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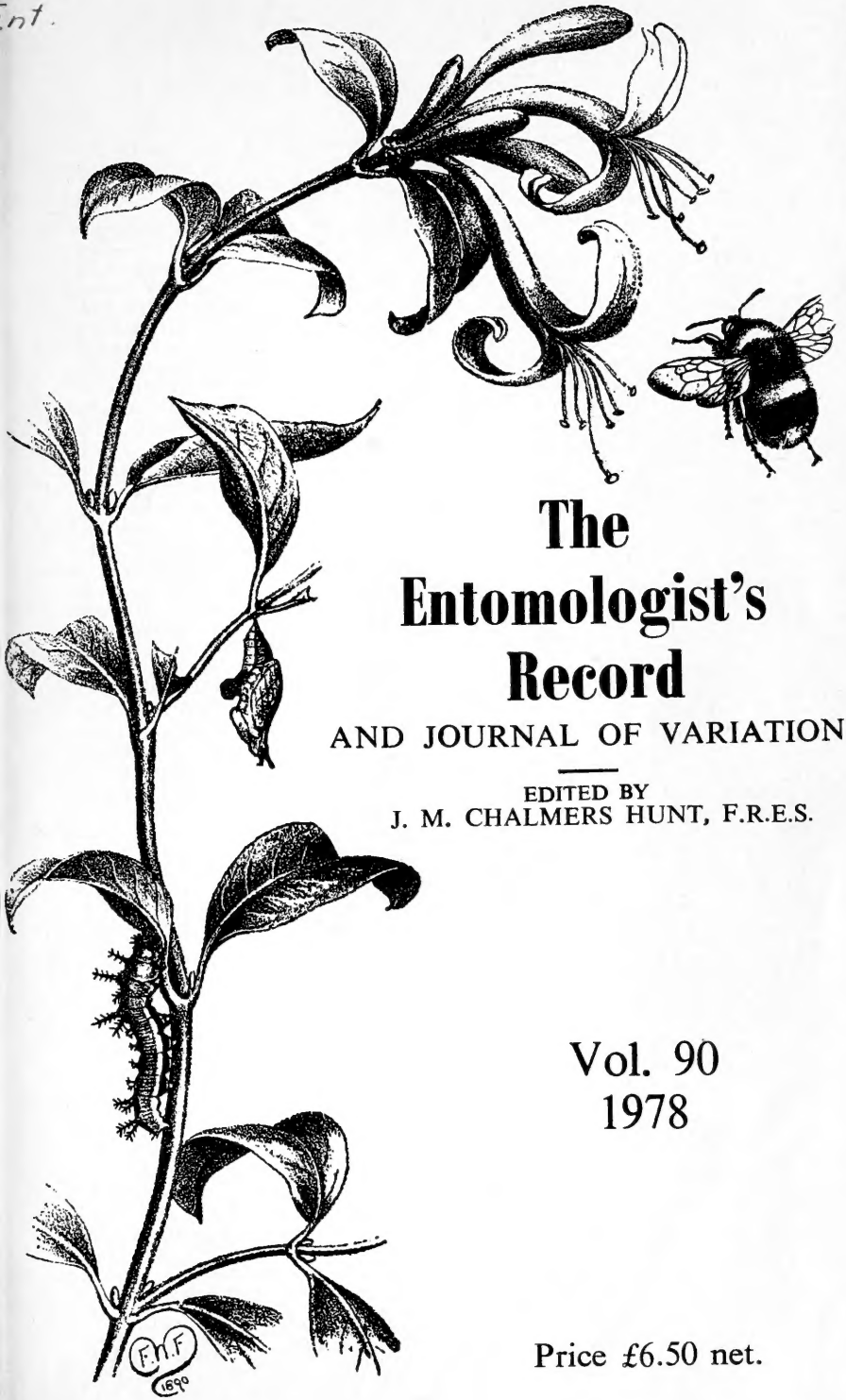

The Entomologist's Record

AND JOURNAL OF VARIATION

EDITED BY
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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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The Silver-washed Fritillary (*Argynnis paphia* L.): A Population Explosion

By Major General C. G. Lipscomb, C.B.*

Of our three big fritillaries, *Argynnis paphia* L. is probably most subject to variation, particularly in years of abundance. Frohawk in his book on varieties of British butterflies mentions that in 1881 a remarkable number of aberrations suddenly appeared, especially in the New Forest, but that in the following year numbers went down to normal again and there was no variation.

There was then a gap of thirty-seven years till 1918 when, towards the end of the Great War, the same thing happened again but this time it was repeated in the following year. Frohawk writes that in both years "There appeared an extraordinary abundance of insects and a great number of wonderful aberrations were seen and captured". The winters previous to all the above seasons were of unusual severity and were followed by fine hot summers.

Another gap followed till 1941 and 1942 when the pattern was repeated and many fine aberrations were once again taken in the New Forest. On this occasion there was nothing particularly remarkable about the preceding winters or summers and it is not possible to put one's finger on any single common factor that can have induced the sudden abundance and aberration of this butterfly.

One gets the impression that these occurrences were limited to the New Forest, but this may well have been because it was the one place in those days that was systematically worked by collectors and the majority of its enclosures were of oak woodland perfectly suited to this butterfly.

The capture of aberrations was not necessarily confined to the years of plenty as extreme forms have been taken from time to time when the population was normal. Examples of this are the ab. *ater* Frohawk taken by Lt. Col. W. B. L. Manley in 1929, and a superb ab. *nigrizina* Frohawk by S. G. Castle Russell about 1935. In my experience *paphia* in the local woods have never previously been in sufficient numbers to make it worthwhile to work them, although in 1966 I was lucky to take an ab. *ocellata* ♂ among a very few seen.

The summer of 1975 was dry and warm but with no noticeable increase in the local *paphia* population. The winter that followed was remarkable for its lack of rainfall. The summer of 1976 was throughout its duration among the hottest and dryest on record with a period of a fortnight from the last week in June when the thermometer remained in the high 80's F. and on several days reached 90° F.

I left for Scotland on 24th June and only returned home on the evening of 6th July. My return was greeted with the news that I had missed a *paphia* population explosion in the

* Crockerton House, Nr. Warminster, Wilts.

local woods and I was at once taken off and shown some of the fine aberrations that had been captured. Apparently the emergence had started on the same day as I set out for the north, and by the end of the month had reach phenomenal proportions.

I was told the butterflies had at first appeared in numbers when, apparently seeking moisture, they settled on a rough track which wound its way through their emerging ground in the oak woodland. This area was literally carpeted in places with violet plants and must have provided an ample food supply ready at hand for the host of larvae. After a few days they were able to transfer their attention to the bramble blossom, now just coming out, and on which they settled in their hundreds.

Most of the aberrational forms were not noticed till the bramble stage was reached and it would seem that they largely appeared towards the end of the emergence, although some were taken on the path when the butterflies first appeared. It was noticeable too that female aberrations predominated, at any rate in the "majors". I have no record of any aberrations being taken after 11th July, by which date the emergence was virtually over and most of the butterflies were looking distinctly worn.

Although these observations are based on one particular area of woodland, it became evident later that this great upsurge of numbers and variation had probably taken place in most woods that held even residual populations of *paphia* and was by no means confined to one particular wood but had in fact occurred throughout the county wherever conditions made it possible.

I have records of 35 aberrations that were captured and these can be broadly classified as follows: —

Type	ab. *confluens* Spuler, 9 ♂♂ and 4 ♀♀
	ab. *ocellata* Frings, 15 ♀♀
	ab. *nigricans* Cosmovici, 4 ♀♀
	ab. *ater* Frohawk, 1 ♂
Valezina	ab. *nigrizina* Frohawk, 1
	ab. *ocellata* Frings, 1

The sight of such a great host of butterflies was an experience that is unlikely to occur more than once in the lifetime of most entomologists and while it lasts one finds it difficult to believe it is true.

I have discussed the proportion of aberrations to types with John Marcon, who witnessed the 1941/42 emergences in the New Forest and he has given it as his opinion that it was much higher here than it had been in the New Forest.

The winter that followed this wonderful summer was one of the wettest on record and the summer that succeeded it was equally dismal. An examination of the violet plants in the spring showed that many must have died before the drought broke in September so that there was nothing like the quantity

of foodplants to sustain those larvae that survived the winter downpour. Very few *paphia* were seen in July but a localised emergence took place in the second week in August coinciding with the bramble blossom. Two ab. *confluens* ♀♀ and a ♂ and ♀ ab. *ocellata* were taken in a population of about 200 butterflies. So ended our high hopes of another bumper year, but perhaps we were lucky to have taken even these in such a poor and backward season.

STAPHYLINUS CAESAREUS CED. (COL.) IN DEVON: A SECOND BRITISH LOCALITY. — This conspicuous rove-beetle is here, as far as I know, on record only from the New Forest (*v.* Tottenham, C. E., 1940, *Ent. mon. Mag.*, **76**: 129-130) — having been previously confused with the widespread (and highly polysyllabic) *S. dimidiaticornis* Gemm. (=*parumtomentosus* Stein). The latter was known as *caesareus* in all our literature up to 1930, when Donisthorpe pointed out the error. The true *S. caesareus* seems to be not only extremely local with us but also very scarce; Tottenham (*l.c.*) mentions having seen examples in the Power and Sharp collections at the British Museum. These amount to very few, but there is another in the Champion collection and I possess one *ex coll.* A. Ford dated vii.1894 — both again from the New Forest.

A few years ago I detected a specimen of this insect among some beetles collected by the late Mr. L. H. Woollatt, which he very kindly allowed me to retain; it was taken at Chudleigh Knighton Heath, near Newton Abbot, S. Devon, on 9th April, 1955. It is possible that the species is still occasionally mistaken for its commoner congener.

S. caesareus is readily known from *S. dimidiaticornis* by the patch of golden hair on the temples, and the entirely red or red-brown antennae at most only slightly and vaguely darkened towards apex (in the other species the darkening is very decided). The elytra also are not so distinctly broader than the thorax, giving the beetle a rather more parallel-sided appearance. The aedeagus differs markedly in the two (cf. Tottenham, *l.c.*: 130). The third member of the complex in mid-Europe, *S. ruficornis* Bernh., is unlikely to occur in Britain. — A. A. ALLEN.

LITHOPHANE ORNITOPUS LACTIPENNIS DADD. FROM MID KENT. — On 10th October, 1976, I had a fine male of the Grey Shoulder-knot at a sugared oak trunk in Hoads Wood, near Ashford, Kent. I revisited the spot several more times that week but no more were seen. — J. PLATTS, 11 Maydowns Road, Chestfield, Kent.

CYCLOPHORA PUPPILLARIA HBN. (BLAIR'S MOCHA) IN KENT. — I took a single specimen of this geometrid here on the night of 26th October, 1977. — T. W. HARMAN, Field Study Centre, Ex Broadoak Sub-station, Broadoak Road, Canterbury, Kent.

Notes on Two Visits to Europe during 1977: Provence and Lake Garda

By C. G. M de Worms, M.A., Ph.D., F.R.E.S.*

(1) Provence

I paid my fourth visit to the Mont Ventoux area of Provence in the spring of 1977, reaching St. Pierre des Vassols by car on 19th May. I once more stayed with Mr. and Mrs. Leonard McLeod who were my kind hosts for the next ten days, but the weather conditions and the lepidoptera population were very different from those of early June, 1976 (*vide Ent. Rec.,* **89**: 108-109). In fact Provence was experiencing one of its worst spring periods. The butterflies seem to have suffered, since as soon as I revisited some of the low-level localities of my 1976 trip, I was able to assess what a late season it was with an amazing dearth of insects. The first two days were dull and rainy. However, when my host accompanied me to one of these spots on 21st May he was lucky enough to see a fresh female of *Iolana iolas* Ochs. at rest on its foodplant, the bladder senna (*Colutea arborescens*). Later we found a number of ova laid on the flower sprays. An insect which proved abundant and not seen in 1976, was *Euphydryas aurinia* Rott. in its handsome form *provincialis* Bdv. The 22nd was the best day of my stay when the first *Euchloe tagis bellezina* Bdv. appeared, together with *Anthocharis euphenoides* Staud., *Melitaea cinxia* L., *M. phoebe* D. & S. and *M. didyma* Esp., but all were very sparse as was also *Lysandra bellargus* Rott. There was a great paucity of blues. A newcomer to the area was *Melanargia occitanica* Esp., but equally scarce and difficult to follow on the rough terrain. Other species seen during the next four days included *Zerynthia rumina* L., *Limenitis reducta* Staud., *Maniola jurtina* L. and *Lysandra hispana* H.-S., with a fair number of *Colias australis* Verity. On the 27th I revisited the Gorges de la Nesque which was singularly unproductive compared with previous years. *Clossiana euphrosyne* L. was still flying there. En route back I met my host on our customary ground where he found another female *I. iolas* well past its best. My last two days, the 28th and 29th, were more propitious, with a few more *E. tagis* and a host of *Aporia crataegi* L. just emerged. I recorded only 32 species of butterflies before flying back to England late on 29th May after a pleasant but none too profitable trip. A curious phenomenon had been the defoliation of quite a large number of cherry trees in the local orchards by hordes of larvae of *Nymphalis polychloros* L., of which my host had many just pupating and some already in the chrysalis state. I have never heard of this fine butterfly becoming a potential pest.

(2) Lake Garda

My later Continental trip took me to Lake Garda in Northern Italy, which I reached by hired car from Milan on 26th July, and put up in the very comfortable and well-

* Three Oaks, Shore's Road, Woking, Surrey.

appointed Eurotel in the small town of Garda. The purpose of the visit was to explore and sample the slopes of Monte Baldo which dominates the eastern side of this large lake, possibly Europe's biggest with a length of nearly 50 miles. The next day proved fine when I travelled to the eastern side of the mountain, via Caprini and Ferrara, to an area recommended by Dr. L. Higgins. But in spite of the warmth it was soon apparent that here again the season was not only very late but that there was a great paucity of lepidopterous life. There were a few late *Plebeius argus* L. and some *Erebia euryale* Esp., only just appearing in the form *adyte* Hübn. Hardly anything else was on the wing and when I surveyed some fields above Garda, full of flowers and other luxuriant growth, they were virtually barren of insects. Only one or two *Lysandra bellargus* Rott. and *Polyommatus icarus* Rott. were seen, with a single *Colias croceus* Fourc. The next four days were very unsettled and it was not until 1st August that I ascended the northern end of the mountain by cable car to find almost a gale blowing and nothing moving. However, the 2nd proved much more favourable when I motored to Prada at 2,000 ft. and made a hazardous ascent to 6,000 ft. by a chair lift. I then started walking up a gentle uphill path with grassy slopes on either side. It was not long before many *E. euryale* began flying in the warm sunshine, also *E. medusa hippomedusa* Ochs. with a few of the peculiar small satyrid which has been named *Coenonympha tullia italica* Verity, though it is no larger than *C. pamphilus* L. and lives at high levels on mountainsides. The only blue seen was a fine richly-coloured male of *Cyaniris semiargus* L. After an hour's uphill walk the screes slopes appeared, and here were the first *Erebia gorge* Hübn. in the form of *triopes* Speyer, a large and very striking insect. An English lady who with her husband accompanied me on the trek, spotted a pair of *E. gorge in cop.* in the pathway. All specimens seemed very fresh and only just emerged. I had hoped to continue on the rocky aud tortuous route to near the Telegrafo at the summit of Monte Baldo at 7,500 ft. The screes at this altitude are the home of the most handsome form of *Erebia pluto* de Prunner *f. nicholli* Oberthur, with its large ocellated spots on the upperside, confined to this region, but the clouds started to descend on the summit and we had to beat a retreat to lower levels. 3rd August proved another warm day when I revisited the eastern face at near 4,000 ft., but though *E. euryale* was more numerous, there was no sign of *E. ottomana balcanica* Rebel and of *E. stirius* Godart. Both species are resident in this region, but were quite likely not yet on the wing in the late season. I made two more ascents by the chair lift on the 4th and 6th, but on both days it became overcast soon after reaching the high ground. A few more *E. gorge* were seen and some fresh *Boloria pales palustris* Frühstorfer, but as already emphasised butterflies were far from numerous even at these high levels. I returned to England on 7th August somewhat empty-handed after an enjoyable, but entomologically disappointing, sojourn in this delightful part of Italy.

The Death of Benjamin Wilkes and the Publication of *The English Moths and Butterflies*

By Dr. RONALD S. WILKINSON*

Benjamin Wilkes' extensive colour-plate work, *The English Moths and Butterflies,* is one of the most significant of eighteenth-century British entomological publications because it is one of the chief primary sources of data from the era of the first Aurelian Society, that little-documented period between the books of Eleazar Albin and the work of Moses Harris (Wilkinson, 1966). Dr. William S. Bristowe's several papers on Joseph Dandridge (Bristowe, 1967a, b) leave little doubt that Dandridge (1664-1746) was the *doyen* of British entomology during this period, but he seems to have published nothing on the subject. Rather, Wilkes (who gave ample acknowledgement to his friend Dandridge) was the "aurelian" who publicised the haunts and methods of the London entomologists for the benefit of his scientific contemporaries, incidentally giving us what appears to be the earliest native account of the "clap-net" as a device for capturing insects (1742).

The English Moths and Butterflies was obviously issued in fascicles, but no date appears on the title-page, and none of these separate "numbers" (which are mentioned on the title) are known to have survived. Thus we have previously had no really positive evidence for the dates of the beginning and conclusion of Wilkes' major book. Various spans have been proposed within the years 1747-60, but this wide range has recently been restricted by the discovery of obvious dates of composition within the text, and a manuscript date of 1749 (perhaps a date of acquisition) on the last page of one of the copies (Lisney, 1960; Wilkinson, 1966).

It is now apparent that the entire book was complete and ready for sale in the summer of 1749. A previously unnoticed advertisement in the London *Daily Advertiser* for 4th July, 1749, reads as follows: "Whereas some of the Subscribers to Mr. Benjamin Wilkes, lately deceas'd, for his *Natural History of the English Moths and Butterflies,* have not completed their Sets; this is to give notice, that any Subscriber may have their Sets completed, by sending Orders to Mrs. Lowe, Sister and sole Executrix to the above Mr. Wilkes, at Mr. Lowe's, a Glazier's, in Russell-Street, Covent-Garden. Note, The Subscription Price is 5s. a Number; the Price of the whole Work is 9*l.* colour'd, or 4*l.*4s. uncolour'd; and the Price of the Book of the Natural History is 10s. 6d."

Thus we know from internal dates that the work was under way in 1748 and 1748/9, and the advertisement tells us much more; Wilkes died before 4th July, 1749, and we may presume that the remainder of his book was published at some time before that date, or Mrs. Lowe would not be reminding the subscribers that they had not collected their

* The Library of Congress, Washington, D.C. 20540; The American Museum of Natural History, New York, New York 10024.

final numbers. These are important facts; they do not solve all of the perplexing problems surrounding the publication of Wilkes' book, but at least we have a terminal date (which has been in question for over two hundred years), and we now know the year in which Benjamin Wilkes died.

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RECORDS OF MIGRANT LEPIDOPTERA TAKEN IN EASTBOURNE DURING AUGUST AND SEPTEMBER 1977. — During the autumn of this year a number of species were taken at my Robinson trap which overlooks the sea at Eastbourne. Upon the evening of the 15th September a single male *Mythimna albipuncta* Schiff., later upon the 22nd October, four examples of *M. vitellina* Hübn., came to the light with two freshly emerged *Lithophane leautieri* Boisduval, which may have bred upon the juniper and cypress bushes in the garden. — M. HADLEY, 4 Royal Crescent, London, W.11.

MIGRANT LEPIDOPTERA IN WEST SUSSEX. — The following noteworthy lepidoptera were taken at my m.v. trap here in October 1977: *Palpita unionalis* Hbn., October 20th (2), 21st (2), 22nd (1), 25th (1). *Orthonama obstipata* F., October 18th (2), 20th (1), 21st (2), 22nd (1), 25th (1). *Mythimna vitellina* Hbn., October 9th (2), 13th (1), 19th (1), 25th (1). *M. albipuncta* D. & S., October 8th (1). — R. R. PICKERING, 123 Manor Way, Aldwick Bay, Bognor Regis.

THE LEAST CARPET (IDAEA VULPINARIA H.-S.) IN HAMPSHIRE. — On the night of 11th-12th July, 1977, I captured a specimen of *I. vulpinaria* in the m.v. trap in my garden at Ashurst. Mr. A. H. Dobson confirmed the identification. Mr. B. Goater informs me that this is the first record of this species for Hampshire. — Dr. J. C. A. CRAIK, Department of Oceanography, The University, Southampton.

MIGRANTS IN SOUTH DEVON, 1977. — During a holiday in Malborough, S. Devon, I had the pleasure of taking *Mythimna vitellina* Hbn. on the 13th July and another one on the 14th July. These were in a m.v. trap seething with hundreds of moths, mostly *Agrotis exclamationis* L. and a few *Sphinx ligustri* L. to add to the melee. I also observed one *Macroglossum stellatarum* L. at Start Point Lighthouse on the 15th July. — ROBERT DYKE, 105 Manor Road, Enfield, Middx.

A Short Visit to Mt. Etna in 1976

By ANTHONY VALLETTA, F.R.E.S.*

Once more, this summer I paid a short visit to Sicily from the 14th to the 21st July hoping to come across species of butterflies which I did not take before from this nearby island. This time I was accompanied by a young collector, Guido Bonett, still in his 'teens who so far had not collected abroad. This trip was an enjoyable experience for him, so much so, that his first capture was a *Pyronia cecilia arminii* Stdgr. — a gynandromorph.

We left Malta by air and as we arrived in the early afternoon there was no chance of going out. The following day, joined by Sig. Sebastiano Distefano, a faithful and helpful friend, we drove up to 1,500 metres on Mt. Etna, beyond Zafferana. *Melanargia galathea* L. was out in full force, *P. cecilia,* mostly males, was just emerging. *Pararge aegeria* L., *P. megera* L., and *Mariola jurtina hispulla* Esp., were also on the wing but in a smaller number, and *Brintesia circe* F. was taken for the first time. Several *Mellicta athalia* Rott., *B. daphne* and *Melitaea didyma meridionalis* Stgr. were noticed. *Limenitis reducta* Stgr. was the second new species encountered, followed by *Thecla betulae* L. The usual Lycaenids, *Polyommatus icarus* Rott., *Lycaena phlaeas* L., *Aricia agestis* L. were very common but only two *Celastrina argiolus* L. were seen. Of the Pierids few species were noticed and in small numbers, viz. *Leptidea sinapis sartha* Ruhl., *Pieris rapae* L. and *Gonepteryx cleopatra* L. and that was all for the day.

On the 16th we took the coach to Mt. Etna and started collecting from an altitude of 1,600 metres downwards. Again *M. galathea* out-numbered all other species; the other Satyrids taken the previous day were also on the wing, including *Coenonympha pamphilus* L. and only one specimen of *Hipparchia semele blachieri* Fruhst. was seen. *Chazara briseis* L. and *Hipparchia fagi* Scop., which were so very common last summer in the same locality, were conspicuous by their absence; this may be as last year, it was a week later and the weather this year was still unsettled. Two *Papilio machaon* L. were seen, *Boloria euphrosyne* L., *Cynthia cardui* L., *Colias crocea* Geoffroy and *Pieris napi* L. were singled out. *Heodes alciphron* Rott. and *Callophrys rubi* L. were just emerging. *Thymelicus lineola* Ochs., *Ochlodes venata* Turati and *Pyrgus malvoides* Elw. & Edw. were quite common.

On the 17th, Distefano drove us to Pedara, 1,200 metres. This is a much cultivated area and we collected in the winding lanes where the flora was still at its best. Here we came across *Argynnis paphia* L. and again *M. athalia.* Interesting captures were *Nymphalis polychloros* L. and *Aglais urticae* L. — these two species are not so common in Sicily. Again *L. reducta* was seen. Of the Pierids, *Pontia daplidice* L. was added. It is to be noted that in this area *B. circe* was plentiful, flying very fast between the rows of the grapevines. An additional species was *Libythea celtis* Laicharting.

* 257 Msida Street, B'Kara, Malta G.C.

On the 19th we again went up Mt. Etna, 1,400 metres; all the species met with the previous visit were again seen, plus *Aporia crataegi* L., *Iphiclides podalirius* Scop. and another specimen of *H. semele.* The last day of collecting, the 20th, was spent at Bronte, 1,000 metres on the west side of Mt. Etna. Here the most common butterflies were *P. daplidice, C. crocea, C. cardui* and *B. circe.* A huge specimen of *L. reducta* and a couple of *P. machaon* were taken. We have noticed a decline in the number of *P. brassicae* as only a few specimens were seen, when formerly this was considered the most common butterfly; other common butterflies, *Vanessa atalanta* L., *Lampides boeticus* L. and *Syntarucus perithous* L., were not met with. The only moths taken by day were: *Tyria jacobaeae* L., *Camptogramma bilineata* L., *Rhodostropha vibicaria* Clerck var. *strigata* Stgr. (larva feeds on the *Genista aetnensis*), *Hemistola chrysoprasaria* Esp. and *Plusia gamma* L. Feeding on *Achillea tomentosa,* a variety of *Procris statices* L., and *Zygaena purpuralis poligalae* Esp. were fairly common. An interesting insect, *Ascalafus longicornus* (Ascalaphidae — Neuroptera) was met in the different localities.

On Sunday, the 20th, we did not go out collecting, but in the evening spent an hour collecting with mercury vapour lamp on the terrace of a villa at Viagrande, at a height of 1,000 m. on the slopes of Mt. Etna. The surrounding and lower slopes were under cultivation, mostly citrus, olive and apple trees. From the limited catch, one can say that there was much spraying being done. The following species of moths came to the light: *Agrotis trux* Hb., *A. saucia* Hb., *A. hyperici* F., *A. leucogaster* Freyer, *Cryphia perla* F., *Dicestra trifolii* Hufn., *Plusia gamma* L., *P. ni* Hb., *P. chalcites* Esp., *Phra. fuliginosa* L., *Orphiuche lividalis* Hb., *Eucrostes indignata* Vill., *Scopula imitaria* Hübn., *Idaea determinata* Stgr., *Scopula minorata* H.-S., *Idaea seriata* Schrank, *Id. vulpinaria* Schiff., *Id. attenuaria* Rbr., *Gymnoscelis pumilata* Hübn., *Rhodometra sacraria* L., *Oxybia transversella* Dup., *Rhodophaea legatella* Hübn., *Ulotricha egregialis* H.-S., *Hypotia corticalis* D. & S., *Duponchelia fovealis* Z., *Palpita unionalis* Hübn., *Nomophila noctuella* D. & S., *Uresiphita polygonalis* Hübn., *Udea ferrugalis* Hübn., *Pyrausta sanguinalis* L., *Cacoecimorpha pronubana* Hübn., *Pelochrista agrestana* Tr., *Cydia pomonella* Z., and *Stenoptilis pterodactyla* L.

The following is a list of the Rhopalocera noticed: *P. machaon sphyrus* Hübn., *I. podalirius* L., *P. brassicae* L., *P. rapae, P. napi meridionalis* Heyne, *P. daplidice* L., *L. sinapis sartha* Ruhl., *C. crocea* Fourc., *G. cleopatra* L., *C. cardui* L., *A. urticae opima* Vty., *N. polychloros* L., *M. didyma meridionalis* Stgr., *A. paphia* L., *Cl. euphrosyne* L., *M. athalia* Rott., *B. daphnae* D. & S., *P. icarus* Rott., *L. argiolus* L., *L. phlaeas* L., *H. alciphron aetnea* Turati, *H. agestis* D. & S., *T. betulae* L., *C. rubi* L., *P. aegeria sardoa* Vty., *P. megera australis* Vty., *M. jurtina hispulla* Esp., *C. pamphilus* L., *H. semele blachieri* Fruhst., *P. cecilia arminii* Stgr., *A. galathea*

L., *B. circe* Fab., *P. malvoides* Elw. & Edw., *A. lineola clara* Tutt., *O. venata esperi* Vty., *H. comma* L., and *Libythea celtis* L.

Our thanks are due to Sig. Distefano and Sig. Nobile and to the Director of the Istituto Policattedra di Biologia animale of the Universita di Catania for the help given us.

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PTEROSTICHUS KUGELANNI PANZ. (COL.: CARABIDAE) IN CORNWALL AND S. DEVON. — This colourful ground-beetle (=*P. dimidiatus* Ol.), an erstwhile denizen of such suburban localities as Hampstead Heath and Wandsworth Common, is now much rarer than formerly, and chiefly taken at irregular intervals in certain heathy parts of the New Forest —last in some numbers in 1970. I have seen no published record of its occurrence as far west as Cornwall, the nearest being for Saunton, N. Devon (Champion) and Bovey Potteries, S. Devon (Woollatt); the latter of these is probably new for the vice-county (1 ex., 28.iv.56). It is of interest, therefore, to report that the late Philip Harwood appears to have taken *P. kugelanni* at Cubert, E. Cornwall, in April 1911, as I have a specimen from his duplicates so labelled. — A. A. ALLEN.

A NOTE ON REARING PTYCHOLOMOIDES AERIFERANUS (H.-S.) (LEP.: TORTRICIDAE). — On 2nd July this year I was visiting Andrews Wood and Meenfield Woods in N.W. Kent — an area schedule for devastation by the new M.25 Motorway link — when I noticed some fairly inconspicuous spinnings on the branches of Larch (*Larix decidua* Mill.). They were some 2 metres from ground level, each spinning being confined to one "tuft" of needles. All those examined were empty but, ever hopeful, a number were consigned to a plastic bag and forgotten. On 14th July the bag was examined and found to contain two *aeriferanus*. The moth was also noted at m.v. in the same woods on 22nd July.

This moth has become quite widespread since its discovery in Kent by Dr. E. Scott in 1952, but the only published account of finding the feral larva in this country appears to be by Styles (*Entomologist*, **88**: 82) who found the larvae in Norfolk on 18th June, 1951 feeding "between larch needles". He also states that pupation occurs within the spinnings, an observation which I cannot confirm, as all the spinnings I examined were empty! Wakely (*Entomologist*, **86**: 302; **88**: 141) suggests that *aeriferanus* may also feed beneath the bark of Larch or Norway Maple.

Perhaps other entomologists could be persuaded to publish their observations on the biology of this species? — P. A. SOKOLOFF, 4 Steep Close, Green St. Green, Orpington, Kent.

Elbelus tripunctatus Mahmood a New Record, Description of a New Species of *Agnesiella* Dworakowska from India, along with some Generic Synonymies (Homoptera: Cicadellidae: Typhlocybinae)

By Dr. Baldev Sharma*

(1) *Elbelus tripunctatus* Mahmood

(Plate A, figs. 1-5)

Elbelus tripunctatus was described by Mahmood (1967) based on material from Thailand, Loei, Densai, Kok Sathan, Phu Lomlo. Dworakowska (1972) reported this species from Viet-Nam, Mouong-Xen, Lao-Kay. Present author is recording this species for the first time from within the Indian limits.

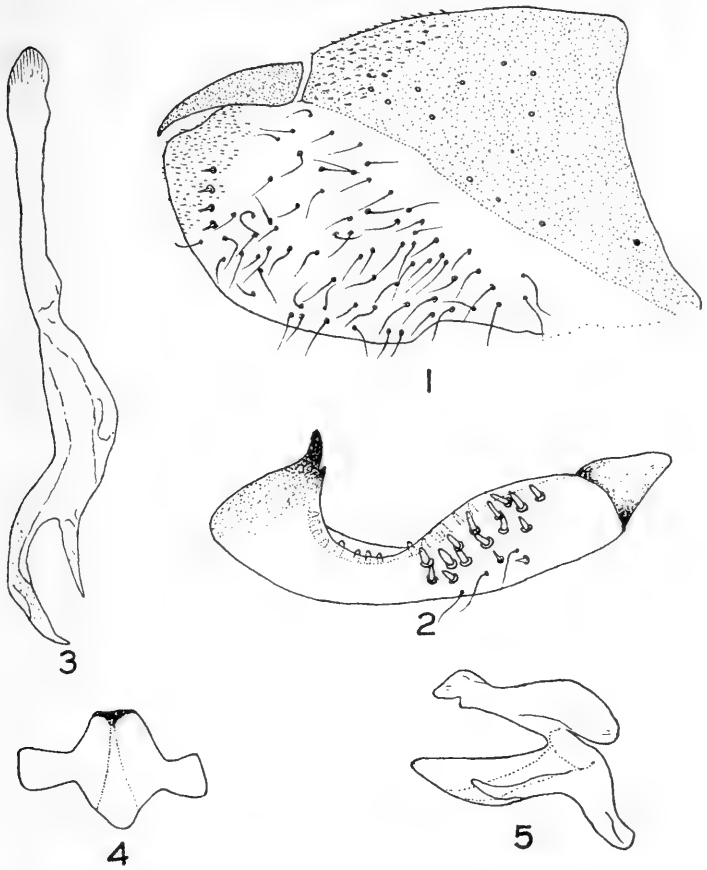

Plate A. *Elbelus tripunctatus*. Fig. 1. Pygofer, right, lateral view. Fig. 2. Male subgenital plate, lateral view. Fig. 3. Paramere lateral. Fig. 4. Connective from dorsal side. Fig. 5. Aedeagus, lateral view.

Material examined: Many specimens from Kohima (Nagaland), light, June 1974. Coll. S. N. Suri.

* Department of Bio-Sciences, University of Jammu, Jammu-180001, India.

Remarks: Mahmood in the description of the genus *Elbelus* states that there are no processes on pygofer but the present author has distinctly observed a well developed process at the postero-dorsal margin of pygofer (fig. 1). Similar process has been figured by Dworakowska (1972, page 109, fig. 23). As *Elbelus tripunctatus* forms the type species of the genus, so the description of the genus should be modified as "pygofer with a pointed process at the postero-dorsal angle which is united with dorsal apodeme of aedeagus by membranous connection".

The available data indicate that this species is widely distributed in East Asia. Yet, about five years of regular collecting in the north-western part of India (J. & K. State) has so far not revealed even a single specimen of this species from there.

(2) *Agnesiella* **swaraji** sp. n.
(Plate B, figs. 1-10)

Colour: Body colour cream white with 2 spots on passage of vertex, 6 on pronotum, 2 triangular basal on scutellum, black. Tegmina hyaline with brownish transverse fascia. Eyes brownish, abdominal tergites pale yellowish. Area below antennae on face, thoracic sternites and abdomen below blackish. Legs stramineous. Wings as in figs. 3 & 4.

Male genitalia: Male subgenital plate elongate; complex pigmented tooth present at 2/3 from base beyond which it is directed dorsad; apical 1/3 beset with many filamentous setae, some also present cephalad to tooth. Pygofer without any appendage, a lobe present at the postero-dorsal angle; small microsetae scattered on the disc. Connective Y-shaped with the arms rolled laterad. Paramere elongate, with a long lobe present preapically; apex bent-mesad. Aedeagus with well developed dorsal apodeme and small preatrium; shaft tubular bent dorsad with a dorsal protuberance at about midlength. Gonopore terminal.

Chaetotaxy: Hind femoral chaetotaxy 2, 1, 1.

Measurements: Total length with wings 3.1-3.2 mm.; without wings 2.4-2.5 mm.; breadth head .7 mm.; vertex .2/.35 mm.; pronotum .4/.8 mm.; scutellum .3/.55 mm.; face .7/.45 mm.; tegmina 2.6/.65 mm. (length/breadth).

Material examined: Holotype ♂ (abdomen on slide) from Jammu, upon *Salix tetrasperma,* dated 10.iv.73, coll. B. Sharma and many ♂♂ and ♀♀ paratypes, data same as for holotype. (Deposited in Museum Department of Bio-Sciences, University of Jammu, Jammu-180001, India.)

Agnesiella swaraji can be distinguished from other species of the genus by the shape of the paramere, connective and position, and shape of the pygofer lobe.

Species is named after Dr. (Miss) Swaraj Ghai (Senior Systematic Entomologist IARI, New Delhi).

(3) Genus *Uzeldikra* Dworakowska

Uzeldikra Dworakowska (September, 1971).
Pusaneura Ramakrishnan and Menon (October, 1971) Syn. n.
Hameedia Ahmed (1972) Syn. n.

These synonymies are based on the careful comparison of the original figures and description provided for these genera and personal studies on *Pusaneura signata* Ramakrishnan and Menon which forms the type species of the genus *Pusaneura.*

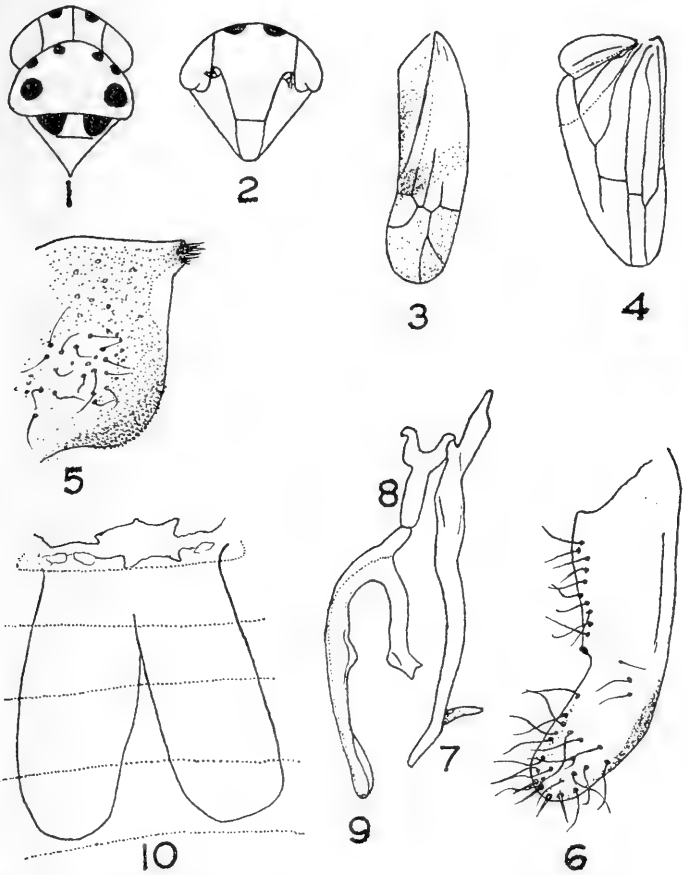

Plate B. *Agnesiella swaraji.* Fig. 1. Head and thorax. Fig. 2. Face. Fig. 3. Tegmen. Fig. 4. Hind wing. Fig. 5. Pygofer, left, lateral view. Fig. 6. Male subgenital plate, ventral. Fig. 7. Paramere, ventral view. Fig. 8. Connective. Fig. 9. Aedeagus, lateral view. Fig. 10. Abdominal apodemes.

Acknowledgements

The author is thankful to Prof. Y. R. Malhotra, Head, Biosciences Department, Jammu University, for encouragement and criticism during this work. Prof. S. N. Suri is thanked for the specimens of *Elbelus tripunctatus* Mahmood. Further, the author is thankful to the University of Jammu for financial assistance during the work.

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Current Literature

Henry Walter Bates, F.R.H.S., 1825-1892, Explorer, Scientist and Darwinian by **Prof. H. P. Moon, M.A.,** 99 pp., 2 plts. and other illus. Leicestershire Museums, Art Galleries and Records Service, 96 New Walk, Leicester, LE1 6TD. 1976. £1.25 (post and packing included).

This is a concise but highly informative account of the life and work of the great explorer and naturalist H. W. Bates by Professor Moon, which stems from the author's researches for an address which he gave at the unveiling of a plaque at the Leicester Museum and Art Gallery in January 1969, commemorative of both Bates' and Wallace's associations with the city.

In a little less than 100 pages, Professor Moon unfolds the fascinating story of Bates' early background, exploration of the Amazons, return to England, associations with the great naturalists of the day, and efforts to earn a living.

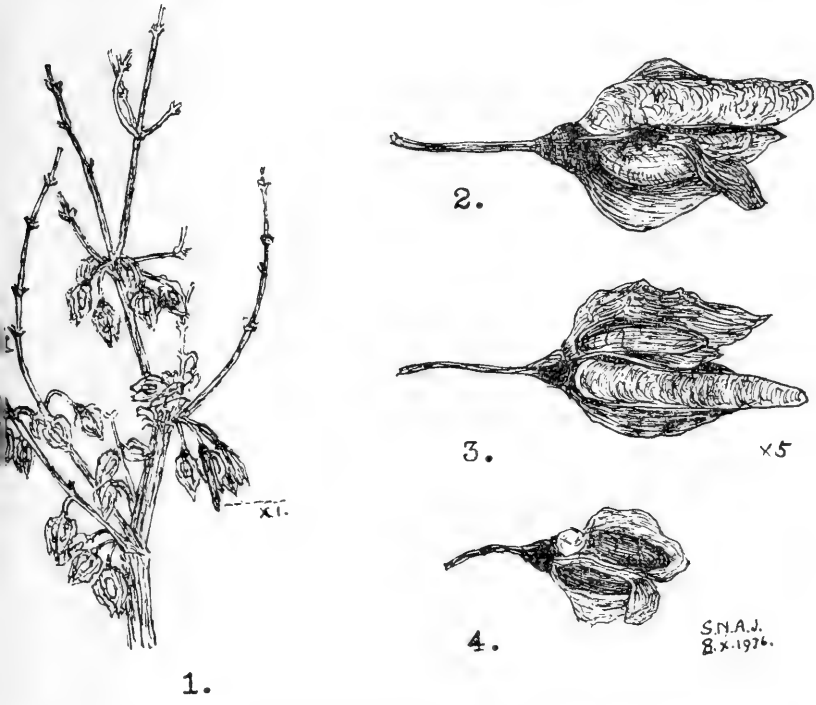
Of particular interest to entomologists are the author's references to Batesian mimicry (the cover of the book reproduces part of a colour plate from Bates' "Contributions to an Insect Fauna of the Amazon Valley, Lepidoptera: Heliconidae" — *Trans. Linn. Soc. Lon.*, Vol. 23, plate 56 — which also doubles as the frontispiece). There are also interesting references to Bates' contact with the great naturalists and collectors of the day, especially Hewitson. Book collectors will be attracted by the reproduction of the title page and illustrations from the first edition of Bates' "The Naturalist on the River Amazons" 1863. Those who have read only the later abbreviated versions will be inspired to seek out one of the fuller versions which the professor recommends if they cannot gain access to a first edition.

The book is paper-backed and is very reasonably priced. It is nicely produced on good quality paper and will be found to be absorbing whether one is in the armchair or on a journey. — D. S. Burrows.

Coleophora hydrolapathella Hering (Lep.: Coleophoridae) A Species New to the British Isles

By Dr. T. N. D. Peet, M.B., B.S., F.R.C.S.*

In early July 1975 while recording lepidoptera at Hickling Broad National Nature Reserve, four Coleophoridae were netted at dusk along a dyke wall. They were passed for identification to Mr. Raymond Uffen. One specimen was of an unfamiliar species, and after genitalia preparation and comparison with material in the British Museum (Nat. Hist.), Mr. Uffen determined the specimen as *Coleophora hydrolapathella* Hering, a species not previously recorded in the British Isles.



Coleophora hydrolapathella
Fig. 1. Case *in situ* (nat. size). Fig. 2. Case, lateral view (x 5). Fig. 3. Case, dorsal view (x 5). Fig. 4. Seed left by larva after feeding (x 5).

Reference to the description of the type showed that the case-bearing larva feeds on Great Water Dock, *Rumex hydrolapathum* Huds. In July 1976, Mr. Michael Chalmers-Hunt investigated plants of *R. hydrolapathum* at Hickling, and by tapping stems at dusk several further specimens were taken and a number of others seen. It was evident that not every plant was being used by the moth. To confirm the insect's breeding status, the seed heads of *R. hydrolapathum* were examined in October 1976. Cases were exceedingly difficult

* Le Chene, Forest, Guernsey, Channel Islands.

to see, tucked deep into the seeds, which clothe the dead flowering heads of the plant. Many had been parasitized, as shown by a minute round hole in midcase. Sufficient cases were noted in two hours searching to confirm the moth's widespread distribution at Hickling, though nowhere could it be called common. Of nine living cases taken personally, two moths were bred through, as well as parasites. In late July 1977, many adults were seen at dusk, and the emergence continued into the first week of August.

R. hydrolapathum is widely distributed in Broadland and was a plant that suffered particularly from the depredations of Coypu. It has recovered well. It favours dense mixed sedge and reed bed, with some standing water. The further distribution of the moth in Norfolk has not yet been investigated.

Original discovery and description of C. hydrolapathella

Hering (1921) discovered cases of the moth on withered stems of *R. hydrolapatum* on a frozen lake near Berlin in 1916. Only in 1921 did he breed the moth out, and then because he removed cases from the foodplant in May rather than in midwinter. There is no sign, however, that the larva feeds in the spring in this country. He described the case, and the moth, and the following description is based on a translation of his original paper in German.

The Case

A tube with three flaps to the anal end. It resembles *C. troglodytella* Dup., but is smaller and thinner. In colour it is dark red brown, with the anal end a granular dotted yellow brown. *C. troglodytella* is a light, uniform yellow-ochre in colour. Foodplant Great Water Dock, feeding and pupating on the seed heads.

The Adult

The head and thorax are light yellowish-brown ochre. The antennae are grey with white scaly hairs arranged in rings. This ringing is less marked at the base of the antenna. The palps, and the base of the forewings, are a glossy yellowish-white.

The abdomen is glossy grey, and the anal tuft and legs a glossy light yellowish-brown, similar to the colour of the head.

Wing venation is nearly the same as in *Coleophora troglodytella* Dup. The main point of difference is that in *C. hydrolapathella* the tip of the forewing is curved backwards.

The forewings are silky, light yellowish-brown on top, darkening towards the margin. The basal area is whitish-yellow. Occasionally the whole wing is a uniform pale glossy yellow. The hindwings are blackish-grey and shiny. Wing span is 12 mm.

Acknowledgements

My thanks to Madame Jeanne Ruvet and Mr. Anthony Warlow for translation; and to Mr. S. N. A. Jacobs for illustrating the larval cases here shown.

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AMPHIMALLON OCHRACEUM KNOCH (COL.: SCARABAEIDAE): RECENT CAPTURES IN WALES AND SUSSEX, WITH A BRIEF SURVEY OF EARLIER RECORDS. — The above beetle has usually been considered very rare as a British species. Although less so now than formerly, and occasionally found in numbers at a particular time and place, it has a very restricted and discontinuous range and tends to be erratic and extremely localised. The recorded localities fall into five well-separated areas: N and S. Wales, N. Cornwall, the Berkshire Chilterns and the South Downs in E. Sussex.

In the early afternoon of 2nd July, 1971, in very warm sunny and windless conditions, a succession of these chafers was observed by Messrs. H. N. Michaelis and J. M. Chalmers-Hunt flying low over a limestone hillside covered with rock-rose in flower, above Llandudno Junction, Caerns.; one was brought to me by the latter entomologist. Further, Mrs. M. J. Morgan took one at Porth Ysgo on the Lleyn Peninsula, Caerns., flying low over vegetation at the side of the steep cliff path above the beach, at 4 p.m., 17.vii.69. Previous North Welsh records are of last century: Holyhead (Stevens and Brewer), and "North Wales" in plenty in 1855 (Weaver). In South Wales it has occurred at Tenby, both in earlier times (Capt. Parry) and some 20 years ago to Mr. Ernest Lewis.

In Cornwall, Dr. C. G. Lamb met with it in some numbers at Padstow in 1911, and there are examples in the B.M. (N.H.) labelled "North Cornwall/C. F. Woodforde" taken in the same year, and quite likely therefore at the same place.

In the past five years or so, the beetle has been taken on the E. Sussex downs: one near Birling Gap, Eastbourne, by Mr. R. D. Dumbrell, one at Wilmington by Mr. P. J. Hodge, and several near Newhaven by Mr. R. A. Jones very recently. These have not yet been positively identified as *A. ochraceum,* but I feel very little doubt about them since all were caught flying by day and the species is already known from that general area (Cuckmere Haven and Ditchling Downs, but rarely).

The late Dr. N. H. Joy found it in 1904 flying on a hillside at Streatley, Berks., in some quantity; and I have seen one or more taken by him at Aldworth, near Newbury. He gives an interesting account of its habits at the former place (1905, *Ent. mon. Mag.*, **41**: 16-18), with notes on its distinctions from the far more common crepuscular *A. solstitiale* L. Joy's suggestion (p. 17) that we may have a third species of *Amphimallon* in Britain — supported to some extent by Champion's appended note (p. 18) — has never, I believe, been followed up; it is the more plausible in that there are several other closely similar species in Europe. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

A Tale of Two Seasons

By ANTHONY ARCHER-LOCK*

Part I: 1976

Too many years of neglect had followed a boyhood of knowledgeable enthusiasm for butterflies, prompting the challenge to see and to photograph sixty species in the British Isles within a period of two years. The start was casual enough, with commas basking on bramble leaves by the hour during mellow March days. Indeed, progress seemed just too easy, for only the occasional time-consuming hitch occurred during that uninterrupted summer of 1976. There was no hint of the problem to arise in the 1977 season; now at least, I know exactly how climbers of Everest feel when a few hundred feet from the summit as the weather closes in! But to return to 1976, the only real problem was how to keep cool, especially when locked in traffic jams. A prolonged vigil for the large tortoiseshell in a promising wood ended in failure, but not before a very odd-looking orange tip flew past up the ride. Having no net, I sought to take it by more basic means, and discovered a perfect halved gynandromorph, male on the right and female on the left.

The chequered skipper consumed an ill-afforded amount of time, no less than seven days in two periods, nearly all spent in one particular midland ride where the butterfly had been seen in 1975. At 4.30 p.m. on 6th June in brilliant sunshine, a skipper-like butterfly, which my immediate note describes as with a "striking pattern of dark and gold, in typical skipper flight, looking freshly emerged", rose and flew past me down the ride, some three yards from where I was sitting, and was lost to sight in an open clearing. During those long vigils, it was revealing to discover how many species resort to the tops of trees and high bushes, including the small heath.

The chance of actually photographing the purple emperor had seemed to be purely one of luck, but the advice of friends to visit the forests early in the morning certainly proved sound, for they do sit about as the sun strengthens. However, I hardly expected to have a male of the species imbibing moisture from my neck, or a female sitting peacefully on my hand. So much for the image of the monarch who surveys all from his lofty throne of oak!

The far north of England enjoyed a rather less brilliant summer, but my visit to Lakeland was blessed with a beautiful day. A 1.30 a.m. start from South Devon, and by 9.30 I stood watching the mountain ringlets visiting the tomentil and wild thyme flowers at just under 2,000 feet O.D. How surprisingly wild they were, jumping up at the camera shutter, and proving extraordinarily difficult to approach! The morning was exceptionally hot, and I am informed that they are much more leisurely at cooler times. By 11.30, I was on

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my way home, stopping off at Meathop Moss to see the large heath, another very shy model.

The brown hairstreak was the third species exacting great length of time. Towards the end of August, three middle-day vigils beside a particular blackthorn thicket in a Dartmoor valley produced one unconfirmed report by one of the children, but next day a female came lazily round the lowly bushes in exactly the same spot, looking a beautiful orange in flight, and settled to lay a single egg selectively here and there before basking. How elusive and mysterious a butterfly! Her appearance completed the list of natural Lycaenidae in the one season, made possible by the late discovery of a pair of northern brown argus on 8th August, and the Satyridae had also been completed.

On the South Devonshire coast at Wembury on 27th August, a medium-sized fritillary came in from the sea during the hot afternoon, passing within a few feet of me. It flew low to the ground with a peculiar meandering zigzag flight, but although I pursued it for a distance, the insect did not settle. With the insect flying so low, probably any underside silver blobs would not have been apparent, but should any reader have experience of the Queen of Spain, and would care to comment one way or the other, that would be much appreciated.

The 1976 season drew to a close with the tally of species standing at fifty-four, excluding the chequered skipper and the last-mentioned butterfly. Six to do in 1977 — that seemed a relatively simple task. . . . !

Blastobasis decolorella Wollaston (Lep.: Blastobasidae). — I was interested in Mr. P. A. Sokoloff's note regarding the unusual feeding of Wakely's Dowd. I first found *B. decolorella* in Suffolk at Aldeburgh in 1960 whilst collecting with Mr. Alasdair Aston. Since then I have found it commonly at Stowmarket and Walberswick. This year it was abundant in Dunwich Forest and many specimens of the moth were beaten out of various trees.

The late Mr. Stanley Wakely was surprised when I told him that it occurred at the end of December as well as earlier in the year.

With regard to the larval pabulum, I have bred it from rose hips and hawthorn berries so it would appear that it is polyphagous. — H. E. Chipperfield, The Shieling, Walberswick, Suffolk.

The Great Brocade (Eurois occulta L.) in Lancashire. — On the night of 23rd August I was very pleased to find two specimens of this moth here in my m.v. trap. They are pale grey in colour; one is a good specimen, but the other is slightly worn. There was a strong east wind blowing at the time, and for a week or more before, the wind was from the east. — J. G. Whiteside, Dover Farm, Blackburn Old Road, Hoghton, Near Preston, PR5 0SJ, 28.x.77.

Current Literature

The British Butterflies: Their Origin and Establishment by **R. L. H. Dennis.** E. W. Classey Ltd., Faringdon, Oxford, 1977. xviiii + 318 pp., 15 tables, 20 text figs. Price £10.

Some 30 years ago E. B. Ford and B. P. Beirne attempted independently to deduce how long the species of butterflies have inhabited Great Britain, Ireland, and the smaller islands. Both suggested that large proportions of the species — Ford said almost two-thirds and Beirne about one-third — have inhabited the region continuously since before or during the last major glaciation (now known as the Devensian) or for more than 40,000 years.

R. L. H. Dennis has now re-examined this subject and concludes that none of the butterflies has been here continuously since before the end of the Devensian but that all of them date from not earlier than the Late Glacial, which started about 13,000 years ago, and that about three-quarters of them colonised these islands after the last glacial re-advance (Late Glacial Zone III), or within the past 10,000 years.

He reaches this conclusion from detailed, scholarly, and well-organised analyses in which data from a variety of relevant fields are admirably integrated. He claims, with some justification, that Beirne and Ford gave inadequate weight to the influence of ecological factors and changes in determining and changing distributions. He also claims that they underestimated the rate in which local diversity can evolve — changes that Beirne and Ford considered took over 90,000 years to happen Dennis considers took under 10,000.

More importantly, a whole series of recent discoveries on former climates, vegetation and land-forms have, as Dennis points out, rendered untenable some of Ford's and Beirne's historical reconstructions that were based on the often vague information of 30 years ago and points to the alternative conclusions that he suggests.

Dennis has used the new information and has tried to avoid the mistakes of the earlier authors. His conclusion on the origin of the British butterfly fauna must be accepted as broadly correct. However, because there is no hard, or fossil, evidence on the composition of that fauna in the past, conclusions on individual species are deductions and speculations and thus debatable. It is still a matter of opinion whether some temperate-climate species survived here from the warm Late-Glacial Zone II or from the postglacial climatic optimum or from both.

Some aspects of the geological information are still controversial or imprecise. For example, on the nature of vegetation and climate of the former Celtic Land south-west of the British Isles that was probably affected by the Gulf Stream so that species might have survived cold periods there,

or on the extent of several changes in sea-level, local changes in land-levels, and erosions of submarine ridges, and therefore in the geographical and temporal locations of past land connections over which terrestrial organisms could spread.

