 1956 (W. L. Rudland); one, 1957 (P. Cue).

16. Folkestone, one, June 16, 1951, taken by A. G. Riddell (Morley, *Trans. Folkestone nat. Hist. Soc.*, 1950-52: 11).

FIRST RECORD, 1829: Not uncommon in the lane leading into Darenth Wood from the village; and occasionally found in other parts of the wood" (Stephens, *loc. cit.*).

Celama trituberculana Bosc (**centonalis** Hübn.): Scarce Black Arches.

Resident. Coastal sandhills, etc.; foodplant unknown. Mainly (if not wholly) maritime in distribution. Very local.

[2. Sittingbourne, a few specimens (Wigan, *Entomologist*, 7: 205). Faversham, "has been taken at Faversham" (Chaney (1884-87)).]

4. Deal.—One taken by Mr. Dow, July 1858 (see *First Record*). Appeared again there in 1878 (Tugwell, *Young Nat.*, 9: 54), in a very restricted locality near Sandown Castle, of which W. H. Tugwell wrote in a note to Charles Fenn (Fenn, *Diary*, 24.vii.1892): "The old spot where I discovered it was a small hillock immediately behind the iron target on sandhills in long grass and little bushes of Sea Buckthorn. If you take the target as one angle, the old tumbledown shed on the left hand just beyond on left, and sandy parlour as extreme limit, *centonalis* is, or was, at home there. I rarely did much until 10 p.m. I have netted it on the wing but rarely, it is rather by close search round the small bushes of Sea Buckthorn where they go for shelter; you may even see them scuttling up and down the stems, grass, etc., on flighty nights or more generally sitting quietly often *in cop.* after 11 p.m." Thereafter the moth was taken in numbers annually by various collectors, at least until 1882¹, in which year on July 18, Tugwell (*Young Nat.*, 4: 81) recorded that, accompanied by R. Adkin, he noted in an hour, nineteen examples, including three pairs in *cop.*, "by closely inspecting the grass stems and stunted bushes of *Hippophae rhamnoides*".

I have a number from Deal from E. D. Bostock coll., that were bred by Howard Vaughan in 1882, and E. Sabine in 1892 (C.-H.); Webb (1891) has "Deal sandhills, 1889; and in R.C.K. is one labelled "Deal Sandhills, 1895". By 1893, however, it had evidently very much decreased at Deal², and one taken by G. H. Conquest (*Entomologist*, 32: 21), July 24, 1898, appears to have been the last to have been seen there.

8. Langdon Hole (Webb (1891), 7). Folkestone, *centonalis*, a "species new to Folkestone recorded by Mr. Austen in July" (1892) (*Proc. Folkestone nat. Hist. Soc.*, 1892: 26).

12. Ham Street. ♂, at light, at south-east corner of Long Rope, July 24, 1955 (Haggett, *Ent. Gaz.*, 8: 78).

15. Littlestone, one taken, c. 1910 (F. J. Hanbury, *vide* H. M. Edelsten). Lydd-on-Sea, one, June 28; one, June 29, 1957—both at m.v. (Edwards & Wakely, *Ent. Rec.*, 70: 93; Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1957: 14).

16. Folkestone Town, ♂, ab. *atomosa* Brem., at m.v., July 22, 1956 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 38).

VARIATION.—Very variable. My series of twenty-six Deal *trituberculana* from the coll. of the late E. D. Bostock consists of twelve examples that may be classed as more or less typical, but show some degree of variation *inter se* regarding the extent of dark marking; three ab. *atomalis* Brem.; one ab. *candidalis* Stgr.; three ab. *fasciata* Rebel; and seven others transitional to *atomalis* (C.-H.).

In R.C.K. are the following abs.:—*alfkeni* Warnecke, numerous, Deal; *atomosa* Brem., several, Deal; *contrarialis* Heydermann, one, "Deal Sandhills, 1895."