As Dennis has done the groundwork, it is to be hoped that he will now proceed to analyse the origins and establishments of the moths of the British Isles. Some differences from the butterflies should appear. Changes in distributions caused by short-term weather changes may be less extensive because variations in amount of sunshine have little effect on most moths; and there are cold climate and strictly maritime forms of moths that could have survived periods of glacial advance more easily than could any of the butterflies.

Dennis deals primarily with the present and the past, but in the final section of his final chapter he touches upon a subject of critical importance that awaits detailed analysis: effects of human inteference on the fauna. Local changes in the species composition of the Lepidoptera can be correlated with environmental changes caused by man. But possible changes in the general levels of abundance need assessment: changes caused in recent years by, for example, the aggregate effects of the enormous increase in outdoor lighting in attracting moths away from their breeding sites and by the vastly increased use of effective chemical pesticides. It might be possible to compare sizes of catches recorded in the past with sizes made under the same conditions today. If so, the results may indicate some trends that enable the future of the lepidopterous fauna of the British Isles to be forecast.

The chief criticism is that too much of the book is hard to read. It has to be studied to be understood, often with recourse to a dictionary to determine precise word meanings. One reason is unavoidable: the discussions involve a number of disciplines — ecology, systematics, zoogeography, Pleistocene stratigraphy — each with its own often esoteric vocabulary and terminology. But in addition the author too often uses words, phrases and sentences that could have been replaced by simpler and more readily understandable ones without significant loss of preciseness. The absence of a subject index that might have led the reader to meanings of terms supports this criticism. Printing errors are few, though some Irish place-names are misspelled (pp. 96 and 178); and a reference to Beirne 1951 (p. 104) is an apparent mistake, perhaps for Bretherton 1951.

Despite these criticisms, there are so many stimulating and thought- and discussion-provoking ideas, facts, and suggestions in this book that it is confidently recommended to anybody whose interests extend beyond collecting butterfly aberrations. The publishers, E. W. Classey Ltd., have produced a book of quality. The cost is, by present-day standards, not excessive for a book of lasting value. — BRYAN P. BEIRNE.

Notes and Observations

POLYDRUSUS SERICEUS (SCHALLER) (COL.: CURCULIONIDAE) IN SOUTH WILTSHIRE. — Mr. A. A. Allen's note on this species (*antea* p. 182) gives me an opportunity to record its occurrence in Wiltshire, as well as commenting on other records of the weevil in Britain. I beat two female specimens of *P. sericeus* from Hazel (*Corylus avellana* L.) in Blackmoor Copse, near East Grimstead (about six miles east of Salisbury), South Wiltshire, on 25th May, 1976. One specimen retained the right pupal mandible. The site is a nature reserve of the Wiltshire Trust for Nature Conservation and is well known to lepidopterists.

There are several records of *Polydrusus sericeus* in Britain besides those mentioned by Mr. Allen. First, however, it needs to be pointed out that the account of *P. sericeus* in Fowler (1891, *Coleoptera of the British Islands,* **5**: 200) is somewhat confused. In Stephens (1831, *Illustrations of British Entomology. Mandibulata,* **4**: 143-5, and 1839, *Manual of British Coleoptera,* 248-9) *P. sericeus* appears under the name *Polydrusus speciosus* Stephens. In both works the only locality listed is Kimpton, Hants., whence Stephens had been sent a series of the weevil by Rev. G. T. Rudd. Frederick Smith (1878, *Entomologist,* **11**: 171-8) quotes from a letter written by Rudd to Stephens on 1st June, 1829 in which he states that he had "been taking *Polydrosus sericius* [sic.] freely . . . in Littleton Copse". As well as *Polydrusus speciosus,* Stephens, in both *Illustrations* and *Manual,* lists *P. sericeus.* Fowler includes *sericeus* Steph. nec Schall. as a synonym of *P. chrysomela* (Oliv.). Fowler gives a good description of *P. sericeus,* including the differences between the sexes. However, in the second (small type) part of his account the localities of both Stephens' species have been combined. Fowler's statement that "Stephens records that he has found it near London, but that most of his specimens were received from the vicinity of Bristol; in woods near Swansea (Dillwyn)" should refer to *P. sericeus sensu* Stephens (=*chrysomela* (Oliv.)) rather than to *P. speciosus,* the species we now know as the true *P. sericeus* Schaller. Tomlin (1913, *Trans. Cardiff. Nat. Soc.,* **45** (1912) 41-58, and 1916, *ibid.,* **48** (1915), 17-35, and 1936, *Victoria County History of Glamorgan,* **1**: 321-5, 347-62) includes the erroneous Swansea "record" of *P. sericeus,* which is attributed to L. W. Dillwyn (MS. lists 1829 and 1848) and not confirmed. Although Dillwyn's *Memoranda relating to coleopterous insects found in the neighbourhood of Swansea* (1829) was stated not to have been published, the paper, running to 75 pages, was privately printed and is a very important early faunal list. In it the name *Polydrusus sericeus* is attributed to Stephens and hence is not referable to *Polydrusus sericeus* Schaller (=*P. speciosus* Stephens). Whether Dillwyn's and Stephens' "*Polydrusus sericeus*" is really *P. chrysomela* (Oliv.), as Fowler believed, is perhaps doubtful, since Dillwyn's eco-

logical note "Among herbage in woods, not common" is not typical of *P. chrysomela,* which is a saltmarsh species. Possibly the matter could be resolved by reference to the Kirby collection (in British Museum (Natural History)). Dillwyn's *Materials for a fauna and flora of Swansea and the neighbourhood* (1848) does not mention *P. sericeus,* an indication in itself, since this list records only the rarer species of Coleoptera and might have included *P. sericeus* Schaller if Dillwyn's insect had really been that species.

J. C. Dale was another early entomologist who was supposed to have taken *P. sericeus*; but his record from Glanville's Wootton, Dorset, has never been confirmed (Pearce, E. J., 1926, *Proc. Dorset nat. Hist. antiq. Fld. Club,* **47**: 51-128).

A record of the weevil from Folly Farm, Marlborough, North Wiltshire is included in the anonymous *Handlist of the Coleoptera of the Marlborough district* (1939) and may or may not be genuine.

Besides the Hampshire localities mentioned by Mr. Allen, all of which are in the northern vice-county, there are two records from the southern one. Forbes (1874, *Entomologist,* **7**: 112) took *P. sericeus* in Crab(b) Wood, Winchester, and Killington (1927, *Trans. Hamps. ent. Soc.,* **3**: 45-50) found it at Baddesley (near Romsey).

Finally, I must comment on Mr. Allen's supposition that *P. sericeus* is excessively local in Kent. The occurrence on one particular cherry tree in the late Dr. A. M. Massee's garden has the ring of a true "Dr. Massee story" about it, but whether this should be regarded as a leg-pull or hyperbole emphasising the rarity of the weevil is not for me to say. However, Dr. Massee himself (1948, *Rep. E. Malling Res. Stn.* for 1947, 136) recorded *P. sericeus* as "locally common on fruit trees, also plentiful on strawberry" and also referred to it on cherry (1946, *ibid.* for 1945, 92-3). I found *P. sericeus* several times in Oaken Wood, East Malling, in 1960 and 1961, most plentifully on 30th June, 1961, and mostly by beating Hazel. It occurred occasionally on apple trees in the "Upper Grub" orchard of East Malling Research Station in 1959, 1960 and 1961. I also took a specimen on the North Downs at Shoreham on 13th June, 1959.

In summary, *P. sericeus* has been reliably recorded from five vice-counties: East Sussex (where I, too, have taken it with Mr. P. J. Hodge), East Kent, North and South Hampshire, and South Wiltshire. The North Wiltshire record perhaps needs to be confirmed. — Dr. M. G. MORRIS, Orchard House, 7 Clarence Road, Dorchester, Dorset, DT1 2HF.

AUTOGRAPHA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN S. DEVON IN 1977. — *A. gamma* totals were: 1st-30th June (m.v. trap in use 27 nights), 11; July (29 nights), 61, with 10 on 13th; August (23 nights), 93, with 16 on 20th. Total, 1st June to 24th August, 165. *N. noctuella*: total nil. These totals are the lowest I have ever recorded. — H. L. O'HEFFERNAN, c/o 12 Frith Road, Rondebosch 7700, S. Africa.

PROCRAERUS TIBIALIS BOIS. & LAC., AND OTHER BEETLES IN MOCCAS PARK, HEREFORDSHIRE. — Mr. A. A. Allen (1971) in his summary of distribution known to him, states that *Procraerus tibialis* Bois. & Lac. has only once been found in Moccas Park (by the late E. C. Bedwell, *fide* Ashe)*, and as remains only. I am now able to confirm the presence of *tibialis* in the Park. On 15th May, 1977, my wife found a single specimen in the very dry red-rotten part of a fair-sized fallen oak branch (about 50 cm. diameter at the largest end). Further searching turned up two more, making a total of two males and one female. During the search a single *Trox scaber* (L.), *Xestobium rufovillosum* (Degeer) and *Phyllodecta laticornis* Suff. were also captured. All the beetles were in a very torpid state, presumably still in hibernation owing to the late season and cold weather of early May.

The lake, which after last summer's drought had dried up completely, was now full. Despite a long session with the water-net only a few specimens of *Hygrotus decoratus* (Gyll.) were captured. Under floating branches and posts, *Dryops auriculatus* (Fourcroy) was not uncommon. The strand-line refuse at the lake margin, particularly at the north-eastern corner, was very productive, *Paederus litoralis* Grav., *P. fuscipes* Curtis being abundant, with *Euaesthetus ruficapillus* Bois. & Lac. locally very common. A single *Stenus formicetorum* Mannh. and *Stenolophus mixtus* (Hb.) were taken, as were a selection of the other species which included such common things as *Elaphrus riparius* (L.), *Bembidion dentellum* (Thunberg), *Pterostichus vernalis* (Panzer), and *Agonum marginatum* (L.).

In my last note concerning Moccas Park (Cooter, 1976), a most careless error went undetected — my recording of the non-British *Taphrorychus villifrons* (Dufour) from beech. (The insect introduced to our List by Donisthorpe, proving, after long and confusing reappraisal, to be *Xyleborus dryophagus* (Ratzeburg).) The scolytid I captured is *X. saxeseni* (Ratzeburg)=*xylographus* auct. Brit. *nec* (Say) (*teste* A. A. Allen).

I would like to express my thanks to Mr. L. Slaney for granting access and permission to collect in Moccas Park, and the Nature Conservancy Council for assistance toward travelling expenses.

References: Allen, A. A., 1971. *Procraerus tibialis* Lac. (Col., Elateridae) in Wilts. and Herts. *Ent. mon. Mag.*, **107**: 12. Cooter, J., 1976. A Note on some Beetles captured in Moccas Park, Herefordshire, during 1975. *Ent. Rec.*, **88**: 319-320. — J. COOTER, Department of Natural History, Art Gallery and Museum, Kelvingrove, Glasgow.

* A note penciled in Ashe's copy of "Fowler" — now in my possession — against *tibialis* reads "Hartlebury June 18-24 1924, May 1928 5specs., '29 1spec.". Presumably the first date applies to a series of captures between the two dates, although there is no indication of this. This would seem to be an unpublished record, although the county — Worcestershire — is included in Mr. Allen's note.

EXCHANGES AND WANTS

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

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THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

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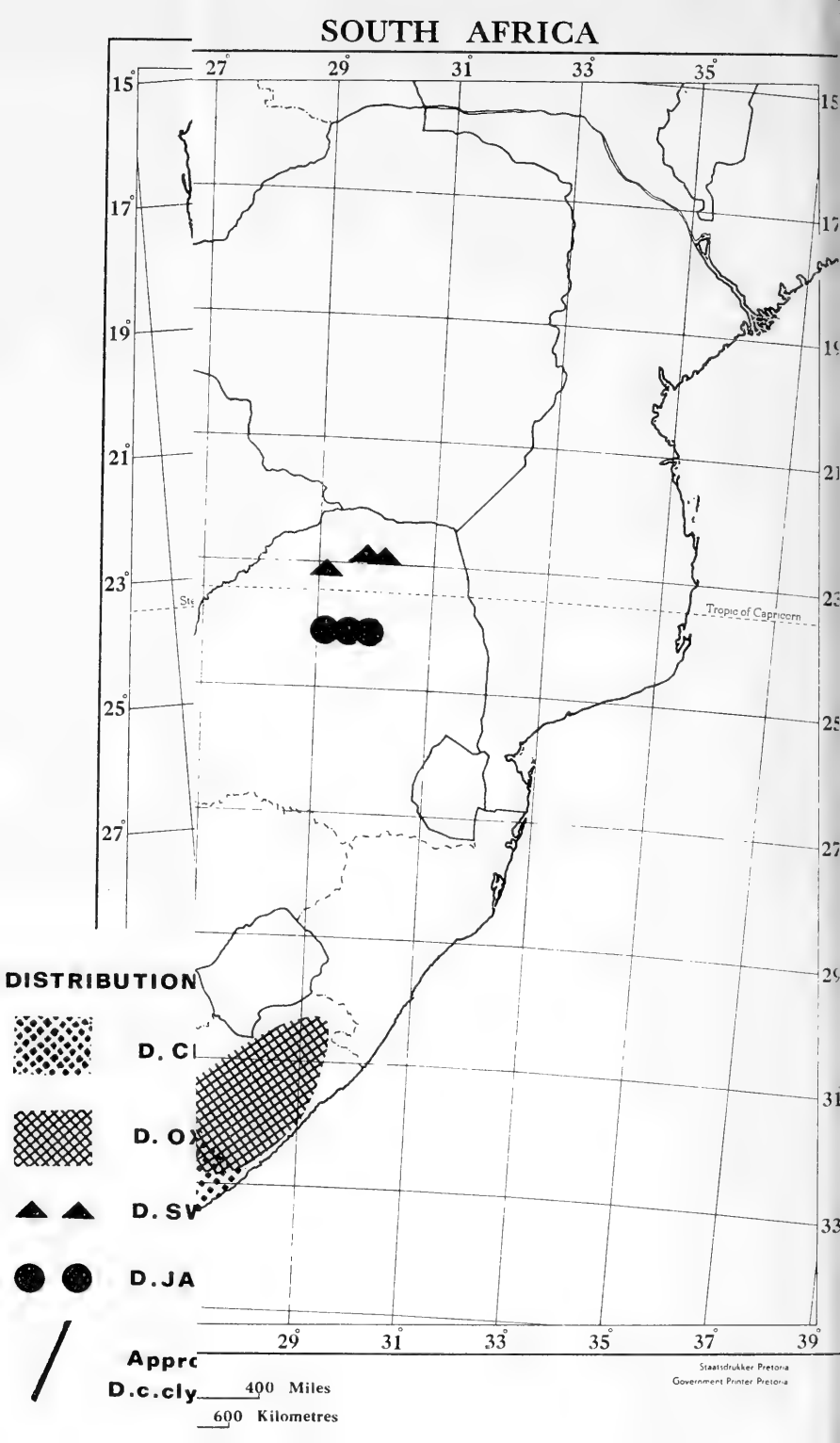
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The Systematics of the Genus *Dira* Huebner (Lepidoptera: Satyrinae), with a Description of a New Subspecies of *D. clytus* (Linnaeus)

By C. D. Quickelberge*

No. 3

Evolution and distribution

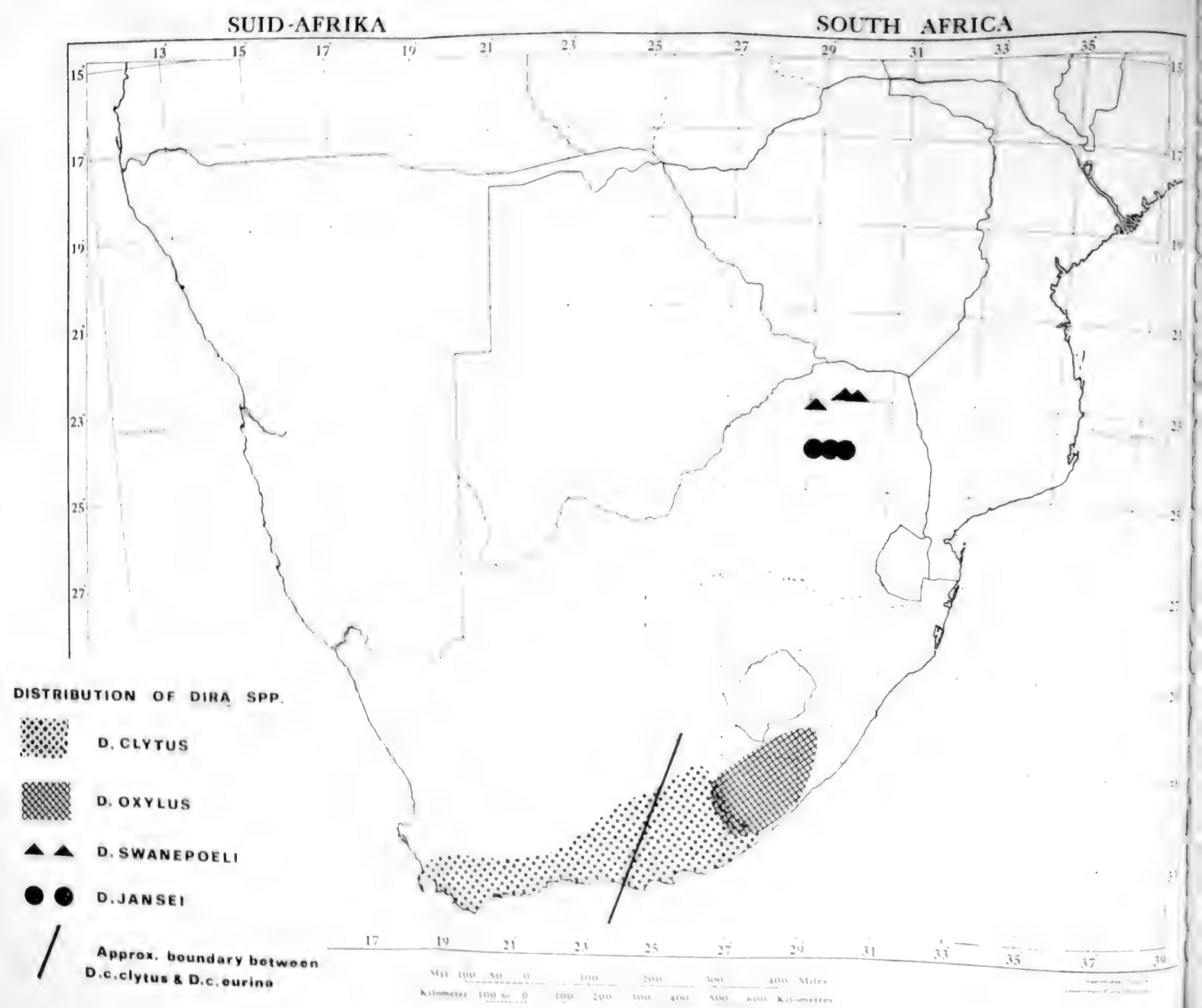
This interesting endemic South African genus comprises four, allopatric, species ranging eastwards in an arc from the western Cape Province to the Transkei, then northwards to the Transvaal. Due to the general inordinate abundance of individuals of the species and that their foodplants are grass *spp.*, a widespread distribution potential exists. This is fully realised only in the species *D. clytus* as it ranges almost continuously along a wide coastal strip from the extreme western Cape Province to the mid-eastern Cape. At this point the distribution of *clytus* is abruptly terminated where it makes contact wth the next species *D. oxylus* (Trimen) which continues eastwards occupying the greater part of the Transkei.

Much more restricted in range than *clytus, oxylus* extends up to, but inexplicably, does not penetrate Natal. The distribution of the third species, *D. swanepoeli* (van Son), poses even greater vexing questions of evolutionary history in that despite bearing a remarkably close resemblance to both *clytus* and *oxylus* it is separated from these two species by a distance of some 825 km. Even more restricted in range than *oxylus, swanepoeli* occurs only in a few limited localities on the Zoutpansberg mountains, north of Louis Trichardt in the northern Transvaal. The fourth and last species, *D. jansei* (Swierstra), is placed *c.* 150 km. south of *swanepoeli* and occurs very locally over mountains from Potgietersrust eastwards to the western slopes of the Wolkberg. It is more sharply differentiated in facies from any of the other species than they are from each other.

The entire distributional pattern is thus one of a vast population continuum in the Cape Province formed by *clytus* and *oxylus.* This is followed by a huge gap from *c.* latitudes 30° to 25° S., whereupon widely scattered relicts of the genus re-appear on the mountains of the Transvaal in the form of *swanepoeli* and *jansei.*

Except perhaps for *clytus,* the *Dira* spp. could be a declining group, with possible extinction threatening at least the two Transvaal isolates. The species-group doubtless enjoyed a more continuous and wider distribution in the fairly recent past as evidenced by the close resemblance between *clytus, oxylus* and *swanepoeli.* The diminution and fragmentation of populations we see today was doubtless effected by past changes in topography and consequently habitat. Suitable ecological conditions persisting on certain isolated mountain ranges could account for the survival of some population remnants in the form of the montane species *swanepoeli,*

* Durban Museum and Art Gallery, City Hall, P.O. Box 4085, Durban, South Africa.


SUID-AFRIKA
SOUTH AFRICA
DISTRIBUTION OF DIRA SPP.
D. CLYTUS
D. OXYLUS
D. SWANEPOELI
D. JANSEI
Approx. boundary between D.c.clytus & D.c.eurina

oxylus and *jansei*. Sufficiently prolonged isolation allowed the various species to evolve and in time the distributional hiatus between *clytus* and *oxylus* was closed. As will be seen, reproductive isolation between these two species is still in the process of consolidation, as hybridisation sporadically occurs.

Ecology

Dira species are apparently stimulated to emerge by the first major drop in temperature heralding the approach of winter. This would explain why in the eastern Cape at Stutterheim, *clytus* emerges at *c.* 900 m. altitude a month and a half earlier than at sea level only 80 km. away, where it remains warmer at the approach of winter. Although at high altitudes *oxylus* may emerge early in January, the majority of populations of the various species are only on the wing from about February to March/April, continuing even into May in the case of *clytus* in the Cape Peninsula.

Generally extremely common and widespread during their autumn flight period, *clytus* and *oxylus* tend to aggregate into colonies from which some individuals occasionally stray. The dense mass of males within a colony fly about just above grass level in a lazy buoyant manner, evidently intent on locating females which spend much time either resting or else scattering their eggs about, among the grass stalks. This manner of oviposition is possibly unique in *Dira* and *Dingana* van Son species.

The beginning and end of this flight period is comparatively abrupt and the nine-month interval before the next emergence is characterised by a complete absence of the adult insect. Interestingly, it happens on rare occasions that this natural regulation in its life-cycle breaks down causing individuals to hatch out of season. This was encountered only at Knysna where during late December two examples of *clytus* were seen flying about on two separate occasions.

The daily flight period begins early, from about 8 a.m., and as it becomes warmer towards midday there is a decline in activity. This avoidance of excessive sunlight is reflected in the choice of habitat, situated typically about open scattered trees.

The ecology of *Dira swanepoeli* and *jansei* corresponds basically to *clytus* and *oxylus,* but according to D. Whiteley of Durban, *swanepoeli* is not so partial to the shade of trees and also has a rather faster more purposeful flight, settling more often, usually among grass and rocks. *D. jansei,* although partial to shade, apparently has a different flight pattern, more reminiscent of a species of *Coenyra* Hewitson than a *Dira.*

Taxonomy

Abbreviations used to refer to wing surfaces in descriptions are: *Fw. & Hw.*: fore- and hind-wings. *Up. & Un.*: Upperside and underside. *UpFw. & UpHw.*: Upperside of fore- and hind-wings. *UnFw. & UnHw.*: Underside of fore- and hind-wings.

PLATE I

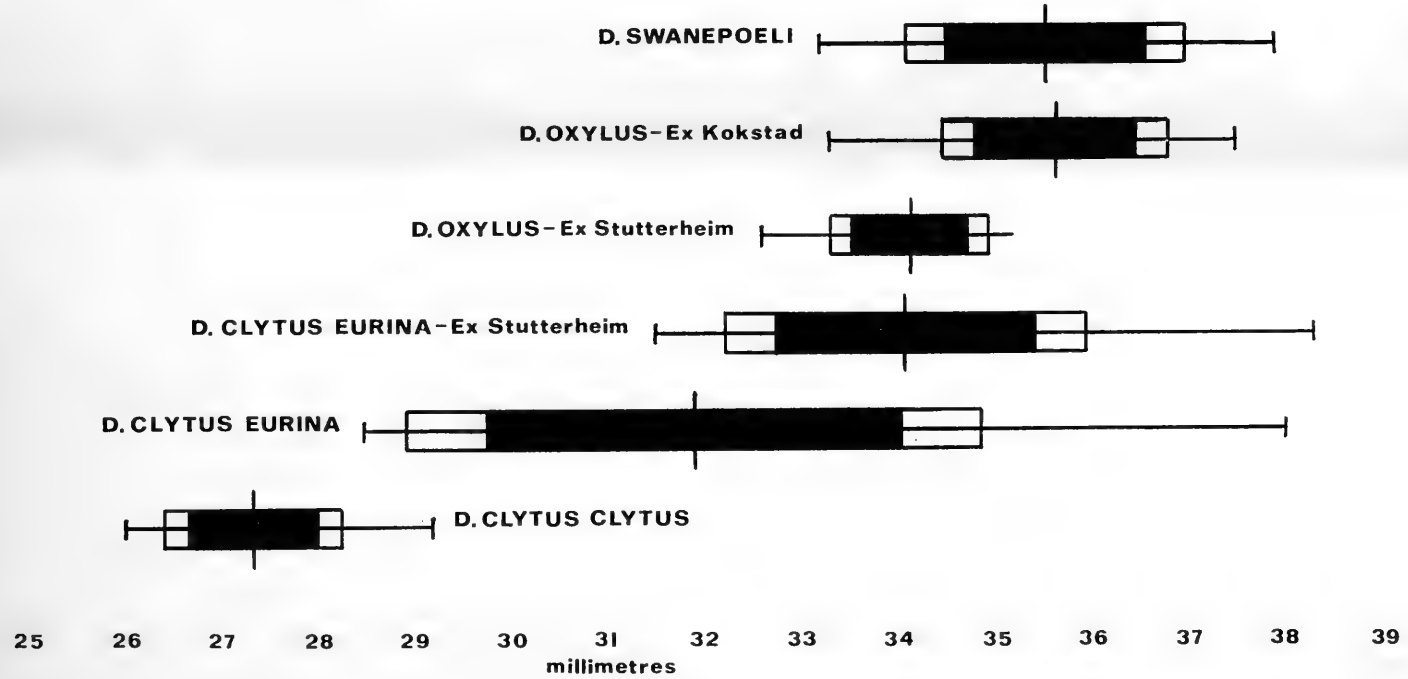


Fig. 1. Population samples (each consisting of 10 specimens) of three *Dira* species, illustrating an eastward (but not northward) size increase in successive populations. Size estimate was gauged from length of right forewing (base to apex). Median vertical lines indicate the mean, horizontal lines the sample range, open rectangles the standard deviation, solid black rectangles 95% confidence intervals for the mean.

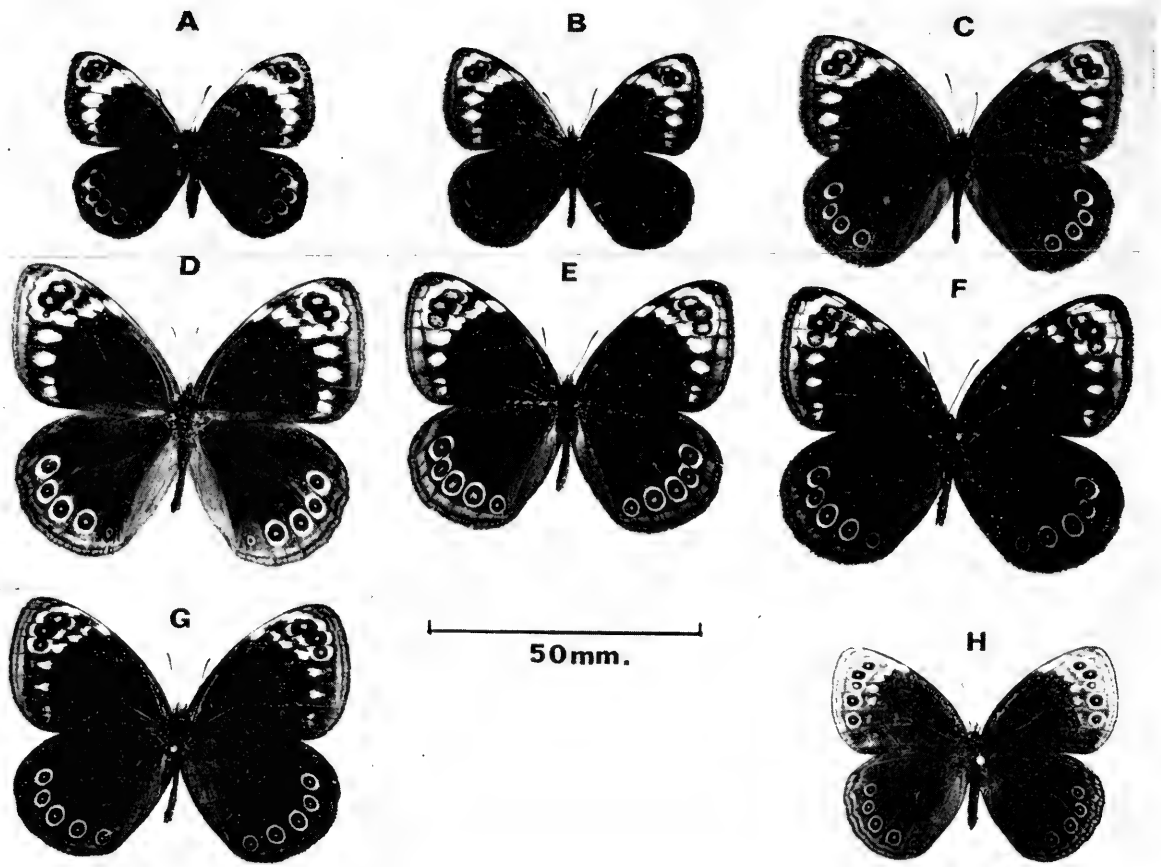


PLATE II

Fig. IV. Uppersides of male *Dira* species.

(A) *D. clytus clytus*: Cape Town. (B) *D.c. clytus*: Plettenberg Bay. (C) *D.c. eurina*: Holotype, Grahamstown. (D) *D.c. eurina*: Stutterheim. (E) *D. oxylus*: Stutterheim. (F) *D. oxylus*: Kokstad. (G) *D. swanepoeli*: Louis Trichardt. (H) *D. jansei*: Chunjespoort.

It has long been known that the *D. clytus* populations of the eastern Cape are quite different from the smaller darker counterparts occupying the more western parts of the range. Trimen (*South African Butterflies,* Vol. 1, 1887, p. 93), first drew attention to this, referring to the eastern form merely as "Var. A" (Grahamstown, Cape Colony). In his second volume of the series *The Butterflies of Southern Africa,* pp. 58-59 (Transvaal Museum, 1955), G. van Son accorded no nomenclatural recognition to Trimen's "Var. A", except to mention that eastern populations differed in a few minor characters. In order to resolve the matter fully, some 250 specimens of *D. clytus* have, over the years, been specially collected from as many points within its range as possible.

It was at once evident that the extreme western and eastern forms are indeed very dissimilar in facies. The intervening populations occurring from about Mossel Bay to the Tsitsikama forests in the southern Cape exhibit rather irregular clinal transition, resulting in some more easterly-situated populations showing greater affinity to extreme western Cape material than those inhabiting areas in between. Despite this profuse, rather discordant variation, these southern Cape populations may clearly be grouped with western Cape material which typically have a broad band of cream spots running in an arc from the *UpFw.* costa to the inner margin. In more than 75% of cases these spots are either broadly confluent or nearly so, seldom completely separate as in eastern Cape specimens. In specimens from the Peninsula the spots form a particularly broad band giving this form a distinctive appearance (see Plate II, fig. IV). The spots of this band become smaller and more widely separated in examples from about the Gouritz River (near Mossel Bay) eastwards. However, in most cases they are either still just in contact with each other or nearly so. Populations of *clytus* continue to be essentially similar right up to at least the Storms River in the Humansdorp district, i.e. with the individuals being small and dark, and with the rings surrounding the *UpHw.* ocelli narrow and rust-tinged, usually ill-defined in a photograph (see Plate II, fig. IV). The length of the *Fw.* in all these western and southern cape populations does not appear to exceed 30 mm. From about Humansdorp, the Gamtoos River and especially from Uitenhage and eastwards, specimens show the typical characteristics of the eastern race, in which the spots of the cream band become well separated. The rings bounding the outer edges of the ocelli of the *UpHw.* become lighter, i.e. cream in colour, and also often wider so that they are easily seen in a photograph (see Plate II, fig IV). Progressive size increase eastwards results in few eastern Cape specimens measuring less than 30 mm. in the *Fw.,* while some of the largest from Stutterheim at the extreme end of their distribution even exceed 38 mm., a size not attained by any known individuals of the other *Dira* species.

It is evident that the entire eastward inclined character shift affecting *clytus* is of a nature that effects a link-up with *oxylus*. Thus many of the characters distinguishing eastern forms of *clytus* are shared by adjacent populations of *oxylus* so that the two species here bear a close resemblance to one another, so much so that at first I considered the two forms to be conspecific. Every criterion that has ever been used to separate *oxylus* from *clytus* breaks down in particular specimens from these contiguous populations and the only character that has been found in all cases to be reliable in separating the two is a minor feature of the male genitalia, viz the juxta (see Plate III, fig. II).

However, it was decided to regard the two forms as separate species for the following reasons:

(a) Both in habitat and in times of emergence *oxylus* and *clytus* show unique characteristics. At Stutterheim *oxylus* hatches at a particular spot promptly at the end of January, whereas in a colony of *clytus* not more than two km. away emergence is remarkbly regulated to within a few days either way of the 18th February, by which time *oxylus* is already dwindling in numbers.

(b) Populations of both species in these areas of overlap aggregate into separate colonies, with no apparent mixing. *D. oxylus* colonies tend to be situated on grassy mountain slopes, whereas those of *clytus* centre more on flatter, low-lying ground, and generally in association with trees, often those of a plantation.

(c) It is obvious that in adjacent populations of *clytus* and *oxylus* a fair amount of hybridization does take place (see Plate IV, fig. III). However, judging by the fact that in the vast majority of cases it is possible by using external characters to differentiate between specimens of each species from all parts of their ranges, it is also obvious that these hybrids are being selected against by various factors such as the above-mentioned behavioural incompatibility.

Ecological discontinuities no doubt also play a part in suppressing allopatric hybridization in this zone of contact between *clytus* and *oxylus*. Thus *clytus* appears to favour the sweeter grasses while *oxylus* appears to follow the distribution of the sourveld. The boundaries separating these grass types coincide with the zone of contact between *clytus* and *oxylus* from Queenstown down through Stutterheim.

Genetic incompatibility possibly plays a minor role in preventing appreciable introgression between *clytus* and *oxylus*. Support for this view is provided by the lack of constant character differences between the two taxa, except in a very minor feature of the male genitalia, and that clinal patterns are the same for both species. Everything considered, the *clytus*/*oxylus* zone of contact is a narrow one, and even though secondary contact between the two was established before full reproductive isolation was attained, they have diverged sufficiently for each to maintain themselves as separate species over virtually their entire range.

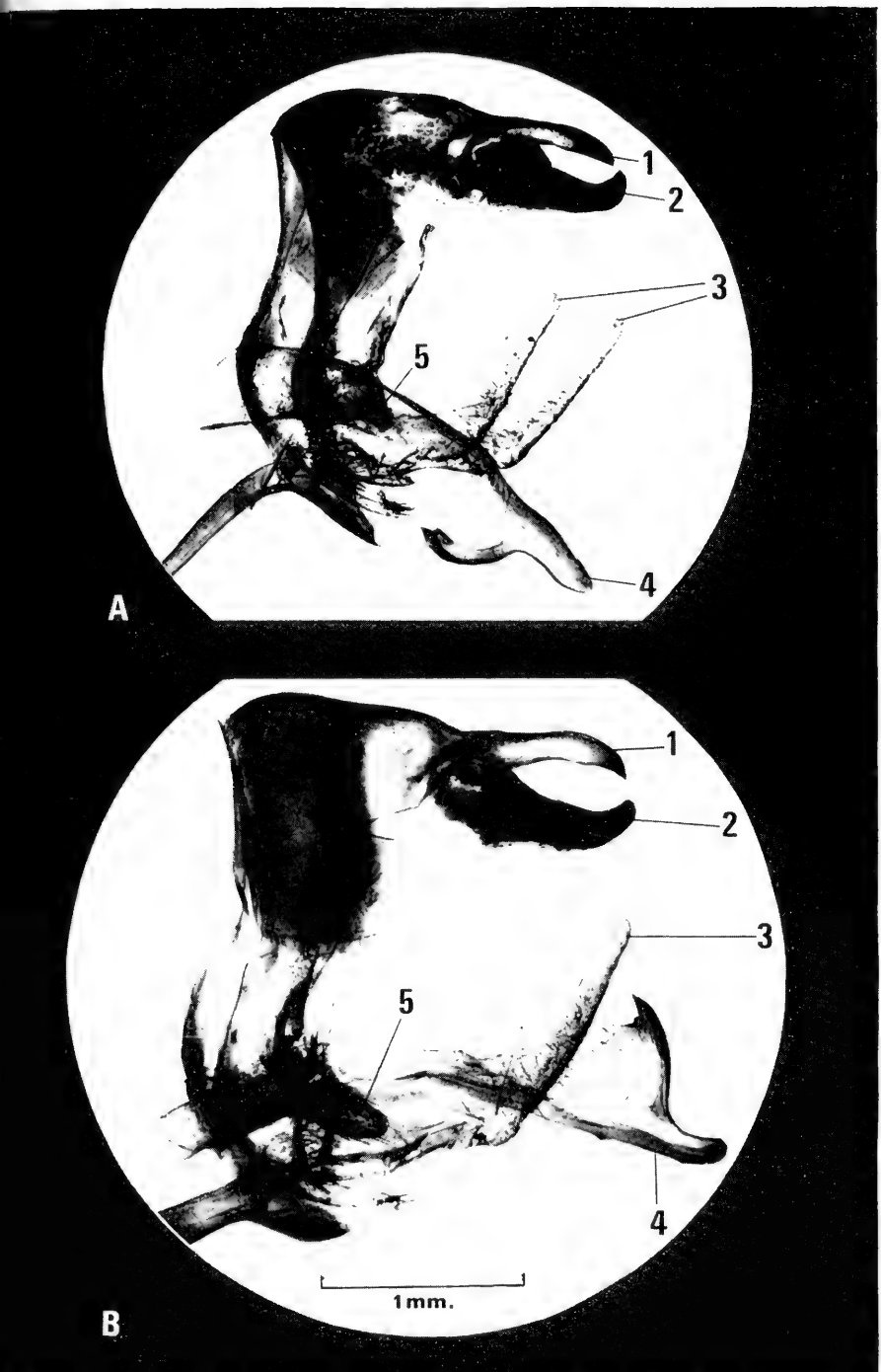
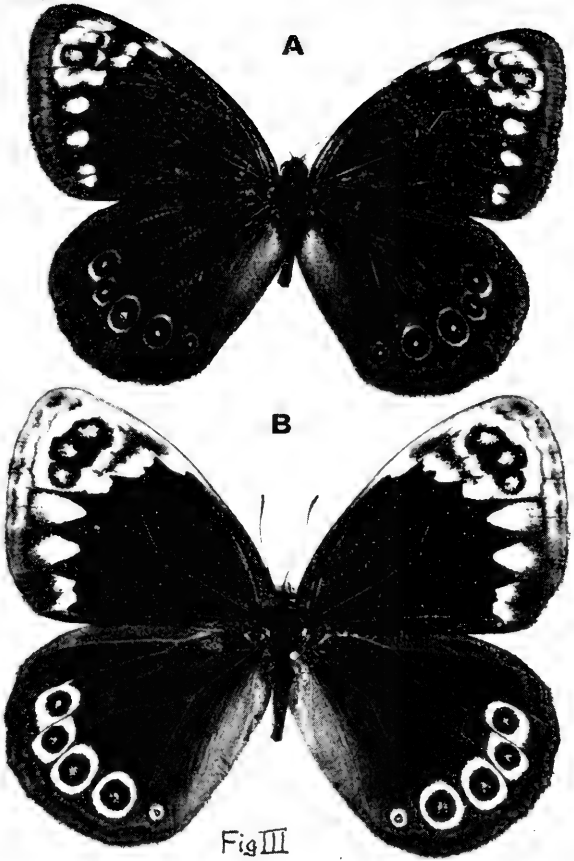


Fig. II. Male genitalia of two *Dira* species.
(A) *D. clytus*: Stutterheim. (B) *D. oxylus*: Stutterheim.
1. Uncus. 2. Sciaphium. 3. Valves. 4. Aedeagus. 5. Juxta.



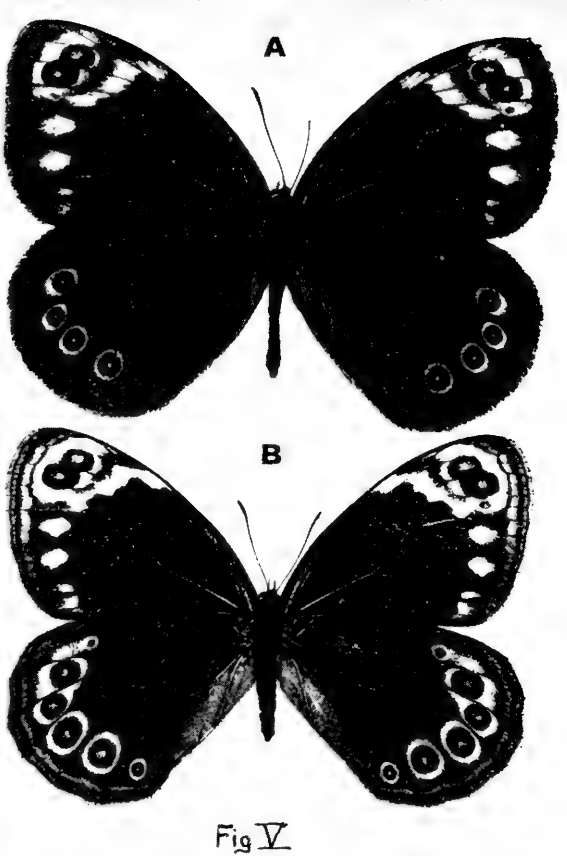


PLATE IV

Fig. III. Possible hybrids between *Dira clytus* and *D. oxylus*. Genitalia were examined to confirm identification.

Towards the eastern limits of its distribution, *oxylus* becomes more confined to the higher lying areas as on Mount Currie, near Kokstad. There is in *oxylus* a continuation of the same character shift eastwards as displayed in *clytus,* e.g. Kokstad specimens being larger on average than those from Stutterheim (see Plate II, fig. IV, E & F). Also there is a further reduction and separation of the post-discal arc of cream markings on the *UpFw.* as well as a consistent straightening out of the two dark bars in areas 2 and 3 of the *UnHw.* These bars in western populations are fairly frequently curved inwards as in *clytus.* However, the character most frequently used to separate *oxylus* from *clytus* is the former species' possession of three well-developed ocelli, or eye-spots, at the apex of the *UpFw.* as opposed to only two in *clytus.* This character is also variable.

As expected, the isolated *D. swanepoeli* shows greater divergence from either *clytus* or *oxylus* than the latter two do from each other. Nevertheless, the characters distinguishing *swanepoeli* are not as marked as its completely isolated position would lead one to expect. Close relationship exists with *oxylus,* differing only in that the extensive blue scaling in the ocellate spots on the *UnFw.* in *oxylus* is lacking in *swanepoeli* which has instead a whitish spot faintly surrounded by a few blue scales. In *swanepoeli* there is also a continuous cream edging to the costa of the *UnFw.* from near the apex to nearly half-way to the base, whereas in *oxylus* this edging is broken centrally by the dark ground colour. A far greater incidence of only two ocelli on the *UpFw.* in *swanepoeli* as opposed to three in most *oxylus* is another, less stable, difference. Examination of the male genitalia in *swanepoeli* reveals closest affinity with *oxylus* in the possession of a very similar juxta, but the thinner, evenly curved uncus and the more attenuated valves in *swanepoeli* leave no doubt as to its status as a full species. Finally, the arc of cream spots on the *UpFw.* is further reduced in *swanepoeli,* being small and well separated (see Plate II, fig. IV).

D. jansei, although quite clearly a *Dira* species, differs from the common pattern of the group in the almost complete development of submarginal ocelli in the interneural spaces over the upper surfaces of both wings. For example, there are at least two extra spots on the *Fw.* in areas 2 and 3. A remarkable quality of these spots is that there is little difference between those of hind- and fore-wings. There is thus no specialisation of the last three near the apex of the *Fw.* into conspicuous blue-filled, black-surrounded ocellate spots. This lack of differentiation, coupled with a more complete development of ocelli, suggests an earlier stage of evolution within the genus. This assumed primitive state could account for the restricted range and threatened status of *D. jansei.*

Evidence of affinity between the two Transvaal species of *Dira* is indicated by the same ocellate spots in both forms being somewhat similar and not as differentiated as in *oxylus*

and *clytus*. Thus these spots in *swanepoeli* and *jansei* often have only a small white centre and with the spot in area 4 of *swanepoeli* sometimes separate and conspicuously undifferentiated as in *jansei*. Another character linking *jansei* with *swanepoeli* is apparent in the ocelli of the *UpHw.*, which are in both species rather small in proportion to wing area and placed rather more distad than in *clytus* or *oxylus*.

In order to take account of the remarkable variation in *clytus* it was decided to split the taxon into two subspecies. However, all the characters normally used in such a differential diagnosis proved to be variable to an extent that did not quite give a sufficiently high level of separation necessary for recognising subspecies. However, the use of a character combination utilising two wing features provided a suitable basis on which a virtual 100% separation of a western Cape group from an eastern Cape one was achieved. The latter grouping will constitute the new subspecies **eurina** *mihi*.

In order to test the validity of this basis for classification, a hundred specimens were selected at random from the entire range and then grouped accordingly. Out of the hundred examples used, 53 were correctly placed as *eurina*, and another 44 classified as *clytus* were from areas west of Humansdorp. Of the three that had been misplaced, two were from a zone of intergradation between the two subspecies. The character combination used for classification in the above test concerns the colour and width of the bounding ring to each ocellus on the *UpHw.* and the extent of development of the post-discal band or arc of broad cream spots traversing the *UpFw.*

Description of the Dira taxa

Dira clytus (*Linnaeus*)
Dira clytus clytus (Linnaeus)
Papilio clytus Linnaeus, 1764, *Mus. Lud. Ulr. Reg*: 268. Cape of Good Hope

Description: Characterised mainly by the full development of the post-discal band of cream spots on the *UpFw.* and the narrow rust-tinged, slightly oval rings encircling the four main ocelli on the *UpHw.* Other characters less constant are the pure blue central spots to the bipupillate markings just below the apex of the *UpFw.* and the smaller overall size of the insect (not found to exceed 30 mm. in the *Fw.*). Also rather darker in the ground colour, but this is often obscured by post-mortem fading in older material.

Distribution: South-western Cape from the peninsula, Stellenbosch and Worcester, east along the wetter coastal belt to the Humansdorp district. Extends inland beyond the first coastal range of mountains to the much drier Little Karoo, such as at Oudtshoorn *c.* 50 km. from the coast.

Remarks: Specimen A in Plate II from the Cape Peninsula illustrates the extreme development of the *Fw.* cream band, also the transverse bar of reddish-ochraceous in the cell which appears occasionally (mostly in females) among topotypical material, but only rarely elsewhere. Trimen *loc. cit.* refers to

this as a male aberration. Females, typically outnumbered by males (about 30: 1) in all *Dira* species, are not markedly different from males, except for rounder wings and somewhat larger ocelli on the *UpHw.* Specimen B in Plate II is from Plettenberg Bay and displays the reduction in size of the cream post-discal band over the *Fw.* but still embodying all the typical characters of the nominate race.

Dira clytus eurina subsp. nov.

"*Var. A* (Grahamstown, Cape Colony)," Trimen, 1887, *South African Butterflies,* **1**: 93:

Holotype: ♂, Grahamstown, eastern Cape. 24th March, 1967. Collected by C. D. Quickelberge. In the Durban Museum.

Allotype: ♀, East London, eastern Cape. 27th March, 1966. Collected by C. D. Quickelberge. In the Durban Museum.

Paratypes: 91 ♂♂, 12 ♀♀ (in coll. C. D. Quickelberge) from Gamtoos R. mouth, Uitenhage, Grahamstown, Somerset East, Aberdeen, Bedford, Adelaide, East London, Stutterheim, Cathcart, Queenstown and Sterkstroom.

Description: Like nominate *D. clytus* as defined above but differing in that the post-discal arc of cream-coloured spots to the *UpFw.* is narrower and smaller in proportion to the wing-size, being well separated from area 4 to the tornus. The reduction in this series of spots affects the whole band to the costa. Further differs in that the blue iris of each ocellus on the *UpFw.* near the apex almost always exhibits a central white pupil, which feature is generally absent in the case of *D.c. clytus.* Size greater, the *Fw.* length often exceeding 30 mm. No difference in the genitalia of the male.

Distribution: East of the range of *D.c. clytus* in the eastern Cape, extending from the Gamtoos R. on the coast to the East London district. Ranging further inland than *D.c. clytus,* due, presumably, to the presence of more extensive grassland, occurring as far inland as Molteno (31° 24′S., 26° 22′E.), some 200 km. from the coast. Westwards *eurina* penetrates the moister eastern parts of the Great Karoo, where it has been taken near Aberdeen by Mr. C. G. C. Dickson of Cape Town. Intergrades with *D.c. clytus* from about Humansdorp to Somerset East and Bedford. While most specimens from these areas are clearly *eurina,* some show rather clear evidence of gene flow from the nominate race. Immediately to the west of the Kei R. *D. oxylus* replaces *D. clytus* in a curious interdigitating but narrow zone from East London through to Queenstown, via Stutterheim and Cathcart.

Dira oxylus (Trimen)

Leptoneura oxylus Trimen 1881. *Trans. Ent. Soc. Lond.,* 437. Butterworth, Transkei.

Description: Close to *clytus,* the only constant difference being the shape of the juxta in the male genitalia (see Plate III, fig. II). Other differences (with occasional exceptions) from *clytus* include the three partite ocellate markings at apex of *UpFw.*; arc of cream spots on same wing surface reduced; dark lines traversing the central areas of *UnHw.* are much straighter.

Distribution: Confined mainly to the Transkei, overlapping narrowly with *clytus* just west of the Kei River valley. Does not appear to extend further east than Brook's Nek and Mount Currie, near Kokstad, in East Griqualand.

Remarks: While *clytus* seems to favour the sweet grassveld, *oxylus* apparently prefers sourveld, which vegetation type dominates the greater part of the moist uplands of the Transkei.

Dira swanepoeli (van Son

Leptoneura swanepoeli van Son 1939. *Ann. Transv. Mus.*, **20**: 47. Mountain Inn, Zoutpansberg, northern Transvaal.

Description: Close to *oxylus* except for a further reduction in the band of cream spots on *UpFw.*; possession of a bipupillate marking near apex of *UpFw.* (although 3 ocelli as in *oxylus* are not uncommon); an unbroken cream edging to the *UnFw.* along the costa from near the apex to about halfway to the base; an almost complete absence of blue scaling to the ocelli of the *UnFw.* and the more attenuated valves to the male genitalia.

Note: The subspecies *D.s. isolata,* described by van Son, *loc. cit.*, is said to differ from nominate *swanepoeli* in possessing an extra ocellus in area M_1 on *UpHw.* As this spot also occurs with regularity in all other forms of *Dira* and the numbers of ocelli are particularly prone to individual variation among all *Dira* species, and, indeed, in most species of Satyrinae, it is suggested that this taxon requires further study in order to confirm its validity.

Distribution: Occurs locally along the Zoutpansberg, from north of Louis Trichardt, east to about Entabeni; also in the west on the nearby Blaauwberg, which is occupied by *D.s. isolata.*

Dira jansei (Swierstra)

Leptoneura jansei Swierstra 1911. *Ann. Transv. Mus.*, **1**: 175. Warmberg, Pietersburg, Transvaal.

Description: *Hw.* colour and patterning resembles *swanepoeli* but distinctive on the *Fw.* in having 5 ocelli which are basically similar to those of the *Hw.*, with little modification of the last three near apex into the typical blue centred ocelli of the other species. The row of cream spots proximal to the *Fw.* ocelli is even more weakly developed than in *swanepoeli.*

Distribution: From the western slopes of the Wolkberg, eastern Transvaal, westwards to localities such as "Tubex" Farm, Chuniespoort, etc.

Acknowledgements

My grateful thanks are extended to the many people who have rendered assistance in providing specimens, including, among others, my mother of Knysna, my brothers Nolan and Julian, Mr. Victor Pringle of Bedford, Mrs. Ruth Southey of Pretoria, Mr. C. G. C. Dickson of Cape Town, and Mr. D. Whiteley of Durban. I also wish to thank the Director of the Durban Museum, Mr. P. A. Clancey, and staff for assistance during the preparation of this revision.

Butterflies of the Cols of the Cévennes

By John Feltwell*

Introduction

In the Cévennes mountains of the départements of Gard, Lozère and Ardèche in France there are many cols or natural passes where an abundance of insects may be encountered. In an earlier paper it was shown that 138 species of butterfly have been recorded in the National Park of the Cévennes; a region of outstanding natural beauty (Feltwell, 1977a).

The National Park is divided into two regions, the inner zone and the outer peripheral zone. In the inner zone there are 31 major cols; that is cols which are marked on the official Park Map (1: 100,000. Parc National Des Cévennes, Institut Geographique National, obtainable in the U.K.). Other smaller cols do exist in the Park, but they do not appear on the official map.

The purpose of this paper is to present an entomological appraisal of the cols of the Park with respect to their suitability as study areas, especially for the future, and to note species encountered. The cols are rich in species and provide an ideal situation for the growth of enormous numbers of insects (cf. Feltwell, 1977b). There are also great areas of the Cévennes which are far from the mountain roads and from which records are lacking.

The Cévennes are fast becoming popular tourist areas and due to the tortuous nature of the mountain roads and the oppressive summer heat little progress can be made over long distances. Several cols are reached only by bad mountain roads and logging tracks, and for this reason some of the cols have been grouped together as they can be reasonably reached in one day. It is perhaps worth pointing out that a sturdy car with good ground clearance is an advantage along some of the bad tracks. Notices do state that the single lane tracks are not suitable for cars and that logging vehicles have priority. However, the tracks are ideal for walking and there are many well sign-posted *sentiers* over the mountains of the Parc. The first eleven cols are dealt with in this paper (Table 1) and accounts of 24 rhopalocean species are given.

1. *Col de L'Homme Mort*

The col is surrounded by a small plantation of Pine (*Pinus* sp.) which in a few years will obscure the view and presumably restrict the number of species of butterfly to be encountered. However, a few minutes away is a summit of massive boulders surmounted by open grass with Spanish Broom (*Spartium junceum* L.). On the day this col was visited only a solitary White Ermine Moth (*Spilosoma lubricipeda* (L.)) larva was found.