FIRST RECORD, 1858: "My friend Mr. Dow, while in company with me at Deal, in July last, had the pleasure of capturing a fine specimen of *Nola Centonalis*" (Standish, *Ent. week. Int.*, 5: 74).

¹Cf. *Ent. mon. Mag.*, 16: 206; *Entomologist*, 13: 42, 218; 14: 19, 215, 226; 15: 205.

²In 1893, Tutt (*Ent. Rec.*, 4: 76) said he believed it to be extinct at Deal owing to the destruction of the locality by conversion into a golf course.

ARCTIINAE

[*Coscinia striata* L. (*grammica* L.): Feathered Footman.

Doubtfully genuine.

13. In J. C. Stevens's catalogue of the sale on March 15, 1905, of the P. B. Mason coll., one finds at p. 21, under lot 272:—"Grammica, ♂, Tunbridge Wells, 21/7/52, Warner collection" (Anon., *Entomologist*, 38: 136).]

C. cribraria L. (*cribrum* L.) ssp. **arenaria** Lempke: Speckled Footman.

Immigrant!? Coastal sandhills. Very rare.

4. Sandwich, one, taken at night on St. George's Golf Course, in mid-July 1914, by J. W. Metcalf (Metcalf, *Entomologist*, 47: 245); one, taken at Sandwich Bay, on *Echium*, in July 1922, by a collector, name unknown, and shown fresh to H. C. Huggins (H. C. Huggins); ♂, taken at Sandwich Bay, at light, August 7, 1937, by A. J. L. Bowes (Bowes, *Entomologist*, 73: 25-26, fig. 3).

15. Dungeness, ♂, taken at light, July 21, 1934, by R. P. Demuth (Bowes, *loc. cit.*). [The statement in South (1961, *Moths Br. Isles*, edit. Edelsten, Fletcher and Collins, 2: 68) that *arenaria* has occurred more than once at Dungeness, is erroneous, and should be amended to accord with the above (D. S. Fletcher).]

VARIATION.—The Kent specimens are referable to ssp. *arenaria* Lempke, which has whitish forewings, is smaller, and much less heavily marked than the native Hants and Dorset race (ssp. *bivittata* South=*anglica* Ob.).

The Bowes specimen is almost spotless, and thus referable to ab. *trans. ad unicolor* Closs; the Metcalf and Demuth specimens are more noticeably spotted, and apparently conform to nymotypical *arenaria* (Bowes, *Entomologist*, 73: 27, 190). The Bowes and Metcalf specimens are in R.C.K. (C.-H.).

FIRST RECORD, 1914: Sandwich (Metcalf, *Entomologist*, 47: 245). Only recorded tentatively at the time, but later confirmed as this (cf. Bowes, *Entomologist*, 73: 190).

¹On the continent, ssp. *arenaria* is found on the coastal sandhills of N. France, Belgium, and Holland. In Britain, so far as is known, *arenaria* has only occurred in Kent, to which it has been suggested the specimens were immigrants from abroad. A curious fact, however, and one that tends to dispel the immigration theory, is that all four examples were taken on or in the close vicinity of coastal sandhills, which are very restricted in Kent, and that three of them occurred at the same locality.

Utetheisa pulchella L.: Crimson-speckled Footman.

Immigrant. Stubble fields, waste places, gardens, etc.; foodplant unknown.

Altogether, there are records of some sixty *pulchella* for Kent, all of them imagines, and mostly from the east coast. 1874, 1886, 1892 and 1961,

were good years, and it seems probable that in at least the last three, the species survived to produce a generation in Kent.

Note: Tutt (1896, *Br. Moths*, 73) states that "on one occasion a fairly numerous brood was captured near Folkestone by two collectors who provided themselves with a long piece of rope which they dragged over the stubble-field, and thus disturbed the moths".