Although one can drive to the Col de L'Homme Mort on tarmac, a more rewarding way is to drive up the 10 km. track which leads up through the chestnut woods from the village of Alzon. At irregular intervals where the sun penetrates the

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track there was a wealth of flowers, always supporting a mass of butterflies which seemed to be trapped in these sunny glades. Those species observed and which were all abundant were Peacocks (*Inachis io* L.), Red Admirals (*Vanessa atalanta* L.), Marbled Whites (*Malanargia galathea* L.), and Silver-washed Fritillary (*Argynnis paphia* L.) many of which were busy courting each other, Spotted Fritillary (*Melitaea didyma* Esper), Large Skippers (*Ochlodes venatus* Bremer & Grey), while a solitary *Erebia* sp., a Small White (*Pieris rapae* L.), a Dryad (*Minois dryas* Scopoli), a Gatekeeper (*Pyronia tithonus* L.) and a pair of courting Scarce Coppers (*Heodes virgaureae* L.) were also seen.

2. *Col de Portes*

Another boulder summit, but this time rising out of an open wet grassland area rich in *S. junceum,* Heather (*Calluna vulgaris* L.), Rosebay Willowherb (*Epilobium angustifolium* L.) and tall grasses. Some young and old Pine plantations are present at a considerable distance. This col was visited at 1800 hrs. on an overcast day and the only insect visibly flying was a solitary trichopteran. However, the site looked potentially very good and would make an ideal place to site a U.V. lamp. The heather was producing a rich nectar flow and the flowers were covered with bees and bumble bees. A small shallow pond a few hundred metres away from the summit provided an intriguing place to search.

TABLE 1
ELEVEN COLS IN THE NATIONAL PARK OF THE CEVENNES
(arranged in groups)

Col	Size of collecting area around col (h)	Altitude (m)	Distance from tarmac (km)	Date visited
1. Col de L'Homme Mort	2	1,300	0 or 10	30.8.77
2. Col des Portes	40	1,266	3.5	30.8.77
3. Col du Minier	<1	1,264	0	30.8.77
4. Col de Faubel	16	1,285	0	22.8.77
5. Col de la Serreyède	20	1,455	0	22.8.77
6. Col de la Chaumette	4	1,455	3	22.8.77
7. Col de Salpérière	100	1,010	0	3.9.77
8. Col de Faisses	20	1,010	0	3.9.77
9. Col du Rey	20	992	0	3.9.77
10. Col. de L'Oumenet	100+	902	0	3.9.77
11. Col de Finiels	100+	1,548	0	3.9.77

3. *Col du Minier*

A minute col at the junction of three roads and four

woodcutters tracks. It is completely enclosed by *Pinus* sp. and Larch (*Larix decidua* Mill.) and the roadside verges were supporting a strong growth of wild raspberry (*Rubus idaeus* L.), *L. salicaria* and white umbellifers. This is quite a busy through route and would not be expected to yield many butterflies beyond roadside visitors such as whites (*Pieris* spp.).

4. *Col de Faubel*

A small grass covered col enclosed by Beech (*Fagus* sp.) with three logging tracks leading away from it. There was a large pile of cut pine at the roadside and the verges were again abundant in *R. idaeus* and Thistles (*Cirsium* sp.). However, no insects were recorded here.

5. *Col de la Serreyrède*

This col has three main roads and two logging tracks leading away from it; one of them to the Col de la Chaumette. There is a large south-facing grass slope which on the wet day that it was visited only produced a Silver-spotted Skipper (*Hesperia comma* L.) and Cinnabar moth (*Tyria jacobaea* L.) larvae on the Ragwort (*Senecio* sp.), and some small day flying moths. Sweeping produced a multitude of leaf hoppers and small grasshoppers. There is also a north-facing grass slope which is backed by Pine plantations.

6. *Col de la Chaumette*

This is only accessible by a 3 km. logging track from the previous col or on an even longer track from Meyrueis. The col itself is fairly small but there are some interesting glades in amongst the Pine where the floor is a carpet of Plume and Wig Knapweeds (*Centaurea nervosa* Willd. and *C. phrygia* L. respectively), Chamois Ragwort (*Senecio doronicum* L.), Field Scabious (*Knautia arvensis* L.), Diamond-leaved Bellflower (*Campanulla rhomboidalis* L.) and Great Yellow Gentian (*Gentiana lutea* L.) and Tansy (*Chrysanthemum* sp.). On the day this col was visited it was overcast and drizzling. However, there was a super-abundance of flies, leaf hoppers and grasshoppers which were put up with every step and easily collected in the sweep net. Larvae of the Small Heath (*Coenonympha pamphilus* L.) and *P. tithonus* were identified.

The next three cols lie very close together on the same plateau (La Can de L'Hospitalet) above the Florac valley and share the same similar terrain and flora. Col de Salpérière and Col de Faisses do not have the customary Park signs which give the name and altitude of the cols and are thus easily passed. This is further confused by the construction of a new road which is re-routed to the west of Col du Rey and Col de Salpérière and fortunately leaves the latter col quite isolated.

The three cols are on sandstone and are characterised by having open grassland studded with small bushes of Box (*Buxus* sp.), Juniper (*Juniperus* sp.) and *S. junceum*, and patches of *Pinus* and *Fagus* sp. The open grassland had a good scattering of Flat-topped Carline Thistles (*Carlina corymbosa*) and Stemless Thistles (*Cirsium acaulon* L.).

7. *Col de Salpérière*

Darting about in the long grass were many *H. comma* and single specimens were seen of the Grizzled Skipper (*Pyrgus malvae* L.), and Chalkhill Blue (*Lysandra coridon* Poda) and Silver-studded Blue (*Plebejus argus* L.), while *Ephippiga* grasshoppers were chirping in the bushes. Resting on a patch of grass was found a solitary yellow and black ascalaphid (*Ascalaphus macaronius* Scop.).

8. *Col de Faisses*

In one of the patches between the old and new roads (a distance of about 100 metres) were *C. pamphilus, H. comma,* the Large White (*Pieris brassicae* L.), and *Ephippiga* amongst the *Cirsium* sp., Dandelions (*Taraxium* sp.) and Sloe (*Prunus spinosa* L.).

9. *Col du Rey*

This is now a relatively quiet col with one of the three roads partially closed off as *Route Barrée* (hopefully this closed road will be left as a nature trail similar to the disused railway tracks in Britain). The col is straddled by farm buildings, with untidy verges supporting Nettle (*Urtica dioica* L.), Periwinkle (*Vinca* sp.), Corn Poppy (*Papaver rhoeas* L.) and Thistles (*Cirsium* sp.). Around the col there was also a small vegetable patch, a hectare of corn and a grassy slope on which were flying the Grayling (*Hipparchia semele* L.), *P. brassicae,* the Common Blue (*Polyommatus icarus* Rott.), *L. coridon, Erebia* sp. and many bumble bees. There also appeared to be a source of water at the col as there was a meadow of unusually rich green grass.

10. *Col de L'Oumenet*

A very open col which gives the impression of being very high (only 902 m.) with rolling slopes and good views (similar to Ashdown Forest, Sussex), supporting *C. vulgaris* and *S. junceum.* There were only two species of butterfly about and these were in great abundance, *M. galathea* and *P. tithonus.*

11. *Col de Finiels*

This is a tremendously wide open and exposed col, rather similar to a Scottish moor, dominated by the summit of Finiels (1,699 m.) which is about one kilometre away. There are some *Pinus* and *Juniperus* sp. near the col but predominantly there are tall grasses and thistles, *E. angustifolium* L., Pinks (*Dianthus* sp.), *K. arvensis* and *Taraxium* sp. Insects were surprisingly difficult to find and it was some time before a solitary Green-veined white (*Pieris napi* L.) flew by and a male Dark-green Fritillary (*Mesoacidalia aglaja* L.) was found flitting around the Pines. A few hundred metres down the road from the col a stand of *Cirsium* sp. had collected Small Tortoiseshells (*Aglais urticae* L.) and *V. atalanta,* while in a sheltered *Sphagnum* bog were single specimens of *H. semele* and *C. pamphilus.*

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Herminia lunalis (Scop.)=*tarsiplumalis* Hb. (Lep.: Noctuidae) New to the British Isles

By P. J. Baker*

Early in 1977, I was looking through a small collection of lepidoptera formed by Mr. William Parker of Maidenhead, which included a fanfoot which I could not immediately identfy. This specimen Mr. Parker took at the end of August 1976 in a m.v. trap near Maidenhead. Reference to Hoffmeyer (1949: 328-29, plt. 25, fig. 7) which has a coloured illustration of the insect, indicated that the species might be referable to *Zanclognatha tarsiplumalis* (Hb.). This identification was later confirmed at the British Museum (Nat. Hist.), where the modern nomenclature for *Z. tarsiplumis*=*Herminia lunalis* (Scop.) was also established.

It is interesting to note that the existence of this species in England was predicted by Pelham-Clinton (1966: 4). The area from where it was taken lies close to the M4 motorway, but is nonetheless quite isolated and entomologically unknown. In 1977, search for further specimens was unsuccessful, but this may not be significant as many likely sites remained unworked owing to lack of time and poor weather. On the other hand, it is quite likely of course that the specimen may have been a casual immigrant. Abroad the species has a very wide distribution, ranging through Europe to Siberia and Japan. According to Lhomme (1927-28: 332), it occurs throughout France and much of Belgium, but is rare in the latter country.

Acknowledgements

I would like to thank Mr. William Parker who has kindly presented me with the specimen; also Dr. J. D. Bradley and Mr. D. S. Fletcher of the British Museum (Nat. Hist.) for their help in confirming the identity of the insect and its nomenclature, to which has been added the English title "The Jubilee Fanfoot".

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Limnephilus hirsutus: A Correction. — Vol. 89, p. 316, lines 4 and 5 of the Note by T. W. Harman, for "I am grateful to Dr. Ian Watkinson" read "I am grateful to Mr. Ian Whitehouse". — Editor.

Observations on the Flight Period of Caddis Flies (Trichoptera) at the Lake of Menteith, Perthshire

By Brian Morrison*

While a study of the fish populations of the Lake of Menteith was being undertaken between 1967 and 1971, some observations were made on the many species of caddis occurring there with the primary aim of determining the period of the year during which the adults made their appearance. As the time available for caddis work was limited, the recorded period is almost certainly shorter than the true flight period, but since several species were found outwith the limits noted by Hickin (1967) and Macan (1973), the information collected (Table I) may be of interest to other entomologists. A secondary aim of this study was to try to augment the meagre information available on the diversity of species found in this part of Scotland.

Description of the Lake

The Lake of Menteith (Nat. Grid Ref. NN575005) is situated about 15 miles west of Stirling in an area that is predominantly agricultural. It has a surface area of 650 acres (263 hectares). The southern half of the lake is relatively shallow and the south-west quarter is rarely more than 3 m. deep, but in the northern part there is a narrow trough with a maximum depth of 23 m. The littoral zone is composed mostly of rounded stones 5-20 cm. in diameter, but the south shore consists largely of sand and silt. The reed *Phragmites communis* Trinius is found along most of the shoreline and the other dominant emergent weed, *Polygonum amphibium* L., the amphibious bistort, is widely distributed in water less than 1 m. in depth. *Myriophyllum spicatum* L., the water milfoil, and *Elodea canadensis* Michx., the Canadian pondweed, are among the more common submerged weeds, and quillwort, *Littorella uniflora* Aschers., forms a thick carpet in some areas of the stony littoral.

Chemical analysis of the water indicates that the lake is not very rich, having a pH value of about 7.2 and an alkalinity of about 20 ppm. (expressed as calcium carbonate).

There are two main inflow streams and several smaller ditches and drains. The outlet, the Goudie Burn, carries the water of the lake to the River Forth.

Observations on the Caddis

Family Phryganeidae: Larvae of the genus *Phryganea* were taken in samples of decaying plant material from reed-beds and the lower reaches of the inflow streams. During the daytime the adults were normally found resting in crevices in stonework or the bark of trees, where their predominantly grey-brown colouring provided excellent camouflage. In 1967 and 1968 a few *Agrypnia pagetana* adults were found among the reeds in the south-east corner of the lake, but none were

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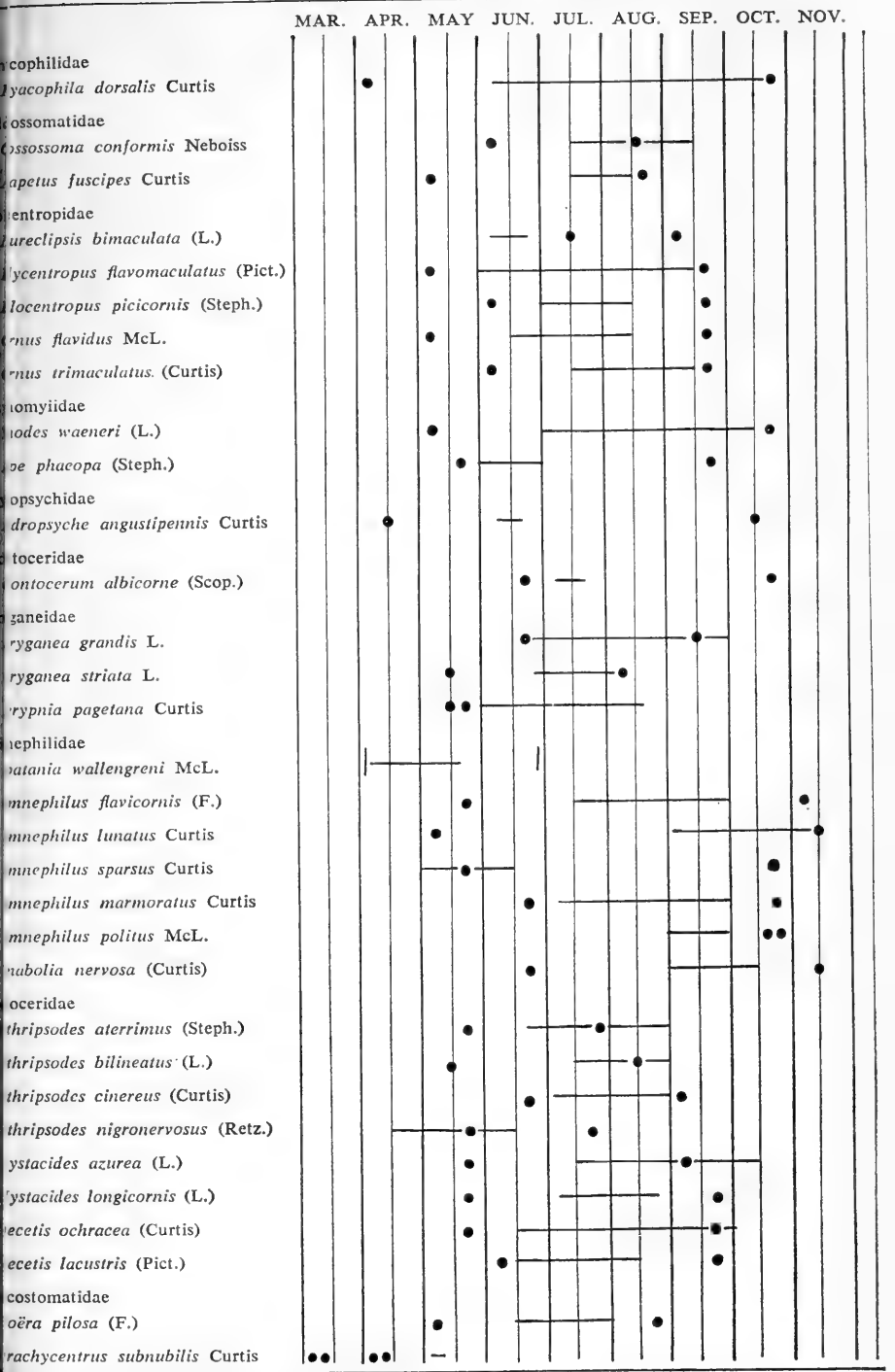
TABLE I



le 1. Recorded flight period of caddis flies at the Lake of Menteith.

● ● period given by Hickin. ——— period recorded at Menteith.

| | period given by Macan; no data recorded by Hickin.

seen there or elsewhere in subsequent years. The flight period of this species would appear to be longer than indicated by Hickin (1967).

Family Limnephilidae: Only a few species belonging to this large family were recorded, but *Limnephilus lunatus, L. flavicornis* and *Anabolia nervosa* were common every year in late summer and autumn.

Several species of Limnephilidae are known to undergo a period of diapause during the early summer months immediately after emerging from the pupa, and at this time their ovaries are immature (Novak and Sehnal, 1963). They develop fully after diapause, and at Menteith adult *L. lunatus* with mature ovaries were found as late as mid November. The existence of the diapause stage may also explain why these insects are generally more numerous in the latter part of the year.

There is little information in the literature on the most interesting of these insects, *Apatania wallengreni,* but studies on other species wthin the genus have shown that the larvae are inhabitants of cold springs and mountain streams (Nielsen 1943, Elliot 1971). The occurrence of *A. wallengreni* in a low-lying lake such as Menteith (18 m. above sea-level) is therefore of considerable interest.

Family Leptoceridae: Adults of this family were frequently found in large swarms close to the shore. When a sample of insects from one such swarm was examined it was found to contain only one female out of a total of 134 specimens.

On 19th August, 1970, observations were made on two swarms of caddis flying at a distance of 2-3 metres from one another. The species concerned were *Mystacides azurea* and *Athripsodes cinereus,* and the coloration of these insects was sufficiently distinct to indicate that each swarm probably consisted of one species only. Whenever one of the swarms was approached, both moved ahead of the observer, so that the distance between the swarms remained fairly constant. Swarming lasted for only a few minutes at a time, since the insects dspersed whenever a light wind developed. They could then be found among the leaves of the alder trees growing at the water's edge. When the wind dropped, swarming was resumed.

The two forms of *A. aterrimus* (Mosely 1939) were seen at the lake. In one, the forewings were almost black with a pale spot at the arculus (halfway along the hind edge of the wing), and in the other, the forewings were of a uniform reddish-brown colour. In both *M. azurea* and *A. aterrimus* individuals with silvery-white antennae were found with specimens having alternate black and white rings for almost half the length of the antenna.

Mosely described *A. bilineata* as being "very local" and "rarely appearing in large numbers". This species was recorded every year at the lake and was frequently found with *A. cinereus* on trees and grasses by the water's edge.

Family Hydropsychidae: Few adults belonging to this family were observed, which was surprising, since the larvae of at least two species were abundant in the inflow and outflow streams. Although a key to the larvae of all the British species has yet to be published, the information which is available indicates that *Hydropsyche instabilis* Curtis and *H. angustipennis* are both members of the lake fauna.

Family Sericostomatidae: One of the most common caddis flies during the months of June and July was *Göera pilosa* which flew readily in bright sunshine but was most often seen at rest on the underside of alder leaves. The larvae of *Lepidostoma hirtum* and *Notidobia ciliaris* L. were taken regularly in bottom fauna samples from the stony littoral but no adults were collected. Their absence from the Menteith collections is probably a consequence of the limited time available for gathering material.

Of the remaining families, the Polycentropidae were the most widely represented, and both *Polycentropus flavomaculatus* and *Cyrnus trimaculatus* were common as larvae in the stony littoral and as adults. In agreement with Mosely's observation that *Neureclipsis bimaculatus* frequents areas where a river enters or leaves a lake, this species was only recorded from the top 100 metres or so of the Goudie Burn.

As an addendum to these observations, it is worthwhile commenting on the importance of caddis as food for fish. The quantities eaten vary with the seasons (e.g. Morgan 1956), but in May 1972 a trout weighing 1 lb. 10 ozs. caught in Loch Ard, Perthshire, was found to have 851 Limnephilidae pupae in its stomach. The imagines were well-developed within the pupal cases and the insects were presumably captured as they migrated into the shallow water prior to emerging as adults.

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Blair's Mocha in Dorset. — A specimen of *Cyclophora puppillaria* Hb. (Blair's Mocha) occurred here at light on 18th October, 1977. This autumn, several specimens of *Lithophane leautieri* (Blair's Pinion) were recorded at the m.v. trap in my garden as follows: October 6th (2), 17th (1), 21st (1) and November 6th (1). — C. Cattell, 9 Folly Lane, Wareham, Dorset.

A Tale of Two Seasons

By ANTHONY ARCHER-LOCK*

Part II: 1977

As everyone knows, 1976 was an exceptionally early year, whilst 1977 was quite the reverse, springing a trap for the unwary in planning long-distance trips. Expeditions would allow one day, or two at the most, at the site, for perhaps it should be explained that the writer does have to work! In changeable weather conditions, such tight schedules are not good for stress! I am sure that others will know the feeling.

The sighting of the chequered skipper in 1976 in flight only, naturally yielded no photograph, and so a seemingly endless drive found me in the Western Highlands on an overcast day at the very end of May. I was told that only one had been seen so far. There was nothing for it but to search the various plant-heads, for no glimpse of the sun broke through. It must have been the thousandth scrutiny, but yes, there was a skipper with wings closed, and apparently asleep. During the next two hours, while the cuckoo called incessantly, the freshly emerged butterfly gradually opened its wings to bask above the bluebells and beneath the snows.

The weather-forecasters had an impossible task compared with the previous summer, and a predicted sunny day on the Isle of Wight turned out to be overcast in gloom. Again we searched the seed-heads, this time of the plantain, but all to no avail. Throughout, a painted lady basked, wings flat, on the path, to give us encouragement. As I stood on the knoll amidst the thrift, a fleeting glimpse of sun search-lighted across the undercliff, and at my feet, a newly emerged female Glanville fritillary fluttered out from a clump of plantain.

The large copper was seen with embarrassing ease, mitigated by the kindness and enthusiasm of the Warden, but by the time the Broads had been reached, it was overcast again. A massive trudge through the marshes with somewhat aimless intent, finally ground to a halt. The local information once more spoke of only one swallowtail sighted, and this on another Broad, but the sun did it again! A fractional glimpse, and a yard away, a freshly emerged female stumbled out, her hind wings still slightly limp. However, later that afternoon I did see another flying close to some gardens in the dull weather. Some writers refer to this species as one sensitive to flying conditions.

By now, this charmed life was beginning to cause little nagging worries, prompting extra care to avoid oncoming buses. However, the silver-spotted skipper, which was over by 17th August, 1976, and consequently missed on that trip, was accomplished, completing all the Hesperiidae in the one season, and raising the tally of species to 59. If that really was a Queen of Spain fritillary, well . . . ! Incidentally, the writer would not recommend this venture to anyone else unless single, wealthy, and unemployed, three qualifications which

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he lacks. I am grateful to my family, and to all those who gave me generous and crucial advice.

Finally, here are a few brief observations. The brown hairstreak's eggs hatched in the wild on about 5th May. White-letter hairstreaks in the south-west have dropped from quite good numbers in 1976 to virtual singles or none. Wall browns in 1977 were astonishingly scarce in known localities, and speckled woods very thin. An ancient pair of brimstones met on 12th June, and flew toying far up into the sky, drifting away over the hill — a butterfly Darby and Joan? 3rd July, 1977, a holly blue still laying on gorse flower-buds. The Scotch argus does fly in dull weather. Duke of Burgundy fritillaries roost high up in trees. A surprisingly large number of species will bask well down, on overcast days. A grayling with wings opened flat on bell-heather. Those hairstreaks high up on the wych-elm can all be purple!

THE CLOUDED YELLOW IN DORSET IN OCTOBER 1977. — My wife and I were on holiday at Lyme Regis, Dorset at the end of October, and whilst walking on nearby Chesil Beach on 28.x.77 we saw a clouded yellow (*Colias croceus* Fourc.) fly in from the sea, and head inland. The weather was mild and the wind in the south, but in spite of this I feel that this is an unusual sighting so late in the year. — A. D. R. OWEN, Wells Cottage, Stoke Charity, Winchester.

Current Literature

Frederick William Frohawk: A memoir, by his daughter **Valezina Bolingbroke.** 16 pp., 3 illustrations, decorated stiff wrapper. Classey, 1977. £1.

This charming appreciation of a great naturalist and artist will be treasured by the many devotees of "F.W.F.". Written with simplicity and understanding, Valezina, Viscountess Bolingbroke has given an intimate view of her famous father from her earliest impressions of him when a child until his death in 1946 at the age of 85.

Although a true countryman, acute observer of nature and keen collector, Frohawk was above all an artist. His principle subjects were entomological and ornithological, but he seemed equally at home depicting plants, fish, reptiles, animals (especially monkeys) and country scenes. As a sample of his early work, one has only to refer to the title page of *The Record* which has borne the imprint of his artistry with every volume for the past 86 years.

Among many interesting personal recollections, the reader is favoured with some amusing anecdotes. As when, for example, F.W.F.'s pet grass snake "Tilly" which he had forgotten about, appeared from his top pocket at a "Verral Supper" much to the amusement of the guests!

The pleasure from reading this little memoir passed all too soon, and one's only regret is its brevity. — J.M.C.-H.

Notes on the Holarctic Species of *Pseudexechia* Tuomikoski (Diptera: Mycetophilidae), with the Description of a New British Species

By PETER J. CHANDLER*

Pseudexechia was established by Tuomikoski (1966) for a small group of closely related species segregated from the old genus *Exechia,* characterised by the absence of discal bristles on the mesoscutum, ovate clypeus and distinctive features of the male genitalia such as the bud-like sternal process. Four described European species, three of them British, were included although Tuomikoski stated that some undescribed species were present in his material; another, *P. tristriata* (Stackelberg) **comb. n.** was described in *Exechia* by Stackelberg (1969).

Of the three British species, *parallela* (Edwards, 1925) is known here only from the female holotype. Stackelberg (1948) figured the male which he identified in Russian material. The species is distinct by its narrow cubital fork with parallel branches from all except *hamulata* (Lackschewitz, 1937), described from a male with genitalia very like Stackelberg's *parallela.* Burghele-Balacesco (1972) figured the ovipositor of a Rumanian specimen identified as *parallela*; her example agreed with Edwards' figure and description except in the divergent branches of the cubital fork, so if the identification is correct this character may not be constant. According to both figures and confirmed by my examination of the holotype, the ovipositor of *parallela* has a differentiated apical cercal sergment while all other known *Pseudexechia* have simple cerci (stated by Tuomikoski to be a generic character). *P. parallela* agrees, however, with other species in the bristly tip of the median process which is not found in the other segregates of *"Exechia".*

Two European species with a divergent cubital fork, i.e. *trivittata* (Staeger) and *trisignata* (Edwards) were recognised until Stackelberg (1969) added *tristriata,* resembling *trivittata* in the male genitalia, which he figured for all species. *P. trisignata* was described and figured by Edwards (1913) from a British male, which he distinguished externally from *trivittata* only by the longer antennae. Edwards believed that *trisignata* corresponded to the "pale form" of *trivittata* recognised by Lundström (1909) who figured the genitalia of both sexes as well as the male of his dark form, which was the true *trivittata.* Later (1912) Lundström figured the ovipositor of the latter (also figured by Dziedzicki, 1915); these forms were distinguished externally by the thoracic ground colour, respectively grey or yellowish. Genital structure suggested that two species were involved but Lundström considered his material insufficient to establish this.

Some recently collected British and Irish *Pseudexechia* differing externally from *trisignata* by the yellow thoracic

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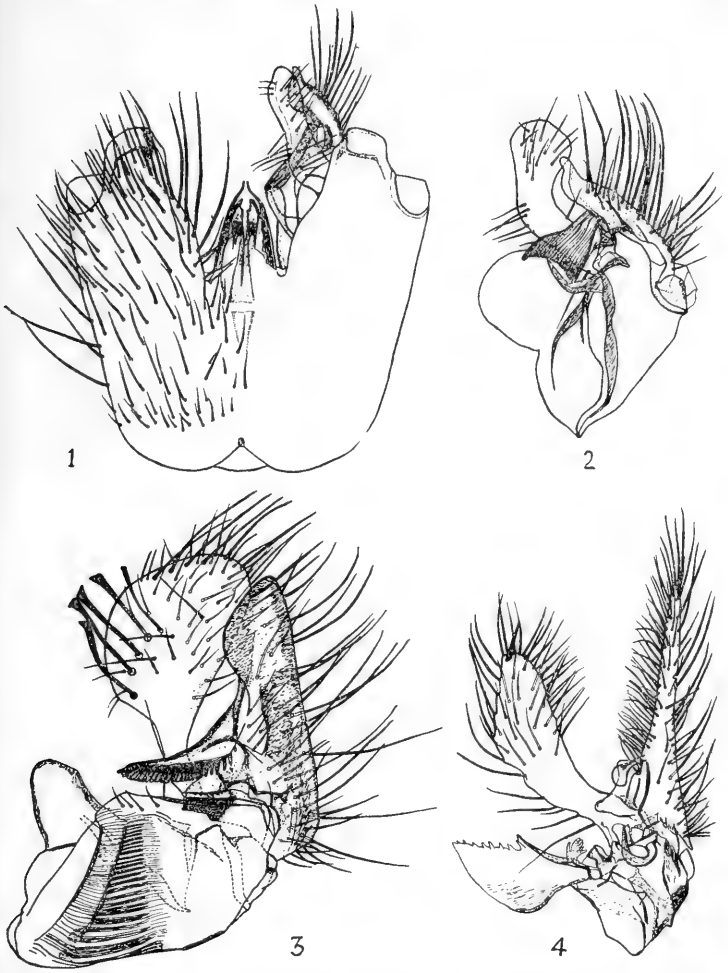
ground colour, more extensive yellow abdominal markings and shorter antennae, correspond better to Lundström's figures than does *trisignata*. These are described here as a new species which may have a northern and western distribution in the British Isles; it is the only *Pseudexechia* yet known from Ireland, although it is probable that the two widespread species also occur there.

Pseudexechia aurivernica sp. n.

Exechia trivittata (Staeger), pale form: Lundström, 1909 nec Staeger, 1840.

♂ ♀ Body length a little over 4 mm.; wing length 3.2-3.5 mm. Head dark grey; mouth-parts pale yellow. Antennae with



Figs. 1-4. Male genitalia of British *Pseudexechia*: fig. 1, ventral view of male hypopygium of *P. aurivernica* sp. n.; figs. 2-4, internal face of left claspers: 2, *aurivernica*; 3, *P. trisignata* (Edwards); 4, *P. trivittata* (Staeger).

scape, pedicel and more than half of first flagellar segment pale yellow, rest of flagellum grey; flagellar segments nearly twice as long as broad.

Mesoscutum dull yellow with three dark brown stripes, the median broadening to fore margin, faintly bifurcate in front; the laterals abbreviated to leave broad yellow shoulders, narrowed behind to enclose attenuated tip of median but not reaching scutellum, which is yellow. Pronotum and propleura yellow, pleura otherwise mainly grey dusted on a pale ground. Halteres and legs entirely pale yellow.

Disc of mesoscutum devoid of strong bristles but densely clothed with golden yellow hairs. Strong black bristles conspicuous on fore and side margins. One pair of strong scutellars and a pair of very short incurved bristles slightly basad of them. A vertical row of three upcurved pronotals; one strong propleural with a short weak one half its length anterodorsal to it.

Leg bristles weak. Tibia I with 5 a, 0-3 very short d, 5-6 short v, 27 short p; II with 24-32 short close set a, 4-5 d, 4 p; III with 4-5 a, 4-6 d, 5-7 short close-set p on apical third.

Wings faintly yellowish with yellow veins, the bristles costa and radius slightly darker, other veins bare. Vein R5 slightly downcurved apically but reaching costa distinctly nearer R1 and M1. M-stalk about two thirds length of r-m. Cu-fork well beyond base of m-fork, by about 1.5-2.5 X length of m-stalk, its branches divergent. Vein An reaching level of base of m-fork.

Abdomen: ♂ with tergite I dark, II-V with broad yellow apical bands broadened laterally to almost touch anterior lateral corners; VI with narrower yellow apical margin; hypopygium yellow, figs. 1-2; ♀ with all tergites bearing yellow apical bands, narrowed dorsally except on II, which may occupy only half of tergal length; ovipositor, fig. 6.

MATERIAL EXAMINED

Holotype ♂, GWYNEDD (Merioneth): Brithdir, near Dolgellau, 23.v.1972 (A. M. Hutson, BMNH). Paratypes ♂ ♀, CUMBRIA (Westmorland): Stock Ghyll, 5.x.1971 (A. M. Hutson, BMNH); 2 ♀, GWYNEDD: Dolgellau, goldmine, 13.ii.1972 (A. M. Hutson, BMNH); ♂, ANTRIM: Glenariff, 7.v.1970 (P. J. Chandler; recorded incorrectly in Chandler, 1976 *as trisignata* Edwards).

The colouration, antennae, wing venation and development of the propleurals are variable in *Pseudexechia* species but it is nevertheless possible to recognise the four British species from a consensus of external characters utilised in the following key (to both sexes): —

1. Thorax light to dark grey, sometimes yellowish grey latterally with three distinct slight shining black dorsal stripes 2

— Thorax dull yellow with three dark brown dorsal stripes. Abdomen more widely yellow, the broad lateral triangles forming nearly complete apical bands on all tergites. Wing venation as *trivittata* but veins yellow;

R5 nearly straight. Antennae short, second flagellar segment 1.5-2 X long as broad. Propleura and lateral pronotal lobes yellow but propleurals as in *trivittata*. ..... *aurivernica* sp. n.

2. Vein R5 distinctly downcurved, reaching C nearer to M1 than to R5. Cubital fork only about length of m-stem beyond m-fork. Antennae longer; second flagellar segment distinctly more than twice as long as broad. Propleura and pronotal lobes yellow. One strong propleural bristle, with a weak bristle anterodorsal to it and one of comparable length with several short hairs posterior to it. Abdomen with yellow markings restricted but may occupy entire hind margins of II-III in ♂ and of all tergites in ♀. ..... *trisignata* (Edwards)

— Vein R5 nearly straight, not reaching C more than half way from R5 to M1. Cubital fork shorter, distinctly more than length of m-stem beyond m-fork. Antennae shorter, second flagellar segment at most twice as long as broad. 3

3. Cubital fork (as above species) with branches divergent. R5 slightly downcurved at tip. Propleura and pronotal lobes grey; the strong propleural has a weak bristle half its length anterodorsal to it and no short hairs behind. Abdominal colouration variable, often a yellow band on tergite II, reduced to triangles on subsequent tergites in ♂ but usually complete apical bands again in ♀, which has single segmented cerci. ..... *trivittata* (Staeger)

— Cubital fork short, with parallel branches, Cu2 not reaching wing margin. Propleura and pronotal lobes yellow, propleurals as in *trivittata* but the upper more than half length of strong lower one. Abdomen mainly dark with posterolateral yellow areas (only ♀ seen); ovipositor with two-segmented cerci. ... *parallela* (Edwards)

MATERIAL EXAMINED OF OTHER BRITISH SPECIES

P. trivittata (Staeger) (Figs. 4, 7)

44 ♂ and 26 ♀ from many parts of Britain north to Moray, although mostly from England and Wales. Edwards (1925) referred to males swarming over old horse dung at Strelley, Notts., 21.ix.1922. It seems likely that the attraction to dung would be the presence of small *Coprinus species* on it. I took a male at Downe, Kent, 10.ix.63 on a small fungus (possibly *Coprinus*) in damp grass and a male at Old Slade, Bucks., 7.viii.1973 on *Coprinus radians* growing on an elm log.

P. trisignata (Edwards) (Figs. 3, 5)

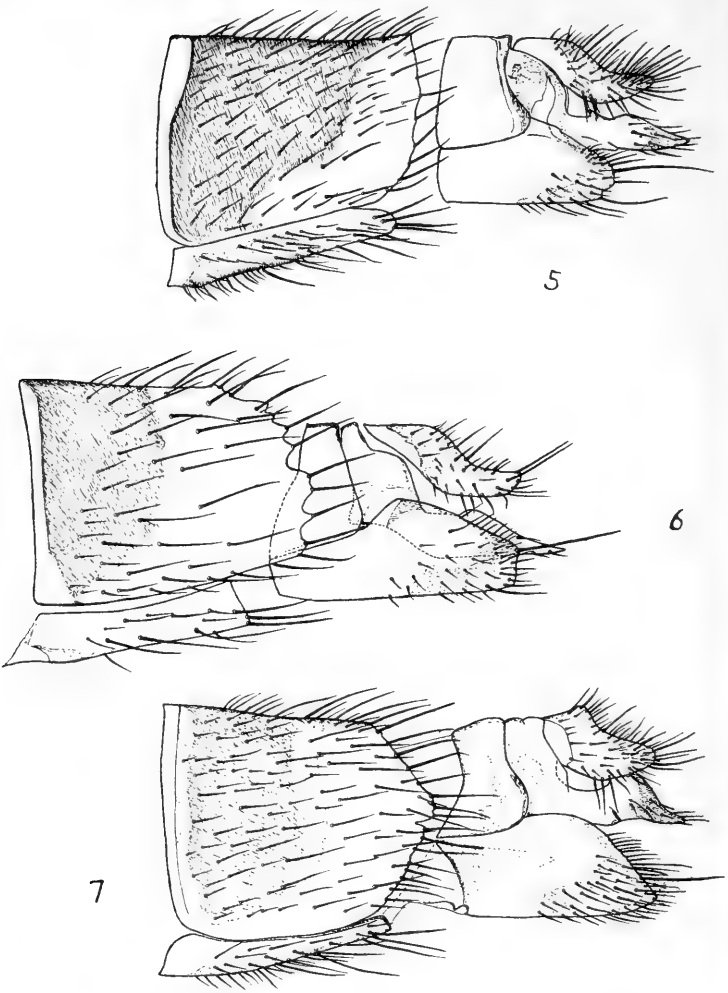
20 ♂ and 14 ♀, including holotype ♂; throughout Britain, less common than *trivittata* in the south but more frequent in Scotland north to Ross, including the islands of Arran and Eigg.

P. parallela (Edwards)

Only the holotype ♀.

The Nearctic species of *Pseudexechia*

It is necessary to discuss the Nearctic species here because



Figs. 5-7. Ovipositors of British *Pseudexechia* in lateral view: 5, *trisignata* (Edwards); 6, *aurivernica* sp. n.; 7, *trivittata* (Staeger).

of the suggestion by Tuomikoski (1966) that *canalicula* (Johannsen) may be conspecific with *trisignata,* over which it would have priority. Only one other described Nearctic species is certainly known to belong here, i.e. *ovata* (Fisher). The types of both and a small amount of further material have been examined.

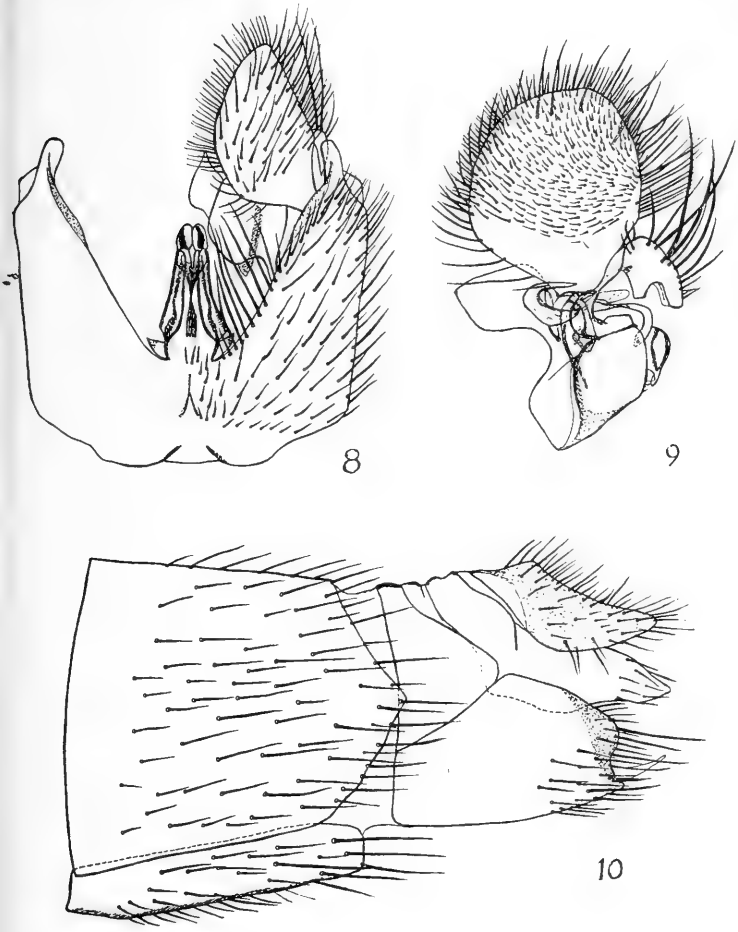
Pseudexechia canalicula (Johannsen)

Exechia canalicula Johannsen 1912, 69; (to *Pseudexechia,* Tuomikoski 1966, 180)

From examination of the holotype (the only ♂ seen), I cannot confirm the synonymy of this species with *trisignata,* but examination of more material would be necessary to be certain as they are evidently close. The shape of the claspers

is almost identical but the form of the internal process of the upper clasper is a little different, being expanded into a fan shape apically as in *aurivernica* but with discrete marginal processes as in *trisignata*; it was figured by Johannsen (1912) and by Shaw & Fisher (1952). Externally the holotype of *canalicula* differs from *trisignata* in lacking short hairs behind the propleurals; the other salient features are as follows: —

Mesoscutum with yellowish grey ground colour. Prothorax brownish yellow; 1 strong propleural, a second a-d to it, half its length. Wings slightly yellowish, R5 a little downcurved at tip, nearer to M1 than to R1 (costal sections 1.3: 1). Cu-fork 1.5 X m-stem beyond base of m-fork. Broad yellow triangles on apical margins of abdominal tergites. (Antennae missing.)



Figs. 8-10. Genitalia of *Pseudexechia ovata* (Fisher): 8, ventral view of male hypopygium; 9, internal view of left claspers; 10, lateral view of ovipositor.

One paratype ♂ (lacking wings and abdomen) has antennae present with flagellar segments about 2 X as long as broad. The ♀ allotype is similar to the holotype except that m-stalk is shorter, 0.6 X long as r-m and Cu-fork, consequently more than 2 X m-stalk beyond base of m-fork. Its flagellar segments are slightly less than 2 X long as broad. These specimens have the same data (North Carolina) as the holotype but a second paratype ♂ (Brookside, Morris Co., New Jersey) is not conspecific but belongs to *P. ovata.* The ovipositor of *canalicula* closely resembles that of *trisignata.*

Pseudexechia ovata (Fisher), **comb. n.** (Figs. 8-10)

Exechia ovata Fisher, 1934, 278

The holotype ♂ (slide mounted), two further ♂ and a probable ♀ have been examined. The form of the claspers is quite distinct from any other known *Pseudexechia*, although the overall hypopygial structure with the bud-like sternal process is characteristic of the genus. The salient features are as follows: —

Flagellar segments almost to quite 2 X long as broad. Mesoscutum with yellowish ground colour in holotype and other material except Ohio ♂ where it is grey; three dark brown stripes as in other Holarctic species. Prothorax grey dusted; one strong propleural with a second short paler, a-d to it, 0— few short hairs just behind them.

Wings greyish with faint darker shades on apical part of fore margin and on base of median fork. R5 only slightly downturned at tip but reaching C a little nearer to M1 than to R1. Cu-fork with divergent branches, variable in length from nearly 2 X length of m-stalk beyond base of m-fork to only a little more than length of m-stalk beyond; m-stalk nearly as long as r-m.

Abdomen mainly dark, with yellow posterior triangles on tergites II-VI (progressively narrower), just touching on dorsal mid line. Hypopygium yellow, figs. 8-9; ovipositor, fig. 10.

The female (same data as one male) has the thorax with ground colour more yellowish and R5 more downturned, reaching costa three-fifths of distance from R5 to M1.

MATERIAL EXAMINED

Holotype ♂, NEW YORK: Ithaca, 11.iv.1933 (Shaw coll., Cornell Univ.); NEW JERSEY: Brookside, vii, ♂ paratype of *canalicula* (Johannsen coll., Cornell Univ.); OHIO: Hocking Co., 1.viii.1949, ♂ ♀ (F. W. Mead, Washington Mus.).

Another ♀ from CALIFORNIA: Stanford University, 27.i.1906 (labelled *canalicula,* Washington Mus.) has a distinct ovipositor similar to that of *trivittata* and apparently represents a third Nearctic species of the genus. Its external characters are also very like *trivittata* but associated males are desirable before deciding on its identity.

Acknowledgements

I am indebted to the authorities of the British Museum (Natural History), the Hope Department of Entomology at

Oxford and the Cambridge University Museum for facilitating the examination of material dealt with here; also to Dr. R. J. Gagné (Washington Museum) and Mrs. J. A. Schafrik (Cornell University) for the loan of types and other American material. Dr. L. Matile and Dr. P. Lastovka kindly confirmed that *P. aurivernica* was not a species known to them.

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Current Literature

The Insects and Plants of the Alver Estuary near to Gosport, Hampshire, being a survey of Browndown, Cherque, the Wild Grounds and Gilkicker Point with notes on adjoining areas, compiled by **D. Appleton, M. Bryant, R. Dickson** and **G. Else.** Sm. 4to., stiff wrappers, 154 pp., folding map. Duplicated and published by R. Dickson (1977). Obtainable from the publisher at St. Michael's Vicarage, Hempsted Road, Paulsgrove, Portsmouth, Hants. Price 60p.

Here is another of those enterprising "home produced" local lists by this now familiar team of specialists. Among the 615 lepidoptera listed, are such interesting species as *Hadena albimacula* Borkh., *Simyra albovenosa* Goeze, *Photedes fluxa* Hb., *Ectoedemia erythrogenella* Joannis, *Coleophora frischella* L., *C. salicorniae* Wocke, *Nascia cilialis* Hb., *Acleris lorquiniana* Dup., *Ephestia parasitella* Stgr. ssp. *unicolorella* Stgr. and *Apomyelois bistriatella* Hulst. ssp. *neophanes* Durrant.

The 329 coleoptera recorded include a number of notable species such as *Atheta immigrans* Easton, *Atomaria fimetarii* Herbst, *Cathormiocerus maritimus* Rye and *Pachytychius haematocephalus* Gyllenhal. Among the more interesting aculeate hymenoptera on the list of 77 species are *Anoplius caviventris* Aurivillius, *Hylaeus pectoralis* Forster and *Macropis europaea* Warncke.

On reading through the introduction one is impressed by the emphasis on conservation. The urgent need to conserve areas of entomological importance is highlighted, especially the "five star" wetland habitat at Browndown that has suffered so terribly from the activities of the Gosport Borough Council. — J.M.C.-H.

Insects and History by **Prof. J. L. Cloudsley-Thompson.** (World Naturalist Series) Wiedenfield & Nicolson, 242 pp. Price £8.50.

This title is ill-chosen since the book deals with the effects of diseases on the history of Mankind, and many of the diseases discussed are not carried by insect vectors. There is little fresh in this work that has not already been well covered in a more concise and readable form by Burr (1954) or Cartwright (1972). Indeed, the number of examples cited could well have been pruned and the book improved by drastic editing. There is a wearisome repetition of the fact that diseases of the past present diagnostic difficulties, or that there is a close association between war, pestilence and famine. (Twice on one page.)

There are several contradictions in the text. We are told that ancient Egypt owned no horses (p. 7) and on p. 13 horses are in the list of animals threatened by the hand of the Lord during the Ten Plagues. Again, the author discusses the probable origin of syphilis and seems to accept the general opinion that it first came from the West Indies in the time of Columbus, yet earlier he has claimed that it was one of the main scourges of the Middle Ages. (This account of the disease comes in the middle of a chapter on Malaria.)

There are few typographical errors — bee-keeping is called Agriculture on page 209.

The book is well printed and is illustrated by 35 text figures. A useful reference work for those interested in War, Plague, Famine, Syphilis, Scurvy, Tarantulas, Flukes, Old Uncle Tom Cobley, and even Insects. — E.H.W.

Revised Catalogue of the African Sphingidae (Leps.) with Descriptions of East African Species by **R. H. Carcasson.** 148 pp., 17 half-tone plates. 2nd Edition. Published by E. W. Classey Ltd. (Originally published as Journal of East African Natural History Society and National Museum, Vol. XXVI, No. 3 (115), 30/6/1968.)

This is an invaluable reference work on the hawkmoths of the whole Ethiopian Region because it figures all species which have not previously been illustrated, as well as their

genitalia. It is a pity that it has not been possible to improve on the quality of the original plates. The classification of Rothchild and Jordan has been adhered to in the main but the author has aimed to make it "compatible with a critical assessment of the genital armature of both sexes". A list of references and a useful glossary are included. The book is well set out and neatly bound in limp covers. Price £5.80. — E.H.W.

Notes and Observations

LEPIDOPTERA MIGRANTS, 1977. — Until recently, this year has been conspicuous in Oxfordshire in that I have recorded no possible migrants from Europe. However, no doubt due to the continuous south-westerly winds we have had for the last six weeks, I would like to record the following taken in my m.v. trap at Steeple Barton, 13 miles north of Oxford.

October 20th: *Phlogophora meticulosa* L., 200-300; *Autographa gamma* L., 6. October 21st: *P. meticulosa* L., 6; *A. gamma* L., 4. October 22nd: *Mythimna vitellina* Hbn., 1 ♂ — this was a pale specimen suggesting that the pupa had been exposed to a warm temperature, and is I think only the second *vitellina* I have had for this part of Oxfordshire; *Agrotis ipsilon* Hufn., 3; *A. gamma* L., 4. October 30th: *M. vitellina* Hbn., 1 ♂, exactly comparable to the individual taken on 22nd; *P. meticulosa* L., 4.

It therefore appears that there must have been a widespread migration of *M. vitellina* sufficient to be recorded in central England. *Vanessa atalanta* L. was common during the early weeks of October, but rapidly disappeared towards the end of the month. They were feeding on late blooms of lavender. — Dr. H. B. D. KETTLEWELL, Steeple Barton Vicarage, Oxford, OX5 3QP.

STILL MORE HAZARDS OF MOTH HUNTING. — Mr. Mark Hadley's entertaining account (**89**: 222) of his collecting group being reported as a "Martian Invasion" because of the use of actinic traps, recalls a similar occasion in my experience. In the United States, a very common method of night collecting utilises a fluorescent ultraviolet tube positioned on a bedsheet which covers the windscreen and bonnet of one's automobile, driven into a field or wood for the purpose. On 12th May, 1963, I was collecting with a small group in a state park in Oakland Co., Michigan. Four autos were involved, each with an ultraviolet lamp. Much to our consternation, we were suddenly surrounded from various directions by three police cars. A neighbouring farmer had observed us and phoned in a report of "flying saucers". Having related that occurrence many times, I have found that the "Martian Invasion" theme is far from uncommon here.

A more acute hazard is that of "The Moth in the Ear". My entomological diary for 1964 records that on 22nd July I was working my trap in Okemos, Michigan amid a swarm of

insects, when a moth quite unexpectedly scurried into my left ear, working its way to the drum and causing instant and severe discomfort. I was driven to hospital and the physician on duty was eventually able to drown the moth in oil, but he could not remove the creature as a blood clot had formed. On 24th July, deaf in that ear, I visited a specialist who began treatment. Infection had complicated matters and it was over a week before the moth was completely extricated. Ever the would-be taxonomist, I tried to identify the moth from the remaining pieces, but these only indicated a small Noctuid. For some time I felt this to be a quite individual and ironic act of "divine retribution" for 25 years of murdering moths, until a similar (but much less spectacular) incident was reported in the newsletter of the Lepidopterists' Society. Following that note, other cases of "The Moth in the Ear" came to light. We who sow must also expect to reap. — Dr. R. S. WILKINSON, The Library of Congress, Washington, D.C. 20002; The American Museum of Natural History, New York, New York 10024.

THE YEAR 1977. — Although 1977 was not a patch on 1976, some interesting species turned up. May 25th I paid a visit to the New Forest where two *Cleora cinctaria* D. & S. (Ringed Carpet) and two *Dyscia fagaria* Thunb. (Grey Scalloped Bar) appeared at m.v. June 4th I received a phone call from the Head Forester telling me that for the past few days two *Hemaris fuciformis* L. (Broad-bordered Bee-hawk) had arrived about 5.30 p.m. to feed on a row of wallflowers. On June 22nd I went to the neighbouring village of Sparsholt where I found *Parasemia plantaginis* L. (Wood Tiger) flying in the sun and *Adscita statices* L. (Forester) fairly common. Back in the New Forest in early July the moths which came my way were *Diacrisia sannio* L. (Clouded Buff), *Hyloicus pinastri* L. (Pine Hawk), *Apoda avellana* L. (Festoon), *Lobophora halterata* Hufn. (Seraphim) and nine larvae of the Broad-bordered Bee-hawk, of which seven reached the pupal stage. I was in the New Forest again in early September and saw two *Mormo maura* L. (Old Lady) and a number of *Paradiarsia glareosa* Esp. (Autumnal Rustic), also one *Scopula marginepunctata* Goeze (Mullein Wave).

Further afield at Swanage on September 18th, *Leucochlaena oditis* Hbn. (Beautiful Gothic), *Eumichtis lichenea* Hbn. (Feathered Ranunculus) and two *Mythimna albipuncta* D. & S. (White-point) visited my m.v. September 23rd and 24th in Portland, *E. lichenea, L. oditis, Aporophyla australis* Boisd. (Feathered Brindle) and *Aspitates ochrearia* Rossi were common, whilst one *Idaea seriata* Schrank (Small Dusty Wave) put in an appearance; returning to the same locality in mid-October there were two *Polymixis flavicincta* D. & S. (Large Ranunculus), five *Mythimna l-album* L. and four *Larentia clavaria* Haw. (Mallow).

In the garden at Crawley, Hants. this year, I had *Lithophane semibrunnea* Haw (Tawny Pinion), *Odontosia carmelita*

Esp. (Scarce Prominent), *Thumata senex* Hbn. (Round-winged Muslin), *Eulithis prunata* L. (Phoenix), *E. testata* L. (Chevron), *Perizoma bifaciata* Haw. (Barred Rivulet), *Cyclophora porata* L. (False Mocha), *Cerapteryx graminis* L. (Antler), *Nycteola revayana* Scop. (Oak Nycteoline), *Agrochola helvola* L. (Flounced Chestnut), *Orthonama obstipata* F. (Gem), *Chloroclysta siterata* Hufn. (Red-green Carpet), *Chesias legatella* D. & S. (Streak), *Pyralis farinalis* L., *Choristoneura habenstrietella* Müller, *Phycita roborella* D. & S., *Aphomia sociella* L., *Agapeta zoegana* L. and *Galleria mellonella* L. to name but a few. — R. Bell, Northwood Lodge, Northwood Park, Sparsholt, near Winchester, Hants.

Polydrusus sericeus (Schaller) (Col.: Curculionidae): an Additional Note. — Mr. David Appleton tells me (*in litt.*) that *Polydrusus sericeus* (Schaller) abounded in Harewood Forest (North Hampshire) in 1974, mostly on Birch, and that Mr. Peter Hodge and Mr. Richard Jones found it in "swarms" there in late May 1977. Messrs. Hodge and Jones have also found it at Leckford in the same vice-county. Mr. Appleton also found the weevil in plenty at Crab and West Woods, Winchester (South Hampshire) in 1976 and 1977 on Birch, Aspen and other trees. In 1977 specimens in good condition were seen in West Wood as late as August. It is perhaps not very surprising that Forbes' record should have been confirmed over 100 years later. — M. G. Morris, Orchard House, 7 Clarence Road, Dorchester, Dorset.

Blepharita solieri (Boisduval) (Lep.: Noctuidae): A Species New to the British List. — An example of this moth was in my m.v. light trap here on the evening of 29th August, 1976. I was of the opinion that the specimen was nothing more than an unusual *Luperina testacea* D. & S. (Flounced Rustic). However, I set it, and on visiting Mr. Pelham-Clinton at the Royal Scottish Museum, Edinburgh to have some micros identified, he immediately saw it was something extraordinary and kindly determined it for me. The specimen is now in the Royal Scottish Museum. — Andrew Buckham, Forester's Cottage, Wells, Denholm, Roxburghshire, Scotland. [Kirby (*Butterflies and Moths of Europe*) states that *solieri* is common in South Europe, North Africa and West Asia in September, adding that the larva feeds on low plants and is very injurious in kitchen gardens. — Editor]

Helicoverpa armigera Hbn., Mythimna vitellina Hbn. and other Migrants in North-east Surrey. — On 22nd October, 1977 I was pleased to find at my m.v. trap at Addiscombe a ♂ *H. armigera* (Scarce Bordered Straw), in good condition. It was apparent that a notable migration was occurring at this time, a considerable number of *Autographa gamma* L. and *Phlogophora meticulosa* L. being observed here and elsewhere in north-east Surrey.

On 15th October, 1977 a fine ♂ *M. vitellina* Hbn. (Delicate) was taken by Mr. Leslie Evans at m.v.l. in Nower Wood, near Mickleham, Surrey. This was during a survey of the

lepidoptera of Nower Wood currently being undertaken by the Croydon Natural History Society and appears to be a first record for north-east Surrey. — K. G. W. EVANS, 31 Havelock Road, Addiscombe, Surrey.

ARGYNNIS PAPHIA L. — UNUSUAL SITE FOR EGG-LAYING. — A female *paphia* normally lays her eggs on the trunks of well-grown forest trees. It was therefore a surprise to me on one occasion last summer to watch a female depositing on one of the clusters of dead flower heads of a rhododendron bush growing at the side of a ride in a local wood. She laid two eggs while I watched her, both on the same bunch of flowers and then flew off elsewhere. I could find no dog violet plants anywhere near the bush and so removed the old flower-head and attached it to the trunk of a large oak tree growing in a more favourable spot and where I hoped the little larvae, when they hatched, would have a better chance of survival. — Maj.-Gen. C. G. LIPSCOMB, Crockerton House, near Warminster, Wiltshire.

PERIDEA ANCEPS GOEZE=TREPIDA ESP. (GREAT PROMINENT) IN OCTOBER. — I took a somewhat worn male example of this species from my m.v. trap at Pont-a-Dulas, Llanafan Fawr, near Builth Wells, Breconshire, on 7th October, 1977. — Dr. H. G. PARKER, 2 Oaks Road, Kenilworth, Warwickshire, CV8 1GE. [This would appear to have been a case of a partial second generation, though there is no previous record it seems of such having occurred before with this speces, at least not in Britain. — Editor]

CYCLOPHORA PUPPILLARIA HBN. IN HANTS. — A single male specimen came to my moth trap here on the night of 24th October, 1977. — Dr. JOHN R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants.

THE BRIMSTONE (GONEPTERYX RHAMNI L.) IN ARGYLLSHIRE IN 1977. — While sitting on the rocks on the north side of the beach at Calgary Bay, Mull on the morning of 5th July, a male *Gonepteryx rhamni* (L.) flew rapidly past in a southerly direction. Having considered the unusualness of this insect so far north of its general range, I contemplated a chase, which bearing in mind the speed of the rapidly receding butterfly, seemed likely to require a sprint the full width of the beach, probably half a mile. Add to the course a couple of score of holiday makers having their lunch on the sand and the fact that the last thing I chased was a bus some years ago, I decided that the possible devastation was hardly worth the effort. — D. E. WILSON, Joyce House, Green Tye, Much Hadham, Hertfordshire.

THE SILVER-STRIPED HAWKMOTH AND OTHER MIGRANTS IN HAMPSHIRE IN 1977. — On the night of 14th October there was a *Hippotion celerio* L. (Silver-striped hawkmoth) in the garden trap. Between 12th and 27th October there were six very pale *Mythimna vitellina* Hbn. (Delicate) and two *Othonama obstipata* F. (Gem.). Both *vitellina* and *obstipata* were last noted here in 1969. — C. H. DIXON, Northbrook Farm, Micheldever Station, Hampshire.

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EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted — The County list of lepidoptera of Berkshire has not been up-dated since 1906 when W. Holland and A. H. Hamm prepared the Victoria County History entry. Holland's collection, with those of H. L. Dolton, F. W. Cocks and R. D. Sitwell, is at Reading Museum and these, together with other material, will form a working nucleus for the long term project of producing a new "Lepidoptera of Berkshire". Fieldworkers who have collected in V.C. 22 (the pre 1974 Berkshire) are invited to send records, in particular those of microlepidoptera, to the address given below. All records received will be duly acknowledged. Lepidopterists *resident* in Berkshire will be contacted personally and invited to participate at a later date. — B. R. Baker, Reading Museum & Art Gallery, Blagrave Street, Reading, Berkshire, RG1 1QN.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

ll material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

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Charaxes penricei penricei ab. *paraperpullus* nov. Holotype: Female: Christon Bank, Nr. Salisbury, Rhodesia, 6th May, 1961.

A New form of *Charaxes penricei penricei* (Lep.: Nymphalidae) from Rhodesia

By R. S. WHITE*

I have recently received photographs of an undescribed female aberration of *Charaxes penricei penricei* Roths., taken by Mr. J. C. O. Chitty at Christon Bank, Nr. Salisbury, Rhodesia, which I name ab. **paraperpullus** nov.

Upperside. Forewing length 48 mm. The pattern is the same as in the nominate female, but all the white markings are slightly reduced in size. The mark at 1b is shaded slightly with blue on the proximal edge and the large spot at the hind margin is suffused throughout with pale blue. The internervular white spots are limited to spaces 6 and 7. Hindwing: as in the nominate female but the width of the discal band is reduced and is strongly suffused with pale blue. The basal half of the abdominal flap is light greyish-blue. The submarginal spots are white and small, becoming blue edged at the anal angle. Tails and margin black, except for a blue spot at the anal angle.

Underside. Differs from the nominate female in having the basal half of the forewing a dark reddish-brown, white band present as on the upperside. The ground colour of the outer portion of the wing is darker than the norm. Hindwing: the basal one third of the wing is a dark reddish-brown, the costa is black up to the post discal line and then brown to the outer margin. The ground colour of the rest of the wing is darker than the norm. There is a black triangular shaped mark opposite the upper tail and a further strong black mark midway along the inner margin. Extreme edge black.

Holotype: female: Christon Bank, Nr. Salisbury, Rhodesia, 6th May, 1961 (J. C. O. Chitty). Specimen in the Chitty collection.

It is of interest to note that a similar aberration occurs in *Charaxes etesipe* Godart, i.e. ab. *perpullus* Darge.

Acknowledgement

I would like to thank Mr. J. C. O. Chitty for supplying me with photographs of this specimen.

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* P.S.F., R.A.F. Akrotiri, British Forces Post Office 57.

EARLY DATE FOR APOCHEIMA PILOSARIA D. & S. (PALE BRINDLED BEAUTY). — I was surprised to find a male typical *A. pilosaria* sat near my m.v. light on the night of 19th December, 1977. — J. BRIGGS, Frimley House, Deepdale Close, Slackhead, Beetham, nr. Milnthorpe.

A Further Case Against the Automobile

By COLIN PRATT*

Further to a note in which the automobile was shown to be the direct physical cause of millions of adult moth deaths annually (*Ent. Rec.*, **89**: 330), I reproduce here the results of preliminary research into the pollution of lepidoptera by lead from motor cars.

Since 1923 lead has been added to petrol as an anti-knock agent to raise octane rating. The present level of augmentation results in approximately 10,000 tons of lead being combusted in U.K. petrol per annum (1974, D.o.E. Report). The lead is emitted in exhaust gases as inorganic compounds, polluting the surrounding area to a greater or lesser degree dependant on proximity to source. As a measure of this growing problem, a four fold increase in atmospheric lead occurred from 1730 to 1950 with a similar increase during the following decade (Walker, 1975).

In most stages, lepidoptera form a large and important section of diet for many of our varied fauna. Larvae ingest large quantities of botanical material including that which is polluted — the adults retaining quantities of such metallic contaminants. There is strong evidence for the biological concentration of lead in insect food chains as has been shown in America (Price, Ratche and Gentry, 1974), where levels $2\frac{1}{2}$ times that of normal were recorded in insects sampled from areas with high lead emission — in this case interstate highways.

With these facts in mind I decided chemically to analyse several species of common adult lepidoptera for lead levels. The species chosen were those which were sufficiently abundant to assure accurate analysis and those which covered a wide spectrum of common foodplant types. To avoid any unnecessary mortalities the specimens used were those utilised for distribution research by Rothamsted Experimental Station for the years 1976 and 1977 — all specimens being taken from a single site in Brighton, Sussex. In an effort to confirm that the normal level of lead in these species was as expected, the Booth Museum of Natural History in Brighton kindly contribute specimens caught during the 1880's from the county of Sussex. Unfortunately the presence of minute traces of lead in the pins prevented any accurate determinations being made — due to an apparent leaching effect.

By coincidence, during July 1977 after the following results were almost completed, the regional press reported on a conservation group's lead level results obtained from two dust samples taken from nearby Worthing. Figures of 1,000 ppm. and 2,000 ppm. (parts per million) were quoted, indicating that considerable "fall-out" had occurred.

My own results were as follows: *Eurrhypara hortulata* L., 6 lead in ppm.; *Hepialus sylvina* L., 7 lead in ppm.. *Opisthograptis luteolata* L., 11 lead in ppm.; *Abraxas grossulariata* L., 8 lead in ppm.; *Malacosoma neustria* L., 7 lead in

* 5 View Road, Peacehaven, Newhaven, Sussex.

ppm.; *Crocallis elinguaria* L., 18 lead in ppm.; *Agrotis exclamationis* L., 8 lead in ppm.; *A. puta puta* Hb., 34 lead in ppm.; *Mythimna impura impura* Hübn., 6 lead in ppm.; *M. pallens* L., 9 lead in ppm.; *Mesapamea secalis* L., 12 lead in ppm.

The figures indicate a low level of contamination by lead pollution in the majority of species examined. However, two species (*C. elinguaria* and *A. puta puta*) yielded figures which are somewhat disturbing — equalling contamination levels found in plant eating insects sampled from alongside American state highways.

To put in perspective the direct danger to lepidopterous larvae through lead poisoning, experiments on silk worms (*Bombyx mori*) in Japan (Matsubara, Fujiyoshi, Kimura, Yukio, 1974) revealed the following responses: (a) 200 ppm. lead — inhibition of growth. (b) 1,000 ppm. lead — some deaths. (c) 3,000 ppm. lead — total lethality.

Captured, as the moths were, from the northern urban periphery of Brighton in Sussex, it is to be expected that a mixture of larval environments were experienced with a possible predilection towards relatively lead free circumstances — with higher lead levels to be found by selective larvae collecting.

In overall conclusion, it would appear that there is considerable leeway before the direct consequences of lead pollution are to be noticed in lepidopterous larvae, at least in Sussex — given the same interspecies susceptibility. Nevertheless, this does not diminish the apparent threat to similar or higher forms of wild life at more elevated stages in food chains, by biological concentration.

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AUTUMN MIGRANTS AT BRADWELL-ON-SEA, ESSEX, 1977. — The following species were noted here at m.v. traps — October: 14th, *Mythimna vitellina* Hb. (♀), *Agrotis ipsilon* Hufn. (29); 15th, *Peridroma saucia* Hb. (1), *A. ipsilon* (94); 16th, *P. saucia* (1), *A. ipsilon* (58); 17th, *A. ipsilon* (88); 18th, *P. saucia* Hb. (1), *A. ipsilon* (46), *Orthonama obstipata* F. (♀); 19th, *Palpita unionalis* Hb. (♂), *A. ipsilon* (18), *O. obstipata* (♂); 20th, *M. vitellina* (♂), *O. obstipata* (♂, ♀), *P. unionalis* (♂), *A. ipsilon* (13th); 21st, *P. unionalis* (♂, ♀), *A. ipsilon* (7); 22nd, *Udea ferrugalis* Hb. (♂), *Cyclophora puppillaria* Hb. (♂); 27th, *O. obstipata* (♀), *A. ipsilon* (4). November: 6th, *P. unionalis* (♂), *A. ipsilon* (1). — A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

The Genus *Emboros* Burr (Dermaptera: Forficulidae)

By A. BRINDLE*

The genus *Emboros* Burr includes a few medium-sized species of earwigs which usually have short elytra and are without visible wings, only one known species having the elytra and wings fully developed. With one exception the species are endemic to Madagascar, but the exception is the type species of the genus *Emboros dubia* (Bormans) from Burma, originally described as *Opisthocosmia dubia,* and subsequently recorded from Madagascar.

The Madagascan Dermaptera are mainly endemic and there is scarcely any connection between the fauna of Madagascar and that of the Oriental Region as regards this order, so there was a possibility that the type of *dubia* would be generically distinct (Brindle, 1969). An opportunity has arisen to check the true *dubia,* and this has shown that *dubia* cannot be retained in *Emboros.*

Emboros was erected by Burr (1907) with type species *Opisthocosmia dubia* Bormans 1894, but the type female, the only known specimen, had not been seen by Burr, and the generic description is partly taken from the original description. One of the key characters of the genus is that each elytron has a lateral longitudinal ridge, or keel; the elytra are short and the wings absent or concealed. Burr (1910) gives further details of the genus and species and cites a pair of earwigs in the Paris Museum from Diego Suarez, Madagascar, which he named as *Opisthocosmia dubia.* He further states that although the genus *Emboros* was erected "for de Bormans *dubia*", it is "characterised by that pair from Diego Suarez", and remarks that "this characterisation agrees in every particular with the original description of de Bormans, except that he does not refer to the keel of the elytra. As he never made use of this character in any of his work, it is probable that he overlooked it . . . " Burr thought that although the Diego Suarez specimens belonged to the same genus as the true *dubia,* they may be specifically distinct, in which case the pair from Madagascar would require a new name.

I am indebted to Dr. Roberto Poggi, of the Museo Civico di Storia Naturale, Genoa, for details of the type of *dubia,* and a drawing of the left elytron of the type; he states that the elytra have no lateral longitudinal ridges, and his drawing clearly shows that the dorsal surface of the elytron curves smoothly over into the lateral part without any ridge (fig. 2). I am also indebted to Monsieur M. Donskoff, of the Museum d'Histoire Naturelle, Paris, for the loan of the original specimens from Diego Suarez, named as *Opisthocosmia dubia* by Burr. The elytra of these specimens have a clearly defined lateral longitudinal ridge which runs along the length of the elytra (fig. 4). In cross section the difference between the elytra of *dubia* and those of the Diego Suarez specimens can be

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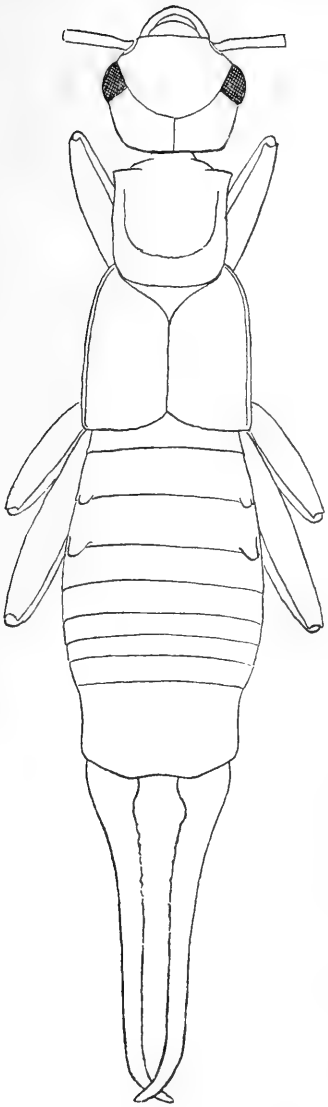

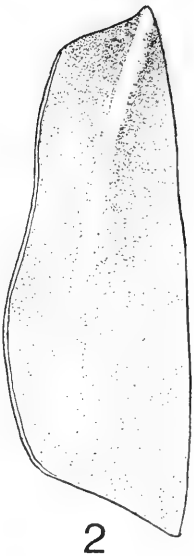

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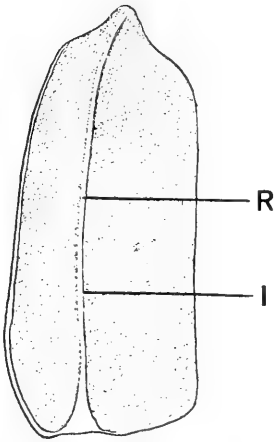

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Fig. 1, *Emboros madagascariensis* sp. n. (holotype male). Figs. 2, 4, lateral view of left elytron — 2, *Opistocosmia dubia* (after drawing by Dr. Roberto Poggi) — 4, *Emboros madagascariensis*. Figs. 3, 5, cross section of left elytron, diagrammatic — 3, *O. dubia* — 5, *E. madagascariensis* (R=lateral longitudinal ridge; I=impressed line).

clearly appreciated: in *dubia* the elytron has an uninterrupted rounded angle along the dorso-lateral edge (fig. 3), whilst that of the Diego Suarez specimens has an impressed line immediately before a well defined ridge (fig. 5).

Although *Emboros* could be held to be incorrectly designated, since the type species does not conform to the generic description, it is clear that Burr erected the genus on the Diego Suarez specimens, and indeed since he characterised the genus from these specimens there seems to be no grounds for rejecting the proposal that the type species of *Emboros* should be regarded as *Opisthocosmia dubia* Burr, not of Bormans. *Opisthocosmia dubia* Burr requires a new name and it is proposed that the name *Emboros madagascariensis* be adopted; a short description is given below.

The true *Opisthocosmia dubia* Bormans appears to be mostly closely related to the genus *Syntonus* and in particular to *S. montanus* Hincks, also from Burma, but studies on this aspect have not yet been completed.

Emboros Burr

Emboros Burr, 1907, *Trans, ent. Soc. Lond.*, **1907**: 103 (type species: *Emboros madagascariensis* n.n.=*Opisthocosmia dubia* Burr, 1907, not Bormans, 1894).

Brown or blackish, more or less unicolorous earwigs; antennal segments long and slender, first segment longer than distance between the antennal bases; elytra short, wings absent or concealed, or elytra and wings fully developed; lateral tubercles on third tergite small, those on fourth very large. Forceps simple in both sexes, with at most small denticulations along the inner margins of the branches, branches relatively long and slender, sometimes very long in males, shorter in females.

Madagascar (endemic).

Emboros madagascariensis n.n.

Opisthocosmia dubia Burr, 1904 (not Bormans, 1894), *Trans. ent. Soc. Lond.*, **1904**: 303.

Emboros dubia Burr, 1907, *Trans. ent. Soc. Lond.*, **1907**: 104.

Emboros dubia Burr, 1910, *Fauna Brit. India* (Dermaptera): 180.

Emboros dubius Burr, 1911, *Genera Insectorum*, **122**: 91.

Emboros dubia Brindle, 1969, *Faune de Madagascar*, **30**: 97.

Male (fig. 1): blackish anteriorly, dark brown posteriorly; antennae yellow, basal two segments darker; legs yellow, femora vaguely darkened; forceps dark yellowish. Head convex, slightly depressed on vertex; epicranial sutures weak; eyes rather large and protuberant. Pronotum narrow, slightly longer than broad; elytra short, wings absent or concealed. Cuticle of head and pronotum smooth, shining; of elytra coriaceous. Abdomen widened medially, smooth or almost so; last tergite large, slightly depressed between bases of forceps. Each branch of forceps swollen at base, parallel-sided for most part,

apex narrowed and incurved, inner margins with small denticulations. Length of body 6.5 mm., forceps 2.5 mm.

Material examined: Holotype ♂, Diego Suarez, Alluaud, 4-96 (=April, 1896) (Paris Museum). Paratypes, 1 ♂, same data, 1 without forceps and last tergite, but probably female (Paris Museum); 1 ♂, same data (British Museum (Natural History)).

It is evident that four specimens, not a pair as stated by Burr (1910), are involved, one of which was retained by Burr as the normal custom. *E. madagascariensis* is most similar to *E. unicolor* Brindle, from which it is distinguished by the darker colour, the longer pronotum, and other details given in Brindle (1969).

One other species described in *Emboros, E. pendleburyi* Borelli from Borneo, was transferred to *Cosmiella* in Brindle (1969).

Acknowledgements

My thanks are due to Dr. Robert Poggi and Monsieur M. Donskoff for their valued co-operation.

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Autumn Migrants in Peacehaven, Sussex, 1977. — In spite of the rather poor summer, an extremely worn and chipped *Eurois occulta* L. made an appearance in the m.v. trap on the morning of 9th August. No further migrants of note were seen until the evening of 2nd September, when a female *Agrius convolvuli* L. commenced feeding from the *Nicotiana* patch. Despite every encouragement, she failed to deposit any of the 391 ova carried. Examination of the trap contents on the morning of 12th September revealed a single *Mythimna albipuncta* D. & S., followed by another on the 28th. Being females, both were kept for ova — again without success. The tobacco plants attracted another *A. convolvuli* on 16th September, this being a male.

The month of October yielded *Mythimna vitellina* Hb., on the 13th, 16th and 18th, *M. unipuncta* Haw. making welcome surprises on the 16th and 19th. A curtain call was made for the species by another *M. albipuncta* on 14th October, with five *Orthonama obstipata* L. being noted between the 18th and 25th. A female *O. obstipata* deposited ova on *Chrysanthemum* on 27th October, the larvae of which are progressing steadily. — Colin R. Pratt, 5 View Road, Peacehaven, Newhaven, Sussex.

The Red Admiral (*Vanessa atalanta* L.) — Some Observations

By A. Archer-Lock*

On the 4th November, 1977, not less than ten Red Admirals were observed in the area of Plymouth Central Park allotments, mainly feeding on ivy flowers, accompanied by one Comma (*Polygonia c-album* L.) and numerous wasps. Amongst them was one large female, easily identified by a circular rub patch on her right forewing. By 8th November, only two remained, including the wing rubbed specimen which, for simplicity, we nick-named Amy.

On 12th November, Amy was found amongst nettles, appearing feeble after a period of very stormy weather, but revived in the sunshine to fly strongly, although not visiting the nearby Hebe bush still amply in flower. The weather was extremely windy. Amy was next seen on 19th November after a period of very rough cold weather which had included gales, hail and frost. On the 20th, she arrived on the Hebe bush at 11.10 a.m. to feed for several minutes before basking on a vertical white stone.

The 21st was a day of sunshine and furious gusts of wind, with a maximum shade temperature of 42°F. Amy again visited the bush periodically to feed in spite of the cold northerly wind, with snow on Dartmoor. The following day, the visits were repeated, but the butterfly seemed less at ease, constantly changing basking spots. A cloudy spell prompted her to fly high into an ivy-covered tree at noon, but moments later, with the re-appearance of the sun, she again dropped down to bask in an ideal nook. Ten minutes later, Amy rose, flew along the hedge bank, and away through a gap between the trees, her whole action being decisive and purposeful, as for a bird returning to a nest.

24th November was another bright day of manic wind gusts. Amy was feeding on her bush at 10.50 a.m. At the end of the morning, as storm clouds gathered, she rose very high into the hostile wind and made for a small group of naked old pine trees, again with a sense of real purpose.

The morning of 26th November was brilliant but cold. The shade temperature under the Hebe bush, where frost lay thick white, was under 40°F. at 10.58 a.m. when Amy arrived to feed. Although strong on the wing, she was obviously ill at ease and restless. Shortly afterwards a robin made a determined effort to take her. She escaped, but was not seen again, so may well have been caught shortly afterwards. Strangely enough, another Red Admiral was seen in this same corner of allotment on 15th December, basking at length, but making no attempt to feed. On this same day, two more were seen in Bickleigh Vale, near Plymouth.

It is well known that the female of this species does occasionally survive the winter, and the writer watched a faded specimen feeding on Pussy Willow catkins on 12th

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March, 1977, in Plymbridge Wood. Amy provided good evidence of the hardiness of this butterfly. It was interesting to note how she kept to a selected number of basking points, nearly all vertically faced white objects ranging from slabs to plastic fertilizer bags, and enjoying a sheltered micro climate. Apparently no post-hibernated females have been known to lay in this country, the males having long since succumbed, but on 11th November at Padstow, the writer watched a male and female basking together and briefly toying on the wing.

Incidentally, these observations arose indirectly from a successful attempt to see a separate (used once only) species of butterfly for each month of 1977, and which started with a Peacock (*Vanessa io* L.) drinking moisture from a rock face before fluttering back to the hibernation drain pipe on 28th January. On 15th December, a Brimstone (*Gonepterix rhamni* L.), Comma, and three Red Admirals were seen on the wing and basking, and a Small Tortoiseshell (*Aglais urticae* L.) had sunned on the 14th. So for those whose winters are full of gloom, there is more about than most books would lead us to believe!

A Further Plea for "Auctorum". — Charles F. Cowan (**89** : 67) has provided a very sensible argument for retention of the general conventions in the literature for the use of "auctorum", and perhaps another historian and bibliographer of entomology may be allowed to offer a further opinion. Cowan has stated that "these conventions, perfectly clear and very convenient, have been internationally understood for centuries. We ought not to confuse the literature by changing them. If we do not like the conventions we should not use them".

Historically, this judgment is sound beyond doubt. Even the occasional Latinist will agree with Col. Cowan's doubts as to the precise linguistic accuracy of these past conventions, and I need not call attention to other slight mistakes in Latin still in general taxonomic usage. Yet, the sort of change which Col. Cowan fears would indeed seem needlessly confusing to many. Errors must be generally abhorred, but unless changed by fiat, let us continue in those *firmly* established traditions which have been assimilated into zoological Latin. — Dr. R. S. Wilkinson, The American Museum of Natural History, New York, New York 10024.

Cyclophora puppillaria (Hb.) in Berkshire. — A specimen of this uncommon migrant was taken on the night of 24th/25th October, 1977 in the Museum's light trap which is operated at Caversham, immediately north of the Thames at Reading. The specimen was of the pale type form. — B. R. Baker, Museum and Art Gallery, Blagrave Street, Reading, Berkshire.

Further Notes on *Oecetis notata* (Rambur) (Trichoptera: Leptoceridae) in South-west Wales

By R. A. Jenkins and S. Cooke*

The following observations, based on collections made in 1977, supplement the earlier record of *Oecetis notata* (Ramb.) from the River Teifi, reported by Jenkins (1977, *Entomologist's Rec. J. Var.*, **89**: 52-53). This very restricted species has now been recorded from four additional localities on the River Teifi, and one on the River Towy. At each site, pupae and final instar larvae were found in two distinctly different microhabitats; at the bases of moss growths on large stones in mid-river, and on submerged marginal tree roots in slowly flowing water.

Pupae and final instar larvae of *O. notata* were collected on the 27th May, 1977, from the River Teifi below Newcastle Emlyn, Carmarthenshire (N.G.R. SN (22) 297 416), where they were common on submerged tree roots. On the 1st June, 1977, larvae and pupae were also found in the River Towy above Carmarthen (N.G.R. SN (22) 447 204) and on the same date, one final instar larva was collected from the River Teifi at Llechryd, Cardiganshire (N.G.R. SN (22) 217 436). The identity of this latter specimen was kindly confirmed by Dr. I. D. Wallace.

On the 9th June, 1977, *O. notata* was found at two localities on the River Teifi, near Llanfihangel-ar-Arth, Carmarthenshire. Above Pont Llanfihangel (N.G.R. SN (22) 458 403), pupae and final instar larvae were abundant in both microhabitat types, while 1.2 km. downstream at Dolwallter Farm (N.G.R. SN (22) 447 402), they were most abundant on submerged tree roots.

With the exception of the Llechryd record, material from each locality was reared to the adult stage. Males were identified using Macan (1973, *Scient. Publs. Freshwat. biol. Ass.*, 28), and the identification of both males and females was confirmed by Dr. P. C. Barnard of the British Museum (Nat. Hist.).

Dr. I. D. Wallace (*in litt.*) has noted that the larvae of many leptocerid species are found amongst submerged tree roots in canals and slowly flowing rivers such as the Thames. This observation is also true for the faster flowing Teifi and Towy rivers. The following leptocerid species were commonly found on tree roots at all the above localities: *Oecetis notata* (Ramb.), *Oecetis testacea* (Curt.), *Athripsodes cinereus* (Curt.) and *Ceraclea dissimilis* (Steph.). Both *Adicella reducta* (McLach.) and *Athripsodes albifrons* (L.) were also present at some localities. Neither of the *Oecetis* species has previously been reported from submerged tree roots, and only *O. notata* was collected from moderately flowing mid-river situations. Pupae and final instar larvae of *O. testacea* were restricted to the silty marginal regions.

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Although adults of *O. notata* were not taken in the field, published records indicate that the flight period is from June to August. The distribution records also show that, with the exception of an isolated Yorkshire locality, *O. notata* is confined to the south, and there are three records from southern Ireland (Jenkins, 1977).

It appears that *O. notata* is locally abundant in south-west Wales, and the distribution of this species extends over a 32 km. length of the River Teifi, together with one locality in the lower reaches of the River Towy.

The River Teifi formed the old county boundary between Cardiganshire and Carmarthenshire at three localities, and between Cardiganshire and Pembrokeshire at Llechryd, and the *O. notata* records could apply equally to each county. Although these counties were amalgamated in April 1974 to constitute the new county of Dyfed, the original county names have been retained here for ease of geographical reference.

The nomenclature and classification used for the Leptoceridae follows that of Kimmins (1966, *Entomologist's Gaz.*, **17**: 111-120), with the alterations proposed for the *Athripsodes* genus by Morse and Wallace (1974, *Proc. 1st int. Symp. Trich.*, 33-40).

THE HORNET (VESPA CRABRO L.) IN SHROPSHIRE. — A friend, Mr. David Perrett, of "Silverton", Pontesbury, captured a hornet which entered a porch here about 15th September, 1977. It was brought to me alive, and I again examined it later when dead. It is a very large specimen (a queen hornet perhaps?) and is at present in the possession of the captor. There is no doubt about the identification, because I am quite familiar with the species on the continent. — DAVID J. SMITH, "Curlews", Rosemary Way, Pontesbury, Salop, SY5 0RW. [The hornet is rarely reported from so far north, and it would be interesting to hear if it is seen there again in 1978. — Editor.]

OCTOBER IN SCILLY. — I made my annual visit to the Isles of Scilly from 5th to 19th October, 1977. The weather was mixed but several days were sunny enough to tempt butterflies on the wing and I recorded the following species: *Vanessa atalanta* L., *Pieris brassicae* L., *P. rapae* L., *Aglais urticae* L., *Inachis io* L. and *Celastrina argiolus* L. Only the first two were present in reasonable numbers and I managed only one sighting of each of the last three.

The holly blue (*C. argiolus*) was attracted to an escallonia hedge on St. Mary's, and was my first record of this species in Scilly. It is, however, represented in the local museum.

I made some enquiries with observers who visited the islands in late September and, as expected, *Pararge aegeria* L. and *V. atalanta* were well in evidence. A few *A. urticae* and odd *Cynthia cardui* L. were seen, but only one *Colias croceus* Geoffroy was reported. — G. SUMMERS, 23 West Close, Stafford, Staffs. ST16 3TG.

Abies grandis Lindl. (Giant or Grand Fir) — A Lepidopterous Pabulum

By Dr. John R. Langmaid*

During the winter of 1976-7 I discovered a small, twenty-year-old plantation of *Abies grandis* in Havant Thicket, Hampshire, and decided to try and find out whether it supported any lepidoptera. A telephone call to the Forestry Commission revealed a large and more mature plantation near Braishfield, Hants., several smaller and younger plots in the New Forest, and a double row of mature trees near Madehurst, West Sussex.

Abies grandis was first introduced into this country from North America in 1833, and has now been quite extensively planted throughout the country, though usually in small plots. It can grow to a height of 170 ft. The branches are flat, and borne in widely-spaced whorls. The needles are flat, about two inches long, bright green above, with two whitish bands below, and notched at the tips. The bark is smooth and dotted with blisters which contain resin. The male flowers are yellow and grow in clusters on the underside of the branches. The female flowers are erect and grow high up on the tree. Other species of *Abies* are not so favoured by the forestry industry, though *Abies procera* (Noble Fir) is planted in the North and West. *Abies alba* does not thrive here owing to the depredations of a needle-sucking aphid.

Several visits were made to these localities in April and May 1977, when the following species were noted.

Epinotia subsequana Haw. I took a fresh male in Havant Thicket on 30th April and immediately phoned the late Mr. D. W. H. ffennell, who came over the following day when we found only one further specimen. I gave Mr. ffennell a map reference for the Braishfield locality which he visited on 6th May. He phoned me that evening to report that the moth was extremely abundant there, and that he had also taken several *Epinotia fraternana* Haw. (see below). Dr. M. W. Harper was staying with me at the time, and we called at Braishfield on our way to Ledbury on 8th May. It was a warm, sunny afternoon, and we were astonished to see hundreds and hundreds of small whitish moths flying in swarms around the branches of the fir trees. Most were out of reach, but, even so, it was possible to get as many as a dozen *subsequana* in the net with a single swipe. A few days later I took one and saw several more in the *Abies grandis* plantation in Haugh Wood, Herefordshire. Further visits to Havant Thicket and Madehurst later in the month confirmed that the moth is well-established in both places, though in nowhere near the abundance as at Braishfield. According to both Meyrick and Ford the food-

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plant is spruce, but I have never found it in any of the many spruce plantations I have visited.

Epinotia fraternana Haw. This appeared to be fairly common at Braishfield in early May, but did not appear in Havant Thicket until toward the end of the month when it was found quite commonly. Dr. Harper had found the moths commonly in 1976 in Haugh Wood, netting them after tapping the branches. He had also found the larval spinnings whose description agreed with the empty spinnings I had found in abundance in Havant Thicket. It seems that the larva spins two needles together in parallel and another two crosswise, in the form of a frame for a game of noughts and crosses, then mining the needles. Ford gives the foodplant as spruce, and Meyrick says *Pinus picea* (he calls spruce *Pinus abies*). .....

Pammene ochsenheimeriana L. & Z. In mid-April I found full-fed larvae in aborted buds of *Abies grandis* in Havant Thicket. They pupated within the buds, and emerged at the end of April and in May. Meyrick merely says "on *Pinus*", and Ford says "on *Pinus sylvestris*".

Ditula angustiorana Haw. Larval spinnings were common in Havant Thicket, the larva mining the needles.

Blastobasis lignea Wals. Larvae were abundant in April feeding in spun dead needles, debris from other trees that had fallen on to the flat branches of the fir, and also in bird droppings.

Brachmia gerronnella Zell. One was bred from a twig gall. Presumably it was an inquiline feeding on the dead wood.

Abies grandis is a pabulum for several species previously considered to be uncommon, and it would be well worthwhile for further studies to be made in plantations of this tree throughout the country.

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EUROIS OCCULTA (L.) AND LITHOPHANE LEAUTIERI (BOISDUVAL) IN HERTFORDSHIRE. — On the night of 16th-17th July, 1977, I took a worn male specimen of *Eurois occulta* (L.) in the m.v. trap in my garden. There were few other occupants of the trap that night and their identity did not suggest any particular migratory occasion. The specimen appeared similar to the mid grey form associated with Scottish specimens.

A second moth of interest which I found in the trap on the night of 14th-15th October was a male *Lithophane leautieri* (Boisduval). Though not the first record for Hertfordshire, it seems a new arrival on the north-eastern side of the county. — D. E. WILSON, Joyce House, Green Tye, Much Hadham, Hertfordshire.

Mont Ventoux, 1973-1977

By L. McLeod, B.Sc., M.Phil., F.R.E.S.*

The main objective of this paper is to bring up to date my species list of the butterflies of Mont Ventoux (McLeod, 1972, 1973). The year 1977 was the tenth year of my collecting on this mountain, it was also one of the wettest and coldest years on record. The bad weather took lts toll on insects and on possible field trips, and as a result 1977 was very unproductive. This cannot be said however for the previous four years. Since I last wrote of my collecting experiences on Ventoux (McLeod, 1973) my species list of butterflies has increased by 12 to a total of 134. It is obvious that populations of certain butterflies and other insects can exist in very small restricted areas where the required habitats are to be found. Some of these areas are very small indeed and it has taken me ten years of searching to establish the presence on Mont Ventoux of certain of the species listed here.

Apaturia ilia Schiff. is an example of a butterfly with a restricted distribution in the Vaucluse. My first encounter with this butterfly was near Mormoiron on 8th June, 1974, when a male came to drink while I was washing my car. Until that moment I had no idea that *A. ilia* was present in the area. I captured and later released the individual and during the next few days saw a total of four others, two of them at low altitude on the southern face of Ventoux.

Scolitandes orion Pallas also flies in early June and is well established in the Gorges of the Nesque and the adjacent Combes. Although the larval foodplant is widespread, the major concentrations of this butterfly are always at the bottoms of the gorges and only rarely have I taken a specimen on the lower road from Villes sur Auzon to Sault. My first specimens were taken on 1st June, 1974, while collecting with Mr. J. A. Bond.

Euchloe tagis Huebner is widespread over the lower slopes of both the southern and northern faces of Ventoux. The cul-de-sac valley behind Les Valettes and Ste. Marguerite (Vallee du Rieufroid) is a particularly fine locality for this species during late May, as also is the Combe de la Canaud, running from Flassan to the Perrache Plateau.

Dr. C. G. M. de Worms has been a regular visitor to Mont Ventoux since 1974 (de Worms, 1974, 1976, 1977), and in 1975 brought to my notice the presence of *Thecla betulae* L. on the mountain. Until his capture of a fine female on 26th August (de Worms, 1976) I had not noticed its presence. I have since been on the look out for this nice hairstreak and I was rewarded this year by observing two *betulae*. The first settled on my terrace at St. Pierre de Vassols on 5th September and the other I observed on the Grande Garrique, above Bedoin, two days later.

On 16th June, 1973, while collecting *Erebia triaria* de Prunn. at Mont Sirein on the north face of Ventoux, I met

* Quartier des Ecoles, St. Pierre de Vassols, 84330, France.

the Bartholomew family intent upon the same purpose. Later, while discussing the butterflies of the area, Richard Bartholomew informed me of a population of *Pseudoterqumia fidia* L. not far from Beaumes de Venise. At that time the population was well established and adults were to be found flying in late July/early August on the rocky slopes behind the chapel of Notre Dame d'Aubune. However, during the drought of 1976, a fire swept along the ridge destroying most vegetation and I am not certain how this will have affected the *fidia* population. I have also taken *fidia* in the lavender fields at the end of the valley of Rieufroid, beyond Les Vallettes, and also at Mormoiron, Flassan, and Bedoin. Luquet (1977) also mentions other localities for this species.

Leptidea duponchelli Stdgr. is also locally common. Lafare, a village near to the Dentelles de Montmirail, is a noted locality, mentioned to me by Richard Bartholomew. I have also taken single specimens of this species on several occasions on Mont Ventoux during the last five years.

Pieris manni Meyer was a late addition to my list because of its close resemblance to *P. rapae* L. and to my lack of interest in the latter species. Both *manni* and *rapae* often fly together during June and are widespread over the Carpentras Plain, lower slopes of Ventoux and Gorges of the Nesque.

Having recently sorted through my collection, I realised that in error I omitted both *Melitaea phoebe* Schiff. and *Hesperia comma* L. from my initial list (McLeod, 1973). Both of these species have always been widespread and common on Ventoux and should have been listed previously.

Thymelicus lineola Ochs. is not common on Mont Ventoux but I have taken the occasional specimen on the Perrache Plateau and Combe de la Canaud during July.

In my notes of 1973 I mentioned my ambition to photograph the life cycle of *Iolana iolas* Ochs. I managed to locate bushes of *Colutea arborescens,* its larval foodplant, on the lower slopes of Ventoux in 1973. An extensive study of the population ecology of this lycaenid is now almost complete. I exhibited a series of photographs of the life cycle at the 1975 annual exhibition of the British Entomological and Natural History Society. The local population of *I. iolas* is spread over a fairly large area but nevertheless is apparently in a precarious situation, being liable to drastic fluctuations in numbers resulting from adverse spring weather and severe scramble competition in the larval stages. Man's activities in replanting one of the best localities with young cedar trees following clearing of natural vegetation, does not help the situation. Many readers will know the coloured conservation poster produced by the Federation Française des Sociétés des Sciences Naturelles. Three of the butterflies illustrated, *I. iolas, Zerinthia rumina* L. and *Papilio alexanor* Esp. were to be found in areas on the south face of Ventoux which have recently been "bulldozed" in parallel strips and replanted with conifers. Undoubtedly the local populations of butterflies will still survive, albeit in fewer numbers and more restricted than

previously. It is sad that an area known as a major locality for these species (Bigot 1957, Dufay 1965, Kovache 1927) can be treated in this way. It is this slow chipping away of suitable habitat which eventually causes a species to disappear from an area.

The saying "actions speak greater than words" can be particularly applied to the F.F.S.S.N. in this case. Their words "Ces Insectes sont menacés. Aidez-nous à les sauver" have a rather hollow ring to them following the events described above. I hope that the seeding and replanting of *Colutea arborescens* which I have carried out will in the future help counteract the adverse effects which the present reaforestation would have had on the local population of *I. iolas.*

It is interesting to note that Bigot, in his paper on the biogeography of provence lepidoptera (Bigot, 1957), did not mention *I. iolas.* Was this an intentional omission or was *iolas* not present in the area prior to 1957? Perhaps these questions will never be answered but I suggest that perhaps Bigot failed to locate *iolas,* as did Mr. L. Gauthier of St. Cecile les Vignes who collected on Ventoux over a period of forty years.

A similar situation exists concerning a paper on the *Erebia* species of Ventoux (Chobaut, 1910, 1913). In this paper there is no mention of *E. ligea* which is now very common on Ventoux in the latter half of July. Bigot (1957) also omitted *E. ligea* from his list, probably because he merely repeated the list of *Erebia* species produced by Chobaut. Unfortunately, this very same error has been reproduced in the recent official guide to Mont Ventoux. Included in the guide is a photograph of the "five" *Erebia* species to be found on Mont Ventoux (Macabet, 1977).

Both Dufay (1965) and Luquet (1977) mention the rarity in Provence of the female form *valesina* of *Argynnis paphia* L. I record here two other captures of this "dark lady". First by Mr. J. A. Bond, near to the chapel of Notre Dame des Anges, Mormoiron, on 11th July, 1973, and secondly by Mr. R. Charman between Flassan and La Gabelle on 20th July, 1976.

Some readers will be interested to hear of the existence of a population of *Zerinthia polyxena* Schiff. not far from Carpentras. Although this species cannot be included in the list of butterflies of Mont Ventoux, its occurrence in this area of the department of Vaucluse is unusual and worthy of note. The species is rare in Haute Provence and is very localised wherever it occurs (Dufay, 1965). Colonies are known in the gorges of Esparron-la-Batie in the upper valley of the Sasse (north of Digne) and single specimens have been taken at Noyers-sur-Jabron (north of Montagne de Lure) and at Digne. Although Bricoux (1975) mentions the Vaucluse in his distribution of *polyxena* he does not cite an exact locality (Bricoux, 1975, p. 27) and does the same for *Z. rumina,* except that he includes the famous locality of Flassan under the department of Var (Bricoux, 1975, p. 28). The population of *Z. polyxena* near to Carpentras is located in a very small area

completely enclosed by fruit orchards. The site is regularly flooded in winter months and is thus very unsuitable for agriculture. During the flight period of *Z. polyxena* in April, the site is a mass of flowers of *Narcissus poeticus* and the ground is still very damp and slightly marshy. *Aristolochia rotunda,* the larval foodplant of *Z. polyxena,* grows in dense clumps amongst the sedges. The habitat is certainly an unusual one for this region of France. The *Z. polyxena* butterflies are never very numerous and rarely very active because of cool weather and strong winds. They seem to prefer to bask in the sun in sheltered positions. I have photographed the entire life cycle of this species and of *Z. rumina* which is found on the dry, arid lower slopes of Mont Ventoux. The photographs were exhibited at the 1975 Annual Exhibition of the British Entomological and Natural History Society.

On 17th June, 1973, I captured three interesting specimens, one of which was lost on the way back to my car. I first thought them to be a variety of *Plebicula amanda* Schn. but I now believe them to be a hybrid, either of *amanda* x *bellargus* or *amanda* x *escheri.* The specimens are the same size as an average *amanda* and have the same underside markings, but the blue is much deeper than the light blue of *amanda* and the orange submarginal spots of *amanda* are here a deep red. I have yet to examine the genitalia.

The northerly migration of *Vanessa cardui* L. through the Vaucluse appears to be an annual event, but in some years it is hardly noticeable because of low numbers of butterflies. I recorded a fairly strong migration of *V. cardui* in 1977 from 25th to the 27th March. During the migration temperatures were 20-22°C. but on 27th March the air temperature dropped suddenly to −3°C. and was 5°C. on 29th March. This sudden fall in temperature completely stopped the migration and it was only on 30th March when temperatures rose that I noticed a slight movement of *cardui* again. On 31st March and afterwards no further migration took place. The reports of *cardui* sightings in England (Sankey Barker 1977, Bottomley 1977, Pleasant 1977) are much earlier in March, and were obviously not connected with this major migration.

Lampides boeticus L. can occasionally be taken on Mont Ventoux and the specimens are usually very fresh. Having carried out extensive studies on *Iolana iolas,* many hundreds of seed pods of *Colutea arborescens* have been opened and the larvae within identified. No *L. boeticus* larvae have been found. It is possible that another foodplant is concerned, but I suggest that the presence of *L. boeticus* is the result of larvae having been imported from Spain in garden peas. On 8th January, 1977, I purchased imported peas in Carpentras which had several *boeticus* larvae within the pods. I have experienced the same thing on several other occasions (e.g. McLeod, 1973, p. 212). While writing this paper on 28th October, 1977, I observed a lycaenid feeding on garden flowers outside my office. On examination it proved to be a fine male *boeticus.*

Although generally a poor year for insects, 1977 will go

down in my records as a memorable year for *Nymphalis polychloros* L. The severe weather of spring caused a total failure of the cherry crop and as a result the local fruit growers did not bother to spray their cherry trees with insecticides. The enormous numbers of *polychloros* larvae were first noted by me on 27th April when I found several cherry trees on the Carpentras Plain and Mazan Plateau completely defoliated. Following this discovery, I searched for larvae in many other localities around Mont Ventoux where cherry trees are grown. In all of them, large clusters of larvae could be found, and near to Caromb I located approximately fifty infested trees each with 200-300 larvae per tree. While observing them over a number of days, certain trees were completely cleaned of larvae by birds. Once the large 5th instar had been achieved the larvae were apparently left unharmed by birds because of their hard spines. I raised many butterflies from larvae collected in the field and was surprised at the lack of parasitism.

Species list of Rhopalocera taken on Mont Ventoux between 1968 and 1977

PAPILIONIDAE: 1. *Papilio machaon* L., 2. *Papilio alexanor* Esp., 3. *Iphiclides podalirius* L., 4. *Zerinthia rumina* L., 5. *Parnassius apollo* L.
PIERIDAE: 6. *Gonopteryx rhamni* L., 7. *Gonopteryx cleopatra* L., 8. *Aporia crataegi* L., 9. *Colias australis* Vrty., 10. *Colias crocea* Geoff., 11. *Colias hyale* L., 12. *Anthocaris euphenoides* Stdgr., 13. *Anthocaris cardamines.* L., 14. *Euchloe ausonia* Btl., 15. *Euchloe tagis* Hueb., 16. *Pontia daplidice* L., 17. *Pieris napi* L., 18. *Pieris manni* Meyer, 19. *Pieris rapae* L., 20. *Pieris brassicae* L., 21. *Leptidea sinapis* L., 22. *Leptidea duponcheli* Stdgr.
LYCAENIDAE: 23. *Heodes tityrus* Poda, 24. *Heodes alciphron* Rott., 25. *Lycaena phlaeas* L., 26. *Lampides boeticus* L., 27. *Everes argiades* Pall., 28. *Everes alcetas* Hffgg., 29. *Cupido minimus* Fuess., 30. *Celastrina argiolus* L., 31. *Philotes baton* Berg., 32. *Scolitandes orion* Pallas., 33. *Maculinea arion* L., 34. *Plebicula amanda* Schn., 35. *Plebicula dorylas* Schiff., 36. *Plebicula escheri* Hueb., 37. *Plebicula thersites* Cant., 38. *Plebejus argus* L., 39. *Cyaniris semiargus* Rott., 40. *Polyomatus eros* Ochs., 41. *Polyomatus icarus* Rott., 42. *Lysandra coridon* Poda., 43. *Lysandra bellargus* Rott., 44. *Lysandra hispana* H.-Sch., 45. *Agrodiatus dolus* Hueb., 46. *Agrodiatus damon* Schiff., 47. *Agrodiatus ripartii* Frey., 48. *Glaucopsyche alexis* Poda., 49. *Glaucopsyche melanops* Boisdvl., 50. *Iolana iolas* Ochs., 51. *Aricia allous* Gey., 52. *Callophrys rubi* L., 53. *Quercusia quercus* L., 54. *Nordmannia ilicis* Esp., 55. *Nordmannia acaciae* Fab., 56. *Nordmannia esculi* Hueb., 57. *Strymonidia spini* Schiff., 58. *Thecla betulae* L.
NYMPHALIDAE: 59. *Apatura ilia* Schiff., 60. *Limenitis reducta* Stdgr., 61. *Euphydryas aurinia* Boisdvl., 62. *Melitaea didyma* Stdgr., 63. *Melitaea cinxia* L., 64. *Melitaea diamina* Lang., 65. *Melitaea phoebe* Schiff., 66. *Mellicta deione* Gay., 67. *Mellicta parthenoides* Kef., 68. *Mellicta athalia* Rott., 69. *Clossiana euphrosyne* L., 70. *Clossiana dia* L., 71. *Brenthis ino* Rott., 72. *Brenthis daphne* Schiff., 73. *Pandoriana pandora* Schiff., 74. *Argynnis paphia* L., 75. *Fabriciana adippe* Schiff., 76. *Mesoacidalia aglaja* L., 77. *Fabriciana niobe* L., 78. *Issoria lathonia* L., 79. *Vanessa cardui* L., 80. *Vanessa atalanta* L., 81. *Inachis io* L., 82. *Polygonia egea* Cr., 83. *Polygonia c-album* L., 84. *Nymphalis antiopa* L., 85. *Nymphalis polychloros* L., 86. *Aglais urticae* L.
SATYRIDAE: 87. *Pararge aegeria* L., 88. *Lasiomatta megaera* L., 89. *Lasiomatta maere* L., 90. *Lasiomatta petropolitana* Fab., 91. *Melanargia russiae* Boisdvl., 92. *Melanargia galathea* L., 93. *Melanargia occitanica* Esp., 94. *Coenonympha arcania* Stdgr., 95. *Coenonympha dorus* Esp., 96. *Coenonympha pamphilus* L., 97. *Maniola jurtina* L., 98. *Pyronia*

bathseba Fab., 99. *Pyronia tithonus* L., 100. *Pyronia cecilia* Vall., 101. *Hyponephele lycaon* Kuhn., 102. *Pseudotergumia fidia* L., 103. *Satyrus ferula* Fab., 104. *Satyrus actaea* Esp., 105. *Brintesia circe* Fab., 106. *Chazara briseis* L., 107. *Minois dryas* Scop., 108. *Arethusana arethusa* Schiff., 109. *Hipparchia fagi* Scop., 110. *Hipparchia alcyone* Schiff., 111. *Hipparchia statilinus* Hufn., 112. *Hipparchia semele* L., 113. *Erebia meolans* de Prunn., 114. *Erebia ligea* L., 115. *Erebia triaria* de Prunn., 116. *Erebia epistygne* Hueb., 117. *Erebia scipio* Boisdvl., 118. *Erebia montana* de Prunn., 119. *Erebia neoridas* Boisdv.

HESPERIIDAE: 120. *Pyrgus fritillarius* Poda., 121. *Pyrgus foulquieri* Obthr., 122. *Pyrgus malvae* L., 123. *Erynnis tages* L., 124. *Gegenes pumilio* Hoff., 125. *Carcharodus lavatherae* Esp., 126. *Carcharodus alceae* Esp., 127. *Ochlodes venatus* Brem. & Grey, 128. *Thymelicus sylvestris* Poda., 129. *Thymelicus acteon* Rott., 130. *Thymelicus lineola* Ochs., 131. *Spialia sertorius* Hoff., 132. *Hesperia comma* L.

NEMEOBIIDAE: 133. *Hamaeris lucina* L.

LIBITHEIDAE: 134. *Libithea celtis* Laich.

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NEW AND RARE MOTHS IN EASTBOURNE. — Upon the evening of the 19th October, 1977 I took an example of *Helicoverpa armigera* Hbn. (Scarce Bordered-straw), possibly a migrant and a species that has never before been recorded from Eastbourne. Earlier, upon the 15th October, I took a single *Aporophyla nigra* Haw. (Black Rustic) for whch the only other records for here are singletons listed in Salvage (1952) per D. Hillman and Adkin (1930). — MARK PARSONS, 43 Kings Avenue, Eastbourne, Sussex.

Collecting Lepidoptera in Britain during 1977

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.*

The season opened with on the whole a very mild January, and only two days about the middle of the month with snow showers in the south of England. By the first week in February the early geometers were well out, in particular, *Erannis leucophaearia* D. & S. in good numbers. The larger part of this month was also very congenial, with no really cold snap and the temperature in the low 50's. March, however, opened with the first really warm days with the thermometer at 65°F. on the 2nd. This short spring-like spell brought out the early *Orthosias* in some quantity as well as *Achyla flavicornis* L., *Panolis flammea* D. & S., also *Xylocampa areola* Esp. In spite of this touch of spring, nothing was on the wing during a visit to the Ipswich district on March 5th. The mild conditions continued through the middle of the month and were still prevailing when I went to the Folkestone area on March 19th, but the following day, which was very sunny, but with a cold wind, produced nothing by day in the woods near Beckley not far from Rye, when I visited them in company with Mr. Michael Tweedie. The sallows were beginning to bloom over most of this area. March ended with a very cool spell, but it warmed up again in the opening days of April. Beating some blossom on the 3rd on the Surrey-Sussex border, failed to produce any larvae of *Chloroclystis chloërata* Mab.