The earliest known occurrence of *pulchella* in Kent is that recorded by the Rev. F. W. Hope (in Stephens *Haustr.*, 2: 198), who states that it was found at Gravesend (in 1828). Subsequently the moth was noted as follows:—(1853): Tenterden (div. 14) (Beale, *Zoologist*, 4130). 1862: St. Margaret's Bay (West *Proc. S. Lond. ent. nat. Hist. Soc.*, 1910-11: 103). 1869: Uphill, near Alkham, October 1 (Briggs, *Ent. mon. Mag.*, 6: 141). 1871: Dover, September 5 (White, *Entomologist*, 5: 412); Belvedere (div. 1) (Wood, *Ent. mon. Mag.*, 8: 111). 1873: Cobham (div. 6a), two, in Maidstone Mus. (C.-H.).

1874: Folkestone Warren, September, one taken, several others seen (Ullyett, *Ent. mon. Mag.*, 11: 210); Folkestone Warren, one, October 26 (Blackall, *Ent. mon. Mag.*, 11: 210); Alkham Valley, October 28 (Briggs, *Ent. mon. Mag.*, 11: 157); one in R.C.K., "Dover, 11.8.1874, G. Wood" (C.-H.). (1874): Deal (Stevens, *Proc. ent. Soc. Lond.*, 1874: xxiii).

1876: In R.C.K., one, Folkestone, September (C.-H.); in Selwyn Image coll., ♀, "Kent, Folkestone, Oct. 1876, Austen, C. A. Briggs c.", ♀, "Kent, Folkestone, 13.10.76, Austen, C. A. Briggs c." (C.-H.); Deal, one, R. Harbour, Briggs coll. (Stevens, *Cat. P. B. Mason coll. Sale, March 14-15, 1905*, 21) (probably the one recorded by Harbour in *Entomologist*, 14: 18). [1876?]: Folkestone, "W. J. Austen, the professional, told me that one year he had 8 specimens in October, some taken by him and some brought to him by people who found them on rocks on the beach" (A. M. Morley, *in litt.*). 1880: Near Dover, September 12 (Austen, *Entomologist*, 13: 241); Folkestone, October 8 (Melville, *Entomologist*, 13: 281). c. 1880: Herne Bay, one taken by W. Bowes (A. J. L. Bowes coll., now in R.C.K.). 1885: Folkestone, September 7 (Chittenden, *Entomologist*, 18: 262).

1886: Near Folkestone, June 1 (Salwey, *Entomologist*, 19: 169); Diggles Folly, Dover, one, June (Tulloch, *Entomologist*, 60: 164); St. Margaret's Bay, one captured at rest "on a piece of seaweed", by Mr. Hanson of Plumstead, and exhibited at Haggerstone ent. Soc., November 1886 (Anderson, *Young Nat.*, 7: 247); Dover (Skinner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1887: 74); Ramsgate (Wood, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 18; idem, *Entomologist*, 19: 280); Ramsgate, taken by Mr. Buckmaster (Waterhouse, *Proc. ent. Soc. Lond.*, 1886: liii); Folkestone, August (Burr., *Ent. mon. Mag.*, 24: 132).

1887: W. A. Cope told me that while staying at Ramsgate in September 1887, he was shown two freshly caught *pulchella*, one of which had just been taken at ivy blossom (C.-H.); Poulton, one in R.C.K., "Taken at Poulton, nr. Dover, Oct. 19 '87, by Mr. Marsh" (C.-H.). 1890: One in R.C.K., Folkestone, June (C.-H.).

1892: St. Margaret's Bay, one, May 28, one, May 30 (Williams, *Entomologist*, 25: 167); Shorncliffe, May 29 (Partridge, *Ent. mon. Mag.*, 28: 191); Folkestone, May, specimens by Messrs. Hills and Gordon (*Proc. Folkestone nat. Hist. Soc.*, 1892: 26); Dungeness, June 1 (Postans, *Ent. Rec.*, 3: 131); Smeeth (div. 12), June 4 (le Grice, *Ent. Rec.*, 3: 159); Folkestone, August 17 (Austen, *Entomologist*, 25: 288; idem, *Ent. Rec.*, 3:

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