On April 7th I set out for the north in very bleak conditions, meeting many snow showers along the M5 and M6. I reached New Longton, near Preston, in the late afternoon where my kind hosts were Dr. Charles and Mrs. Helen Goodall, now back in England after their five years in Jamaica. The next day, Good Friday, was really wintry when we visited Martinmere, the wildfowl reserve, which did not produce any lepidoptera, nor did Stoneyhurst College on Easter Sunday, the 10th. On the 11th, a very sunny day, I continued further north to stay with Dr. Neville Birkett and his wife at their home at New Hutton-on-the-Hill, just east of Kendal. There was quite an assortment of common species in his m.v. trap the next morning, with about 60 insects in all, including *Cerastis rubricosa* L., *Orthosia gothica* L. and *Biston strataria* Hufn., with a similar pattern the following night. April 12th saw us on Walney Island, just off Barrow, with plenty of bird life but no lepidoptera forthcoming either there or in the Lake District en route. The following morning I set out across country, via the outskirts of Manchester, to Stockport, then across the moors through Chapel-en-le-Frith to Dore, near Sheffield, to visit Mr. William Reid, the noted lepidopterist who has recently died. Conditions had warmed up considerably since the start of the Easter holiday, but no insects were to be seen in these attractive surroundings. I made my way south by the motorways on the 14th to find temperatures in the

* Three Oaks, Shore's Road, Horsell, Woking, Surrey.

upper 50's, but again the early butterflies had not yet got on the wing, nor was anything flying by day when I visited Dorset to stay with my relatives near Blandford on April 22nd. The Bridport area was equally blank on the 23rd when I called on Mr. N. G. Wykes, whose garden is usually quite productive. Though it was over 60°F. on April 25th in the New Forest, I could not find anything moving as yet. *Odontosia carmelita* Esp. had appeared in Surrey on the 17th, together with *Polyploca ridens* Fab.

After a mild end to April, May started with quite a congenial spell, but in spite of this, spring species were very tardy in getting under way both by day and night, possibly because of the very wet previous autumn. The first Pierids, mainly *P. rapae* L., were seen the first days of the month. They were not forthcoming in the Chiddingfold area on the 8th. However, a week later on the 15th, many hibernated *Gonepteryx rhamni* L., were about there and Mr. de Souza whom I met, had seen a single *Leptidia sinapis* L. Conditions continued very mild throughout the rest of May and everything had advanced greatly, including the vegetation, when I returned on the 29th after ten days in Provence. In fact, the thermometer almost touched 70°F. on June 1st. The next day, in Alice Holt Forest, many *Pieris napi* L. were flying, with plenty of *Pseudopanthera macularia* L. Once more in the Durfold woods on the 3rd, *L. sinapis* L. was now getting quite numerous and I was delighted to see *Hemaris fuciformis* L. hovering over bugle. Later it transpired that this day-flying hawkmoth was particularly plentiful in this area and elsewhere. It had been in very low numbers for many years and is obviously well on the up-grade again. General conditions continued fairly propitious during the first ten days of June. On the 8th, I accommpanied Dr. J. Holmes to some woods on the edge of Woolmer Forest, where *Anthocharis cardamines* L. was quite numerous, with a sprinkling of *Clossian euphrosyne* L. still in good order. Other butterflies seen were *Pararge megera* L. and *Erynnis tages* L. The next ten days' temperature was well below average for the end of the spring period, with no really warm occasions, and only rising above 70°F. on the 23rd. It was altogether a very disappointing and lean period, which caused the season to become very much on the late side. However, it warmed up appreciably when I travelled to Kent on June 24th, making my headquarters at Ashford, but little was moving in the Folkestone area the following day. In the evening, Mr. George Youden joined me in the Orlestone woods, where members of the Croydon Natural History Society were also esconced with m.v. lights. Not much came to ours as the night turned cold. We had several *Alcis repandata* L., a few *Apatele megacephala* L. and also *Idaea subsericiata* Haworth. Searching posts and other terrain at Dungeness on June 26th, provided very little except *Hada nana* Hufn.

July opened with much more favourable conditions with, for the first time, the thermometer soaring to just over 80°F.

on the 2nd. The first *Plebeius argus* L. appeared then on the Surrey heaths, while *L. sinapis* L. was in plenty in the Durfold woods that afternoon with many *Ochlodes venata* Br. & Grey. It was again very warm when I went over to Dr. Holmes at Lindford, near Bordon, the following morning, and we had a long walk through Western Common, near Alton. Many *Pieris napi* L. and *Gonepteryx rhamni* were flying, but little else of note in this favoured locality, though later that day once more near Woolmer Forest, we saw a good many *Clossiana selene* L., *Pararge egeria* L. and *Maniola jurtina L.* On July 4th, at 84°F. in the shade, I paid a daytime visit to the New Forest, but it was surprising to see so little on the wing either there or at Alice Holt Forest en route. *P. rapae* and *P. napi* were in fair numbers, but the summer butterflies had not yet appeared.

On the afternoon of July 7th, in glorious sunshine and the thermometer at 78°F. in the shade, Mr. J. L. Messenger and I set out westwards on the M4 to Cirencester Park, where we halted on the edge of some woodlands. Here we found quite a lot of butterflies were flying, including *Argynnis aglaia* L., *Pararge egeria* L., *Polyommatus icarus* Rott. and *Ochlodes venata* Br. & Grey. We then went on to Oakridge, to stay with Ronald and Veronica Demuth in their delightful home set in a small secluded valley, which seemed to favour the lepidoptera that night. His m.v. trap the next morning had attracted nearly 300 visitors, including *Laothoë populi* L., *Sphinx ligustri* L., *Deilephila elpenor* L., *D. porcellus* L., as well as many *Hippocrita jacobaeae* L. and several *Apatele megacephala* D. & S.; also, some ochreous *Hadena lepida* Esp., *Apamea lithoxylea* D. & S., dark *Cerastis trigrammica* Hufn. and a female *Hepialus humuli* L. Nearly 500 individuals came the following night. Besides the species already mentioned, there were *Dasychira pudibunda* L., *Apamea sublustris* Esp., *Euplexia lucipara* Esp., *Pyrrhia umbra* Hufn. and many more *H. lepida.* But nothing was on the wing earlier that day in the woods round the Roman villa at Chedworth. I had been in touch with Dr. Neil Horton who invited us to join him at Usk on the morning of July 9th. We reached there in good time and in favourable conditions. He then piloted us by a somewhat tortuous route to a wild and mountainous spot not far from one of the mining towns in South Wales where we stopped by a large quarry at about 1 p.m. A small mountain stream with rushes growing in it descended quite close to the quarry. This little watercourse we started to climb, but the only insects flying in the intermittent sunshine were some fresh *Clossiana selene* L., several *Coenonympha pamphilus* L., while our host took a male *Parasemia plantaginis* L. We were about to prepare to leave at about 2.30 p.m., when Neil Horton spotted a small noctuid flitting over some rushes in the stream. Bobby Messenger managed to net it as it went past me and to our surprise it turned out to be a quite fresh male of the newly-discovered *Eriopygodes imbecilla* Hübn. Thereafter several more were seen careering over the heather and moor-

land, but we only managed to take one further example up to 4 p.m. when we had to leave. We heard later that in the week following this little noctuid was relatively abundant in this region, both by day and night. Eggs were obtained and the resulting larvae bred up to a later generation. It seems extraordinary that this little insect should have remained unknown in the British Isles until quite recently, since it must always have been in this locality, where it is apparently quite widespread, though as yet has not been found elsewhere. It seems to enjoy, as it does abroad, quite high levels up to 2,000 ft. and more. Later that afternoon, my companion and I proceeded some 150 miles westwards, via Brecon, Llandovery and Carmarthen to Haverfordwest, and on along the picturesque coast road to St. Davids, where we once more put up at the Whitesands Bay Hotel, which had been our haven in August 1975. As then, we inhabited the very comfortable chalet overlooking a small cliff by the sea, where we were able to run our m.v. trap to good advantage.

Fine weather and warm sunshine greeted us on the morning of July 10th, when we took a walk along the coastal path to see what was on the wing, and there was plenty to keep us busy. Some fresh *Argynnis agalaia* L. of both sexes were flitting about and settling on big thistles, with quite a number of *Aglaia urticae* L., *Maniola jurtina* and *P. icarus*. The afternoon was spent at Aber Eiddy in the direction of Fishguard, which we had visited several times in 1975, but only *Aphantopus hyperantus* L. seemed to be on the move. During our ten-day stay in this attractive part of Wales, we once more made a thorough survey of many possible localities for lepidoptera. On the 11th we concentrated on a boggy piece of ground which we had been told harboured a colony of *Euphydryas aurinia* Rott. None of this butterfly was forthcoming, though the ground seemed alive with large Five-spot burnets, with plenty of cocoons on grass stems. We thought they were *Zygaena lonicerae* Scheven, but on showing them to Mr. G. Tremewan, he pronounced them to be the marsh form f. *decreta* of *Z. trifolii* Esp. There were many *O. venata* and *T. sylvestris* flying with the geometer *Ortholitha palumbaria* Fab. The next day, July 12th, saw us further south on the Pembroke Peninsula. Crossing the new bridge at Milford Haven, we travelled along the southern coast to Castle Martin, where we found some luxuriant sandhills. Though it was fairly overcast, a lot of matts of thyme seemed to attract some *A. aglaia* and plenty of *Z. filipendulae* L. The next couple of days were again sunny and warm when we surveyed the country nearer St. Davids, notably Solva and the cliffs towards St. David's Head, but nothing new was forthcoming. However, on July 15th, once more in sunshine we went to the Gwaum Valley, which lies well inland in the Fishguard direction. *A. hyperanthus* was in fair numbers in this very attractive region, but little more was to be seen later at Newport Bay. On the 16th, we visited a small valley leading down to the sea

beyond Solva, where we found another colony of the large *Z. trifolii* and our first *Pararge egeria* L. and *Heodes phlaeas* L. The last three days starting our second week, the weather began to break up badly. On the 18th quite a lot was still flying on Tretio Common, with the first *Maniola tithonus* L. and *Eumenis semele* L. being seen. This latter species also appeared on the rough ground near our hotel on our last day, July 19th, when *A. aglaia* was once more especially numerous.

(*To be continued*)

LETTER TO THE EDITOR

Dear Sir,

With reference to recent criticism of my Collecting Notes, I feel I must clarify a number of points and would be grateful if you would allow me room to reply.

It would be a waste of time and space to comment further on Mr. Turner's absurdities and offensive attack on me, especially after Mr. J. Platt's neat and accurate summing up of the matter. Although the expressed sympathies of Messrs. Turner and Bell lie with the offender and they claim the damage he did was justified, the fact that this man has since been convicted of this damage in a Court of Law, proves that they were misguided.

Mr. R. Skipworth and Mr. R. Bell suggested that I had entered Durlston without permission. As Mr. Roger Smith has stated, I always try to obtain permission to enter locations where necessary. In the Durlston incident, my position had already been clarified on a previous visit, when I had a long conversation with an official warden (confirmed by his arm-band). He told me it was necessary to have permission to collect in the Light House area, but then indicated to me an area where collectors could freely operate without permission. That is, on the rough cliffs near the Hotel, and upon this advice I ran my traps there that night and on subsequent visits, and not in the Light House area.

Mr. Bell suggested that my traps were placed near an occupied caravan. On many occasions I (and doubtless scores of others) have set-up lights in the vicinity of this static caravan. On every one of my visits this caravan was obviously unoccupied, and on the night in question, I noticed no one in or near it up until the time I left at 1 a.m.

Many entomologists have written to me, and I am grateful to them for their best wishes and support in this matter. — David C. G. Brown, Jackson's Farmhouse, 25 Charlecote, nr. Warwick.

[This correspondence must now cease. — Editor]

Notes and Observations

THE SWALLOWTAIL MOTH (OURAPTERYX SAMBUCARIA L.) IN NORTH PERTHSHIRE. — On 19th July and 12th August, 1977 single specimens of the Swallowtail moth were collected at light in Pitlochry. Meyrick, in his *Revised Handbook of British Lepidoptera* (1928), gives the distribution of this species as: Britain to Dumfries, Ireland, rather common; and South (1939 edition) states that in Scotland it is confined to the south "but has been noted up to Glasgow". I have in my collection a specimen taken at Rossdhu by Loch Lomond on 6th June, 1960, which appears to be very early in the year for this moth, and on 11th July, 1976 I saw one at Largs in north Ayrshire.

I have examined several of the more recently published lists of moths collected in the northern half of Scotland, but none contained any reference to the Swallowtail. I would be interested to know if this is the most northerly record and whether it indicates that the species is in the process of extending its range. — BRIAN MORRISON, 7 Dixon Terrace, Pitlochry, Perthshire.

BUTTERFLY RECORDS FROM ST. LUCIA, WEST INDIES. — Extensive collecting in St. Lucia between August 1975 and January 1977 revealed the presence of two species of butterfly not recorded for the island in the authoritative work of Riley (1975, *A Field Guide to the Butterflies of the West Indies*). These were: (1) *Allosmaitia piplea* Godman and Salvin (Lycaenidae), one male taken on flower of *Borreria verticillata* (L.) at Massacré in February, 1976 (pers. coll.). A second specimen, also male, was seen at Cap Estate during August 1976. (2) *Phoebis philea philea* (L.) (Pieridae), a slightly worn female caught at Massacré in December 1976 (pers. coll.). A male, presumed to be of the same species, was seen at the same time and location. R. I. Vane-Wright (pers. comm.) comments that the female might represent a migrant individual from Trinidad.

In addition to these records, the occurrence of *Papilio androgeus* Cramer is confirmed. Males were seen at a number of localities throughout the island and one specimen, at Cap Estate, was captured in December 1975 (pers. coll.). The assistance of Mr. Vane-Wright in confirming the identity of *P. philea philea* is acknowledged. — D. J. HUNT, Winban Research Centre, P.O. Box 115, Castries, St. Lucia, W.I.

RARE IMMIGRANTS IN WESTMORLAND IN 1977. On 20th October at about 4.30 a.m. G.M.T., prior to switching off the m.v. trap, there, in the drizzling rain, among the many *Epirrita dilutata* D. & S. sitting on the white wall of the garage which is near the light, was a yellowish noctuid. Thinking it might be a late *Xanthia citrago* L. and not wishing the early birds

to get it, I pill-boxed it and forgot about it until the following evening, when thinking of releasing it, a further examination revealed it as a fine male *Mythimna vitellina* Hb. (The Delicate).

Five days later on 25th October, at the same time of morning, I found a large white micro flattened out on the perspex top of the m.v. trap in the pouring rain, which I instantly recognised as *Palpita unionalis* Hb. After drying out, I found it to be a female in surprisingly good condition. The last record of this species I know of in VC 60, is of one taken only half a mile away at m.v. light by Mr. S. Coxey about 12 years ago. — J. Briggs, Frimley House, Deepdale Close, Slackhead, Beetham, nr. Milnthorpe.

Unusual Cross-Pairing in M.V. Trap in 1977. — The night of 6th and 7th July was fairly warm, with minimum night temperature of 14°C. 376 macros of 67 species were counted, including 103 *Agrotis exclamationis* L. No anaesthetic was used. On the inside wall of the trap was a female *A. exclamationis in cop.* with a male *Abrostola triplasia* L. (Light Spectacle). On boxing the pair no separation occurred, the *triplasia* was almost exhausted and by the following morning both were dead, still firmly attached. They are now on my setting board in death undivided. — J. Briggs, Frimley House, Deepdale Close, Slackhead, Beetham, nr. Milnthorpe.

Dewick's Plusia (Macdunnoughia confusa Stephens) and other Rare Migrant Moths in Warwickshire in 1977. — Among the more notable species recorded were three larvae of the Bedstraw Hawk (*Hyles gallii* Rott.), found by a schoolboy on the outskirts of Coventry in the early part of September. There was nothing else much of note until the exceptional migration in late October, when at Charlecote a female Delicate (*Mythimna vitellina* Hb.) turned up in my m.v. trap on the 20th. The following night a female Gem (*Orthonama obstipata* F.) appeared in good condition. At Marton some 15 miles away, the 19th produced for Graham Robson an *M. vitellina*; and on the 24th, a very cold moonlight night, he took a specimen in fine condition of the very rare Dewick's Plusia (*Macdunnoughia confusa* (Steph.). Another Marton man, Roy Allen, also caught in his moth trap a great rarity, the Silver-striped Hawk (*Hippotion celerio* L.), a male in good condition on the 28th, and on the same date, the Vestal (*Rhodometra sacraria* L. ab. *labda* Cramer). — Andrew Gardner, Willows End, 29 Charlecote, Nr. Warwick.

Breeding Pieris cheiranthi Hbn. (Lep.: Pieridae). — On the 10th September, 1977, whilst collecting at Puerto de la Cruz, Tenerife, Canary Islands, I found some eggs of this butterfly on the underside of a Nasturtium leaf (*Tropaeolum majus*). These eggs were either laid that very morning or on the afternoon of the previous day, as I had a look at the same plants on the morning of the 9th and did not see any.

On the 13th I flew back to London and on the 14th the eggs started hatching. In London I could not find any Nasturtium and so I decided to feed the larvae on the Kohl-Rabi or Stem-turnip (*Brassica caulorape*) which I found growing in my daughter's kitchen garden at Clapham Common. The larvae did very well on this foodplant, and by the 7th October most of them were fully grown; in fact a few stopped eating and were ready to pupate. Later that day I flew back to Malta, taking with me a couple of leaves of the foodplant to find handy on my arrival home.

I had 30 larvae, two of which I gave to a friend in London. On the 10th October, I had the first pupa and by the 13th I had ten pupae, greenish in colour. The remaining 18 larvae died as soon as I started feeding them on the Kohl-Rabi grown in Malta. I think this was probably due to the salinity of the water used for irrigation, or may be, they had developed a virus. The first butterfly, a perfect female, emerged on the 25th October, that is after 15 days; a male emerged on the 26th, but with one of the hindwings slightly deformed, and another male on the 27th, again with one wing deformed; three other males emerged badly deformed, and finally a perfect female emerged on the 30th; the remaining pupae went bad.

This was not a successful venture, but at least I got to know that besides Nasturtium (Fam., Geraniaciae), *P. cheiranthi* may also do well on Cruciferae just as *P. brassicae* L. does on Nasturtium. — ANTHONY VALLETTA, F.R.E.S., 257 Msida Street, B'Kara, Malta, G.C.

MYTHIMNA VITELLINA HBN., EPIPHYAS POSTVITTANA WALKER AND LITHOPHANE LEAUTIERI BOISD. IN WINCHESTER IN 1977; AND A VERY EARLY IDAEA SERIATA SCHRANK IN 1978. — The tail-end of the 1977 season brought three more species of some interest to my Winchester (VC.11) m.v. trap. A ♂ *M. vitellina* (Delicate) in perfect condition came on the night of 9th/10th October. Although 1976 was a good year for this moth, there appear to have been much fewer captures in 1977.

On the night of 27th/28th October, an *E. postvittana* came to the trap. So far as I have ascertained, this is only the second time this Tortricoid has been found in Hampshire, the other one being recorded by Sadler in 1967 (cf. *Ent. Rec.*, **79**: 87). There is some evidence that the species may have been breeding in my garden, as a further specimen (now in the possession of the Rev. Richard Dickson) was found dead, in a window of the house of Mr. George Else in Winchester. On the ledge of this window had been kept some Coleus plants, which had been raised from seed in my garden and upon which, in retrospect, it was remembered that some Tortricid-like spinnings had developed. The greenhouse in which the plants had been started, was a newly erected one used only for raising seeds, so there was no chance of accidental introduction of the species on plants.

I recorded the advent of *L. leautieri* (Blair's Shoulder-knot) in Winchester last year (in *Ent. Rec.*, **89**: 23). Although it was only possible to run the trap on about two nights in 1977 when *leautieri* was likely to be about, five specimens appeared between 7th and 22nd October. These, together with last year's, would indicate that this species is now well established in the neighbourhood.

1978 has produced an extraordinarily early record for *I. seriata* (Small Dusty Wave). A recently emerged ♀ was found resting on a fence just inside V.C.11 on 7th January by Mr. M. J. Sterling. — Col. D. H. Sterling, "Tangmere", 2 Hampton Lane, Winchester, Hants., SO22 5LF.

Isle of Man Lepidoptera, 1977. — It may be worth reporting some of the lepidoptera recorded here in 1977, during the fortnight beginning on 20th June. *Bembecia muscaeformis* Esp. (Thrift Clearwing), was seen in good numbers at a spot on the west coast on 22nd June. I flushed a female *Setina irrorella* L. (Dew Moth), from grass on the clifftop at Niarbyl the same day, in bright sunshine. Quite a careful search of grassheads, etc., in the same place early one morning a few days later, failed to reveal any more. Dusking at sea campion at various rocky places seemed to indicate that *Hadena caesia* Borkh. (The Grey), is not a common species, and I netted one only.

It was interesting to find *Pyrausta sanguinalis* L.; two at Rue Point on 23rd June, and one at the Ayres on 3rd July. One specimen of the Cochylid, *Aethes cnicana* Westw. came to mercury vapour light at Ballaugh on 29th June; and a a single *Narycia marginepunctella* Steph. (Tineidae), occurred at Ballaugh Curraghs on 30th June. Two other species, *Argyresthia conjugella* Z. and *A. laevigatella* H.-S. (Yponomeutidae) (both confirmed at BMNH), were taken singly at Tholt-y-Will Glen on 2nd July. These five species are not recorded in Chalmers-Hunt, *The Butterflies and Moths of the Isle of Man* (1970), and so may be new to Man.

Other of the smaller moths noted were: Pyralidae. *Aphomia sociella* L., Ballaugh; *Crambus pratellus* L., South Barrule; *Scoparia ambigualis* Treits., Ballaugh; *Pempelia dilutella* Hb., Rue Point; *Pyrausta cingulata* L., the Ayres. Cochylidae. *Agapeta hamana* L., Ballaugh. Tortricidae. *Cydia succedana* D. & S., Ballaugh; *Olethreutes lacunana* D. & S., South Barrule; *Aphelia viburnana* D. & S., South Barrule; *A. paleana* Hb., Ballaugh beach; *Pseudargyrotoza conwagana* F., Kirk Michael. Glyphipterygidae. *Glyphipteryx thrasonella* Scop., Ballaugh Curraghs. None of the larger moths, apart from those mentioned, or of the butterflies seen were of any particular interest, though a *Deilephila porcellus* L. (Small Elephant Hawk), which turned up at Ballaugh, is perhaps worth recording. — Dr. F. H. N. Smith, "Turnstones", Perrancoombe, Perranporth, Cornwall. [The discovery on the Isle of Man of the beautiful and exceedingly local Pyralid, *Pyrausta sanguinalis,* is of great interest. — J.M.C.-H.]

OCHROPLEURA FENNICA (TAUSCHER) (EVERSMANN'S RUSTIC) IN ABERDEENSHIRE. — We are pleased to record what is apparently the third British specimen of *Ochropleura fennica* (Tauscher) (Eversmann's Rustic) from Burnside of Keillyford, Barthol Chapel, Aberdeenshire (NJ 806 328) where it was caught by C.M. in an m.v. trap on 20th August, 1977. Barrett, C. G. (1896, *The Lepidoptera of the British Islands,* **3**: 375-376) records a specimen belonging to Mr. T. H. Allis which was probably captured by John Beresford, a Chesterfield miner, around 1850 and this specimen is still extant in York Museum. The only other record is of one taken at light at Shepperton, Middlesex, in August 1972 (cf. Durden, *Ent. Gaz.,* **25**: 51). The present specimen was kindly identified by Mr. E. C. Pelham-Clinton and is now in the Royal Scottish Museum.

This species seems to have circumpolar distribution which includes Scandinavia, and it is likely that all our British specimens are casual, easterly migrants. This suggestion is supported in the present case by captures of the migratory form of *Eurois occulta* (L.) (Great Brocade) nearby and at the same time. These were as follows: Barthol Chapel, 1 on 20th August; Fintray (NJ 832 195), 1 on 11th August; Udny (NJ 885 259), 10 on 21st August, 3 on 25th August.

A further interesting record is that on 25th August a specimen of *Apamea exulis assimilis* (Doubleday) (Northern Arches) was captured at Udny. Since the surrounding area is farmland, this specimen was obviously a stray and in view of the other records we now incline to the view that it may also have been a migrant from Scandinavia. — C. MARSDEN and M. R. YOUNG, Dept. of Zoology, University of Aberdeen, AB9 2TN.

A CURIOUS PHENOMENEN CONCERNING THE LAPPET (GASTROPACHA QUERCIFOLIA L.) AND A SECOND GENERATION. — On the 27th July, 1976, among a multitude of other insects here in my m.v. trap was a fine female lappet. As I had not bred this moth since childhood, I retained her and true to her kind she laid about a couple of hundred eggs in the box, after which she was released. The eggs duly hatched, and the baby larvae took well to a diet of wild plum. They were then split up, ten to a coffee jar, but as there were insufficient clear glass jars, 50 had to be put in brown glass jars. All went normally until they reached hibernating size, when most took up the usual hibernating position, that is to say those in the clear jars did. However, those in the brown jars continued to feed, and 27 days after hatching, i.e. on the 23rd of August, the first cocoon was noticed, and during the next few days a total of 36 had spun up. (Note: the remaining 14 that had been in brown jars were given away, but not all of these fed up in the autumn; thus, at least six of these hibernated, despite being more than twice the size of normal hibernating larvae for this species.)

The first moth emerged on the 27th September, 1976, to be followed by others. The wingspan of these second brood

moths was less than half that of normal specimens, being about the size of the sycamore (*Acronicta aceris* L.). They were also very much darker than normal *quercifolia.* Incidentally, from some of these I obtained pairings, the larvae from which, after reaching a certain stage, hibernated in the usual manner and were then indistinguishable from those of the first brood that had behaved "normally".

The only difference in the treatment of all these larvae, was that the larvae which continued to feed and produce a second brood were in brown jars, and those that hibernated were in clear jars. All the jars were on the same shelf, with the brown ones being mixed in with the clear ones. — PAUL RIX, 56 Shingham, Beechamwell, Swaffham, Norfolk, PE37 8AY.

AN EARLY PLUSIA GAMMA L. IN EASTBOURNE. — I was surprised by the capture of a single freshly emerged *P. gamma* on the evening of the 7th January, 1978. But of more interest are the unusual weather conditions in which this insect must have been flying, max. 1°C., min. −3°C., a very cold night. I incline to the view that it is a native specimen but the possibility cannot be ruled out of migration. — M. HADLEY, Life Sciences, 1 Botany Building, Imperial College, London, S.W.7. [Compare this with the curiously early appearance of *Idaea seriata* Schrank also on the 7th January, as recorded in this issue by Col. Sterling. It would be most interesting to hear of any other abnormal occurrences about that time. — Editor]

LEPIDOPTERA IN SHROPSHIRE IN 1977. — What an unusual year we have had, but I gather that our experience in Shropshire has been pretty general. The early species, *Celastrina argiolus* L., *Callophrys rubi* L., *Boloria selene* D. & S. for example, were plentiful. There then followed a long gap when it seemed that everything had failed and finally the later-emergers appeared very late and not very numerous. Most blame seems to have been attributed to the wet June.

Personally speaking, moth-trapping has been disappointing, many, many species just not putting in an appearance at all. Matters improved towards the end of the season, the most notable species taken being *Eurois occulta* L. (one on 15.viii) and *Leucania vitellina* (one on 20.x). About 25th October I was given a live specimen of *Agrius convolvuli* L., a male slightly damaged and found at rest near the last of the nicotianas, at Leighton, near Ironbridge. — DAVID J. SMITH, "Curlews", Rosemary Way, Pontesbury, Salop, SY5 0RW.

DIACHRYSIA ORICHALCEA F. (SLENDER BURNISHED BRASS) (LEP.: NOCTUIDAE) IN EAST SUSSEX. — On the evening of 19th October, 1977, I took a fine specimen of *D. orichalcea* at m.v. light in my garden at Ringmer. This rare immigrant is apparently more frequently captured in the south-west, and there seem to be very few published records for south-east England. — PETER J. HODGE, 8 Harvard Road, Ringmer, Lewes, East Sussex, BN8 5HJ.

PHYLLONORYCTER SAGITELLA (BJERKANDER) (LEP.: GRACILLARIIDAE) IN WORCESTERSHIRE. — On 2nd July, 1976, I found a number of *Phyllonorycter* mines on aspen in a locality in south Worcestershire. From these I bred two moths in mid-July 1976. I thought they were *Phyllonorycter comparella* (Duponchel), but when I read Mr. Price's article on *P. sagitella* from Gloucestershire (*Ent. Rec.*, **89**: 106-107), I had second thoughts about their identity. At the recent B.E.N.H.S. Annual Exhibition, Mr. Price and Mr. Chalmers-Hunt considered them to be *P. sagitella*, since when Dr. I. A. Watkinson has confirmed the genitalia to be those of this species. — Dr. A. N. B. SIMPSON, The Greenway, Collets Green, Powick, Worcester.

THE PEACOCK (NYMPHALIS IO L.) IN JANUARY 1978. — A peacock was watched by me for several minutes basking, crawling, and making brief flights, amongst bracken on an open slope near Plymouth. Very sunny. January 8th, 1978, 12.40 p.m. As if sensing a change in the weather, the butterfly suddenly flew off strongly and purposefully far across into the sunless side of the valley towards a distant farm cottage, and a few minutes later, the bracken slope area was enveloped in raw mist. — A. ARCHER-LOCK, 4 Glenwood Road, Mannamead, Plymouth, S. Devon, PL3 5NH.

EURYGNATHOMYIA BICOLOR ZETT. (DIPT., PALLOPTERIDAE) REDISCOVERED IN TEESIDE. — Soon after arriving at a streamside alder wood near Scargill (NZ01) in Teesdale, North Yorkshire on 16th June, 1977, I noticed an unfamiliar fly running about on low vegetation on the stream bank. Others were seen in the vicinity, some of them resting on the foliage of shrubs; in all 5 ♂ and 2 ♀ were obtained. This insect was 4.5 mm., brownish grey with the head and legs mainly orange yellow; the wings bear clouded crossveins and a dark shade on the apical margin, more intense in the female.

These flies were later identified as the rather aberrant Pallopterid *Eurygnathomyia bicolor* (Zett.), which had only recently been added to the British list by Cogan & Dear (1975, *Ent. mon. Mag.*, **110**: 173-181) on a single female collected at Coverdale, North Yorks., about 25-30 kilometres south of Scargill on 16.vi.1922 by C. A. Cheetham. They described the salient features; the fly is covered in greater detail by Morge (1963, *Sonderdruck aus Naturk. Jahrb. der Stadt Linz*, **1963**: 123-312) including a colour plate.

Griffiths (1972, The phylogenetic classification of Diptera Cyclorrhapha, *Ser. Ent.*, **8**: 247-248) proposed a new family Eurygnathomyiidae to include this species only and Cogan & Dear (*op. cit.*) supported this conclusion, although retaining the species in the Pallopteridae for convenience; however, Griffiths also contested the validity of family status for some other taxa within the Tephritoid family group, including *Palloptera* itself in the Tephritidae *sensu stricto*.

This new locality suggests that the species may have a centre of distribution in this part of northern England; its life history is not known. As the only previously known example

is in the Hope Department at Oxford, a pair has been deposited in the British Museum (Nat. Hist.) collection. — R. J. CHANDLER, Weston Research Laboratories, 644 Bath Road, Taplow, Maidenhead, Berks.

NOTES FROM NORFOLK. — Here are a few notes on my captures in 1977. The first indication I had of the Scarce Vapourer (*Orgyia recens* Hb.) was when I found a single larva on a blackberry bush about half a mile from here. This was on 12th September, 1974. It spun up on the 16th, but failed to emerge. Last year I took a single specimen here at light on 17th August. My wife and I have searched for larvae on several occasions but have been unlucky.

All the following were taken here in 1977, at a Robinson m.v. trap in the garden half a mile from the beach: Great Brocade (*Eurois occulta* L.), two specimens on 14th August. Alder (*Acronicta alni* L.), one on 3rd July, is only the second of this moth I have taken, the first being here on 12th June, 1976. Lunar Marbled Brown (*Drymonia ruficornis* Hufn.), 12th May, but taken here on several occasions before. The Delicate (*Mythimna vitellina* Hb.), two on 30th October and the first specimens I have taken. Lunar-spotted Pinion (*Cosmia affinis* L.), one on 14th August, one on 15th August. — PATRICK KEARNEY, "Umtata", Cley-by-Sea, Holt, Norfolk, 14.i.1978.

RED ADMIRALS (VANESSA ATALANTA L.) AND OTHER LEPIDOPTERA IN DECEMBER 1977. — On 24th December, 1977, while collecting larvae of *Eupithecia phoeniceata* Rambur from *Cupressus macrocarpa* Hartw. hedges growing along the sea-front in Torquay, S. Devon, I was surprised to dislodge two hibernating specimens of *Vanessa atalanta.* Also of interest, when beating the very low branches, was the steady yield of larvae of *Phlogophora meticulosa* L. (Angle-shades). These were, without exception, all in their penultimate instar and though only pure speculation, I think could well be the result of the large immigration of *meticulosa* which occurred during the early part of November. — B. SKINNER, 5 Rawlins Close, Addington, Surrey, CR2 8JS.

FURTHER REPORTS OF CAMBERWELL BEAUTIES SEEN AFTER HIBERNATION IN 1977. — On 4th May, Mr. A. T. Godwin, of the Old School, Asterley, Minsterley, Salop, saw an *antiopa* on The Stiperstones to the east of The Devil's Chair, near Gatten Plantation (SO.39), Salop (*per* David J. Smith). Another (or the same one?) was seen near Ludlow, Salop, on 9th May, by Mrs. Rolphe of Hereford (*per* Dr. M. W. Harper). Finally, one was seen at Netley (TQ.0848), Surrey, on the afternoon of 27th April, by John Cranham, a National Trust Warden, who saw it twice in a glade (*per* H. W. Mackworth-Praed). — J.M.C.-H.

LOZOTAENIODES FORMOSANUS (GEYER) (LEP.: TORTRICIDAE) IN HEREFORDSHIRE. — A single specimen of this species appeared at light in Ledbury on 13th August, 1977. This is a new county record in an area where *Pinus sylvestris* is uncommon. — Dr. M. W. HARPER, Cherry Orchard, Bullen, Ledbury, Herefordshire.

Current Literature

The Dragonflies of Great Britain and Ireland by **Cyril O. Hammond, F.R.E.S.** 115 pp., including 20 coloured plates, 23 text figures and 45 distribution maps, 4to., Curwen Press, 1977. £9.75.

Approximately two-thirds of this slim volume consists of illustrations and maps. It is an outstanding work on account of the value of the colour plates, which contain 167 figures by the author depicting for the first time both sexes of every dragonfly on the British list. A further innovation is the enlargement of many of these figures, thus showing clearly the distinguishing characters and so providing a ready means of identification.

There are generic and specific keys, a check list of the British species with vernacular names, and a chart of flight periods. The plates are conveniently arranged so that the appropriate text faces each species figured.

An important feature of the book is the chapter on larvae by the late A. E. Gardner. This comprises an introduction, detailed keys, and 130 finely executed line drawings by that well known Odonatist.

The work concludes with distribution maps of each of the 44 British species, using the 10 km. square dot system, based on all records at the Biological Records Centre received up to January 1977.

Mr. Hammond had been engaged for some 50 years on collecting material for a book on the British Dragonflies, and hoped to include a much fuller and more detailed text than is given here, but regretably owing to cost restrictions was unable to do so. Nevetheless, his book will be of the utmost value to anyone wishing to identify these beautiful insects, and is likely to be the standard reference work for many years to come. — J.M.C.-H.

Beetles in Colour by **Leif Lyneborg.** 90 pp., including 48 coloured plates of 482 figures drawn by **Niels Jonsson.** English edition by Gwynne Vevers. Sm. 8vo., boards, Blandford Press, Poole, Dorset, 1977. £3.25.

This handy guide treats of 440 different species, of which 119 are non-British. Each is depicted in colour with many of the figures enlarged. A further 36 coloured figures are of typical larvae. The text gives concise details of the characteristics of every species illustrated, including length measurements, distribution, habits and habitats. Authors' names have been omitted since this is not a book for the specialist.

The chief feature of this little work is of course the coloured illustrations, which on the whole are excellent, and the fact that each numbered figure refers to the same species's number in the text is a boon for ease of reference. Both paper and printing are satisfactory and the book fits nicely into the pocket. Recommended. — J.M.C.-H.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:—

(a) Leaf miners,
(b) Diptera, particularly Trypetidae and Agromyxidae,
(c) Lepidoptera, particularly Microlepidoptera,
(d) General entomology,

in the above order of preference, having regard to the suitability of candidates and of the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary to field work, for the study of collections, for the attendance at conferences, or exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £200 in 1978/79.

Applicants should send a statement, if possible in sextuplicate, of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to A. M. Emmet, M.B.E., T.D., M.A., F.L.S., F.R.E.S., Hon. Secretary, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, as soon as possible, and in any case not later than 30th September, 1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted — The County list of lepidoptera of Berkshire has not been up-dated since 1906 when W. Holland and A. H. Hamm prepared the Victoria County History entry. Holland's collection, with those of H. L. Dolton, F. W. Cocks and R. D. Sitwell, is at Reading Museum and these, together with other material, will form a working nucleus for the long term project of producing a new "Lepidoptera of Berkshire". Fieldworkers who have collected in V.C. 22 (the pre 1974 Berkshire) are invited to send records, in particular those of microlepidoptera, to the address given below. All records received will be duly acknowledged. Lepidopterists *resident* in Berkshire will be contacted personally and invited to participate at a later date. — B. R. Baker, Reading Museum & Art Gallery, Blagrave Street, Reading, Berkshire, RG1 1QN.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L.Inst.Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr. Wild on payment of 60p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber, plus 10p postage.

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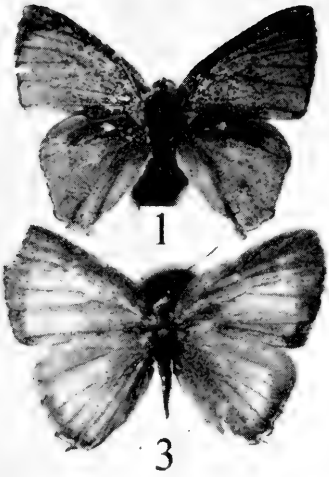
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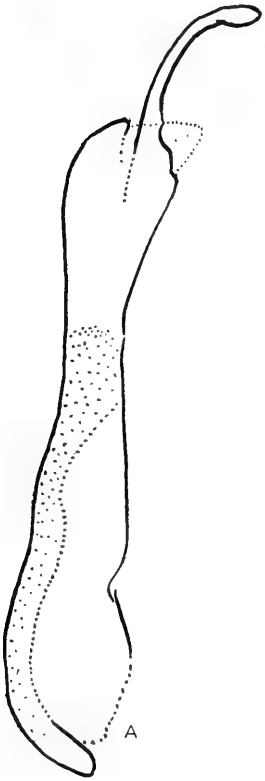
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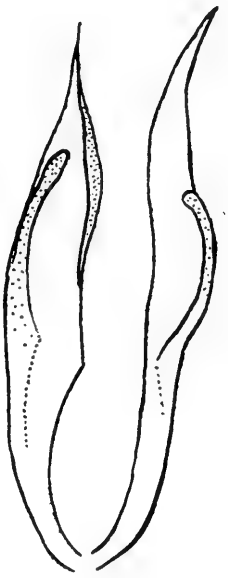
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On the Male of *Pilodeudorix bemba* (Neave) from Zambia (Lep.: Lycaenidae)

By G. E. Tite*

The species described by S. A. Neave (1910: 14) as *Deudorix bemba* has hitherto been known only from the unique female type, which is labelled "Luwingu, North of Lake Bangweolo, 2.vi.1908" and is in the collection of the University Museum, Oxford. A male specimen sent to the author by Dr. E. C. G. Pinhey of the National Museum, Bulawayo was captured by Mr. Ian Loe at Chililambombwe (formerly Bancroft), Zambia, in June 1969. This insect did at first appear to be new to science, but on comparison with the *bemba* type it was at once apparent that the underside colouring and pattern were identical; this, the general appearance of the upper surface of the wings, and the fact that both insects originated from the same general area made it almost certain that the Chililambombwe specimen is in fact the male of *bemba*. Dr. Pinhey (i.1) points out that the region from which these insects originate is now rather inaccessible, and that more collecting in the area is unlikely at present; it is therefore deemed advisable to describe the male, without waiting for confirmatory material.

Acknowledgements are made to the authorities of the Hope Department, University Museum, Oxford, in particular to Professor G. C. Varley, to Dr. E. C. G. Pinhey, to Mr. Ian D. Loe of Lusaka, and to Mr. T. G. Howarth recently of the British Museum (Natural History). Mr. Loe has most generously presented the specimen to the University Museum, Oxford.

The male may be described as follows: The forewing is more acute than that of the female, the distal margin slightly but evenly curved, and the spaces between the vein-ends convex, giving a somewhat scalloped effect. There is a distinct lobe on the basal half of the hind margin. In size, only slightly smaller than the type, the forewing measures approximately 14 mm. from base to apex. On the upper surface, the colour is dull violaceous blue of a deeper tint than that of the female. The costa is brownish black throughout its length, widening towards the apex to form a triangular area, which extends as a narrowing marginal line to the hind angle. The veins are sparsely scattered with blackish scales. Neave in his description of the female says that the under surface is pale greyish; it is here respectfully suggested that pale earth-brown would be a more accurate description. In other respects the male under surface does accurately agree with Neave's description, except

PLATE VII

Figs. 1-4. *Pilodeudorix bemba* Neave: 1. upperside ♂; 2. underside ♂; 3. upperside ♀ (holotype); 4. underside ♀ (holotype).
P. bemba ♂ genitalia: A. aedeagus; B. valves.

* 96 Dundale Road, Tring, Herts.

that from a shiny area in the hind marginal lobe arises a pencil of blackish hair.

In the hindwing, the distal margin is weakly concave between the angle at vein 3 and the end of vein 6. The anal tails are missing in the insect examined, but it is to be presumed that they are long and dusky as described by Neave. The stub of such a tail is visible at the end of vein 2. A pale mealy spot of specialised scales is situated over the juncture of veins 6 and 7; it is roughly triangular in shape, but has a slight distal projection on vein 7. The colour is similar to that of the forewing, violaceous blue, with a hair-like dusky distal margin, and a broad black-brown area at the costa covering the whole of area 7, and the basal two-thirds of area 6. In areas 1, 2 and 3, the dusky distal margin is inwardly bordered by a whitish stripe. A well defined anal lobe is marked by a reddish brown area at its base. The under surface is exactly as described by Neave. On all wings, the cilia are dusky above and of the same earth-brown as the under surface ground colour below.

Genitalia. These organs are very like those of *Pilodeudorix camerona* Plotz as figured by Stempffer (1967: 105, f. 97), the aedeagus having the same general shape and a similar large cuneus. The valves differ in being of an elongated leaf-shape, each terminating in an acute point; on their upper edge arises a curved finger-like projection.

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A Case against the Automobile. — Mr. Colin Pratt (*Ent. Rec.,* **89**: 330) presents some illuminating statistics on the large scale slaughter by motor vehicles of night-flying lepidoptera; and goes on to suggest that butterflies appear to suffer but few casualties, and those only among the Pieridae. That may be so, but my own belief is that a more detailed study may show a much wider range of species to be affected.

From experience of holiday motoring in France, I have noted that the large, slow-flying species are particularly susceptible and I have seen numerous examples of the swallowtails (*Papilio machaon* L. and *Iphiclides podalirius* L.), and also of the great banded grayling (*Brintesia circe* F.) which have been hit by motor vehicles. Perhaps more surprising, in the summer of 1976 in Cumbria, I came across a purple hairstreak (*Quercusia quercus* L.) also apparently having been hit by a vehicle. Incidentally, I believe a large number of caterpillars of some species of moths are also killed on the roads as they set off on their way to pupate. — G. G. Baldwin, 22 Edgerton Grove Road, Huddersfield, HD1 5QX.

A Week of Collecting in Tenerife, Canary Islands, in September 1977

By H. G. Allcard, F.R.E.S.[1] and A. Valletta, F.R.E.S.[2]

We met at the Mencey Hotel at Santa Cruz de Tenerife late in the afternoon of the 6th September, as owing to the industrial action in the British airports, both of us had some delay in our departures from Manchester, Ringway and Gatwick respectively.

Our main objectives were to get the endemic species of butterflies, especially *Gonepteryx cleobule* Huebner and *Pseudotergumia wyssii* Christ, though for A.V. any species would do as this was his first visit to the island. We prepared our itinerary for the next day over a cup of tea and hoped for the best.

At 9.30 a.m. on Wednesday the 7th, our friend Señor M. Morales Martin and his son called at the hotel to take us out in his car on Monte de las Mercedes, which is the habitat of the *G. cleobule*. We drove through the old city of La Laguna under a clear sky, but as soon as we reached the mountains we had to put on our jerseys and jackets as it was much cooler. To our dismay, we found ourselves enveloped in mist, and as visibility was down to a few yards had to give up at that spot. Therefore we drove to Cumbe de Arafo at an altitude of 1,700 m., which was not in the cloud belt, and where some wild flowers were still blooming, mostly the Californian poppy (*Eschscholtzia californica*). Here *Cyclyrius webbianus* Brullé, *L. phlaeas* Fab., *P. rapae* L. and *M. jurtina* L. were on the wing. A.V. could not resist turning over some rocks, and luckily came across a few of the large earwig *Annisolatis maxima* Brullé and some beetles, all *Heteger transversus* Brullé, which are only found on this island. The huge fly *Promachus vexator* Beck (Diptera, Asilidae) was quite common, darting from twig to twig, but was not easy to net.

At about 11.30 we drove higher, about 2,000 m., on slopes covered with *Pinus insignis* and *Pinus canariensis*. It was too hot there and one could see no sign of the panorama, for we were now above the clouds as though in an aircraft. Whilst turning a bend of the road, a brownish butterfly flitted rapidly before us and rested on the wall. We became suspicious and stopped, and there was the much desired *P. wyssii*. This butterfly is not easy to take in flight as it moves so rapidly, but when it alighted on a wall or the road we were able to do so, though we had to strike fast and hard. Most of the species seen had already passed their best, but we enjoyed ourselves manoeuvering our nets and testing our strokes! In this locality we also came across *P. daplidice* Fab. and *C. croceus* Fourc., and an odd *C. webbianus* and *L. phlaeas*. After an enjoyable cold lunch and a well deserved rest, we visited a much lower place at some 1,400 m. known by the name of Las Lagunetas. Whilst H.G.A. was seeking *Pandoriana pandora* Denis & Schiffer-

[1] "The Paddock", 164 Brooklands Road, Sale, Cheshire, M33 3PA.
[2] 257 Msida Street, B'Kara, Malta, G.C.

müller, A.V. was impressed by the large number of Orthoptera that infested the dry vegetation and succeeded in taking, during the space of a few minutes, *Calliptamus plebeius* (Walk.), *Oedalus decorus* (Germ.), *Aiolopus thalassinus* (Fab.), *Acrotylus patrueilis* (H.-S.) and the endemic mantid *Pseudodoyersina teydeana* Chop. Only a few *A. cramera* Eschscholtz f. *canariensis* Bell, *L. phlaeas, P. rapae* and one *P. pandora* were seen, and that was all for the day . . . not many butterflies but at least we took one of the two most sought-after species.

On Thursday the 8th, we again drove to Monte de las Mercedes, but still no luck, with visibility very bad, cold weather and overcast sky. After a two-hour drive which brought us to the same place where the *P. wyssii* was taken the previous day, conditions were much better, but to our disappointment only two worn specimens of this butterfly were seen and one *P. pandora* taken, and one *Vanessa indica vulcania* Latreille & Godart, which unfortunately escaped whilst being transferred from the net to the killing bottle. In the later afternoon we visited again Cumbe de Arafo, hoping to see *P. pandora* but only the same two lycaenids seen on the previous day were on the wing.

Friday the 9th, still the Mercedes Mountains were covered by cloud, so we took the long journey to Puerto de la Cruz on the other side of the island, and collected at a height of 100 to 200 m. Though cloudy, it was quite warm, and visiting the flowers of the bougainvillea, plumbago and lantana, we now and again saw *Danaus plexippus* L., *Catopsilia florella* Fab. and *P. cheiranthi* Huebner. Flying a few inches above the ground we also came across *Ziziera knysna* Trimer and *P. xiphioides* Staudinger, *zigzagging* underneath the hibiscus and poinsettias, whilst several species of dragonflies were hovering over dried vegetation.

Saturday the 10th — conditions on the Mercedes still the same. Once more we went to Puerto de la Cruz. This time, spotting some pupae of *P. cheiranthi* high up on a wall, and fastening our net sticks together, with a knife attached at one end, we managed to cut down three pupae which a few days later turned into beautiful female butterflies. Beneath some nasturtium leaves, we found batches of eggs of the same species of butterfly. Later in the day, we searched for eggs and larvae of *C. florella* on the Cassia, and succeeded in finding some larvae in different stages of development, one ready to pupate and others just hatched. The butterflies seen on the previous day were still flying about, but in fewer numbers as the weather was less encouraging.

Sunday the 11th — at long last a clear sky with plenty of sunshine on the Mercedes. We spent the whole day there collecting at an altitude of 800-1,000 m. Occasionally *G. cleobule* left the extensive plantations of *Laurus azorica* (Seub.) Franco, *Erica scoparia* and *E. arborea, Rhamnus glandulosa* and crossed the road seeking the flowers of *Rubus ulmifolius* Schott and those of *Hypericum glandulosum* and *H. canariense* bushes, which formed hedges along the road.

There we were able to take a few, notwithstanding the heavy traffic on a Sunday afternoon. It was quite natural that the butterflies were looking for flowers to quench their thirst after at least a whole week in hiding. In this area, *C. webbianus* was just emerging and fairly common, together with *C. croceus* and its form *helicina, P. daplidice* and *P. rapae.* Only one *V. indica vulcania* was seen resting on a high branch of a *Rhamnus* tree. Here again A.V. wanted to get other insects and netted the Cerambyx, *Leptura palmi* and the Staphilinid *Creophilus maxillosus* ssp. *canariensis,* as well as five species of hymenoptera, viz. *Bombus terrestris* ssp. *canariensis, Thyreus histrionicus, Vespa germanica, Ammophila teydei* and *Ancistrocesus* sp. and one species of diptera, a Bombylid, *Villa nigrifrons* Macq. Tired and almost exhausted, but quite saitsfied with the catch after four days of expectation, we retired to the hotel late in the afternoon looking forward to a refreshing bath.

Monday the 12th. After the previous day's encouragement we drove again to the Mercedes, but no sooner had we reached the first collecting spot, than clouds came moving in and it soon started to rain; so we had to return to the hotel and set what we had collected so far. During the dull afternoon, we visited the Museum of Natural History and had a chat with the curator and his assistant. A.V. had the opportunity to identify the endemic species of insects he had taken.

Tuesday the 13th — the best day of the whole week! It was unfortunately also the day of our departure; however, we were not to leave before 3 p.m. though we had to be at the airport at 2 p.m. We had an early breakfast, checked out from the hotel, put the luggage in the boot of a taxi and off we went to Las Mercedes. There was *G. cleobule* again, not in good numbers, but more were seen than on Sunday, mostly females. This time we were less troubled by traffic. By the edges of the wood *P. xiphioides* was seen several times, but mostly much worn. We kept an eye on the watch and by 1.55 p.m. we were at the airport, only to learn that both our planes had an hour's delay. By 4.30 p.m. we were both in the air but on different planes, watching carefully the hand luggage which contained our catch of the week, souvenirs of a happy and restful week on the mountainous island of Tenerife.

Acknowledgements

Our thanks are due to Señor M. Morales Martin, for taking us round in his car to the best collecting grounds, and for identifying the Orthoptera taken. We are also indebted to the curator of the Museum, Dr. F. Fernandez, and to his assistant for all the facilities given to us during our short visit.

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ACHERONTIA ATROPOS L., THE DEATH'S HEAD HAWK MOTH. — In the December issue of *The Record,* C. G. M. de Worms records a specimen of this moth from near Guildford. I also took this species several times near Cranleigh and on one occasion I had a female that was found on the outside of a modern beehive (which of course is quite useless for entry by this moth). More recently, here at steeple Barton, I have two records: first, a female was brought to me which had been found in a bedroom. I was interested because this room was in fact in an old-fashioned cottage and the bedroom never had a light on. I enquired whether there were any bees in the roof and this immediately drew the response that there had been, for years, a large bees' nest there. More recently I obtained a male in my m.v. trap here at Steeple Barton. I took it down to the cellar where there was complete silence and there recorded its violent stridulations which occurred every time I touched it. I played the recording to Professor Pringle of the Department of Zoology, Oxford (who is an authority on bees). He had never heard these stridulations before; yet he immediately said, "it sounds to me exactly like the 'piping' of a queen bee".

At a later date I took the recording up to the steeple of our local church where a very large nest of bees had lived for some years. Unfortunately, I got no results because it was too late in the season, and the temperature was low. I think there is a considerable amount of work to be done on this species and its extraordinary life history. Why is the tongue so different from that of other sphingids? Why does the pupa stridulate? It seems to me to have a highly specialised life history adapted to the bee, yet both sexes of *atropos* have been found "stung to death" in bees' nests. It is surprising that it has not been taken at "sugar" in this country (so I believe).

I have taken the species in S. Africa and elsewhere in southern latitudes, and it appears to me that the stridulation and activity there is greater than those I have seen in this country. — Dr. H. B. D. KETTLEWELL, M.A., D.Sc., M.B., B.Chir., M.R.C.S., L.R.C.P.

Collecting Lepidoptera in Britain during 1977

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.*

(*concluded from page 79*)

Reference has already been made to the running of the m.v. trap at our chalet overlooking the bay. For the first week it produced phenomenal results (*vide Entom. Rec.*, **89**: 314). We were amazed to find a huge concourse of moths on our first morning, July 9th-10th, with all the cartons quite weighed down with the mass of insects, which we estimated to be some 2,300 individuals, comprising 43 species of the macros. By far the largest proportion was some 1,650 *Agrotis exclamationis* L., and just over 500 *Apamea monoglypha* L. These two insects were easily the most numerous throughout the period, constituting over 90% of the total numbers. However, there was a fair assortment of other insects this first night, including four species of the sphinges, notably *Laothoë populi* L., *Smerinthus ocellatus* L., *Deilephila elpenor* L. and no less than a dozen *D. porcellus* L. There was too a single late *Dicranura vinula* L., several *Malacosoma neustria* L., also *Arctia caja* L., *Philudoria potatoria* L., and among the noctuids, a fresh male *Agrotis trux* Hübn., several deep brown *Hadena lepida* Esp., *Apamea lithoxylea* D. & S., many *Cucullia umbratica* L. and a single *Plusia bractea* D. & S.; but not many geometers, which were mainly *Lygris pyraliata* D. & S., *Eupithecia pulchellata* Stephens and *Idea subsericeata* Haworth. The pattern was much the same the next night, also warm with an easterly wind, when we estimated the catch at an even higher figure of some 2,500, with 47 species and at least 2,000 *A. exclamationis.* The chief newcomers included *Thyatira batis* L., *Agrotis vestigialis* Hufn., *Hippocrita jacobaeae* L., many more *H. lepida,* several *H. conspersa* D. & S., some very fine *Ceramica pisi* L., also *Hecatera bicolorata* Hufn., *Plusia pulcherina* L., *Pseudoterpna pruinata* Hufn. and *Perizoma affinitata* Stephens. The three subsequent nights, those of July 11th, 12th and 13th, each produced from 1,500 to 1,750 individuals, with 50 species on the last night, each with much the same pattern of insects as before, but with a few new ones, mostly in singles, such as a worn *Hadena barrettii* Doubleday on the 12th, together with *Amathes ditrapezium* D. & S., the first *Leucania putrescens* Hübn., also *Cucullia asteris* D. & S., a very westerly station for this insect. There were, furthermore, several *Procus versicolor* Borkh., more *Agrotis trux* Hübn. and *Bombycia viminalis* Fab. More *L. putrescens* appeared on the 13th, together with a solitary *Apamea furva* D. & S. Numbers began falling the following three nights to below a thousand up until the 16th, when the wind changed to the west, and the final three nights only produced a total of 40 individuals. The only unusual visitor the last night on July 15th, was a worn female *Hadena bombycina* Hufn. The grand total for the eleven nights was around the 12,000 mark, comprising 98 species of the macros, of which there were nearly

* Three Oaks, Shore's Road, Horsell, Woking, Surrey.

60 each of *D. porcellus* and *C. umbratica.* Mr. Stewart Coxey and his wife arrived on July 18th at our hotel, staying for nearly a week. He later told me that just after we left, he had several *Plusia chryson* Esp. to light, which appeared quite a fortnight later than its normal date.

Early on July 20th, we set our faces eastwards again and retracing our route through South Wales, we reached Abergavenny in the afternoon and went up the picturesque Lantory Valley to view the ancient Abbey. Little was on the wing, however, and we proceeded via Monmouth along the Wye Valley to Tintern, where the Beaufort Hotel was once more our headquarters as it had been on a number of previous visits to this well-known region, but conditions were far from propitious and we did no collecting. Leaving Tintern early on July 21st, we made our way over the Severn Bridge once more along the M4, and were back in Surrey by the early afternoon after what had proved a most interesting and quite a profitable couple of weeks in the West.

It was still quite warm in the upper 70's when we got back and the thermometer topped 80°F. in the shade on July 23rd, but it had dropped considerably when Mr. Messenger and I were once more in the Chiddingfold area on the 24th. This did not deter plenty of *Argynnis paphia* L. of both sexes from patronising thistle heads in King's Park Wood that afternoon. In fact they were hardly less plentiful in this region, than they were in 1976 when this species was really in spate. There was also quite a number of *Limenitis camilla* L. sailing about, still in good order, with many *Maniola jurtina* L. and lots of *T. sylvestris.* I was in Alice Holt Forest with Dr. J. Holmes and Mr. D. Young on the 25th, but it was dull and rainy and no *Apatura iris* L. were on the wing, though this grand insect had been out for at least ten days in that noted locality.

The next day, July 26th, I flew to northern Italy, near Lake Garda, returning on August 7th to find summer was still with us with the temperature still above 70°F.; but it was once more dull when I revisited Alice Holt on the 9th and again met Dr. Holmes, this time in company with Dr. Fred Goodliffe. In spite of the somewhat overcast conditions, quite a lot of butterflies were flying, including *L. camilla, A. hyperantus,* lots of *M. tithonus* and quite a number of *Thecla quercus* L. *Pieris napi* L. was also quite numerous, but searching sallows failed to disclose any ova or small larvae of *A. iris.* The warm and fine weather continued during the second week of August, but little was on the move on White Down, near Gomshall, on the 12th, and it was surprising not to see *Lysandra coridon* Poda as yet. The next day, *Polygonia c-album* L. and *Celastrina argiolus* were flying in Mr. Messenger's garden at Witley. This blue was having a very good second emergence. After the fine days of the first half of August, a dull and wet period set in during the third week, but it was reasonably fine when I visited Pewley Down, outside Guildford, on the 21st. *L. coridon* was flying in fair plenty and still quite

fresh, as it had appeared over a month later there than in 1976. It warmed up considerably to usher in the last week of the month, when *Inachis io* L. appeared in quantity, mainly on buddleias, in many parts of the south of England, and not least in my garden at Horsell

On August 26th, I once more set out towards the west with my first stop near Blandford to stay with my relatives. Conditions were quite congenial on the 27th when we visited Stourhead, near Mere, but nothing of note was flying in the huge estate and garden. However, many whites were to be seen the following morning of the 28th, especially *P. napi*, both on Bulbarrow Down and near Hod Hill, and still more later that day in the garden of Mr. N. G. Wykes at Uploders, near Bridport, but there seemed at this time to be very few Nymphalines or Satyrids. The next morning, August 29th, I motored via Dorchester and on to Bridport and Honiton to Exeter, taking the new by-pass and fast double highway to Plymouth and the Saltash Bridge. Then by-passing Bodmin I was not long in getting through Truro, finally reaching Mullion in the late afternoon. My haven was once more the Mullion Cove Hotel, which had been so rewarding for insects in June 1974 and August 1976. And this visit proved no less fruitful, since again I was able to run my m.v. trap in front of the hotel cliff. That evening, Mr. Barry Goater who was staying on the Lizard, called for me and conducted me to a sandy beach in that area, where after assiduous searching with torch and lamp we managed to locate a couple of *Luperina nickerlii leechi* Goater at rest on short herbage, with a few *Agrotis vestigialis* Hufn., but the night was windy and cool and far from propitious. Dull conditions supervened on the 30th, and nothing of note appeared on Goonhilly Down or near Coverack in the afternoon, and my only visitors to lights in Poldhu Cove that evening were *Luperina testacea* D. & S. and *Amathes xanthographa* D. & S. However, the last day of the month, the 31st, seemed much more productive. Several *Eumenis semele* L. were flying on Goonhilly, which has largely recovered from the great fires of 1976. The Cornish Heath (*Erica vagans*) was at its best and in full bloom in great clusters on the sides of most roads. There were still a good many *M. tithonus* and a few worn *Pararge megera* on the wing. Barry Goater called for me again towards dusk and we revisited our former locality under ideal conditions. This time we found *leechi* at rest fairly commonly, with both sexes in almost equal numbers and some even drying their wings, again with several *A. vestigialis*, a few *L. testacea* and a single *Pyrameis cardui* L. *Leechi*, this newly-discovered race of *L. nickerlii* Freyer, has much kinship with the form *gueneii* Doubleday, now found in several localities among sandhills on the North Welsh coast. But their counterpart in Kerry, *knilli* Boursin, has quite a different type of terrain, being apparently a denizen of steep cliffs where it comes to light freely unlike the two other forms referred to, so that it is debatable if more than one species is involved.

September opened with very dull and rainy conditions, and no outdoor collecting was possible by day on the 1st. It

was generally brighter the next day when I was once more on Goonhilly, but only a few *P. napi* were observed. As already mentioned, I had facilities to run my m.v. trap for the five nights and though results were not nearly so spectacular in this locality as for a similar period just a year previously in 1976, yet some quite interesting visitors were among 275 individuals and 28 species of macros. The first night on August 29th produced some quite fresh *Euxoa obelisca* D. & S., with a couple of dozen *L. testacea* of every variety, including some very dark examples. Among only 15 visitors on the 30th, was a fine male *Lasiocampa trifolii* D. & S. of the intense brown form with the discal white eyespots very lanceolate. There was also *Arctia caja* L. and *Euschesis interjecta* Hübn. The first *Eilema caniola* Hübn. appeared on the 31st with *Hepialus sylvina* L. A fine *Cryphia muralis* Forst was a visitor on September 1st, with further *E. obelisca* and a single *Eupithecia phoeniceata* Mabille, *Tholera cespitis* D. & S., *Caradrina ambigua* D. & S., while *Scopula promultata* Guen. were newcomers on my last night, the 2nd. There was also again a spate of *L. testacea,* a lot of *Euschesis comes* Hübn., and a further *E. caniola.*

On September 3rd I left Mullion, and retracing my earlier route, reached Portland via Abbotsbury in the late afternoon. I surveyed some of the open ground but only a few Whites were on the wing. The Pennsylvania Castle Hotel was my haven, as it had been on many previous occasions. I ran my m.v. trap on the lawn overlooking the east-facing cliff, but only 36 moths from eleven species favoured it. These included *Malacosoma neustria* L., *Plusia gamma* L., a single *Ennomos quercinaria* Hufn. and *H. sylvina* L. The commonest species was *Caradrina ambigua* D. & S., which seemed to be in abundance almost everywhere in the south throughout this period and well into the autumn. I spent the morning of September 4th in bright sunshine on the open ground towards the prison on Portland, where many *Pieris rapae* L. were flying with quite an assortment of *Lysandra coridon* Poda, mostly males in still quite fresh condition but with no variation apparent. I then made my way, via Weymouth and Bere Regis, to Wimborne and on to the New Forest, where I called on Mr. Gilbert Nixon and Mr. Donald Russwurm, but only a few Whites were flying in their respective gardens near Brockenhurst. That evening I was back in Surrey, after what had been a most interesting trip over the August Bank Holiday period.

Temperatures kept up in the upper 60's for the most part for the first half of September, but reached 72°F. in the shade when I revisited the Chiddingfold district after quite an interval on the 11th, but only the common Pierids seemed to be about. However, there were several *Pyrameis atalanta* L. in Mr. J. Messenger's garden at Witley, with once more *Celastrina argiolus* L. The following afternoon I was on Ranmore Common, also in warmth and sunshine. There I met Mr. Richard Fairclough, who had taken a female *Colias croceus* Fourc. there the previous week, quite a rarity nowa-

days. There was a good showing of *Lycandra bellargus* Rott., though some were well past their best. *P. icarus* was also in fair numbers, as was *Maniola jurtina* L. with plenty of fresh females, and that local geometer *Aspitates gilvaria* D. & S. was flying freely on the slopes. It was a good deal cooler when I set out for Kent on September 16th, making my headquarters in Ashford. *P. rapae* was much in evidence the next morning in Hoad's Wood, but little was flying near Folkestone later that day. I was in the Orlestone Woods after dark, but again there was a paucity of visitors to light, only a few geometers, mainly late *Idaea aversata* L. and *Deuteronomos alniaria* L. Posts at Dungeness on the morning of the 18th were virtually blank, as was also the toadflax, with no larvae of *Calophasia lunula* Hufn. forthcoming. Nor did Mr. Michael Tweedie's garden near Rye yield anything of note that afternoon. Returning to Surrey on September 19th under much cooler conditions, it warmed up considerably during the last ten days of the month, with quite a number of the Vanessids appearing on the michaelmas daisies. There was quite a good showing of *Aglais urticae* L., with an occasional *P. atalanta* and *Polygonia c-album* L. The temperature rose to 72°F. on September 27th, and throughout almost the whole of October, a most congenial month, did not fall below 60°F. by day, sometimes reaching the upper 60's. The Vanessids were prevalent on the daisies until they were over just before the end of October, while the moths during the early part of the autumn were quite plentiful; in particular, *Omphaloscelis lunosa* Haworth, *Aporophyla nigra* Haworth, and quite a few *A. lutulenta* D. & S. to light in Surrey, with the ever present *Caradrina ambigua* D. & S. which lasted in exceptional numbers all through the late summer until well into October. But none of the substantial autumn migration came my way, except for a few *Agrotis ypsilon* Hufn. On October 11th, I paid a final visit to Pewley Down, but failed to find any larvae of *Eupithecia pimpinellata* Hübn., which were very prevalent there in 1976 on their foodplant, the burnet saxifrage. *Aglais urticae* was still on the wing there. November started with a good many very mild days, with the thermometer sometimes topping 60°F., as it did when I went to the downs near Gomshall on the 8th, but the only visitors to my Heath light were a few *Poecilocampa populi* L. And there was similar comparative warmth when I revisited Kent on the 11th, but the season was virtually over in those parts and no lepidoptera were forthcoming either near Folkestone or in the Ham Street area. Little came to light for the rest of the month, which provided quite a cool period in its final ten days. However, December proved again very mild with the temperature often in the upper 50's.

The year 1977, which ended on a comparatively cool note, was generally considered to be fairly lean and late, with numbers of insects coming to light in most parts well below the average. Migrants were by no means numerous, most only being recorded in early March and late October.

The Genus *Paragus* (Dipt.: Syrphidae) in the British Isles, including a Key to Known and Possible British Isles Species

By Dr. MARTIN C. D. SPEIGHT*

The hover-fly genus *Paragus* is cosmopolitan, seemingly absent only from the Neotropical (see Vockeroth, 1969), the islands of the Pacific Ocean (see Hull, 1937) and the polar regions. Problems of the identity of *Paragus* species are equally circum-global, since the genus contains groups of closely similar species and each group tends to be represented in more than one zoogeographic region, giving rise to much misinterpretation and synonymy. Stuckenberg (1954a) demonstrates this phenomenon very clearly in relation to the *Paragus serratus* group, starting out with three Oriental and two Afrotropical (this term is used here *sensu* Crosskey & White, 1977, in place of the confusing term "Ethiopian") species, one of which (*P. serratus*) was apparently shared, and ending up with four species in each region, none of them shared. At present, one of the British Isles species (*P. tibialis* Fal.) is supposedly found throughout the Holarctic and down into the Oriental region as far as Ceylon, in Australia and through the length and breadth of the Afrotropical (see Delfinado *et al.*, 1975; Stone *et al.*, 1965; Stuckenberg, 1954b). With time, this latter distribution pattern would seem likely to go the same way as that of the pre-Stuckenberg "*P. serratus*" — certainly the Afrotropical "*P. tibialis*" is not *P. tibialis* Fal., to judge from Stuckenberg's figure of the genitalia.

The *Paragus* species occurring in the Western part of the Palearctic have been chewed over by a variety of authors, but the result has been a progressive descent into chaos and confusion. The difficulties surrounding the correct determination of British Isles *Paragus* lessened somewhat with the appearance of Goeldin's (1971) paper and Pedersen's (1972) key to the Danish species, but in 1976 Goeldlin's masterly revision of the Western European species was published, providing a comprehensive account of all the species which might possibly occur here.

Stuckenberg (1954b) distinguished two subgenera of *Paragus*. As demonstrated by Goeldlin (1976), the European species all fall easily into one or other of these two sub-genera, and it would seem quite likely that eventually they will both be given full generic status. These generic sub-divisions have thus been followed in the present account. The synonymy of the three known British Isles species may be given as follows:

Paragus Lat. 1804
s. *Pandasyopthalmus* Stuck. 1954
haemorrhous Mg. 1822
sigillatus Curtis 1836
sigilatus Curtis 1836, variant spelling
tibialis Fal. auctt. partim. nec Verrall, 1901
trianguliferus Zett. 1838

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tibialis Fal. 1817
aeneus Mg. 1822
meridionalis Beck. 1921
numidus Macqt.
obscurus Mg. 1822
zonatus Mg. 1822
s. *Paragus* Stuck. 1954
albifrons (Fal. 1817)
bicolor (Fab. 1794) auctt. nec Verrall, 1901
lacerus Lw. 1840

Because Coe's (1953) key is now unuseable as a means of differentiating the *Paragus* species known to occur in the British Isles at present, I have constructed another key, based to a large extent on that in Goeldlin (1976). Seeing the confusion which has surrounded for so long the British Isles *Paragus* species, I have included in the key not only those species known there currently, but also others which may be expected to turn up. In addition to the species keyed out here, the following are known in continental Europe:

s. *Pandasyopthalmus*
coadunatus Rond.: Mediterranean islands and N. Africa
s. *Paragus*
absidatus Goeldl.: Alps and Pyrenees
cinctus Schin. & Egg.: France, Italy, Austria
flammeus Goeldl.: Switzerland
quadrifasciatus Mg.: central Europe to France
strigatus Mg.: Mediterranean basin

Recourse should be made to Goeldlin's (1976) key for the determination of continental European specimens.

Having seen no British Isles specimens of any of the predominantly orange *P. bicolor* group species, I am inclined to consider they are all absent here, but *P. bicolor* has been included in the accompanying key because it is a name that has been on the British lists. Of the two related species I have included, *P. finitimus* is in the key because E. Torp Pedersen has suggested to me (*pers. comm.*) that this species might be present in the British Isles and *P. punctulatus* is in the key because its continental distribution suggests its occurrence here is possible. *P. majoranae* is extremely similar to *P. albifrons* and occurs in N. France, so it too could turn up in the British Isles. A key to the known British Isles species only is being published elsewhere (Speight and Irwin, *in press*).

Key

1. Eyes with vertical stripes of white hair, alternating with either stripes of brown hair, or bare areas (♂ abdomen stout, see fig. 2e) ..... s. *Paragus* — 5
— eyes with a more or less uniformly distributed covering of white hair (♂ abdomen narrower and somewhat waisted, see figs. 2a, c) ..... s. *Pandasyopthalmus* — 2
2. ♂♂ 3
♀♀ 4

3. Sternites 2-4 of more or less equal length (and st. 5 hardly more developed than st. 6 or st. 7 (see fig. 2b); surstyli and parameres of about equal length (see figs. 3a-c); all-black or with parts of tergite 3 and or tip of abdomen reddish (usually all-black in British Isles specimens); body length (mm.) 4-5.5; wing length (mm.) 3.5-4; throughout the British Isles; May-September ..... *haemorrhous* Mg.
— sternite 4 no more than two-thirds the length of st. 3 (and st. 5 prominent) (see fig. 2d); surstyli only about half the length of the parameres (see figs. 3e-f); tergites from all-black to predominantly red (frequently only the genital capsule and central area of t. 3 reddish in British Isles specimens); body length (mm.) 4-5.5; wing length (mm.) 3-4; S. England (Hants./Dorset border) and S.W. Ireland (Co. Clare); July-August ..... *tibialis* Fal.
4. At present, females belonging to s. *Pandasyopthalmus* cannot be distinguished from each other, but it is worth noting here that they all have the scutellum entirely black, in contrast to most s. *Paragus* species.
5. Lower face greatly produced (see fig. 1b); tergite 8 with a pronounced longitudinal groove medianly; tergites predominantly red; N. Europe and mountain ranges S. to the Pyrenees ..... (*punctulatus* Zett.)
— lower face hardly produced, in outline more or less parallel with eye margin (see figs. 1c-f) 6
6. Lateral margins of all tergites black (abdomen all, or nearly all, black, at most with a median, orange triangular mark on t. 2 and a narrow, anterior, orange band on t. 3) 7
— lateral margins of tergites 2 and 3 (at least) all or partly orange (t. 3 all orange or with anterior half orange) 8
7. Tergites 2-4 with very distinct, but narrow, transverse bands of silver dusting (beneath the over-lying bands of whitish hairs), widely broken along the mid-line and placed about half-way down each tergite (see fig. 2f); abdomen usually all-black; most of Europe into N. France ..... (*majoranae* Rond.)
— tergites normally entirely without transverse bands of silver dusting, though the bands of whitish hairs are present and traces of dusting may be discerned; abdomen often with orange marks on tergites 2 and 3; (rim of scutellum yellow, though yellow area sometimes reduced to a small, obscurely yellow spot); body length (mm.) ♂ 4-6, ♀ 5.5-6; wing length (mm.) ♂ 3.25-4, ♀ 4-5.5; S. England from Devon to Sussex; no recent records; May-August ..... *albifrons* (Fal.)
8. ♂♂ 9
— ♀♀ 10
9. At least tergite 4 with a pair of distinct, but narrow, transverse bands of silver dusting, located in the hind third of the tergite (see fig. 2g), in addition to the general covering of short white and black hairs; Medi-

terranean basin through to Persia ..... (*bicolor* (Fab.))

— tergites without bands of silver dusting but with a general covering of short hairs (reddish anteriorly on each tergite, black posteriorly on each tergite); Scandinavia, Holland (?) and Switzerland ..... (*finitimus* Goeldl.)

'0 — tergite 7 with a shallow, median, longitudinal depression ..... (*finitimus* Goeldl.)

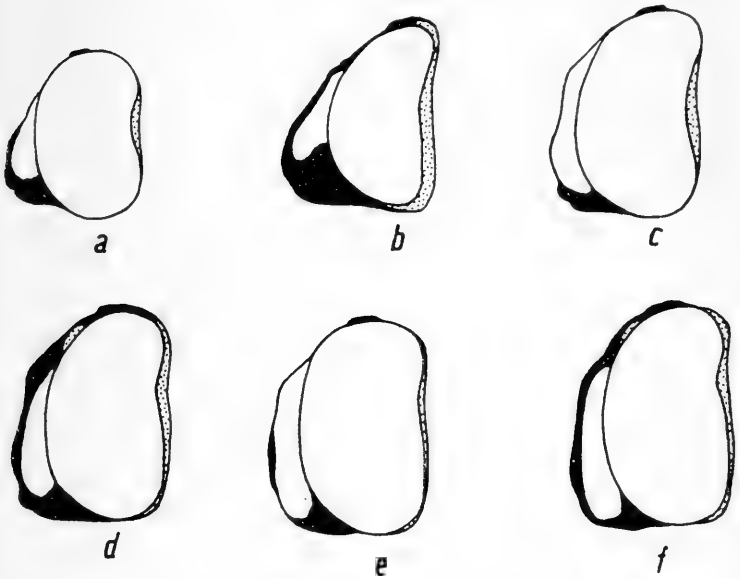

Fig. 1, Heads, side view: (a) *P. haemorrhous* ♂; (b) *P. punctulatus* ♀; (c) *P. albifrons* ♂; (d) *P. albifrons* ♀; (e) *P. bicolor* ♂; (f) *P. bicolor* ♀. Areas of obvious dusting are stippled; (a) and (c-f) are all drawn to the same scale; (b) has been redrawn from Goeldlin (1976).

10. Tergite 7 with a transverse, annular ridge ..... (*bicolor* (Fab.))

Notes on British Isles species

P. albifrons (Fal.)

This is the *P. bicolor* of Verrall, Collin and Coe (I have examined British specimens labelled as *"P. bicolor"* from the Verrall-Collin collection and the British Museum, and all were *P. albifrons*). It is the only known British Isles species belonging to the subgenus *Paragus.* Apart from the pale yellowish tip to the scutellum, *P. albifrons* is usually all-black, but may bear orange marks on tergites 2 and 3. In the field it is indistinguishable from *P. majoranae,* a species reinstated by Goeldlin (1976). A larger, more secretive species, of damper, more heavily vegetated sites than the others occurring in the British Isles, *P. albifrons* flies quite low among tall grasses and possibly flies for a shorter time each day than the others. It is probably more likely to be recorded from sweep-net activity than from direct collecting and can also be collected using

a malaise trap. The aphidophagous larvae have been described and figured by Goeldlin (1974).

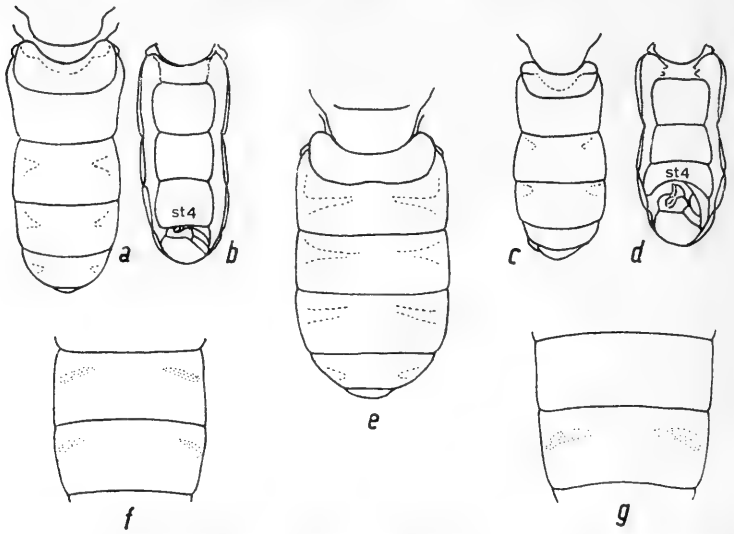

Fig. 2, ♂ Abdomens, from above and below: (a, b) *P. haemorrhous* (large and small specimens); (c, d) *P. tibialis*; (e) *P. albifrons*; (f) *P. majoranae*, tergites 3 and 4; (g) *P. bicolor*, tergites 3 and 4. Dotted lines in (a, c and e) outline depressions; stippled areas in (f, g) represent bars of dusting; st4=4th sternite; all drawn to same scale.

P. haemorrhous Mg.

Goeldlin's (1976) revision demonstrates that four species (one of them new to science) had been until then confused under the name *P. tibialis*. One of these was *P. haemorrhous*. This is the *P. sigillatus* of Curtis, wrongly synonymised with *P. tibialis* by Verrall (1901). *P. tibialis* can be distinguished from the three related species on non-genitalic characters, but the main character used in identification of the latter three is the shape of the parameres. Dr. Goeldlin has kindly examined for me a number of British Isles specimens belonging to this group and determined them as *P. haemorrhous*. The paramere shape illustrated by Goeldlin (1976) as typical of *P. haemorrhous* is shown in fig. 3b. I have illustrated in figs. 3a and 3c other paramere shapes I have found in British Isles specimens of what I take to be *P. haemorrhous* (fig. 3a is drawn from a specimen determined as *P. haemorrhous* by Dr. Goeldlin), but the range of variation exhibited is rather greater than might have been expected. Perhaps there are additional W. European species of *Paragus* awaiting recognition and *P. haemorrhous* is polyphyletic? Alternatively, could it be that *P. abrogans*, at present known only from the Type, collected in Persia, occurs in the British Isles? The paramere shape shown in fig. 3c certainly corresponds with that of *P. abrogans* (fig. 3d) to some extent. For the moment, I am assuming that figs. 3a-c all represent variants of paramere shape found in

P. haemorrhous. The fourth W. Palaearctic species in the *P. tibialis* group, *P. coadunatus,* has highly distinctive parameres (see Goeldlin, 1976).

As recognised here, *P. haemorrhous* is found in the British Isles in a wide range of open habitats, from sand-dunes to boggy moorland. The larvae are evidently aphidophagous and have been described and figured by Goeldlin (1974). The extent of pale markings on the legs and face of the adult varies quite markedly, as does overall body-shape and size, especially in the female (assuming ♀ specimens collected outside the known range of *P. tibialis* in the British Isles can be regarded as belonging to *P. haemorrhous*!). The adult flies may be found at low-growing flowers, such as *Potentilla erecta.* Generally they fly close to the ground, in a manner reminiscent of Pipunculids.

P. tibialis Fal.

The known distribution of this hover-fly in the British Isles is anomalous, implying as it does that the species is confined to two small areas, widely separated and of very different character. The English specimens, collected by Harwood, Wainwright and Yerbury, are from sandy heathland. The Irish specimens, collected by Coe and Irwin, are from low-lying limestone pavement in the Burren of Co. Clare. *P. haemorrhous* may occur in the same localities and

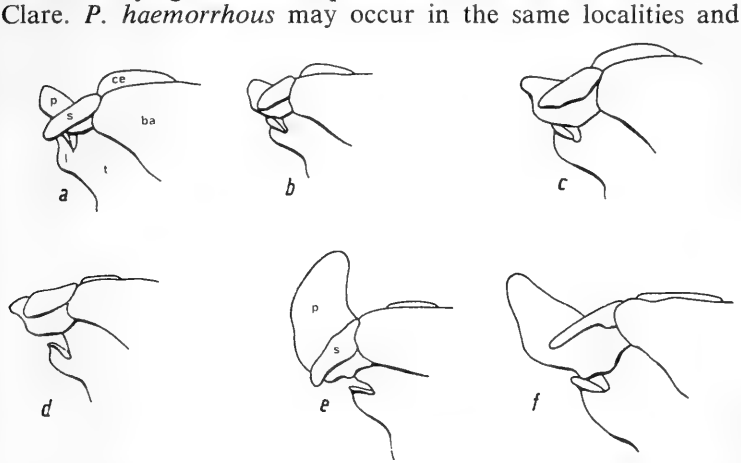

Fig. 3, Terminal parts of ♂ genitalia, side view: (a-c) *P. haemorrhous*; (d) *P. coadunatus*; (e, f) *P. tibialis.* ba=basale; ce=cerci; l=lingula; p=paramere; s=surstylus; t=theca; (a, c, f) drawn to same scale; (b, d, e) redrawn from Goeldlin (1976).

at the same time — two Harwood specimens I examined, mounted on the same piece of polyporus, were one of each species. In continental Europe it is a frequent occurrence to find *P. haemorrhous* and *P. tibialis* together. One of the Burren specimens (collected by Coe and in the collections of the British Museum, London) has parameres sufficiently different in shape from those of other *P. tibialis* I have examined (which all look very like the illustration of this

species given by Goeldlin, 1976, as in fig. 3e) to be possibly regarded as belonging to a specimen of some other species (fig. 3f). However, seeing that definite *P. tibialis* have been found in the Burren, and the strange-looking parameres of the Coe specimen are much closer in shape to those of typical *P. tibialis* than to the parameres of other *P. tibialis* group species, I think it possible that the Coe specimen is either aberrant or perhaps damaged, rather than something other than *P. tibialis* (the shape of st. 4 is in this specimen like that of typical *P. tibialis*).

Continental *P. tibialis* usually have the abdomen marked with red to some extent, but in the British Isles specimens I have seen (less than 20 in all) only the genital capsule and the very tip of the abdomen tend to be reddish. Body size and abdominal shape vary as much in this species as in *P. haemorrhous,* and include the shape variants found in *P. haemorrhous.*

Acknowledgements

I am extremely grateful to Dr. Pierre Goeldlin (Musée Zoologique, Lausanne, Switzerland) for identifying for me a large number of specimens belonging to many European species of *Paragus.* I am also glad to acknowledge the help of those who have made available to me specimens of British Isles *Paragus*: A. A. Allen, Dr. A. G. Irwin (Norwich Museum), J. Ismay (Hope Dept., Oxford), M. J. Jefferies, R. Nash (Ulster Museum), Dr. J. O'Connor (Nat. Mus., Dublin), K. G. V. Smith (Brit. Mus., London). I would also like to thank Dr. Pavel Laska (Olomouc, Czechoslovakia) for sending me specimens of *P. quadrifasciatus,* and Dr. Tony Irwin for helpful comments on this manuscript.

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MORE ABOUT FRANCIS HEMMING'S ENTOMOLOGICAL DIARIES. — Since my note (**89**: 81-82) about the location of the late Captain Hemming's extensive entomological diaries (from 1921) in the Michigan State University Library, I have received a number of letters, both critical and thoughtful, about the ethics of removal of this very significant research material from England. The question of the alienation of manuscripts is an important one, which has been raised upon a number of occasions, and it ought to be answered in a serious manner.

At the time of the sale I ascertained that the dealer then responsible for the disposal of Hemming's records acted in a most responsible manner, offering them to several obvious British repositories at an extremely reasonable price. These offers were declined, and the dealer acted ethically in selling the diaries to one of the major American entomological libraries, rather than to a collection more convenient in location to British and European investigators. I was then a member of the faculty at Michigan State, and an advisor for entomological purchases, and did not hesitate to recommend acceptance of the offer. The presence of manuscript material in a major international library is preferable to its loss or eventual sale into private hands; even in the latter case it is often inaccessible to scholars.

In fact, the final resolution was quite satisfactory, as the M.S.U. Library (East Lansing, Michigan, U.S.A.) has adequate photoreproduction facilities, as well as free access in its rare book and manuscript reading room for consultation of Hemming's records in concert with other extensive entomological holdings. For those who still object, I offer several observations. Numerous major libraries own manuscript materials of interest to investigators in other countries, and are usually able to provide photocopies. This has become a worldwide scholarly commonplace. If a dealer is conscientious enough to try to place manuscripts in the most appropriate repositories (which he really need not do), he should be commended for his act, and upon their refusal the most worthy thing he *can* do is place the materials in another leading repository. Many of us can testify to the unpleasant alternative of seeking (and often being denied) access to manuscripts in personal hands. — Dr. R. S. WILKINSON, The American Museum of Natural History, New York City, New York 10024.

Euphydryas aurinia Rott.in Britain: Notes on Distribution and Life History

By Dr. C. J. LUCKENS*

A glance at the butterfly distribution maps (Heath 1970, 1975) will show all too plainly the general decline of this species since 1960. Basically it is a retreat westward — in fact it would not be over pessimistic to say that probably less than a dozen colonies now survive in England east of a line drawn on the map between Carlisle and Southampton. The Marsh Fritillary is fast becoming a butterfly of the Celtic Fringe.

In Scotland it has a peculiar affinity for Argyll where it is widespread and often abundant. Its distribution is strangely limited by the Argyllshire boundary however, and there are only a few known Scottish stations outside it — one, for example in Aberdeenshire (Palmer 1974, Palmer and Young 1977). There are records in the older literature of scattered sites in Perthshire (Newman 1871).

This retreat westward in England started well before the end of last century. Essex *aurinia* probably became extinct by the 1890's (Firmin *et al.*, 1975) and the famous Kentish race from Ham Fen, near Deal followed suit two decades later (Chalmers-Hunt, 1961). Sussex reports still turn up, though I am informed the colony which occurred on Ditchling Common until 1969 was originally introduced. It existed naturally in the Plaistow woods however, until at least the early 1950's (R. M. Craske, *pers. comm.*), and just over the border in Surrey it may yet survive. The easternmost colony in England at the present time is probably in Surrey or Berkshire.

Habitat losses undoubtedly played the major part in this decline. The Marsh Fritillary tends to form intensely local colonies and is limited to places where there is a relative abundance of its foodplant *Scabiosa* (usually the Devil's-bit Scabious, *Scabiosa succisa*) thus only a small area of damage to its habitat can result in the total destruction of a colony. And though catholic in its ecological tastes, *aurinia* occurs on land especially vulnerable to "improvement" or other interference from man. Swampy fields are drained, downland slopes ploughed or overgrazed, heathy commons burnt and woodland glades overshadowed by conifers. I have recorded the misfortunes of a Surrey colony previously in this journal (Luckens 1972, 1975). This thrived, in a modest way, on a small piece of heathy ground a few miles outside Guildford, and the whole area was burnt in the early spring of 1972. I found no butterflies that year in June, but in August 1973 encountered, somewhat to my surprise, a single large larval web. The foodplant seemed much less prolific than before however, and by June 1974 there was virtually no scabious, and I decided not to release the fertile females bred from a few larvae extracted from the 1973 web. No wild imagines were noted then nor, to my knowledge, have any been seen there since. I can only conclude that though some larvae must have

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survived the 1972 holocaust, the delicate balance of the vegetation was altered by the fire, and it was the ever-diminishing foodplant that precluded the survival of *aurinia* there. I have bred this Guildford race in captivity ever since (it now runs into thousands) in the hope that conditions may one day become suitable for release.

There is no denying that in some instances no obvious interference has occurred, and reasons for the decline or demise of *aurinia* in a particular locality are difficult to find. It is known that the Marsh Fritillary suffers wild fluctuations from time to time in nearly all its colonies. It seems also to be able to survive at a low ebb, below observation level even, for a number of years and then there is a rivival — provided of course floral conditions are still right. This happened in a Cumberland locality near Great Orton, and was documented by Professor E. B. Ford in his classic *Butterfles* (Ford, 1953). The present survival of this famous *aurinia* colony is somewhat doubtful incidentally (J. H. Vine-Hall *pers. comm.*, 1971, 1973). Also at Cothill, Berks. it went unrecorded between 1926 and 1942 and then suddenly appeared once more (R. F. Bretherton *pers. comm.*, 1973). Another similar instance, though a much shorter period of scarcity is involved, has occurred in a wood in southern Hampshire where the Marsh Fritillary apparently disappeared for almost ten years and now seems, once again, to be on the increase (Dickson *et al.*, 1975; T. W. Tolman *pers. comm.*, 1976; Luckens, 1977).

I believe that *aurinia* is one of the butterflies with which collectors should exercise some care — particularly with regard to taking more than one or two females from any one colony. The imaginal habits and life history make it vulnerable for a variety of reasons:

(a) The butterflies are often concentrated in a limited area, giving a false idea of total abundance in a small colony.
(b) Both sexes are easy to net and the larvae easy to find.
(c) Minor variation is unlimited and attractive — no two specimens are alike. There is perhaps the temptation to collect more therefore.

In a strong and widespread colony I'm convinced moderate collecting of the males does no harm whatsoever, but such colonies are regrettably becoming few and far between. The universally known site at Hod Hill is a case in point. Collectors have visited it for decades and literally thousands of butterflies must have been taken there. In spite of this quite intensive collecting, *aurinia* continued to thrive and it was only after overgrazing by cattle that the insect became dangerously reduced (Watson, 1968). Now it is virtually restricted to the fenced reserve of the Dorset Naturalists' Trust.

Official opinion in some cases appears to be against the release of captive pure stock in the native locality. Provided alien strains are excluded, I can see no reason for objecting to what has long been a practice of many collectors. Perhaps official assessment of population fluctuation may be set awry, but if there is some other reason that I have overlooked for

this negative attitude I would be grateful for enlightenment. In some cases colonies have been helped over danger periods by this policy of release (Watson, 1968).

In England, *aurinia* seems most secure in Devon and Cornwall and reasonably safe in some parts of the Cotswolds (J. MacFeely and K. A. Harrison, *pers. comm.*, 1976, 1977) and Dorset. It is widespread also in some areas of Wales and in coastal Argyll. In the best areas, flourishing colonies are scattered over wide tracts of suitable ground often with smaller nuclei connecting them. Between such colonies gene flow occurs and the natural ebb and flow of individual populations is not so critical as it might be, for instance, in the case of a single discrete colony in a woodland ride. Even when extinction occurs in one locality it can often be recolonised during favourable periods from another nearby (Lipscomb and Jackson, 1964). In spite of the continuing decline in England, it is pleasing to hear of the discovery of fresh localities — in Worcestershire, for example, where *aurinia* was once widespread but went unrecorded for many years (Green, 1977).

Notes on life history

The imaginal habits of this species have occasionally been misrepresented in the text books — for instance it has been stated that the Marsh Fritillary has an extremely weak flight. In my experience the males fly briskly in sunshine and both sexes are capable of surprisingly swift flight at times (Huggins, 1972). For most of the day the females do tend to be rather sluggish and sit about on or near the foodplant; it was pointed out to me by Mr. R. E. Stockley however, that towards the end of the afternoon, usually around 4 p.m. BST, there is often a sudden increase in the level of their activity, and then female *aurinia* can be witnessed in strong fast flight. Females are generally heavily outnumbered by males and mating usually takes place before the female's wings are dry. I suspect this strong flight is an adaptation to ensure adequate dispersal of the paired females.

Copulation in this species can last for many hours — in captivity pairs often continue for well over 48 hours. There is often very little in the way of courtship preliminaries. The male hovers around the female for a few seconds before alighting near her and curving his abdomen into position. Sometimes however this unseemly haste appears unacceptable to the female and a rather appealing ritual then takes place. The male, after two or three unsuccessful attempts to mate, walks quickly round to the front of the female and there is brief "eyeball to eyeball" confrontation (without, as far as I can tell, antennae or palps actually touching) before he moves alongside again, whereupon pairing is usually achieved. I have observed a similar display, though less frequently, in *Melitaea cinxia* L.

For ovipositing, female *aurinia* consistently choose large luxuriant leaves. The butterfly settles down on the undersurface and lays a compact batch of several hundred eggs in one

"sitting" of two to six hours. There are often at least three layers to this clutch. When freshly laid, the ova are clear, pale, buttercup yellow and the fertile ones change to a rusty brown after several days. They become purplish grey just before the young larvae hatch four to six weeks later.

The young larvae eat "windows" in the cuticle at first, and later on perforate the leaf between the veins so that a leaf skeleton remains. They spin webs of silk throughout their early life. Around mid-to-late September they construct a stronger, thick white one at the base of the foodplant, and in this silken ball they hibernate. They sleep lightly. A sunny day in January will usually encourage a few to show themselves, and if for some reason they are ousted from their hibernaculum, even on the coldest winter day, they summon up the energy to crawl to some sort of shelter before resuming hibernation.

Though larvae emerge to sun anytime after the New Year, it is usually March before they start feeding. They consume inordinate quantities of food in spring — a dozen larvae in late April can demolish as many large scabious plants in a few days. How they fare in the wild in the localities where scabious is not superabundant is most intriguing. Perhaps limitation of foodplant may explain some of the minor fluctuations in population size. (Honeysuckle (*Lonicera periclymenum*) and snowberry are both accepted in captivity, but there is a definite order of preference. Scabious is nearly always eaten first and snowberry last. I have never been able to persuade adults to deposit ova on either honeysuckle or snowberry, though I have heard of it being achieved. Some of the Continental subspecies are possibly more polyphagous and use *Lonicera* more. Mr. R. F. Bretherton (*pers. comm.*) described finding ssp. *beckeri* H.-S. in a dry gully in Spain where there was no scabious but honeysuckle was present. Primula and gentian are quoted as foodplants for the alpine ssp. *debilis* Oberthür (Higgins and Riley, 1970).

Occasionally in captivity some larvae appear to return to a hibernating state when half grown around mid-April. Nothing will induce these larvae to feed and they invariably die, but sometimes not until July or later.

I have once had an unforced second brood Marsh Fritillary emerge in October (Luckens, 1975), but have not heard of any others. This was in 1974, a year not notable for warm summer weather!

Acknowledgements

I wish to express my thanks to the following lepidopterists who have contributed much information to this paper: Mr. R. F. Bretherton, Mr. R. M. Craske, Mr. K. A. Harrison, Mr. J. MacFeely, Mr. J. H. Payne, Mr. R. E. Stockley, Dr. T. W. Tolman and Rev. J. H. Vine-Hall — and also to my wife, without whose assistance this report would be much more difficult to read.

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MYTHIMNA STRAMINEA TR. (SOUTHERN WAINSCOT) AND ENNOMOS FUSCANTARIA HAW. (DUSKY THORN) IN NORTH LANCS., 1977. — In ten years of regularly operating a light trap at Leighton Moss, Silverdale, with a total of 331 species of macrolepidoptera recorded, the first *M. straminea* appeared on 13th August. South (1961, *Moths of the British Isles*, **1**: 203) mentions it from Silverdale, N. Lancs. in 1958. Another new record is of a male *E. fuscantaria* which appeared on 3rd September, a species very rarely seen in these parts. — J. BRIGGS, Frimley House, Deepdale Close, Slackhead, Beetham, nr. Milnthorpe, Cumbria.

Records of Rare and Uncommon British Species of *Idiocerus* (Hem. – Hom., Cicadellidae), with Special Reference to an Unnoticed Habit of *I. poecilus* Kbm.

By A. A. Allen, B.Sc., A.R.C.S.*

I. herrichi Kbm. — Apparently the rarest and most restricted of our 17 species of this interesting genus of leafhoppers, now that *I. cupreus* Kbm. (=*aurulentus* Kbm.) has been dropped from the list — aberrant forms of *I. vitreus* F. having been mistaken for it. Edwards (1896: 100-1) based his record of *herrichi* as British on a few specimens taken by himself in two East Norfolk localities, Stratton Strawless and Caister-by-Norwich, on the white willow; Le Quesne (1965: 27) cites these and also Eaton, the latter derived from two examples in the BMNH taken subsequently by Edwards (16.ix.98). All three places are in the Norwich area. The species may well be truly confined in our fauna to East Anglia, like a number of other insects, though probably not to the one county, and should be sought more widely in that region on its host tree *Salix alba* L.

Whilst collecting at Cockley Cley, near Swaffham, West Norfolk, on 2nd September, 1973, with my friend Mr. A. W. Gould, I swept an *Idiocerus* from white willow in a corner of a field, which proved, as expected, to be *herrichi* (♀), clearly exhibiting all the characters given for that species by Le Quesne (*l.c.*); it is now in the collection of my friend, Mr. Dudley Collins. More might well have been obtained, had not a large herd of cattle headed by a bull, advancing too close and purposefully for our equanimity, brought the proceedings to an abrupt and premature end. This would seem to be the first capture of *I. herrichi* in the western vice-county, and as far as I am aware the first this century.

I. poecilus H.-S. — A hitherto scarce or seldom recorded poplar-feeding species, known from a mere handful of British localities north of the Thames in Berks., Bucks., and Oxon. (one to each county) and two in the Norwich district (cf. Edwards, *l.c.* and Le Quesne, *l.c.*). On the night of 11th August, 1973, a male example came to m.v. light at Blackheath, evidently the first to be noted in Kent or the London suburbs, or indeed anywhere south of the Thames. Hard work in the following days at the nearest poplars, or such of them as could be reached, produced no more. However, on 17th July, 1975, I found a specimen of this hopper in a crevice of bark on the trunk of a Lombardy poplar (*Populus italica* Moench) at one end of a row of these trees fringing a sports-ground at Kidbrooke, near Blackheath, which I was in the habit of working for insects from time to time. On another visit nine days later, half-a-dozen more were found, on that and the adjacent tree. Next, a number of *I. poecilus* flew to m.v. light here at Charlton during the hot spell in late June-

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July 1976, but a search for the species on some of the many local poplars was unsuccessful. Finally, it was somewhat common at the Kidbrooke locality on 12th July that year, having by then spread to many of the trees in the row; I was surprised, therefore, to see none there on my latest visit (30.vii.77), though probably it was not in fact absent. As I was concentrating more on sweeping the foliage — wishing to see whether *poecilus* would turn up in the net, which it never did either then or previously — some may have been missed on the trunks, but there must in any case have been a great reduction in numbers from the foregoing season.

These findings, such as they are, appear to suggest that the habit of resting on the trunks — instead of on the leafy stems and amongst the foliage like other Idioceri — may be a peculiarity of *I. poecilus* and, if so, might cause it to be often overlooked. It is possible that the present species, unlike its congeners, rests mainly by day and feeds at night. Tending to favour this hypothesis are two facts: first, all those found appeared truly at rest, being more or less ensconced in chinks or fissures of bark and moving only when disturbed, in contrast to the active state of other Idioceri occurring casually on the trunks; and second, the disruptive style of coloration of *poecilus* makes it less conspicuous there than other species. The fact of its flying to light has, perhaps, less bearing on the question, as the habit is so widespread even among many Auchenorrhyncha and other more or less diurnal insects. Nevertheless, it may be significant that, although I have had occasional specimens of *I. vitreus* to the lamp at Blackheath (scarcely more than one in any year), *poecilus* was the only *Idiocerus* that came to it at Charlton — at the rate, moreover, of up to 4 or 5 on one night.

I. elegans Flor. — Dr. Le Quesne does not list separate counties for this handsome sallow-feeding species, but it is local and infrequent and there may not be a previous record for the suburban north-west corner of Kent, where it must surely be rare. Mr. Collins has met with it chiefly in Surrey, e.g. on Bookham and Chobham Commons. On 15th July last I swept a solitary example from a bush of *Salix caprea* L., its usual host, by a dike on what used to be the Abbey Wood Marshes — not far from here — but is now the western edge of Thamesmead. The occurrence of *I. elegans* there was unexpected, as much from the comparative scarcity of the foodplant as from the lack of previous captures in the district.

I. rutilans Kbm. — Taken by Mr. D. Collins at Brook, New Forest, seemingly the first record for Hampshire; elsewhere he has found it mostly in Surrey (Esher and Chobham Commons); on various occasions in all three places. Another sallow-feeder, much localised and somewhat scarce, as a rule not occurring with *elegans* to which it is closely allied. I once took a specimen of *rutilans* at Oxshott, one of the two Surrey localities where it was first captured in Britain by W. West some time before 1908, but have never seen it there since.

I. vittifrons Kbm. — Mr. Collins has this species from Bookham Common and Box Hill, both in Surrey, a county not included among those given for it by Le Quesne; again taken on various occasions. A rather rare and certainly very local species not so far met with by me, attached to field maple which I have worked for it in Windsor Park, for instance, but in vain. Its presence in my area, however, is not impossible; the host-tree, though scarce here, occurs at Shooters Hill and may yet, in time, yield the insect.

During the past decade I was able to record as many as 11 species of these leaf-hoppers from the Blackheath/Kidbrooke/Shooters Hill area of N.W. Kent (Allen, 1964). If the latter is now extended eastward to Abbey Wood, the addition of *I. poecilus* and *I. elegans* brings up the total to 13 species, which, I venture to think, compares very favourably (despite its situation in the suburbs of London) with any other published list for an area of similar extent anywhere in these islands. Jennings (1909) records having encountered the same number of species in the autumn of 1908, but his captures were from a vastly wider area.

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WINTER ACTIVITY. — I was surprised to come across three instar larvae of *Pieris brassicae* and two of *P. rapae* in a torpid state, but otherwise quite healthy, on the brussel sprout plants in my garden (at Milton of Capsie, Stirlingshire) on 28th December, 1977.

Larvae of both species were too abundant to be tolerated during late summer, and as the plants were suffering, were sprayed with insecticide. Even so, this left fair numbers of *brassicae* larvae, and about equal numbers of both species on nasturtium plants.

During late autumn the first frosts killed off the annual plants; for periods of several days the BBC weather bulletin (conditions as at 05.00 hrs.) reported temperatures in Glasgow below freezing (generally between −6 and −3°C.). The presence of frass on the plants, most of it appearing quite fresh, indicates that the larvae have been active between the very cold spells, and shows that at least a percentage of the "Cabbage White" larvae are able to survive periods of frost. — J. COOTER, Art Gallery and Museum, Kelvingrove, Glasgow, G3 8AG.

A First Look at Kerry and Clare

By B. R. Baker*

We had long promised ourselves a holiday in southern Ireland, and as my wife was particularly keen to see the Burren plants at their best, the timing of the visit became almost automatic. We therefore booked a passage on the m.v. Innisfallen for the night sailing of 31stMay/1st June, with the return from Cork two weeks later.

In trying to assess what a lepidopterist might reasonably expect to find over this period, I found much help from reading in this and other journals of the experiences of numerous entomologists, and from none more so than the late H. C. Huggins who made the astonishing total of 36 collecting trips to Ireland.

The crossing was very smooth and comfortable and the only slight difficulties encountered next morning were in squeezing through between the regimented rows of vehicles to one's own car and then in finally escaping from the somewhat confusing system of traffic ways in the city of Cork.

Having also read of the unpredictable Irish weather, we went prepared for the worst, but in the event no first visit could have been blessed with sunnier skies, though it was only after returning home in mid-June and hearing of conditions in southern England that we fully realised our good luck.

We had booked at a remote farmhouse on the Dingle Peninsula for our first week and chose to travel there by way of Bantry, Glengarriff, Kenmare and Killarney, thus seeing on this first day something of the justly famous scenery of the south west.

My main objective entomologically was *Conopia scoliaeformis* Borkhausen, and to see how these would compare with specimens which Barry Goater and I had found at Rannoch in 1975. Clearwing searching can be a lengthy job, but the Gods were in benign mood that first day in Ireland for they willed me to park the car close to a well grown birch which showed unmistakable patches of frass here and there among the lichen which festooned the trunk. Careful carpentry with mallet and chisel produced half a dozen cocoons, each attached to the back of the excavated blocks of bark.

After this propitious introduction to Irish entomology, we drove on through Killarney and along the fuschia bordered road towards Inch and then the final few miles to Minard. At the end of this memorable first of June I sat at the cliff edge just behond our farmhouse with the Honda purring away nearby and noticed with satisfaction a pair of *Acronycta euphorbiae myricae* Guenee in amongst a select gathering of *Ceramica pisi* (Linnaeus), *Eumichtis adusta* (Esper) and *Apamea crenata* (Hufnagel).

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The following morning we were able to take stock of our immediate surroundings and noted first a kitchen garden wherein were flying numerous *Pieris napi* (Linnaeus), *Euchloe cardamines hibernica* Williams and *Calophrys rubi* (Linnaeus). The cliffs nearby were carpeted with drifts of bird's foot trefoil and thrift, but sea campion, the foodplant of *Hadena caesia mananii* Gregson, was absent so we decided to seek the plant further along the peninsula.

We headed for Dingle and then through Ventry and out to remote Slea Head, but en route it was impossible to drive past those inviting looking fields bordering the main road to Dingle and which were patterned with orchids, yellow irises, bog bean and royal fern. Yet amongst this richness of plants insects were few, except for *Ortholitha mucronata umbrifera* Prout, which were to be found amongst the gorse bushes on the earthen banks which act as field boundaries. On one such bank we also saw our only Common Lizard. Huggins has written of the scarcity of sea campion when compared with an abundance in pre-war years and attributes this scarcity to the grazing pressure from increased cattle stocks. Whatever the reason may be, we failed to fine *Silene maritima* on this particular day, even on exposed cliffs which would be inaccessible to cattle. The search however led us to a delightful little sandy cove below Dunquin where the sunlit slopes were alive with *Polyommatus icarus* (Rottemburg) and where the row of upturned curraghs on the warm sand gave expression to a way of life where urgency seemed unknown. The main topic of conversation to be had from the one aged local who came down to chat to us was of the excitement aroused by the making of the film "Ryan's Daughter" thereabouts some years previously.

The next day we returned to Killarney with its jaunting cars and crowds of overseas visitors, but soon escaped to the quite seclusion of Muckross. Whilst I was parking the car in a glade, my wife noticed a blackish insect flying in a straight line at a height of about 7 feet; it proved to be a large *Atolmis rubricollis* (Linnaeus) and the only one we were to encounter. *Leptidea sinapis juvernica* Williams however, which we also saw here in moderate numbers, were subsequently proved to be quite common during our second week up in Co. Clare.

Further along the Kenmare road, whilst admiring our first sight of that very local plant the Giant Butterwort, we flushed a specimen of *Eustrotia bankiana* (Fab.), a species which was then regularly seen in the boggy hollows between roads and lakes. Some of the birch trunks in this area bore the old emergence holes of *C. scoliaeformis* (Borkh.), but after a careful search no more trunks showing signs of larval infestation were found. Doubtless the moth returns to favoured trunks to oviposit and it is but a question of patient search to find such a tree if one cares to lose all track of time. We had been most fortunate two days earlier to come upon a favoured tree early and because of this stroke of luck were well satisfied.

Before returning to Minard I wanted to see something of the area famed in earlier years for *Leucodonta bicoloria* (D. & S.), hence we drove there through the impressive Ballaghbeana Gap and down into the beautiful valley of Glencar. The Caragh Woods seemed to be very enclosed with coniferous plantings here and there among the birches, hence lights would be screened from other suitable habitat close by. Perhaps if one possessed the singleness of purpose to operate a lamp there every night of one's stay, regardless of weather conditions, slightly varying the position of the lamping area on each occasion, a white prominent might be the reward!

The remainder of our stay in Kerry was spent mainly in the close vicinity of Minard. The fields there belonging to the farm gave ample scope for walking and were a constant scource of interesting bird life as well as insects. A pair of choughs, with tumbling ragged flight, were regular visitors and we later discovered their nest site in an inaccessible hole on a precipitous cliff face. It was also from these fields that we detected another cove, a couple or so miles distant, where sea campion proved to be abundant and where, by using all our cable, the lamp was operated down on a ledge on two successive nights.

On the first night when about to switch on at 10.25 p.m., a cuckoo began calling and continued to do so for several minutes. Perhaps it was a good omen for during the next couple of hours four very dark *caesia* came to the sheets, accompanied by several dark *H. perplexa capsophila* (Dup.). Other species noted were *Eupithecia pulchellata* Stephens; *Lithimna chlorosata* Scop.; *Gonodontis bidentata* Clerck; *Macrothylacia rubi* (Linnaeus) females; *Deilephila elpenor* (Linnaeus); *Spilosoma lubricipeda* (Linnaeus); *S. luteum* (Hufnagel); *Diarsia rubi* (Vieweg); *Lacanobia oleracea* (Linnaeus); *L. biren* (Goeze); *Hadena rivularis* (Fab.); *H. bicruris* (Hufn.); *Orthosia gracilis* (D. & S.); *Cucullia umbratica* (Linnaeus); *Acronycta euphorbiae myricae* Guenee and *A. rumicis* (Linnaeus).

In the early hours when driving back to the farm down a sunken Lane, we heard a strange rasping sound coming from a high bank. We stopped the car and listened but were none the wiser. The following night, after having lamped in the same spot and taken four more *caesia,* we found ourselves back at the same bank with the rasping call still in full voice. This time I took a torch, climbed the bank and jumped down into the softness of a grassy field from whence the sound continued unabated. As I moved, so the sound seemed to move, and for some minutes we played cat and mouse. Then, with a flutter it was away across the ray of the torch and off into the blackness of the night — our first introduction to a corncrake!

The next morning there was a different weather pattern. The light was for ever changing over the sea, clouds raced over Dingle Bay, a rainbow ended down in the fields and

a white-crested expanse of angry water stretched across the eight miles to the opposite shore.

I chose this sort of day to have a careful search along the terraces of thrift for larvae of *Bembecia muscaeformis* (Esper). After some hours I had to give up and tell myself that probably it didn't occur there, taking some comfort from Huggins' comment to the effect that "my only recent record is near Glengarriff where it is very local and scarce". I did find a footman larva sheltered against a rock face and thought at first that we had turned up *Eilema caniola* (Hübner), but it proved to be *E. complana* (Linnaeus) and produced a nice specimen when back in Reading. Nonetheless, it was invigorating to be out on these cliffs in such conditions and to watch the choughs, guillemots and fulmars making light of the rough weather. The wind didn't abate all day and though we walked Inch Strand during the afternoon it would have been a waste of valuable time to have attempted mothing there that night. Neither were conditions ideal on the following night, but this time it was a question of now or never and we lit up at 10 p.m. Despite gusts from all quarters, *D. porcellus* (Linnaeus) was early to the sheets, followed by *Smerinthus ocellata* (Linnaeus); *Hada nana* (Hufnagel); *Hadena confusa* (Hufnagel) and some very dark *Rusina ferruginea* (Esper). My lasting memory of this night is of cinnabar moths which came early and stayed late. A whole squadron of them with engines revving and wings aquiver made a colourful sight — we counted over 50, all being watched over by a solitary toad who, bemused by the activity, could but stare in wonderment!

Next day we moved quarters to Co. Clare and stayed at the very comfortable Fernhill Farmhouse, a few miles outside Lisdoonvarna. Our hosts were most helpful and, understanding the ways of lepidopterists, accepted our late hours as perfectly normal.

That first evening we made acquaintance with the well known Doolin Strand, a veritable rock garden, where gulls and ringed plovers were ever wide awake and daylight seemed to linger long past 11 o'clock. Larvae of *Setina irrorella* (Linnaeus) were to be found on the lichen covered rocks and we searched for them until it was dark enough to start the generator. Within a short time, two of the beautiful bluish form of *caesia* came to the sheets, together with several *H. perplexa capsophila* (Dup.) and *N. nana* (Hufnagel). This made a fitting end to a busy day and we put the generator into early retirement at midnight.

Although we had expected to see *Euphydryas aurinea* (Rott.) and *Hemaris tityus* in Kerry, we didn't come across either, but both were soon in evidence on this first and subsequent days in Clare. *H. tityus* (L.) was covering the ground at the rate of knots, never seeming to settle, and we almost gave up hope of ever taking one. Luckily we found some good patches of lousewort growing in the shelter of a conifer plantation and by patiently waiting in that warm hollow a

tityus would now and again appear hovering over the flowers and allow one a chance with the net.

Perhaps the limestone hills behind Ballyvaughan were the richest areas we found for plants and lepidoptera, and it was indeed a welcome change from the often austere collecting days in southern England to be confronted with insects of quality in quantity. It was fortunate that the daytime weather we experienced was favourable for insects for subsequent night conditions at Doolin were either poor or impossible.

Although the going was fairly rough and spikey to the knees, these rugged limestone slopes occupied most of our attention for the rest of our time in Clare. On the lower slopes *L. sinapis juvernica* Williams and *Erynnis tages baynesi* Huggins were common and *Adscita statices* (Linnaeus) was not infrequent. *Boloria euphrosyne* (Linnaeus) occurred slightly higher up on the rocky terrain but was going over. *Zygaena purpuralis hibernica* Reiss; *Odezia atrata* (Linnaeus) and *Photedes captiuncula* (Treits.) seemed most prevalent where the thorny scrub gave way to a steep meadow-like area with a prolific growth of plants such as *Lotus, Anthyllis* and *Thymus.* Amongst this richness of species, I came across a small moth which was sitting on a sunlit bracken frond and raising and lowering its wings in an agitated manner. On seeing the whitish forewings, each with two wedge-shaped black rays, I began to think we had turned up a new species but then realised that we were faced with a remarkable aberration of *Pseudopanthera macularia* (Linnaeus).

One could have happily stayed in this area for the complete remainder of the holiday, but there were other interests to satisfy, the impressive Cliffs of Moher to visit and one or two hills to climb. Not that the mountains here have the grandeur of Kerry, but they have a charm all of their own and their ascent is easy. The tops are flat and bare and one expected insects to be few, but 1,000 ft. up on Slieve Elva in a small heathery depression we came across several *E. tages baynesi* Huggins and *Semiothisa clathrata hugginsi* (Baynes). We also saw a fox running over this inhospitable terrain.

Conditions for mothing at Doolin on our last night, 12th/13th June, improved and as well as seeing three more *caesia* new arrivals were *Coenotephria salicata latentaria* (Curtis) and *Eupithecia distinctaria constrictata* Guenee.

On 13th June we took leave of Fernhill and drove leisurely towards Cork, by way of Limerick and Mallow, in readiness for the evening sailing. Whilst brewing-up by a flowery meadow, Heather drew my attention to a white moth flying with purposeful intent near our car. It proved to be a female *Diaphora mendica* (Clerck), which later obliged with eggs; the offspring are awaited with interest.

It would be amiss to end this account without a word on the friendliness shown by all whom we met. Typical was an occasion in Cork on that last evening when we were both becoming more and more frustrated at trying to find parking space in that busy city. A complete stranger gave us one of

his parking permits, pointed out a useful shopping centre and "because the wife will then be ready for a cup of tea", recommended a pleasant tea shop. He expressed our own thoughts as he drove away by saying "I hope you will both want to come back again".

P.S. The birch blocks with the *scoliaeformis* cocoons travelled perfectly well and were then kept outside in the garden in a large glass aquarium tank, having been reaccommodated into a large cushion of sphagum moss which rested on six inches of damp sand. Emergences took place from 24th June to 7th July. These confirmed Baynes's observations that specimens from Ireland are indeed larger than those from Scotland; comparative wingspan ranges being 28-34 mm. and 25-30 mm.

Current Literature

British Caterpillars. Butterflies; Moths Bk. I; Moths Bk. II. An illustrated selection of caterpillars found in the British Isles. Text and coloured photographs by **George Hyde.** Jarrold Colour Publications, Norwich, 40p each.

George Hyde needs little introduction to our readers as a field lepidopterist and photographer. In this series of three little books each illustrates 40 different larvae in colour, in their natural postures on their foodplants. The plates are superb and apart from their aesthetic appeal, form an excellent reference source. It is to be hoped that the series will be continued.

There are introductions on habits and rearing techniques. Each plate has a short summary of the distribution, time of appearance, how to find and pupating habits of each species.

The species figured include many which have rarely been photographed before, such as: *Erebia epiphron, Coenonympha tullia, Pyrgus malvae, Chaonia ruficornis, Eilema caniola, Hadena contigua, Notodonta trepida, Hyppa rectilinia,* to name but a few.

Well worth having at a bargain price. — E.H.W.

COSMOPTERIX ZIEGLERELLA (HUBNER) IN CAMBRIDGESHIRE. — On 4th September, 1976, I found empty mines of *Cosmopterix zieglerella* at Horseheath in Cambridgeshire. This represents a new vice-county record for the species, as well as a considerable extension of the known range of what is normally considered a rare moth.

Such an extension suggests that it would be worth while for entomologists to look for this species on hop in areas where it was not previously known to occur. Such search has already produced a record from South Essex by Col. Emmet. — P. J. JOHNSON, 7 Haverhill Road, Horseheath, Cambridge, CB1 6QR, 1.ii.1978.

OBITUARY

WILLIAM REID (1888-1977)

His many friends will have heard with deep sorrow, the news of the passing of Willie Reid, at his home on the outskirts of Sheffield on 16th December, 1977. He had been in failing health for some time, and only survived his 89th birthday by a few days. They will indeed miss his perennial cheerfulness, his quite jaunty manner and his great enthusiasm for the chase, as he was one of the leading and best-known lepidopterists in the north of England.

Born as far back as 1888 at Lockferry in Cheshire, he was educated at Rossall School, where he became keen on birds and on natural history in general. His engineering career, started in Canada, was interrupted by the 1914-18 war. He was one of the first to join the Royal Flying Corps, and was shot down in 1915 by the famous German ace Max Immelmann and taken prisoner. He was later invalided to Switzerland, and returned to this country where, after the first conflict was over, he was associated with several firms. Just before the second war, he set up his own steel business in Sheffield, which was to be his permanent home. It was in 1947 that his early flair for our lepidoptera returned to him, and for the subsequent thirty years, he devoted a great deal of his spare time to the study and pursuit of these insects over most of the British Isles. He made many visits to the Highlands and a few to Eire, whence he bred some fine series, especially of the local forms of *Hadena caesia.* He did some collecting in Europe and also on a visit to Kenya. But it was round his home on the western side of Sheffield that most of his prizes came. Melanism seems to be very prevalent in that vicinity, especially among the Dagger moths. He used to find regularly on his beloved home moors, the deep grey form of *Apatele menyanthidis.* The darkest form *steinarti* of *A. alni* was plentiful at his light, while he took several examples of *A. megacephala* with completely black forewings, and very dusky forms of *A. leporina.* But his most outstanding capture was in 1951, when an ab. *totinigra* of the Buff Ermine graced his trap. It is unique for this country, and the most melanic form of this insect. It is indeed fitting that his fine collection should now find a permanent resting place among the national insects at South Kensington. It was a happy occasion too when he celebrated his Diamond Wedding at the end of September 1977, surrounded by a large family extending to the fourth generation, and with a telegram of greetings from the Queen.

All sympathy goes out to his widow and many descendants. They have indeed lost a good friend and a fine example of kindness and courage to all who knew him. — C.G.M. de W.

Notes and Observations

ORIGIN OF THE COLONY OF MELITAEA CINXIA L. IN GLOUCESTERSHIRE. — It has now been established that the colony discovered in the Cotswolds in June 1977 (*vide Ent. Rec.,* **89**: 331) had been introduced by Mr. K. A. Harrison when living at Winchcombe. He released approximately 400 small larvae in April 1976, so the butterflies had already survived for two generations.

Sir Cyril Clarke has written to me and recalled the introduction of this species at Morton in Cheshire (1956, *Entomologist,* **89**: 22). That colony became well established for four years until it was extinguished when the habitat was destroyed. It will be interesting to see how the Cotswold colony fares in the future. The owner of the land has agreed not to disturb the site, and if the butterflies appear again this year, a scientific study of the ecology will be undertaken. It is highly desirable that no specimens should be taken by any entomologist who may happen to chance upon the colony. — J. E. GREEN, 25 Knoll Lane, Poolbrook, Malvern, Worcs., WR14 3JU.

MINUCIA LUNARIS D. & S. (LUNAR DOUBLE-STRIPE) IN 1977. — *The Newsletter of the Wealden Entomology Group,* Nr. 3, Vol. 3, contains a paper on "Lepidoptera in and around Staplefield" by T. Newnham. In this, the capture is recorded of a specimen of *Minucia lunaris,* in an m.v. trap at the Victory Inn, Stapleford, Sussex. Mr. Newnham tells us that he took the moth in early June 1977, and as he does not collect he released it. He added that the moth was in perfect condition, and was identified from the illustration in his copy of South (*Moths Br. Isles*). — Editor.

SYNCOPACMA VINELLA (BANKES) IN EAST SUSSEX. — On 10th November, 1976, a specimen of *Syncopacma vinella* unexpectedly emerged from a pot of *Genista tinctoria* (Dyer's Greenweed) which contained cocoons of *Leucoptera wailesella* spun up on the foodplant and elsewhere. The *Genista* had very kindly been collected for me by Col. Emmet at Ditchling Common in East Sussex. This record confirms that the species still occurs at Ditchling, where it has not been in evidence in recent years. The specimen was exhibited at the Annual Exhibition of the British Entomological and Natural History Society in 1977. — P. J. JOHNSON, 7 Haverhill Road, Horseheath, Cambridge, CB1 6QR, 1.ii.1978.

AGRIUS CONVOLVULI (LEP., SPHINGIDAE) — LARVAL COLORATION. — In the last paragraph of his account of rearing the above species (1977, *Ent. Rec.,* **89**: 269-271), Mr. Cramp expresses surprise that there was only one green larva amongst the hundred or so reared by himself and his friends. To me, it is more surprising that there was even one. Fairly recent accounts of rearing this species (Phillpott, 1951, *Ent. Rec.,* **63**: 235; Bunn, 1968, *Ent. Rec.,* **80**: 13; Bibbings, 1977, *Bull.*

Amat. ent. Soc., **36**: 74-78) make no mention of any green larvae, and this accords with my own breeding experience in both India and East Africa.

A larva reared by itself, with a plentiful supply of food, will very occasionally remain green in the last instar, but the vast majority, particularly when reared in batches, are of the dark form. Possibly disturbance, and consequent movement, encourages the production of melanin, analogous to the dark hoppers of the gregarious phase of locusts, aided perhaps by insufficient light. The dark larvae are very variable and good coloured figures of some of the forms are given in Bell & Scott, *Fauna of British India, Moths* (*Sphingidae*), v, pl. ix. — D. G. SEVASTOPULO, F.R.E.S., P.O. Box 95026, Mombasa, Kenya.

A NOTE FROM THE U.S.A. — The "Letters to the Editor" in the December number of *The Record* seem to indicate that the same issues are being discussed on both sides of the Atlantic. Collecting with a light by individuals is frowned on in our parks, whereas Government agencies set up poison-baited traps as a matter of course. I maintain that individuals who earn a salary for research in entomology are just as much professionals as the commercial breeder.

To be specific, however, I wish to reply to Mr. Pratt's article, "A Case Against the Automobile". It is of course fashionable to complain about the automobile in this day and age. From personal observation, it would appear that Expressway medians and fringes, far from being an entomological wasteland, are most productive areas. In a survey by Robert Priest and myself, over 500 *Hyalophora cecropia* cocoons were counted on a quarter mile of highway median. *Callosamia promethia* cocoons can often be seen on Expressway medians in rural areas. These two species are large and slow flying, and would appear especially vulnerable to death by high speed traffic, whereas the lighter, smaller species would stand a chance of being deflected by the wind of a passing car.

The change of habitat caused by roads in rural areas could be expected to be beneficial, as wooded fringes are established. One would also expect that predators and parasites fall victims to cars. The death of one sparrow, for example, might "save" a hundred moths.

I would suggest therefore that, in this case as in so many others, the automobile is not quite the villain it is made out to be. — CHRIS A. YOUNG, 20476 Kinloch, Redford Twp., Michigan 48240.

COMMUNAL MELANCHRA PERSICARIAE L. LARVAE. — Until recently I had never encountered the larvae of *Melanchra persicariae* L. (Dot moth) other than singly, being under the impression that the ovipositing female laid her eggs only in ones or twos on widely separate foodplants. On 5th October, 1977, however, my father and I found 22 larvae on one of his gooseberry bushes. One or two further larvae were on another bush about a foot or so distant. All were almost full-fed, and

all except one were of the usual pale green colour with darker shadings, the odd-man-out being pale brown with darker brown markings. They were far from conspicuous, despite their size, crowding into such a small area; indeed my father would not have noticed them had I not pointed them out to him. Needless to say, the larvae met the fate of all insects which dare to consume the gardener's produce! — ANTHONY WOOTTON, 40 Roundhill, Stone, Near Aylesbury, Bucks., HP17 8RD.

A NEW WEST KENT LOCALITY FOR DIGITIVALVA (=ACROLEPIA) PERLEPIDELLA STT. — On 29th May, 1969, while collecting in a large old chalkpit at Swanscombe, N.W. Kent, I captured by general sweeping a "micro" quite uncommon to me. It was put aside and more or less neglected until an opportunity occurred lately of showing it to Mr. J. M. Chalmers-Hunt, who recognised it as the above very local and scarce Plutellid — a species with which he was well acquainted. On none of my several visits to the pit had I ever seen the foodplant, *Inula conyza* DC, nor anywhere in the vicinity; however, it must surely have been present, as all evidence suggests that this moth is not a wanderer. Probably the plant is very restricted there.

The locality is of interest in being not far from Darenth Wood, whence Stainton, the describer of *perlepidella,* recorded one in 1854, but where, apparently, it was never recaptured. Very few other localities are known, namely the Bristol area (formerly); Rodborough, Glos.; and — a recent discovery — Trottiscliffe, Kent (see Chalmers-Hunt, 1969, *Ent. Rec.,* **81**: 187-9, for an excellent account of the species). It is hard to understand why *D. perlepidella* should not occur on the North Downs in Surrey, where *I. conyza* is locally plentiful. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

STIGMELLA TILIAE (FREY) IN CAMBRIDGESHIRE. — During 1976, whilst collecting at Bartlow in Cambridgeshire, I found *Stigmella tiliae* larvae in tenanted mines on lime, thus revealing a considerable extension of the known range of the species. Col. Emmet has subsequently found the same species just over the county boundary in North Essex. Unfortunately, it was not seen in either place in 1977, and it remains to be seen whether it will again reveal itself in 1978.

The two localities are on opposite sides of a disused railway line (possibly the original source of the introduction of the species) and are also the site for *Etainia sericopeza* (see *Ent. Rec. J. Var.,* **89**: 257-264). It would probably be fruitful if entomologists paid more attention to such sites as sources of lesser known species, many of whose distributions may well be more extensive than is at present realised. — P. J. JOHNSON, 7 Haverhill Road, Horseheath, Cambridge, CB1 6QR, 1.ii.1978.

LITHACODIA DECEPTORIA SCOPOLI (PRETTY MARBLED) IN SUSSEX. — I am pleased to report that on 7th June, 1976, I took a male *L. deceptoria* in good condition at tungsten light in Brighton. Mr. David Carter (British Museum (N.H.)) kindly confirmed the identification. — COLIN PRATT, 5 View Road, Peacehaven, Sussex. [Of this rare noctuid only eleven examples (including the present one) appear to have been taken in Britain, the first in 1948 and the last it seems in 1956. Most of them occurred in Orlestone Woods, near Ham Street, Kent. — Editor.]

BEMBIDION OBLIQUUM STM. AND B. QUADRIPUSTULATUM SERV. (COL.: CARABIDAE) AT TENTERDEN, KENT. — A large pond constructed as a reservoir near Tenterden suffered a major breach in 1976, and is now slowly drying out. There is a large area of exposed mud and clay boulders with much fissuring of the drier parts, and except for small areas vegetation is slowly encroaching on the whole pond. There is a fast central stream. As yet the growth is sparse, and the bare mud has become an excellent habitat for small carabids which find shelter in the cracks and dead water-lily roots. In parts the crust is thin and dangerous.

On the first day I visited the pond, I found a total of sixteen species of *Bembidion,* mostly in abundance, the full list being as follows: *B. genei* Kuester, *B. bruxellense* Wesmael, *B. articulatum* Panzer, *B. nitidulum* Marsham, *B. ustulatum* L., *B. obtusum* Serv., *B. dentellum* Thunberg, *B. varium* Olivier, *B. obliquum* Stm., *B. lunulatum* Geof., *B. quadrimaculatum* L., *B. quadripustulatum* Serv., *B. biguttatum* F., *B. properans* Steph., *B. guttula* F., *B. lampros* Herbst. Of these, only two are outstanding, namely *B. quadripustulatum* Serv. and *B. obliquum* Stm. The former was sparse, but has since emerged in numbers, and with *B. bruxellense* provides the bulk of the Bembidions present. *B. obliquum* was already present in quantity.

The presence of *B. varium,* a species notoriously variable in size, at first caused a little difficulty in selecting the *B. obliquum.* It was soon realised, however, that the two species tended to be segregated (the terrains being physically indistinguishable). Further, although the colour and texture are similar, *B. obliquum* is usually smaller than the smallest *varium*; on being picked up it appears darker, and under the lens the legs and antennae are black.

This habitat will be destroyed in 1978, either by repair of the breach, or else by the growth of seedling sallows and alders already evident. Presumably the huge current population will have left long before then to seek hibernation and eventual resettlement elsewhere. The above species were recorded on the 21st July, 1977. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent. [*B. obliquum* seems not to have been recorded in Kent since the Rev. H. S. Gorham took it in the Maidstone district in 1870. — A.A.A.]

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:—

(a) Leaf miners,
(b) Diptera, particularly Trypetidae and Agromyxidae,
(c) Lepidoptera, particularly Microlepidoptera,
(d) General entomology,

in the above order of preference, having regard to the suitability of candidates and of the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary to field work, for the study of collections, for the attendance at conferences, or exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £200 in 1978/79.

Applicants should send a statement, if possible in sextuplicate, of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to A. M. Emmet, M.B.E., T.D., M.A., F.L.S., F.R.E.S., Hon. Secretary, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, as soon as possible, and in any case not later than 30th September, 1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted — The County list of lepidoptera of Berkshire has not been up-dated since 1906 when W. Holland and A. H. Hamm prepared the Victoria County History entry. Holland's collection, with those of H. L. Dolton, F. W. Cocks and R. D. Sitwell, is at Reading Museum and these, together with other material, will form a working nucleus for the long term project of producing a new "Lepidoptera of Berkshire". Fieldworkers who have collected in V.C. 22 (the pre 1974 Berkshire) are invited to send records, in particular those of microlepidoptera, to the address given below. All records received will be duly acknowledged. Lepidopterists *resident* in Berkshire will be contacted personally and invited to participate at a later date. — B. R. Baker, Reading Museum & Art Gallery, Blagrave Street, Reading, Berkshire, RG1 1QN.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted. — Samples of common noctuid moths, including *Autographa gamma* and *Phlogophora meticulosa* for research purposes. — Further details from: *Dr. D. F. Owen,* Biology Department, Oxford Polytechnic, Headington, Oxford, OX3 0BP.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

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The History of the Entomological Clap-net in Great Britain

By Dr. Ronald S. Wilkinson*

The bag-net, which in its various forms is one of our most familiar items of collecting equipment, was a Continental rather than a British innovation. Such a design may have been introduced to naturalists in Britain through a collaboration between James Petiver and Eleazar Albin in 1711, after Petiver's return from a visit to the Netherlands (Wilkinson, 1966a, 1968). It seems remarkable that no specific references to nets have been discovered in Britain before this instrument, which Petiver called his "Muscipula" or "fly-catcher", especially considering the fact that such naturalists as John Ray and Samuel Dale collected flying insects on such a wide scale, and must have used some sort of net. Indeed, Petiver had been collecting Lepidoptera and other orders for over 15 years before he discovered the virtues of the "Muscipula". Certainly these men had more sophisticated equipment than that of the Elizabethan naturalists Thomas Moffet and Thomas Penny, who, when their party was collecting in an Essex wood, were forced to defend themselves from wasps by the means of branches of the broom-plant which were being used to capture insects: "in manibus genistæ aliquot ramos (quibus insecta comprehendere soliti fuimus) in tulelam & defensionem nostram portassemus. . . . " (Moffet, 1634). Yet, in well over a decade of inquiry, I have been unable to establish the precise net design used by Ray and his British contemporaries in the 17th century.

The "Muscipula", which we might now assume to have been the bag-net, did not fare well in Britain, despite Petiver's efforts to promote it among all manner of persons urged to collect insects for his noted cabinet. Benjamin Wilkes did not mention the Continental bag-net at all in his broadside of collecting directions printed in 1742, or in his more extensive colour-plate work, *The English Moths and Butterflies* [1747 or 1748?-49]. By the seventeen-forties, the curious device known as the *clap-net* had become the instrument used in England for capturing insects on the wing. The clap-net, which was obviously adapted for entomological purposes from the common fowling-net used to take birds, is best visualised from an illustration, and one is given in a past issue of the *Record* (Wilkinson, 1966b).[1]

The first British description seems to have been that in Wilkes' 1742 broadside: "Provide a Net made of Muscheto Gause, and in Shape like a Bat-folding Net [the fowling-net], let its Length be one Ell [about 45 inches], the Width at

* The Library of Congress, Washington, D.C. 20540; The American Museum of Natural History, New York, New York 10024.

[1] The illustration of the clap-net there shown, was reproduced by permission of Mr. J. M. Chalmers-Hunt, from the frontispiece of his copy of the exceedingly rare anonymous *History of Insects* (London, 1839). — R.S.W.

Bottom three Quarters of a Yard, at Top half a Yard, and cut circular; this must be sew'd to a Tape or Ferret, that it may be fasten'd to a couple of Hasle or other Sticks five Feet long each, the upper Part whereof should be Circular to fit your Net". In plainer language, the 18th century clap-net was constructed of two wooden rods, curved (and usually jointed) to meet at their upper ends. An ample gauze net was fitted between the rods. The entomologist held the free end of one rod in each hand, "clapping" the device together when a stroke had placed the insect against the net, thus securing it. The various details of using the clap-net were best explained by Moses Harris in *The Aurelian* ([1758]-66). If there had been any previous questions about the effectiveness of this method of capturing insects, Harris' influential book dispelled them, while setting the mode of entomological collecting in Britain (at least in the case of the Lepidoptera) for nearly a century. (Harris indicated that clap-nets could be purchased "at the Fishing-Tackle Shops, by asking for them; they call them Butterfly Traps" — an early observation of entomological equipment for sale in Great Britain.)

Moses Harris did mention the bag-net as an aid for taking flying insects, but only in a very specialised way. He described a curious variant, apparently the first of the British "long nets" for the Purple Emperor, *Apatura iris* (L.). It was a fifteen-foot affair, "The Mouth of which, when you have covered the Fly, is drawn together by a String, as a Purse is" (Harris, [1758]-66). Harris' "purse-net" has interesting affinities to a net used by the great French entomologist R. A. F. de Réaumur (Wilkinson, 1967), and may have been derived from that design. Harris' aquatic net was obviously a bag-net, but this was only a continuation of a long tradition derived from anglers. The clap-net reigned triumphant as a general field design in *The Aurelian.*

The net derived from fowling was that mentioned in the standard guide to collecting methods following Harris, William Curtis' *Instructions for Collecting and Preserving Insects* (1771). Similarly, Adrian Hardy Haworth used the clap-net for general purposes, although he at least mentioned the bag-net, again to be used in taking the adult Purple Emperor (Haworth, 1803), and now grown to "twenty or thirty feet long". Now and then conjectures have been published as to whether these bag-nets of enormous length were really effective, or indeed useful at all, but it is certain that one of *over* thirty feet in length was employed relatively recently by Mr. I. R. P. Heslop; it was described and illustrated in *Notes & Views of the Purple Emperor* (1964).

In his little guide which was an important source for a number of years, Abel Ingpen (1827) asserted that "A Clap Net . . . is the first instrument in point of importance". At least Ingpen brought the bag-net back down to earth; his "ring-net", however, was only three or four inches in diameter, and was used for placing over resting moths, not for taking flying insects. In the fourth volume of their very influential

Introduction to Entomology (1826), Kirby and Spence noted that "scarcely any implement seems a greater favourite with British collectors than what may be called the *fly-net.* This is universally employed by them for capturing *flying insects,* especially *Lepidoptera*". This was the clap-net, and its design had by this time become greatly refined; the better-made nets could be taken to pieces and reduced to a small compass, not only for ease in transport but also for concealment in an age when, as Kirby and Spence observed, the entomologist with his implements would be "stared and grinned at by the vulgar". This 1826 volume may have, at the same time, called the attention of many British entomologists to the Continental use of the bag-net; Kirby and Spence stated that the French collectors used it to "catch *Lepidoptera* and other *flying* insects; and an adroit collector by giving it a certain twist completely closes the mouth, so as to prevent the escape of his captives". The very modern statement would seem to have been argument enough for the introduction of the bag-net as a general implement, but this was not so; the authors actually recommended the bag-net only for capturing *iris* and for sweeping; it was "not deep enough for *flying* insects" — a supposed difficulty which could easily enough have been remedied, one would imagine.

In his *A Familiar Introduction to the History of Insects* (1841), Edward Newman, one of the arbiters of Victorian entomology, mentioned the bag-net only as a device for sweeping and aquatic collecting; the clap-net was described as "the grand weapon of the entomologist". Newman explained that this net "is the best for pursuing butterflies and moths on the wing; the hunter tries to get the net under the object, and strikes upwards, closing the rods at the same time". But was it really "the best"? Newman's dictum was soon quite decisively disputed, and the twenty years after 1840 saw the extensive introduction of the Continental bag-net into England as a replacement of the clap-net. The standard guide-books of the new generation indicate that the basic instrument of aurelians from Wilkes to Newman had been decidedly overwhelmed by its Gallic and Germanic rival.

The new handbooks were *The Insect Hunter's Companion* (1863), by the pupa-digging parson Joseph Greene, and *The Lepidopterist's Guide* (1869), written by the editor of the *Entomologist's Monthly Magazine,* H. Guard Knaggs. And what a difference! Greene wrote in 1863 that "there are, I believe, two kinds of net commonly employed. . . . The one consists of a hoop or ring of iron (sometimes cane), about three feet in circumference. . . . The *larger* it is, the better chance of entrapping the insect; the *smaller,* the more easy to wield. To this ring is attached a bag-net, about two-and-a-half feet in depth, made of green gauze". Of the clap-net, Greene stated that "as I am not familiar with either the make or use of it, I shall quote the description given of it by Mr. Newman, in his 'Familiar Introduction to the History of Insects' ". Greene preferred the bag-net, "probably for the

simple reason that I have always used it, and have become accustomed to it". In 1869, Knaggs was even less equivocal: "that now most commonly in use is a light ring net, the steel ring being jointed for the convenience of folding up into a small space. . . . The *clap-net* . . . seems to have quite gone out of fashion".

Out of fashion, but not out of use. Despite the fact that the Continental bag-net had finally been accepted, the clap-net managed to hold some ground for at least three more decades. During a search for late survivals of the clap-net, the last really significant printed reference I have found is one written by the founder of the *Record,* J. W. Tutt, who provided evidence that the clap-net still had a limited use in 1895. In the chapter on apparatus and methods in his *British Moths* (1896), Tutt observed that nets "are made in a variety of ways, but the clumsy old clap-net has given way *almost entirely now* to the ring-net". (The italics are mine.) The *British Moths* was written as a guide to inexperienced lepidopterists, and those who are familiar with Tutt's ideas know the importance he placed on proper instruction of the young. He would not have thought it necessary to mention the clap-net in such a way if he had not known that some of his contemporaries were still using it. And, his inference is confirmed by a turn-of-the-century photograph reproduced by R. L. E. Ford in his *Practical Entomology* (1963). The illustration shows a group of collectors from the end of Queen Victoria's reign, posing with a clap-net which appears identical to the design described by Newman in 1841.

But how long did the clap-net actually survive in Great Britain? Although numerous examples of Victorian and Edwardian entomological equipment can be found in various collections, as well as some items obviously from the 18th century, not a single genuine clap-net has ever been discovered by the author or Mr. J. M. Chalmers-Hunt, and both of us have been searching for one for many years. Oral tradition has also failed; none of the older entomologists I have interviewed specifically recall the clap-net in use. For example, the late P. B. M. Allan began his collecting activities in the 1890s, but never saw a clap-net, although after much later study he had no doubt that the design was probably still in use during his youth.

Another question which remains unanswered is why such a net survived at all. When a seemingly more efficient design had been in use on the Continent since at least the 17th century, why was the clap-net accepted in Great Britain, and why did so many generations of British entomologists use that design, until the bag-net finally won the field in the Victorian era? The literature gives us few hints toward a solution, but a conversation I had with P. B. M. Allan many years ago led us both to what may be an explanation. Despite the innovations of Petiver, we might suppose that British aurelians adapted the fowling-net to entomological purposes quite independently of the efforts of their Continental contem-

poraries. Mr. Allan suggested that because of the widespread use of the fowling-net to capture birds in the 17th century, the clap-net may have been well established before Petiver's apparent (and at any rate unsuccessful) introduction of the bag-net in 1711. Of course that is conjecture, but history shows us many examples of the fact that entomological techniques well learned are not easily discarded.

A personal experiment has demonstrated why this may well have been the case in the matter of the clap-net. Had 18th-century British entomologists become so adept in the use of their own design that there was simply no incentive to abandon it in favour of a Continental innovation? We have perhaps been misled by frequent descriptions of the clap-net as "clumsy". In 1972, acting somewhat belatedly upon a suggestion made by Mr. Allan, I constructed a very rudimentary clap-net using aluminium tubing and mosquito netting. That summer I repaired to the field on a number of occasions with my clap-net, and despite the habit of over thirty years of wielding a bag-net, I was soon able to perform with reasonable skill. Using Moses Harris' directions for aerial work, I found that except in headlong chase and in "close quarters", it was very simple to take insects on the wing. Moreover, the great area of the clap-net gave me a marvellous sweeping capacity, and in picking insects off plants, the "clapping" facility of the old design was much superior to the bag-net. My clap-net was surprisingly useful in taking insects resting on the ground, and as might be expected, it was very capable in the task of beating from trees and shrubs. After a few weeks' use, I could not help but admit that a field collector raised entirely in the use of the clap-net would consider it an ideal all-round instrument. In fact, for a great many entomological purposes, the clap-net was an eminently useful design, although it must have been apparent to those who were finally tempted to try the bag-net that the European design was really more successful in the capture of flying insects, and because of its smaller size could be used with more utility in situations which called for a less bulky instrument. Thus the clap-net, as Knaggs phrased it, eventually passed "out of fashion", but its history is a reminder of the adage that old methods were not necessarily useless ones.

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A DIFFERENT KIND OF BUTTERFLY CATCHER. — A friend knowing my interest in butterflies has passed me a copy of an article appearing in the 8th January, 1978 issue of *Free China Weekly,* from which the following is an extract:

"Shih Tien-ting, a native of Chaochow, Pingtung, is a different kind of butterfly catcher. Instead of chasing after butterflies, they come to him. It is therefore not surprising that Shih has caught the largest number of butterflies in Taiwan in the past 30 years as a professional catcher with a personal record of 120,000 in a single day. Shih estimates he catches about 1 million to 2 million butterflies caught in Taiwan. He declines to reveal the secret of his success, however. Shih usually sells his catch to Yu Wen-chung, who owns the largest butterfly processing plant in the world, with an annual capacity of 10 million specimens. Shih said he is careful to release rare specimens and female butterflies of all species."

The idea of a butterfly processing plant sounds appalling — and presumably there are more than just the one referred to in the article. Can the butterfly population withstand depredation on such a gigantic scale? — G. G. BALDWIN, 22 Edgerton Grove Road, Huddersfield, HD1 5QX.

CERURA VINULA L. COCOON ON WALL. — In late July 1977 I found two larvae of *Cerura vinula* L. on the willow tree in our front garden. One larva was removed, but the other was left on the foliage. In late August I searched for the cocoon on the willow, but without success. In the autumn I found the cocoon on the brick wall surrounding our back garden. It was situated eight centimetres from the top edge of the wall, and placed facing north on a vertical band of mortar between two red bricks. The sides of the cocoon overlap the nearest edges of the two bricks. The larva used the mortar between the bricks to make its cocoon. The cocoon though protuberant is well camouflaged in colour. — A. H. DOBSON, 1 Halden Close, Romsey, Hants.

A Review of Lepidoptera in Britain during 1977[1]

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.[2]

The year opened once more with on the whole a very mild winter for the fourth year in succession. There was little snow and an average start to the season as regards the appearance of most of the early species of moths. The sallow blossom was well out by mid-March, but it was in the first week of that month that a most remarkable immigration took place, of which the like had not been observed in this country so early in the year since a somewhat similar one in 1952. Quite a number of Painted Ladies were seen over the south of England at this period, together with several records of *Macroglossa stellatarum* L. Among the rarer captures of migrant moths were a few *Heliothis peltigera* D. & S., *Rhodometra sacraria* L., a single *Eublemma parva* Hbn. from Weston-super-Mare, and at least three *Eublemma ostrina* Hbn. from as far apart as South Devon, Oxford and the Chiddingfold area in Surrey. All these insects seem to have appeared between the 1st and 5th of March when apparently there was a very warm airstream coming direct from western Spain and the Canaries to the British Isles. This combination was most conducive to a very extensive migration (*vide Ent. Rec.*, **89**: 126 *seq.*). Both March and April were relatively mild, but it soon became apparent that insects in general were nothing like in as big numbers as they were in the same period of 1976, nor as early in appearance. However, as was hopefully expected, *Nymphalis antiopa* L. reappeared in the spring after hibernation in a similar fashion as it did in the year following the great incursion of 1872. After the *circa* 300 records in Great Britain in the late summer of 1976, at least fourteen Camberwell Beauties were observed, mainly in March and April of 1977. Most of these records came from the more western regions of England, but there is no evidence of this fine insect having bred naturally in this country. As to the regular spring species, *Anthocharis cardamines* L. was quite plentiful during May, while *Celastrina argiolus* L. once more had quite a prolific first brood. *Hemaris fuciformis* L. was also very much on the up-grade again with as many as fifty being seen in the Chiddingfold area in a single day. Its relative *H. tityus* L. was equally numerous in Ireland at this period. But the hopes of a really prolific season were dashed by the inclement conditions prevailing during most of June, with the result that dates of average emergence were put back in many instances for quite a fortnight, and certainly in the south of England where numbers seen at m.v. moth traps were the lowest for several years, a great contrast to a similar period in 1976. However, it was a very different story in the west where, especially on the Welsh coast, huge concourses of moths were recorded at light traps during early July with well

[1] This review used to appear annually from 1952 onwards in the Transactions of the Suffolk Natural History Society.

[2] Three Oaks, Shores Road, Horsell, Woking, Surrey.

over 2,000 individuals a night, though the predominant species were *Agrotis exclamationis* L. and *Apamea monoglypha* L. It was at this time of the year that a further investigaiton was made into the prevalence of the newly-discovered little noctuid *Eriopygodes imbecilla* Hbn. in its restricted haunts in South Wales. It proved to be comparatively abundant, being seen flying by day mainly in the afternoon sunshine and mostly at higher levels up to 2,000 ft., while at night it came freely to light in some plenty. Captured females produced batches of ova from which the ensuing imagines were bred out in the autumn. It would seem that this agile species should be widespread over much of the mountainous regions in that part of Wales, but as yet it has not been observed outside its original locality. July turned out a much more congenial month, but the main sequence of the woodland butterflies was well behind schedule. *Apatura iris* L. only appeared in the latter half of July, nearly a month later than it did in 1976. This was the pattern for most of the other summer species. *Argynnis paphia* L. was again quite plentiful on the Surrey-Sussex border and in a good many other localities, but the males were only well out in the third week in July. It was a similar story with *A. aglaia* L. which was also quite abundant on the Surrey downs, also in the Salisbury Plain region, and especially in West Wales. The Blues did not fare too well. *Plebeius argus* had hardly recovered from the devastating fires of 1976 in many of its heathland haunts. *Lysandra coridon* Poda was in much lower numbers than normal, only appearing very late in July and continuing almost into the autumn. During August, another quite warm month, *Maniola tithonus* L. was in exceptional numbers over most of the south of England, together with the little Skipper *Thymelicus sylvestris* Poda. Towards the end of the month, an occasional *Nymphalis polychloros* L. was seen in singles, with one at Folkestone on buddleia, and even another on it in one of the squares in Central London, while it reappeared in one or two places in the Eastern Counties, though some of these may have been migrants. Some of the Vanessids became especially numerous at this period, in particular *Inachis io* L. of which one observer saw as many as forty together on the buddleia in his garden in Surrey. *Pyrameis atalanta* L. too seems to have had a good year, mostly in the West country, where in the region of the Lizard *Luperina nickerlii leechi* Goater was again quite plentiful in its restricted haunts. But there was hardly any migration in those parts and nothing to compare with that of 1976, with a complete absence of the larger Sphingids such as *Herse convolvuli* L. During this period the small noctuid *Caradrina ambigua* D. & S. was in spate, with successive generations carrying on well into the autumn. September was another quite congenial month with warm days almost throughout. The buddleia bushes continued to be patronised by more Vanessids than in 1976, with the addition of quite a good showing of *Polygonia c-album* L., *Aglais urticae* L. and a few *P. cardui* L. At the end of the month, a *Lampides boeticus*

L. was distinctly observed on the outskirts of London. This may have been the prelude of another migration, somewhat on a similar pattern as that in March. But the main influx seems to have been during the latter part of October, yet another quite mild period. A few *Colias croceus* Fourc. had also been seen in late August and well on into September, both inland in Surrey and on the Isle of Wight. But the later migration was heralded by quite a number of *Leucania vitellina* Hbn., which was recorded on the south coast in small numbers and as far inland as Oxford, Surrey and North Norfolk. A few *L. albipuncta* D. & S. were also seen at this period. *Heliothis peltigera* D. & S. reappeared with apparently a single record of *Plusia orichalcea* Fab. in Sussex. Among the geometers there were several *Rhodometra sacraria* L. noted, also a few *Nycterosea obstipata* L. and at least six records of *Cosymbia puppillaria* Hb., all in the southern counties. A few *H. convolvuli* came in, with one penetrating to the island of Hoy in Orkney in late October. There was quite a phenomenal invasion apparently of *Phlogophora meticulosa* L., over a large portion of the southern counties at this period. However, yet another immigrant at that time which had hardly been seen since the mid-1960's, was the striking white pyrale *Palpita unionalis* Hb., which was seen at light in some plenty, especially in the south-eastern parts of the country. Some other sporadic migrants only lately reported, included an example of *Coscinia cribraria* L. ssp. *arenaraia* Lempke, taken on the Isle of Sheppey in mid-July. This foreign form of our Speckled Footman has only very occasionally visited our islands. But possibly by far the most spectacular moth to do so in 1977, was a specimen of *Ochropleura fennica* Tausch., taken in Aberdeenshire in late August, at the same time as a large immigration of *Eurois occulta* L. to the eastern seaboard of Scotland. There have apparently only been two other authentic records of this northern species. The first was near York about 1850, and the second in 1972 in Middlesex, not far from London Airport. The autumn saw some interesting records, showing the spread of those two cypress-feeding species *Lithophane leautieri* Boisd. and *Eupithaecia phoeniceata* Rambur. This latter small Pug, only discovered in Britain in 1959, and for a time considered quite a seaboard insect, has now penetrated as far inland as Wimbledon on the outskirts of the Metropolis. *L. leautieri* seems to be spreading rapidly annually, having been now taken well north of London and as far east as Dover. The autumn moths were generally in fair abundance, though few *Ptilophora plumigera* D. & S. were seen. The mildness of December tempted out several *Phigalia pedaria* Fab. well before Christmas.

As was to be expected, 1977 was not likely to compare in abundance of insects with that of its predecessor. In fact it was generally conceded that many species were in much smaller numbers than usual, and with a very later emergence. Migrants were on the whole few in number, though there was

a distinct immigration in early March and again in the latter half of October, with very little in between. The sighting of several *Nymphalis antiopa* L. in the spring was a gratifying legacy from the great 1976 invasion, with at least two recorded in the summer. 1977 can be counted as one of the less prolific years in recent times and in the present decade.

MONMOUTHSHIRE LEPIDOPTERA IN 1977. — In marked contrast to the previous year, 1977 was a disappointing one for Lepidoptera in Monmouthshire. Migrants particularly, were in very depleted numbers. I saw only two *Cynthia cardui* L., one on May 10th and another on September 8th. Single specimens of *Vanessa atalanta* L. were noted on August 28th and October 1st. *Autographa gamma* L. and *Phlogophora meticulosa* L. were much less numerous in the autumn than usual, the latter species reaching its maximum numbers on October 14th when 49 came to my garden m.v. trap. Not a single *Agrotis ipsilon* Hufn. was seen during the year. However, the spell of mild weather with south-westerly winds in October produced here, as elsewhere in the country, an influx of *Palpita unionalis* Hübn. One ♀ came to my m.v. trap on October 16th, two ♀♀ on October 18th, and finally two ♀♀ and one ♂ on October 20th. There was also a ♂ *Orthonama obstipata* Fabr. on October 18th.

However, among the resident Lepidoptera there were some compensations for the poor year generally. 1977 proved a good year for *Ladoga camilla* L., *Argynnis paphia* L. and *Celastrina argiolus britanna* Verity. The first species was especially plentiful in its usual haunts near Monmouth and it was also recorded from a new locality in the south of the county.

Eriopygodes imbecilla Fabr. was seen in some numbers at its one known station.

Some of the more noteworthy insects which came to my garden m.v. trap were: *Orthosia opima* Hübn. (scarce in Monmouthshire) March 25th (1), April 20th (1). *Egira conspicillaris* L., May 28th (♂, 1) — second county record. *Clostera curtula* L., May 28th (1), August 10th-13th (5). *Peridea anceps* Goeze, May 28th (1) — infrequent in central Monmouthshire. *Harpyia bicuspis* Borkh., June 23rd (1), 24th (1). *Perizoma blandiata blandiata* D. & S., July 7th (1) — scarce in Monmouthshire. *Cryphia muralis muralis* Forst., July 21st (1), August 11th (2), 14th (1). *Pammene aurantiana* Staud., August 1st (1). *Deileptenia ribeata* Clerck, August 10th (1). *Ptycholomoides aeriferanus* H.-S., August 13th (1).

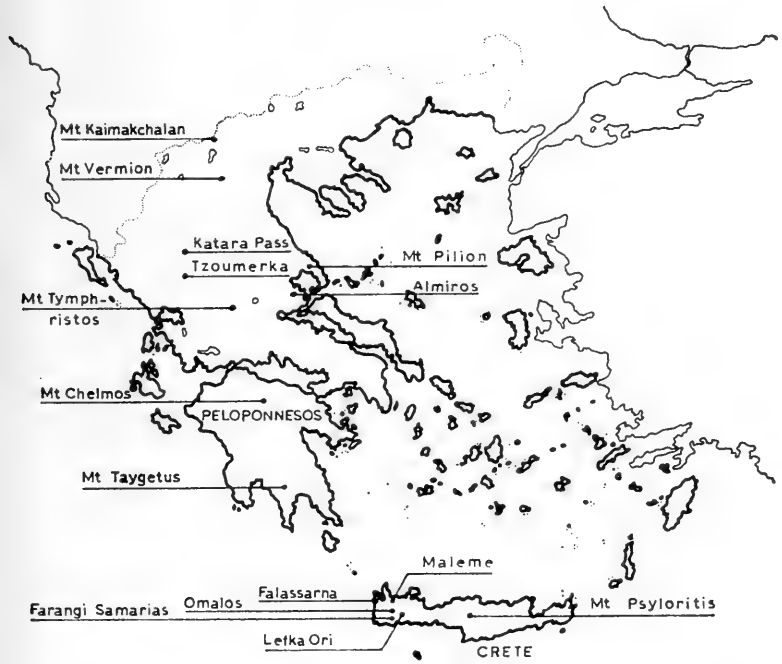
Hopefully, 1978 will be a more rewarding year, and perhaps the recent sighting of a ♂ *Gonepteryx rhamni rhamni* L. flying in my garden on the early date of March 4th, will prove a good omen for the coming season. — Dr. G. A. NEIL HORTON, Plas Newydd, Usk, Gwent.

List of Grecian Butterflies: Additions and Corrections

By J. G. Coutsis*

In my previous papers on personal records of butterflies from Greece, I included all species and important subspecies captured between the years 1960 and 1972 (Coutsis, 1969, 1972, 1973).

The present paper presents additional personal records of Grecian butterflies noted between 1973 and 1977, as well as corrections of some of my previous records, necessitated to a great extent by recent revisions of the taxonomic status of certain taxa.



Additional records

PAPILIONIDAE

1. *Allancastria cerisyi cretica* Rebel
   Found to be quite common and widespread on the island of Crete in April, and rather rare and going over by the beginning of June; recorded from Falassarna; Farangi Samarias; vicinity of Maleme; Omalos, at altitudes ranging from sea level to approximately 1,300 m.

NYMPHALIDAE

2. *Melitaea arduinna* Freyer
   A single female captured in late June near Katara Pass, South Pindos Mts., c. 1,500 m. Extensive search for more produced negative results and it is assumed that the specimen was blown over from a different locality.

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SATYRIDAE

3. *Coenonympha thyrsis* Freyer
Found to be extremely common throughout the island of Crete from the beginning to middle of June, and at altitudes ranging from sea level to 1,500 m. Extensive search for it in mid-April and again in October, failed to turn it up, thus indicating monovoltinism.
4. *Hipparchia volgensis delattini* Kudrna
Recorded sporadically in July, from Mts. Vermion, Kaimakchalan, Tzoumerka. Identification based on morphological characters of the male.

LYCAENIDAE

5. *Thecla betulae* Linnaeus
A single female captured on Mt. Kaimakchalan at about 1,600 m., end July.
6. *Tarucus balkanicus* Freyer
Found to be locally very common near the town of Almiros, Central Greece, in arid situations and around places where its foodplant, *Paliurus spina-christi* Miller, grows in quantity. Recorded in June and July.
7. *Everes alcetas* Hoffmannsegg
A small number of specimens captured in late July on Mt. Pilion at about 1,000 to 1,200 m., in rather humid and well watered places. Determination supported by male genitalia. Some specimens showing traces of a dull orange submarginal lunule in S2 of hindwing underside may be mistaken for *argiades,* but genitalia show them to be *alcetas.*
8. *Turanana panagaea taygetica* Rebel
A single colony tracked down at about 2,000 m. on Mt. Chelmos, Peloponnesos, in late June. The butterflies were restricted within an area of no more than 10 by 60 metres, facing south. Many specimens seen feeding on a species of yellow *Compositae* flower.
9. *Kretania psylorita* Freyer
Recorded from Mt. Psyloritis, island of Crete, at an altitude of about 1,300 m., in the middle of June. Extensive search for it on the Lefka Ori Mts. of western Crete failed to turn it up.
10. *Polyommatus eroides* Frivaldsky
Found above tree line and up to about 2,000 m., end July, on Mt. Kaimakchalan. Several males captured while feeding on animal excrement.
11. *Agrodiaetus damon* Schiffermueller
Found at about 2,000 m. on Mt. Tymphristos, Central Greece, in mid-August. Locally abundant, but colonies very restricted in area.
12. *Agrodiaetus iphigenia nonacriensis* Brown
Found very rarely on Mts. of northern Peloponnesos, at 1,000 to 1,600 m. Only four males recorded.

Corrections

PIERIDAE

1. *Artogeia mannii* Mayer
   My single record from Crete (Coutsis, 1969), cannot be sustained upon further examination of available material. The specimen recorded as such, is actually a male *rapae* form *mannides* Verity.

SATYRIDAE

2. *Hipparchia cretica* Rebel
   Recorded as *semele* ssp. *cretica* (Coutsis, 1972). Recently saparated from it by Kudrna, on the basis of important genitalial differences in the male.
3. *Hipparchia volgensis muelleri* Kudrna
   Recorded as *semele* ?ssp. (Coutsis, 1972), but more recently named *muelleri* by Kudrna and tentatively placed as a ssp. of *semele,* later to be transferred by the same author to *volgensis,* while, at the same time, being synonymised with *delattini.* A series of specimens from the Peloponnesos shows constant differences in the male genitalia from *volgensis delattini* from northern Greece and this, combined with the fact that the Peloponnesian population is a geographic isolate, suggests that *muelleri* should retain its former subspecific status.

LYCAENIDAE

4. *Polyommatus menelaos* Brown
   Recorded as *eros* Ochsenheimer (Coutsis, 1969), but recently separated by Brown as a distinct species. The butterflly has only been recorded from Mt. Taygetos in June and July, at altitudes ranging from 1,200 to 2,000 m.
5. *Agrodiaetus ripartii* Freyer
   Due to confusion with *Agrodiaetus aroaniensis* Brown, the data and photographs I presented of *ripartii* (Coutsis, 1972) are erroneous and the specimens figured as *ripartii* are in fact *aroaniensis.* I have found *ripartii* on Mts. Taygetos, Chelmos, Tymphristos and Pindos, identification having been based on superficial and morphological characters and not on chromosome counts.
6. *Agrodiaetus aroaniensis* Brown
   Recorded as *ripartii* both in text and figure (Coutsis, 1972). Recently separated from it by Brown and placed as a ssp. of *alcestis* Zerny. Ample superficial differences between *alcestis* and *aroaniensis* suggest, however, that the two taxa are distinct species. In *alcestis* the distal half of the fringes on hindwing upperside is pure white, while in *aroaniensis* it is brown; in *alcestis* the vertex of the head is covered with pure white hairs, while in *aroaniensis* it is covered with a mixture of white and black hairs; the ground colour underside of *alcestis* is light yellow-brown, whereas in *aroaniensis* it is more chocolate brown; in *alcestis* the whitish streak on the hindwing underside is always present, while in *aroaniensis* it is absent in about half the individuals. The species has been recorded from Mts. Chelmos, Tymphristos and Parnassos, identification having been based on superficial as well as structural characters.

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HETEROGRAPHIS OBLITELLA Z. (LEP.: PYRALIDAE) IN GLOUCESTERSHIRE. — During a visit to Mr. R. P. Demuth on 22nd August, 1976 at his country home in the Cotswolds at Waterlane, near Stroud, my host showed me the contents of his m.v. trap catch from the night before. This contained three specimens of *H. oblitella.* I believe this is the second record for this species in Gloucestershire. — Dr. M. W. HARPER, Cherry Orchard, Bullen, Ledbury, Herefordshire.

SOME LESS COMMON MACROLEPIDOPTERA AT ASHURST, HAMPSHIRE IN 1977. — Among 339 species of macrolepidoptera at m.v. light trap at Ashurst, Hants. during 1977, the following were the most noteworthy. Map ref. SU 344115. Alt. 50 ft. The number after each species is the number of specimens caught during the year.

Trichiura crataegi (L.), 2. *Cyclophora puppillaria* (Hbn.), 1. *Idaea vulpinaria* (H.-S.), 1. *I. sylvestraria* (Hbn.), 3. *I. emarginata* (L.), 3. *I. straminata* (Borkh.), 1. *Orthonama obstipata* (F.), 1. *Scotopteryx chenopodiata* (L.), 3. *Larentia clavaria* (Haw.), 2. *Horisme vitalbata* (D. & S.), 2. *Euphyia unangulata* (Haw.), 2. *Asthena albulata* (Hufn.), 1. *Apocheima hispidaria* (D. & S.), 11. *Odontosia carmelita* (Esp.), 2. *Thumatha senex* (Hbn.), 2. *Callimorpha dominula* (L.), 1. *Spaelotis ravida* (D. & S.), 1. *Graphiphora augur* (F.), 2. *Mythimna vitellina* (Hbn.), 2. *M. straminea* (Tr.), 2. *Aporophyla lutulenta* (D. & S.), 42. *Lithophane socia* (Hufn.), 4. *L. leautieri* (Bois.), 93. *Eumichtis lichenea* (Hbn.), 1. *Conistra rubiginea* (D. & S.), 2. *Xanthia citrago* (L.), 1. *Mormo maura* (L.), 1. *Dipterygia scabriuscula* (L.), 25. *Enargia ypsillon* (D. & S.), 5. *Apamea scolopacina* (Esp.), 5. *A. ophiogramma* (Esp.), 7. *Coenobia rufa* (Haw.), 1. *Helicoverpa armigera* (Hbn.), 1. — Dr. J. C. A. CRAIK, Department of Oceanography, The University, Southampton, SO9 5NH.

Notes on *Byrrhidae* (Col.); with Special Reference to, and a Species New to, the British Fauna

By Colin Johnson*

I. The genus Syncalypta s.l.

A study of the British species attributed to this genus revealed that *S.* (*s.str.*) *spinosa* (Rossi) on the one hand, and *S.* (*Curimopsis*) *setigera* (Illiger) and *S.* (*C.*) *striatopunctata* Steffahny on the other, clearly belonged to different genera. A literature search was then undertaken and proved interesting. It was found that whilst the above nomenclature (i.e. one genus) has always been recognised by all European workers, two genera in fact are recognised in North America, namely *Syncalypta* and *Curimopsis.* The first person to elevate the latter to generic rank seems to have been Casey (1912: 35). He based his separation on the rather broader elytral epipleura anteriorly in *Syncalypta,* as well as the sparser sculpture and more minute size. More recently El Moursy (1961: 13-14), in raising the Syncalptinae to the family level — a procedure not followed by subsequent workers, has used different key characters to separate the two genera, utilising only the size difference quoted by Casey (*l.c.*). El Moursy's separation is primarily based upon the presence of two oblique grooves on the frons, and the lack of scales on the integument, in *Syncalypta.* My own studies, based on four species of *Syncalypta* and several *Curimopsis,* have produced a number of additional characters, which seem to me to give a better justification for recognising two genera. Before going into this matter, however, there is a question of nomenclature to be settled.

Traditionally, the name *Syncalypta* Stephens (1830: 128, 133) has always been assumed to be the valid name for *"Syncalypta"* in the European sense. Dalla Torre (1911: 31) gives one other name as a synonym, *Chaetophorus* Kirby and Spence, to which he attributes the date 1818. In fact the original reference to this name is *Chaetophora* Kirby and Spence 1823 (edition 3, **2**: 258), quoted by Neave (1939: 659). Stephens, in his Systematic Catalogue of British Insects (1829: 99), uses the generic name *Chaetophora* Kirby, but adds a footnote *"Chaetophora* — Genus Fungorum. Vide Grevilles Cryptog. of Scotland", and in his next work (1830: 133), describes the genus as *Syncalypta* Dillwyn. It is not generally known that Dillwyn (1829: 25) offered the name *Syncalypta* as a replacement for *Chaetophora* Kirby and Spence, referring to the prior use of the latter in fungi. However, some discussion must have taken place between Kirby and Stephens, or at any rate Kirby must have been aware of the fungus name, since in a later edition of their work (1828, edition 5, **2**: 258) Kirby and Spence changed the name to *Chaetophorus,* without explanation. Contrary to the treatment of both Dillwyn and Stephens, the presence of a fungus with the name *Chaetophora* does not affect the validity of Kirby and Spence's name

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(1823), which is therefore available. The later form, *Chaetophorus,* is an unjustified emendation.

The type species of *Chaetophora* is *Georyssus cretifer* Kirby, first mentioned by Kirby and Spence in 1817 (**2**: 258), although one must admit that the description is superficial in the extreme. More usually, the authorship of *cretifer* is attributed to Stephens (1830: 133), who gave a more adequate description, which species has always been placed as a synonym of the well-known *spinosa* (Rossi). This identity is not in doubt, due both to the descriptions of Stephens, and the presence of specimens in his cabinet. The type species of *Syncalypta* is given by Westwood (1840: 21) as *arenaria* (Sturm), a further synonym of *spinosa.*

Thus *Chaetophora* Kirby and Spence 1823 becomes the valid name for *Syncalpyta* Dillwyn, 1829 (Stephens, 1830) s.str., and the "subgenus" *Curimopsis* Ganglbauer 1902 should be elevated to generic rank.

Amongst other characters, *Chaetophora* and *Curimopsis* may be immediately distinguished from all other British Byrrhidae by the more V rather than T-shaped prosternal process, presence of outstanding setae — usually clubbed — instead of normal pubescence, little-distinct eyes in front view, and the more abrupt and short antennal club. Apart from a number of differences in the mouthparts, especially the maxillae, the two genera may be readily separated by the following key, which is not restricted to purely European forms:

A Size small, 1.2-1.6 mm. Dorsum with setae. Frons impunctate, with a pair of conspicuous oblique furrows, basally convering and almost meeting in a V-shape; front of frons with a submarginal impressed line. Mandibles tridentate, the dorsal tooth weaker. Antennal segment 3 shorter than 4, segments 9 and 10 strongly asymmetrical and resulting in a compact and apically truncate club. Elytral striae not impressed, indicated as rows of large punctures. Prosternal process of a broad V-shape, apex strongly rounded. Hind coxae obviously separated, the intercoxal process conspicuous, and with a submarginal impressed line. First visible abdominal sternite with the intercoxal process strongly rounded and broad apically, the sides evenly contoured. [All zoogeographical regions (see below) except Australasia] ..... *Chaetophora* Kirby & Spence

— Size larger, 1.9-3.3 mm. Dorsum with setae and scales. Frons punctate, furrows and an impressed submarginal line absent. Manibles strongly quadridentate. Antennal segment 3 longer than 4, segments 9 and 10 almost symmetrical, the club loose and apically rounded. Elytral striae finely impressed, and with rows of small punctures. Prosternal process of a narrow V-shape, apex somewhat pointed. Hind coxae almost touching, the intercoxal process without a submarginal impressed line. First visible abdominal sternite with the intercoxal

process bearing a short, blunt projection at the tip, the sides sinuate near the middle. [Holarctic and Oriental regions] ..... *Curimopsis* Ganglbauer

II. A NEW SPECIES OF CHAETOPHORA FROM NIGERIA

From consulting descriptions and/or specimens†, it seems that very few species of *Chaetophora* are known, as almost all described *"Syncalypta"* really belong to *Curimopsis.* However, the following should be included in *Chaetophora*: †*spinosa* (Rossi, 1794) — Europe; *minuta* (Reitter, 1884) — S. Russia and Greece; †*japonica* (Nakane, 1963) — Japan; *tessellata* (LeConte, 1850) — U.S.A.; *striata* (Pic, 1922) — Brazil; *suturalis* (Pic, 1922) — Vietnam; †*pilosella* (Motschulsky, 1858) — India, Ceylon and Burma. Thus the absence of any record of a species from the Afrotropical zoogeographical region makes desirable the description of the following species.

† Indicates species examined by me. — C.J.

Chaetophora medleri sp.n.

Length 1.31-1.42 mm.; breadth 0.99-1.10 mm. Form very short oval, only slightly longer than broad. Colour reddish-black, more-or-less darkened; legs reddish-brown, antennae yellowish-brown. Surface shining beneath the encrustations; covered with conspicuous pale brown and apically thickened, outstanding setae, the setae near the elytral edges c. 0.065 mm. in length. Head with the submarginal line interrupted in the middle. Antennal structure similar to that of *spinosa.* Pronotum slightly sinuate near the front angles, otherwise shaped much as in *spinosa*; surface somewhat sparsely punctured, the punctures shallow and often poorly formed basally. Elytra with coarse and close punctures arranged in rows as striae; sutural striae near the apex deeply grooved; lateral striae beyond the humeral callus not deeply grooved, similar to the other striae. Venter coarsely and somewhat sparsely punctured, the last three visible abdominal sternites excepted; metasternum with the area along and around the median longitudinal line impressed; fifth visible sternite with a median forvea. Male: aedeagus characteristic, fig. 1.

Holotype ♂. NIGERIA — S.W. State: Badeggi RRS, 19.iii.1972, leg. J. T. Medler (in Manchester Museum).

Paratypes. Same data, 3 ♀.

Dedication. It is a pleasure to dedicate this new species to Prof. John T. Medler, formerly of Ile-Ife University.

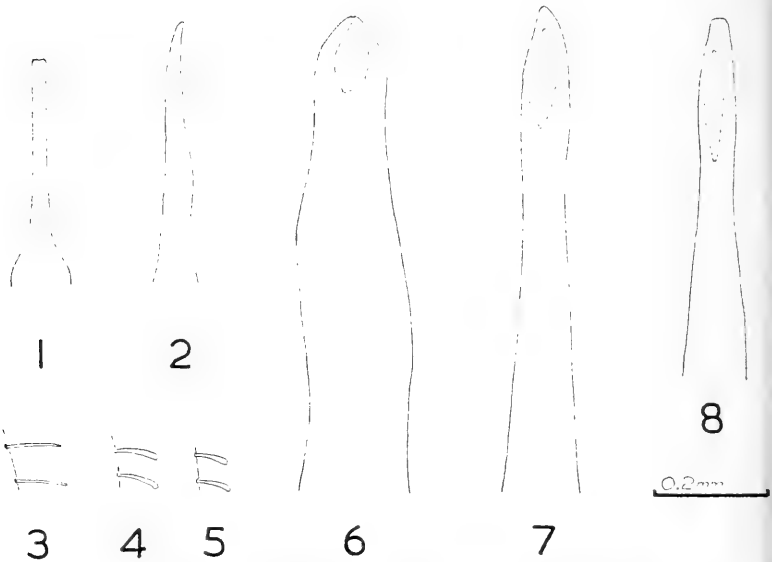
Remarks. Compared with the European *spinosa,* this species differs in the following features: colour more reddish; head with submarginal line interrupted in the middle at the front; lateral stria of elytra beyond the humeral callus not deeply groved; setae of the whole body pale brown, and very slightly longer; aedeagus different, cf. figs. 1-2.

III. THE IDENTITY OF CISTELA MARITIMA MARSHAM

Cistela maritima was sunk as a synonym of *"Syncalypta"* (i.e. *Curimopsis*) *setigera* (Illiger) by Steffahny, in his monograph of the Byrrhids (1843: 34), a position which it still

occupies (e.g. Dalla Torre, 1911: 32). Recent study on the British *Curimopsis* by the present writer has revealed that this treatment is erroneous.

Marsham (1802: 105-6) described *maritima* on the basis of East Anglian specimens collected at Languard Fort, Suffolk, and Holme-next-the-Sea, Norfolk, by the Rev. W. Kirby. Marsham's collection is incorporated in the Stephensian collection in the British Museum (Nat. Hist.), but the only specimens standing over *maritima* have no labels to indicate their origin. Evidence from Stephens's publications suggests that he did not possess any specimens from Kirby or Marsham of this species. An examination of the Kirby collection in the same institution failed to disclose any specimens or the name of this species. However, one Kirby specimen has turned up in a surprising source. This is from the Joseph Sidebotham collection in the Manchester Museum, in which a single, pinned, large *Curimopsis* specimen was found, which bears the label "Kirby" printed in black on pink paper, precisely like those in Kirby's own collection. As this is the only authentic Kirby specimen known, and which agrees with Marsham's brief description, it is reasonable in the circumstances to designate it as a LECTOTYPE. This specimen, along with two others in the Stephens collection over the name *maritima,* are all identical with *striatopunctata* Steffahny (1843). Hence Marsham's name must have priority. Distributional data provided the first clue to the identity of *maritima,* when it was



FIGS. 1-2, aedeagi of *Chaetophora* spp.: 1, *C. medleri* sp.n.; 2, *C. spinosa* (Rossi). FIGS. 3-5, elytral setae of *Curimopsis* spp.: 3, *C. maritima* (Marsham); 4, *C. setigera* (Illiger); 5, *C. nigrita* (Palm). FIGS. 6-8, aedeagi of *Curimopsis* spp., dorsal view: 6, *C. maritima*; 7, *C. setigera*; 8, *C. nigrita.*

found that *setigera* is a western species in Britain, *striatopunctata* an eastern one. I have also seen the type of *hirsuta* Sharp, described from England, and can confirm its treatment as a synonym of the previously-known *striatopunctata.*

IV. The British species of Curimopsis, with C. nigrita (Palm) new to Britain

Whilst sieving vegetational debris in a boggy situation with heather and peat on Thorne Waste, South Yorkshire, 15.iv.1977, I found a single specimen of a *"Syncalypta"* which, from the unusual biotope, I realised was probably something new to our fauna. Subsequent study revealed the specimen to be a female of *Curimopsis nigrita* (Palm). This determination was confirmed when my colleague Dr. Thure Palm generously sent me a male paratype of his species.

The discovery of this species on Thorne Waste is of considerable interest, in view of its limited continental distribution. It is only known at present from southern Sweden, Denmark, north Germany and northern Poland (Palm 1934, Bollow 1937, Franz 1967), and, unlike other species in the genus, is confined to lowland peat bogs in company with *Calluna.* Thus it is clearly a relict species at Thorne, and provides an interesting parallel with the occurrence at the same site of *Bembidion humerale* Sturm (Crossley & Norris, 1976), which I came across in the same sample of sievings.

Judging from the names attached to *Curimopsis* in British collections, there has been much confusion, especially over *setigera,* and many records are erroneous. Below is given a key to all the British species of this genus, together with records of personally-seen specimens of *maritima* and *setigera.*

1. Body long oval, more attenuate apically; outstanding setae long and thin, fig. 3, pale brown; abdomen very coarsely punctured. Length 2.2-2.9 mm. ♂: aedeagus fig. 6 ..... *maritima* (Marsham)
— Body short oval, more rounded at the sides and apically; outstanding setae shorter and thicker, apically thickened; abdomen more finely punctured 2
2. Larger, 2.3-2.9 mm.; outstanding setae pale brown, slightly longer, fig. 4; elytra usually mottled with lighter scales, the humeri rounded. ♂: adeagus fig. 7 ..... *setigera* (Illiger)
— Smaller, 1.9-2.4 mm.; outstanding setae dark brown, slightly shorter, fig. 5; elytra not mottled, the scales dark, the humeri somewhat angulate. ♂: aedeagus fig. 8 ..... *nigrita* (Palm)

Curimopsis maritima. South-east England, north to Yorks., west to Dorset and Oxon.; in dry, sandy or chalky places, chiefly on or near the coast; very local but not uncommon. *Yorks., S.E.*: Spurn (Hincks). *Suffolk, E.*: Aldeburgh (Saunders). *Suffolk,* W.: Freckenham (Tottenham). *Oxon.*: Oxford dist. (Walker, Champion). *Berks.*: Tubney (Collins), Aldworth (Joy). *Surrey*: Mickleham (Power). *Kent, E.*: Chatham (Blatch, Walker), Sheerness (Blatch), Isle of Sheppey

(Walker), Iwade (Donisthorpe), Aylesford (Johnson), Kingsgate (Wood), Pegwell Bay (Johnson), Sandwich (Johnson), Deal (Power, Walker, Champion, Saunders, Donisthorpe, Johnson). *Sussex, E.*: Camber (Blatch, Collett, Tottenham), Hastings (Blatch, Ford), Seaford (Champion). *Hants., S.*: Lymington salterns (Donisthorpe). *Isle of Wight*: Niton (Johnson). *Dorset*: Weymouth (Blatch).

Curimopsis setigera. Western Britain, north to Dumfries, east to Hants. and Oxon.; in dry sandy places, chiefly on the coast; scattered and rare. *Dumfries*: Caerlaverock (Sharp). *Lancs., S.*: Southport (Chaster). *Glamorgan*: Llangenydd (Tottenham), Gower (Tottenham). *Devon, N.*: Braunton (Dollman, Blair, Eustace), Saunton (Eustace). *Devon, S.*: Seaton (Tottenham), Colyton (Ashe). *Dorset*: Charmouth (Donisthorpe). *Hants., S.*: Highcliffe (Donisthorpe). *Oxon.*: Watlington (Champion).

V. Additional records of Byrrhus arietinus Steffahny

Byrrhus arietinus was first recorded from Britain by the writer (Johnson, 1966a), who observed that it seemed to have a northern range. Further data confirms this. In my experience the species is usually met with in upland areas beneath stones at the base of clumps of heather, sometimes walking on paths, chiefly from April to June, although I have seen it much more rarely in August and September. The following additional localities are known to me: *Aberdeens., S.*: Glen Quoich, Braemar (Johnson), Beinn a Bhuird (Johnson). *Ches.*: Robinsons Moss, Tintwistle (Johnson). My late friend W. O. Steel told me that he had found the species on Rhum (*pers. comm.*), and J. Thomas (*in litt.*) has collected it on Stribers Moss, N. Lancs. A specimen taken by P. Skidmore above Llangower, Merioneth, has also been recorded (Skidmore & Johnson, 1969: 194).

VI. A second British record for Simplocaria maculosa Erichson

Only a single British specimen of this very rare species is known, collected by sweeping along the River Ouse at Kelfield, S.E. Yorks., 14.v.1956, by J. Parkin (see Johnson, 1966b). It is of considerable interest to be able to provide further confirmation of this species in Britain. I recently detected two males of *maculosa,* with the characteristic mottled and depressed pubescence as well as aedeagus, amongst a series of *semistriata* (F.) taken by W. G. Blatch at Bewdley before the turn of the century. The antennae, however, seem not to be appreciably different from the last-named species, and this character, quoted in the above reference, may have been due to an accident of preparation and interpretation. I have also seen a few *semistriata* with barely a trace of microsculpture on the pronotum, so this character needs treating with caution. The habits of *maculosa* seem quite distinctive. According to Ganglbauer (1904: 60), it is to be found in central Europe at the edge of rivers and streams, amongst moss between stones on the banks. In the British Isles, *semi-*

striata on the other hand seems to occur fairly generally throughout the country at the roots of vegetation and in moss, in diverse habitats.

Acknowledgements

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Consistency of Autographa gamma L. in Peacehaven, Sussex during 1977. — The Silver Y moth made appearances in the trap with great regularity during 1977, with numbers totalling 2,053. Between June 3rd and October 5th I noted *gamma* every night, in numbers varying from occasional singletons to a peak of 236 on August 16th. — Colin Pratt, 5 View Road, Peacehaven, Sussex.

Observations on British Butterflies in 1977

By Dr. C. J. LUCKENS*

It is in some ways indicative of my personal fortunes with the butterflies in 1977 that entomological expeditions in January and February proved to be among the most interesting and productive of the season.

The first outing of the year was on January 8th — a fine crisp day — when I went with my two elder sons to a Nature Reserve, near Selborne, to look for ova of *Thecla betulae* L. Somewhat to my surprise there were excellent numbers on the small blackthorns and Mr. Matthew Oates, the Warden, told me that the butterfly had been quite plentiful the previous August. Unfortunately a new track had been bulldozed right through one of the best areas outside the Reserve, but I found several ova on the remaining bushes, and brought away five for rearing at home.

The following week-end Dr. T. W. Tolman and I travelled up to the Bucks./Oxford border. Snow was lying on the high ground and it was cold work searching the blackthorns, but in just over two hours we each found about two dozen *betulae* ova, some of which we retained. The ova were spread all over the wood, but the younger clean looking bushes, not necessarily the smallest, seemed the most favoured.

We went on to a locality where *Strymonidia pruni* L. had been abundant the previous June, but disappointingly drew a complete blank for the well-camouflaged ova of this species. A wood on the Surrey/Sussex border was the locality I chose to search for ova of *Thecla quercus* L. on January 21st. One of twelve ova from here had produced an ab. *flavimaculatus* Lienard in 1976 and I hoped, vainly as it turned out, that another might turn up. It had taken me then over an hour to find the twelve ova, but this time I found 31 in under 50 minutes.

The exception to this rule of plenty was in a local wood where *betulae* had been fairly frequent (in the larval stage at least) in previous years, but where I could only find two ova after a prolonged search on January 29th. There is little natural regeneration of blackthorn evident in this wood, and possibly it is becoming gradually less and less suitable for *betulae*.

On February 5th, Mr. Harold Short and I went to a site near Dorchester where, on a group of Wych Elms, we found several of the interesting white-ringed eggs of *Strymonidia w-album* Knoch. Some of these had been deposited on branches which must have been in complete shade when the trees were in leaf. The Wych Elms looked reasonably healthy there, but as we travelled back eastwards, more and more evidence of Dutch elm disease became apparent. In our part of Hampshire the infection among elms is rampant.

When the ova from Dorset started to hatch in late February, I drove around looking for healthy Wych Elms in order to feed the young larvae and finally found two near

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Kings Somborne. To my surprise there were numerous *w-album* ova on the twigs I gathered, though I had no idea previously that the butterfly existed there (*vide Ent Rec.*, **89**: 149). When I returned to release imagines in July, however, I saw only two free-flying *w-album* and found only one of the Wych Elms surviving, and that rather dubiously.

The first Brimstones of the year appeared on mild and sunny March 2nd — five along the road beside my house. The weather turned cold, but exactly a week later the same species was flying in the same place.

Towards the end of this generally cold month, on March 25th, I visited a local churchyard set in the woods, and to my surprise found a pair of *Vanessa atalanta* L. sporting in the hazy sun. In addition to these *Nymphalids,* which I suspect had hibernated somewhere in or around the church, there were also several Brimstones, Peacocks and a Comma. Chiff-chaffs were calling — spring had arrived — or so one could reasonably assume. April, however, turned out to be no mild month of sun and showers. It was cold and wet with a persistent north wind. I re-visited the Romsey wood on the 29th, a day of rather chilly sunshine, but there were several male *Celastrina argiolus* L. flitting around.

Under similar weather conditions two days later, the first *Pararge aegeria* L. were flying in the woods south of Salisbury. Whilst fishing near Bishopstoke that evening, I found larvae of *Panaxia dominula* L. common on Comfrey alongside the Itchen. Chilly weather continued well into May but there were plenty of *Pierids* about when the north east winds finally abated after the middle of the month. On May 20th I noticed one or two *Hamearis lucina* L. and *Erynnis tages* L. on a hillside near Selborne. The following day *lucina* was sparse at Westbury, but *Calophrys rubi* L. was common and there were a few *C. argiolus* and *Anthocharis cardamines* L. flying at the base of the down.

There then followed several good, warm days and on May 28th I set off for West Sussex. Operations commenced at Duncton Down, near Petworth, a favourite locality of mine in the past, but one I had not visited for several years. Here *Aricia agestis* D. & S. was numerous, and several *C. rubi* flitted around the hawthorns, but *H. lucina* was virtually non-existent, and I could only find two examples after a careful search.

I drove on to the woods near Plaistow where the spring brood of *Leptidea sinapis* L. was flying in numbers, along with a few *Pyrgus malvae* L., *C. rubi* and *Coenonympha pamphilus* L. *Boloria euphrosyne* L. was uncommon in all but one area, which had been recently cleared, and here there was welcome evidence of a revival of this small fritillary. The most exciting increase, however, was in the numbers of the engaging little day flying Hawk moth — *Hemaris fuciformis* L. I saw at least a dozen hovering over the bugle flowers, and they continued to fly right up to the time I left at about 4.30 p.m.

The fine weather continued right up to the next Saturday, when I took my two elder sons with me to the Midlands. It then became cloudy, with intermittent bright spells, but enough to encourage most butterflies to move. My main object was to look for *Carterocephalus palaemon* Pall, and though several widely scattered sites looked very promising, the Skipper did not show up in any of them. It is somehow even more depressing to morale when a locality looks right, but still does not produce the insect.

Such a state of affairs did not apply to a piece of downland near Winchester — St. Catherine's Down, recently taken over by the County Naturalist Trust. Here the reason for the lack of butterflies was not hard to discover. I found cattle were still grazing on June 7th, the downland flora decimated and only one *agestis,* where normally there would be numbers of that species along with other *Lycaenids.* In spite of my telephoning the next day and informing the official responsible for managing this Nature Reserve, the cattle were still there when I returned from France at the end of June, and another phone call revealed that the farmer had not even been contacted about the situation. When the livestock finally were removed the down had been ruined for Lepidoptera, for probably several seasons to come, the surviving butterflies being confined to a strip of fenced grassland by the path at one end of the hill.

A few sunny spells on June 10th tempted me to try another stretch of downland on the Hampshire border. Dull weather prevailed by the time I reached the locality, but there were still plenty of butterflies at rest in the grasses, including *Lysandra bellargus* Rott., *A. agestis, Polyommatus icarus* Rott., *C. pamphilus* and *P. malvae.* The same species were still flying there on June 30th, after nearly three weeks of generally appalling weather. A fresh confluent var. of *Zygaena trifolii* L. was taken during this visit.

I accompanied Mr. J. M. Chalmers-Hunt on July 8th to look for *Plebejus argus* f. *cretaceus* Tutt. in Kent. The first *Aphantopus hyperanthus* L. were about on a hillside near Eynsford, along with many fresh *Maniola jurtina* L., but no blues at all. We drove to Folkestone Warren in the afternoon where *P. icarus* was flying and a few *Thymelicus sylvestris* L., but there were no chalk-form *argus* to be found. I was pleased to be shown a few examples of a rare little moth *Aplasta ononaria* Fuessly which precariously holds on here, in one of its two known stations in Britain. Later on we inspected a sector of Blean Woods and saw a few fresh male *Mellicta athalia* Rott. flitting rather sluggishly about the evening sun.

P. argus was out in strength on a New Forest heath near Beaulieu on July 15th. I netted scores for inspection, but no vars. came my way, and I pressed on to the area between Ladycross and Woodfidley, the former home of *Zygaena viciae anglicae* Reiss. No. *Zygaenids* of any kind were seen, however, nor were there at this date any *Limenitis camilla* L. or *Argynnis paphia* L. in this sector of the forest. The first

T. quercus was flitting about the oaks. There were White Admirals flying in the Wiltshire woods later on that afternoon but still no *paphia* or *Apatura iris* L.

I did not encounter the latter butterfly until July 23rd when I returned to the Wiltshire woods in the late afternoon, having spent some time watching *Argynnis aglaia* L., *Melanargia galathea* L. and *Lysandra coridon* Poda on Stockbridge Down. On arrival at the wood I found *paphia* and *camilla* fully out, but much more scarce than usual. I saw two *iris* and one of them, a male, settled on the track. I was able to get within a yard of it, as it slowly fanned its wings and it appeared to be in mint condition.

Professional duties prevented me from doing any more entomologising until August 8th when we went on holiday to Dorset, again renting a cottage at Worth Matravers. With anticipation I rose early on August 9th in order to reach Portland in time for the "morning rise" of *coridon*. The numbers of this butterfly, however, were disappointingly low and *Eumenis semele* L. scarcer than usual. A few *P. argus* were on the wing, and some were still fairly fresh. I found a male of this species with greyish white replacing the usual black border on the forewings.

The weather stayed fine for the rest of that week, and most days I explored the local downland and coast. *C. argiolus* was common all along the path to the Winspit and above the beach was a large clump of ivy. Here I encountered Mr. K. Baskcomb who was watching the ovipositing females of this butterfly and we both found several of the pale turquoise ova at the base of the flower buds. *Thymelicus actaeon* Rott. was abundant at the Winspit and so was *M. galathea,* but *coridon* was represented by two or three males only. A very welcome sprinkling of *Lycaena phlaeas* L. also appeared on August 13th, and among them was a striated forewing var. in fair condition.

The other area I concentrated on was further east along the coast, involving a longish walk. As in previous years, this proved to be the best place for *coridon,* but even there the numbers were by no means spectacular. I could find no further examples of *P. argus* on this stretch of coast, incidentally (*vide Ent. Rec.* **89**, p. 238).

Wet weather dominated our second week at Worth Matravers, but I doggedly set out most days to examine the *coridon* in the rain-soaked grass, and even though no abs. came my way, there was some satisfaction to be had from the exercise.

We returned on August 20th and a week later went to stay in Sussex. My wife and I walked over a favourite down near Lewes on the 27th and found fair numbers of *L. bellargus* on the wing. *Coridon* also was still fairly common and one or two *Vanessa cardui* L. were seen. This colourful migrant was common on the wild buddleia patch outside Winchester during the ensuing two weeks, and was accompanied by numerous *Nymphalis io* L., *Aglais urticae* L., *V. atalanta, Gonepteryx rhamni* L. and a few *Polygonia c-album* L.

The first week in September saw *C. argiolus* still flying and on the 9th *Hesperia comma* L. lingered in reasonably good condition on a down not far from Winchester. Our garden at this time was regularly patronised by good numbers of *atalanta,* and one or two welcome *cardui* and *c-album* also graced the buddleias and michaelmas daisies.

Autumn is a rather melancholy time for the butterfly enthusiast, especially after a disappointing year, but planning for the next season has its own excitements, and one hopes, eventual rewards.

Occurrence of Imago of Orthosia stabilis (D. & S.) in Midwinter. — On the night of 17th/18th December, 1977, together with the usual midwinter species, a single specimen of *Orthosia stabilis* (Common Quaker) was caught in my m.v. trap at Ashurst, Hants. This species is normally on the wing in spring, and it is believed that the unusually mild weather of the early winter must have been responsible for this early emergence. — Dr. J. C. A. Craik, Department of Oceanography, The University, Southampton, SO9 5NH.

The Queen of Spain Fritillary (Argynnis lathonia L.) in 1976. — Further to my article "A Tale of Two Seasons" in *The Entomologist's Record,* Vol. 90, No. 1: 18-19, I have heard from Mr. Henry Lee of Oslo who has seen hundreds of this species, and comments "it was undoubtedly a Queen of Spain". He refers to the typical zig-zag low down flight. I have also heard from Mr. K. J. Willmott who thinks it very likely; he had the most remarkable experience of finding a male feeding on marjoram on 12th July, 1976, when the butterfly was in mint condition, but en route to the same site in Surrey on the 19th, he found the same butterfly (photographically proved), a little rubbed but otherwise intact, feeding on marjoram a quarter of a mile away from the original spot (see his note in *Ent. Rec.,* **88**: 333). — A. Archer-Lock, 5 Windsor Villas, Lockyer Street, Plymouth, Devon, P1 2QD.

Mythimna vitellina Hbn. (The Delicate) New to Berkshire. — I was interested to read Dr. Kettlewell's note on this species in Oxfordshire in the February issue (*Ent. Rec.,* **90**: 53). As he states his first *vitellina* came to his trap on 22nd October, I thought readers would care to know that I also found a perfect dark male in my own trap here (map ref. sheet 175,858826), on the night of 2nd/3rd October. I believe this to be the first Berkshire record and I am, here, only about three miles from the Oxon. border. Actually the moth was resting above the m.v. bulb in the dome of the pyrex rain protector. It would seem that the species must have been widespread across the two counties that night. — T. J. G. Homer, St. Timothee, Pinkneys Green, Maidenhead, SL6 6PA.

New Forest Mercury Vapour Light Records for 1977

By L. W. Siggs*

Details for the catch of macrolepidoptera in the Robinson trap at Minstead for 1977 are as follows: —

	Nights	Specimens Total	Specimens Average	Species Average
March	31	2,830	91	7
April	22	1,383	63	6
May	21	150	7	4
June	30	375	12	8
July	31	3,400	119	27
August	27	3,011	112	29
September ...	30	2,238	75	19
October	31	672	22	9

The total number recorded from March to October inclusive was 14,059, a nightly average of 63, as compared with a total of 29,373 in 1976, a nightly average of 121, which I take to be an indication of the effects of the drought of 1976.

For the first time in 19 years there was no addition to the Minstead List.

The total number of species recorded during the year was 271. Hitherto the lowest record was 308 in 1975.

In view of the small numbers taken in 1977, it is not surprising that there were only 7 species showing a record catch. The number recorded (with the previous record in parentheses) were: *Idaea straminata* Borkh., 46 (27); *Xestia agathina* Dup., 28 (12); *Orthosia stabilis* D. & S., 2,425 (2,322); *O. munda* D. & S., 195 (192); *Xanthia aurago* D. & S., 48 (27); *Acronicta aceris* Frey., 17 (9); *Hoplodrina ambigua* D. & S., 197 (155).

The following species which are only occasional here were recorded in 1977: *Horisme vitalbata* D. & S., *Ligdia adustata* D. & S., *Deileptenia ribeata* Cl., *Drybotodes eremita* Fab.

Last year (*Ent Rec.*, **89**: 176) I wondered what would be the effect this year of the drought of 1976. I felt that young larvae, especially those which feed on birch and lichens, would probably die of starvation in infancy. It did not then occur to me that grass feeders would be equally at risk. The following list of species which showed a considerable fall in numbers, gives the 1977 figure with the figures for the peak year in past years in parentheses, and the months in which the larvae would be feeding. It will be seen that in nearly every case these months were those when the drought was having its worst effect. But there were a few exceptions. *O. fasciuncula* and *T. cespitis* feed on grasses, ova probably laid in the autumn but larvae are found 4-5. Reduction in numbers may be due to predation in the autumn as well as starvation. *Idaea dimidiata* feeds on withered leaves, of which there was no scarcity!

* Sungate, Football Green, Minstead, Lyndhurst, Hants.

Philudoria potatoria L., 1 (35) 5-6. *Drepana falcataria* L., 6 (67) 6-7, 9-10. *Habrosyne pyritoides* Hufn., 11 (312) 8-9. *Comibaena bajularia* D. & S., 3 (28) 7-5. *Idaea dimidiata* Hufn., 1 (38) 9-4. *Xanthorhoë spadicearia* D. & S., 7 (208) 6-7, 910. *X. ferrugata* Cl., 11 (279) 6-7, 9-10. *Chloroclysta siterata* Hufn., 1 (64) 6-8. *Dysstroma truncata* Hufn., 6 (156) 6, 8-2. *Thera firmata* Hübn., 1 (39) 4, 5-8. *Perizoma alchemillata* L., 1 (45) 8-9. *Plagodis dolabraria* L., 2 (109) 7-9. *Ourapteryx sambucaria* L., 4 (47) 8-6. *Peribotodes rhomboidaria* D. & S., 45 (275) 8-5. *Boarmia roboraria* D. & S., 2 (64) 8-5. *Laothoe populi* L., 2 (102) 7-10. *Stauropus fagi* L., 2 (75) 7-9. *Pterostoma palpina* Cl., 5 (43) 6-7. *Drymonia dodonaea* D. & S., 2 (63) 7-9. *Dasychira pudibunda* L., 5 (95) 7-9. *Spilosoma lubricipeda* L., 25 (218) 8-9. *S. luteum* Hufn., 53 (493) 8-10. *Axylia putris* L., 7 (308) 7-10. *Ochropleura plecta* L., 51 (1,697) 6-7, 8-9. *Noctua interjecta* Hübn., 3 (163) 9-5. *Diarsia mendica* Fab., 8 (109) 8-5. *D. rubi.* View., 22 (731) 6-7, 11-4. *Xestia c-nigrum* L., 37 (1,811) 9-5. *X. triangulum* Hufn., 6 (206) 8-5. *X. baja* D. & S., 9 (365) 9-5. *Discestra trifolii* Hufn., 5 (46) 7-9. *Polia nebulosa* Hufn., 3 (125) 8-4. *Melanchra persicariae* L., 1 (123) 7-9. *Lacanobia oleracea* L., 17 (250) 7-9. *Ceramica pisi* L., 1 (494) 8-9. *Tholera cespitis* D. & S., 9 (158) 4-6. *Mythimna pudorina* D. & S., 2 (208) 6. *M. impura* Hübn., 21 (285) 8-5. *M. comma* L., 2 (119) 8-4. *Rusina ferruginea* Esp., 13 (123) 8-3. *Apamea remissa* Hübn., 1 (28) 8-3. *Oligia strigilis* L., 4 (74) 7-3. *O. fasciuncula* Haw., 2 (50) 4-5. *Lithacodia pygarga* Hufn., 5 (202) 7-9. *Colocasia coryli* L., 8 (58) 6-9. *Diachrysia chrysitis* L., 4 (139) 6-7, 9-4. *Autographa jota* L., 1 (13). *Rivula sericealis* Scop., 5 (1,015) 8-5. *Hypena proboscidalis* L., 3 (101) 7-4. *Polypogon tarsipennalis* Treits., 1 (65) 7-3.

The figures for lichen feeders were: *Cybosia mesomella* L., 10 (120). *Miltochrista miniata* Forst., 1 (48). *Eilema sororcula* Hufn., 1 (but none in 1974, 5 and 6). *E. griseola* Hübn., nil (31). *E. complana* L., 26 (136), but not much down on recent years. *E. deplana* Esp., nil (21). *E. lurideola* Zinck., 59 (448). *Lithosia quadra* L., nil (20). *Laspeyria flexula* D. & S., 7 (111). The following species were entirely absent: *Thyatira batis* L., (17) 6-7. *Mimas tiliae* L., (2) 7-8. *Clostera curtula* L., (8) 5-6, 8-9. *Diacrisia sannio* L., (37) 7-5. *Nola confusalis* H.-S., (9) 7-8. *Diarsia brunnea* D. & S., (126) 9-5. *Lacanobia contingua* D. & S., (27) 8-9. *L. thalassina* Hufn., (77) 8-9. *Acronicta alni* L., (19) 7-9. *Apamea crenata* Hufn., (19) 8-5. *Amphipoea oculea* L., (21) 5-8. *Bena prasinana* L., (58) 8-9.

Migrants

A moderate year, but *M. vitellina* came again, and *M. albipuncta* turned up on the same night. *Plutella xylostella* L. (*maculipennis* Curt.) (12); *Nomophila noctuella* D. & S. (2); *Agrotis ipsilon* Hufn. (25); *Peridroma saucia* Hübn. (*porphyrea* sensu Edelsten) (1); *Mythimna albipuncta* D. & S. (1); *M. vitellina* Hübn. (1); *Autographa gamma* L. (338).

Polymorphism

Biston betularia L.		*Idaea aversata* L.	
typical	45 (86%)	*remutata*	177 (67%)
carbonaria	5 (10%)	*aversata*	87 (33%)
insularia	2 (4%)		

Xanthia aurago D. & S. ab. *rutilago* Fab. This is, I think, the most striking var. I have had in the trap. Tutt (1892) calls it "the form with the central area reddish orange . . . whilst Hübner's *rutilago* and his *aurago* are orange-red with purplish basal and outer areas". My specimen has the central area reddish-orange and the basal and outer areas purple.

Perizoma alchemillata L. A tiny specimen measuring 15 mm. across the wing-tips, compared with 19-22 mm. as quoted by Meyrick (1927). The rivulet is missing and the zig-zag part of the sub-terminal line at the apex only just visible. A victim of the drought, no doubt.

Ennomos erosaria D. & S. Pale form 12. Dark form 21.

Xanthia icteritia Hufn. Type 41, ab. *flavescens* Esp. 4.

Alcis repandata L. Type 35, f. *consonaria* Hübn. 2.

References

Meyrick, E. 1927. *Revised Handbook of Lepidoptera.*
Tutt, J. W. 1892. *The British Noctuae and their Varieties,* Vol. 3, p. 13.

Notes and Observations

THE BRITISH ORIGIN OF THE NAME OF "HUNTER'S BUTTERFLY": A CASE OF MISTAKEN IDENTITY SOLVED. — One of the more common and attractive butterflies in the eastern United States is the nymphalid *Vanessa virginiensis* (Drury). In recent years this close relative of the cosmopolitan *cardui* (L.) has been called the "American Painted Lady", but to many older entomologists who remember its long designation as *huntera* (Fab.) it is still "Hunter's Butterfly". The confusion over the identity of the butterfly's namesake is an interesting trans-atlantic problem in the history of common names.

No less an authority than the eminent W. J. Holland, author of books which guided amateur American lepidopterists for well over half a century (*The Butterfly Book,* 1898, and *The Moth Book,* 1903, both of which were reprinted a number of times) was completely misled in assuming this native butterfly to have been named after a "native son". In Holland's immensely popular *The Butterfly Guide* (1915 and later editions), a pocket-sized book which all of us of a certain present age carried as beginning collectors, the author stated: "We all know Hunter's Butterfly. How many know that its name commemorates that of a most remarkable American, John Dunn Hunter? Captured by the Indians in his infancy, he never knew who his parents were. He was brought up among the savages. Because of his prowess in the chase they called him 'The Hunter'. Later in life he took the name of John Dunn, a man who had been kind to him. . . . He went

to Europe, amassed a competence, became the friend of artists, men of letters, and scientists. . . . He interested himself in securing natural history collections from America for certain of his acquaintances, and Fabricius named the beautiful insect . . . in his honor."

Holland's idealised and sometimes fictional account was "accepted as gospel" by young lepidopterists, and I expect that I was not the only one to seek out *huntera* for my collection as quickly as possible because of its romantic associations. However, despite the historically documented exploits of the "real" John Dunn Hunter, he had nothing to do with Fabricius' naming of the insect. The honour must go to another.

John Dunn Hunter can obviously be eliminated because the sources indicate that he was born *ca.* 1798, almost a quarter of a century after *huntera* was described in the *Systema Entomologiæ* (1775, no. 240, p. 499). A considerable part of the *Systema* was based on Fabricius' work in British collections, especially those of Joseph Banks and William Hunter. Fabricius met Dr. Hunter (1718-83) during his first visit to Great Britain in 1767, and later spent much time with Hunter's cabinet. In the *Systema, huntera* is not actually mentioned as from the William Hunter collection, although other species are. Ella Zimsen, *The Type Material of I. C. Fabricius* (1964, p. 515) did not locate types of *huntera* at Glasgow University, where Hunter's insects are now housed, but it would seem rather obvious that Fabricius named *huntera* after his friend *William* Hunter. — Dr. RONALD S. WILKINSON, The American Museum of Natural History, New York, New York 10024.

CORNISH MICROLEPIDOPTERA RECORDS FOR 1977. — I am attempting to compile a County List of both the macro and microlepidoptera of Cornwall. It would appear that the following species, which I found in 1977, have previously not been recorded from the county: *Myelois cribrella* (Hb.); *Aethes williana* (Brahm); *Ancylis geminana* (Don.); *Apotomis sauciana* (Frol.); *Eriopsela quadrana* (Hb.) and *Caloptilia robustella* (Jackh.).

As *A. williana* has been recorded from Devon, it was no surprise to find it in Cornwall, and as *C. robustella* has only been separated from *C. alchimiella* (Scop.) in the last few years, this is almost certainly not the first Cornish specimen. However, the other four records seem more noteworthy. Meyrick gives Hants. as being the furthest point west for both *A. sauciana* and *E. quadrana.* I found *sauciana* in two localities and *quadrana* in three widely separated localities. All the species except *A. geminana* were taken in south-east Cornwall, a much underworked area; *geminana* was taken in the Lizard district.

If readers have any Cornish records I would be pleased to hear from them. — R. J. HECKFORD, 6 Havelock Terrace, Lutton, near Ivybridge, Devon.

THE RANNOCH LOOPER (SEMIOTHISA BRUNNEATA THUNBERG) IN SUFFOLK. — I was interested to read in South (*Moths Br. Isles*) that odd specimens have been taken in Cambs., Norfolk, Staffs., Essex, Surrey and Kent. I wish to record therefore that a single specimen of this moth came to my m.v. trap here on 18th July, 1969. — Rev. G. A. FORD, The Rookery Farmhouse, The Street, Norton, Bury St. Edmunds, Suffolk. [This species is regarded as an occasional immigrant to England, and in this respect it is interesting to note that one was taken at Stanford-le-Hope, Essex, by Mr. R. Tomlinson, also on 18th July, 1969. — J.M.C.-H.]

CYCLOPHORA PUPPILLARIA (HUEBNER) IN WEST SURREY. — As an addition to other records of this species in 1977, I should report that a much worn male came to my trap at Bramley on the night of 22nd/23rd October. This invasion seems to have been associated in south-east England with a larger one of *Mythimna vitellina* (Huebner), of a few *Palpita unionalis* (Huebner) and *Orthonama obstipata* (Fabricius), and of at least one *Hippotion celerio* (Linnaeus), though none of these reached me here. The common migrants were very few here in 1977: of *Agrotis ipsilon* (Hufnagel) only a dozen, widely spread from 1st August to 30th October, and of *Nomophila noctuella* (D. & S.) and of *Hapalia ferrugalis* (Huebner) none at all. *Autographa gamma* (Linnaeus) was above average in total, but never abundant. A few *Phlogophora meticulosa* (Linnaeus) in May and June were probably natives from over-wintering larvae, and some at least of the 70 scored between 16th August and 10th November may have been offspring of these rather than primary immigrants, though there was certainly some influx in mid-October and again from 5th to 10th November. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, Surrey, GU5 0LE, 27.ii.78.

SCILLY RECORDS FOR 1977. — On 23rd March, 1977, I found several second or third instar larvae of *Nothris congressariella* (Bruand) on *Scrophularia scorodonia,* on Tresco, Isles of Scilly, and took half a dozen home. Mere (*Ent. Rec.,* **71**: 35-37) states that one of his larvae refused to eat *S. nodosa* when brought home. *S. nodosa* is not one of the foodplants given by Lhomme. My larvae all accepted both *S. nodosa* and *S. aquatica.* Although divided into three groups, only one larva produced an adult. All the others died at the point of attempting to change to pupae. The deaths appeared to be due to an unidentified virus.

On 24th March, 1977, I saw a male *Celastrina argiolus* (L.) in the Town gardens, St. Marys, Isles of Scilly, which appears to be the first Scilly record of this butterfly. On the same day at St. Marys, I also found a male *Epiphyas postvittana* (Walker); this too appears to be the first Scilly record, although the species is well established in Cornwall and I understand is spreading fast through the south of England. — R. J. HECKFORD, 6 Havelock Terrace, Lutton, near Ivybridge, Devon.

JOHN EVELYN AND "NOAHS ARKE". — Such works as S. Peter Dance, *Shell Collecting, An Illustrated History* (1966), and J. M. Chalmers-Hunt, *Natural History Auctions, 1700-1972* (1976), have called new and welcome attention to a neglected subject, the historical aspect of the sale of natural history specimens. For some years I have been collecting information on early dealers who traded in insects as part of their stock, and I have found early data to be very infrequent. One of several 17th century references is of considerable interest, and I would greatly appreciate any new data about the Paris shop called "Noahs Arke", described by John Evelyn.

Evelyn (1620-1706), one of the original Fellows of the Royal Society of London, published on various subjects; his *Sylva, or a Discourse of Forest-Trees* (1664) is perhaps best known to students of natural history. Much of Evelyn's early life was spent in European travel. In his "Kalendarium", a manuscript begun about 1660 from original notes or diaries, he mentioned the following incident about his 1644 residence in Paris. Returning to his lodgings on 3rd February he "passd by the Isle du Palais. . . . The Front lookes on the greate Bridge possessd by Mountebankes, Operators and Puppet Players: On the other Part, the Vale de Misere, where is an every-days Market of all sorts of Provision, especialy Bread, even to admiration the quantity consider'd; hearbs, Flowers, Orange-trees, choyce shrubbs; besides Powltry & the like, and here is a shop cal'd Noahs-Arke, where are to be had for mony all the Curiosities naturall or artificial imaginable, Indian or Europ[e]an, for luxury or Use, as Cabinets, Shells, Ivorys, Purselan [porcelain], Dried fishes, rare Insects, Birds, Pictures, & a thousand exotic extravagances." In his MS. "De Vita Propria", possibly written in 1697 or later, Evelyn altered the text: "among the H[o]uses is a shop, called *Noahs Arke*, where as to be sold all sorts of Curiositys . . . of Shells, Ivory, Ebony: Birds, dryed *Fishes, Insects*: &c of more Luxury than Use."

"Noahs Arke" was near the Pont-Neuf, Evelyn's "greate Bridge". In his edition of manuscripts published as *The Diary of John Evelyn* (1955, quoted above), E. S. de Beer has noted that the "Vale de Misere" was "the quay on the north bank running westward from the Pont au Change, part of the modern Quai de la Mégisserie. The whole area has been transformed" (de Beer, 1955, v. 2, p. 99). It has indeed been transformed, and today's visitor to Paris would no longer be able to visualise the situation of "Noahs Arke", which obviously catered to the many European owners of "cabinets", as collections of natural history objects (with many extraneous artifacts) were then called. Our interest is that the proprietor of the "Arke" dealt in rare insects, one of the earlier references of the sort yet found. — Dr. RONALD S. WILKINSON, The American Museum of Natural History, New York, New York 10024.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:—

(a) Leaf miners,
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in the above order of preference, having regard to the suitability of candidates and of the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary to field work, for the study of collections, for the attendance at conferences, or exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £200 in 1978/79.

Applicants should send a statement, if possible in sextuplicate, of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to A. M. Emmet, M.B.E., T.D., M.A., F.L.S., F.R.E.S., Hon. Secretary, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, as soon as possible, and in any case not later than 30th September, 1978.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted — The County list of lepidoptera of Berkshire has not been up-dated since 1906 when W. Holland and A. H. Hamm prepared the Victoria County History entry. Holland's collection, with those of H. L. Dolton, F. W. Cocks and R. D. Sitwell, is at Reading Museum and these, together with other material, will form a working nucleus for the long term project of producing a new "Lepidoptera of Berkshire". Fieldworkers who have collected in V.C. 22 (the pre 1974 Berkshire) are invited to send records, in particular those of microlepidoptera, to the address given below. All records received will be duly acknowledged. Lepidopterists *resident* in Berkshire will be contacted personally and invited to participate at a later date. — B. R. Baker, Reading Museum & Art Gallery, Blagrave Street, Reading, Berkshire, RG1 1QN.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted. — Samples of common noctuid moths, including *Autographa gamma* and *Phlogophora meticulosa* for research purposes. — Further details from: *Dr. D. F. Owen,* Biology Department, Oxford Polytechnic, Headington, Oxford, OX3 0BP.

Records Wanted. — For serious study of the Lepidoptera of Eastbourne, all records past and present as yet unpublished. Especially notes and species lists from anyone who has collected in Eastbourne, Friston Forest or Abbot's Wood for future list. All records received will be duly acknowledged and greatly appreciated. — *M. Hadley,* 7 Beverington Close, Eastbourne, East Sussex, BN21 2SB.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L.Inst.Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr. Wild on payment of 60p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber, plus 10p postage.

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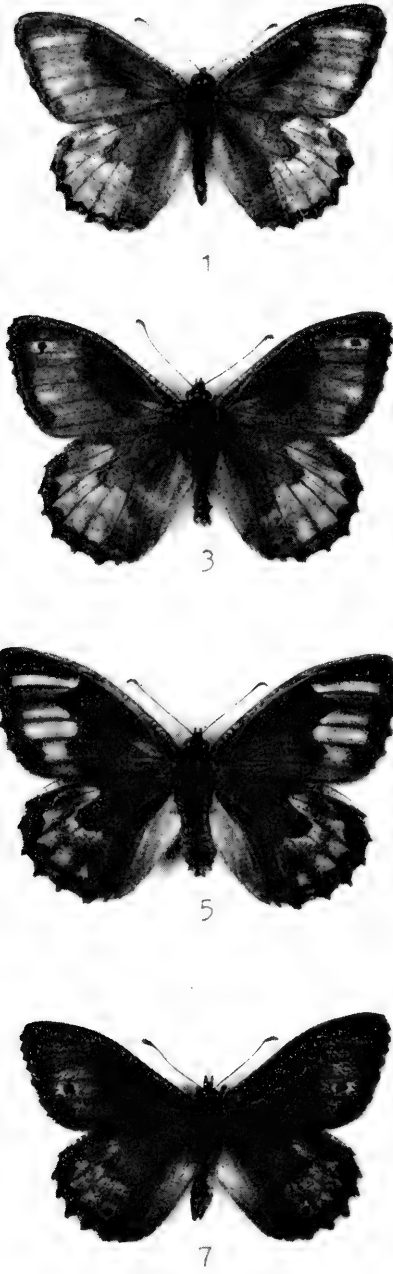

Photo by R. Revels

Figs. 1 and 2. Wild captured males ab. *holonops* (Brouwer).
Figs. 3 and 4. Wild captured males ab. *monocillata* (Lempke).
Figs. 5 and 6. Bred females ab. *honolops* (Brouwer).
Fig. 7. Bred male ab. with its top spot missing.
Fig. 8. Large typical males from the F_1 generation.

Notes on Breeding the Grayling (*Hipparchia semele* L.) ab. *holonops* Brouwer

By Richard Revels*

While on a few days collecting holiday in Dorset during late July 1975, I found a colony of the Grayling (*H. semele* L.), in which occasionally specimens were without the normal spot markings on the forewings; a rather rare form known as ab. *holonops* Brouwer (figs. 1 and 2). Some were only "blind" on one surface, having a trace of the top spot still remaining on the other surface. Specimens with the spotting reduced to just the top one on the forewings, but being present on the top and under surfaces, ab. *monocillata* Lempke (figs. 3 and 4), were more frequently found, with perhaps one in every 50 examined being of this form. Both these aberrations were more frequent in the males.

When I caught a female ab. *holonops*, I decided the opportunity must not be missed to breed this interesting form. So she was kept in a cool atmosphere until I returned home the next day, when I put her into one of my breeding cages containing cut flowers in jam jars of water for her to feed on. During the following week about 70 ova were laid, mostly on the netting which covered the top of the cage. I cut up the netting, and the small pieces of net with the eggs on were placed in a plastic container until they began to hatch. The small larvae and the remaining ova were then put on grass growing in a tub, and netted over. This tub stood in a bowl of water which acted as a moat to keep out predators such as earwigs and beetles, as well as, of course, to provide sustenance for the grass.

In early October I decided to split the larvae into two groups. Accordingly, about half were put into a wooden cage which had a mixture of small creeping grasses growing in it, and the rest were left in their tub. An inspection of the larvae during a mild spell of weather at the end of December 1975, revealed that both lots were active and had been feeding recently. In the tub I found two black beetles which I think had made a meal of some of the larvae, as I could only find about half the number I had put in there two months earlier. All seemed well in the cage, and just after dark on 1st January, 1976, I made an inspection by torch light and saw several larvae feeding on the grass: they were about 7 mm. long.

During the spring, the larvae were mostly fed on *Poa annua*, and in mid-June they went underground to pupate. The F_1 generation hatched during July and produced eight males and 11 females; all typical and mostly larger than the wild specimens I have in my collection. The males were about 30 mm. from the centre of the thorax of the wing tip (fig. 8), and the females about 33 mm.

I managed to get several pairings which produced altogether about 300 ova, and, as before, most were laid on

* Top Field Farm, Dunton Lane, Biggleswade, Beds., SG18 8QU

the netting which covered the laying cage. I sent about 100 of these ova to a friend, Mr. R. Tubbs; the remainder I split into three groups of about 70, each lot being placed on grass growing in tubs as before. An inspection a month later revealed that all was well in two of the tubs, but the other one contained three earwigs and only one larva, so presumably these earwigs had eaten the ova or small larvae. I think these predators must have got in by entering the holes in the bottom of the tub, and climbed up the inside when the "moat" dried up, which happened several times during the very hot 1976 summer. This mishap illustrates the importance of splitting up stock, so that all is not lost in such a disaster.

I do not now over-winter my larvae on annual meadow grass (*Poa annua*), as this suffers badly from mildew and often dies off completely. I have found that Yorkshire Fog (*Holcus lanatus*) and Creeping Bent (*Agrostis stolonifera*) over-winter much better, and the larvae of most Satyridae seem to thrive on these grasses. Two tubs and a wooden cage were set with a mixture of these two grasses, and about 70 larvae were transferred to this new crop. Twenty-four were put in the cage, and thus received some protection from the worst of the weather; the remainder were divided between two tubs and netted over. Both the tubs and the cage were left outdoors all through the winter, which was rather colder than for several years.

In early February 1977, shortly after a cold spell had given way to rather milder conditions, I made an inspection by torch light just after dark, and saw a good number of larvae feeding on the grass, so it seems that even in winters which have frequent frosts, *H. semele* larvae do not hibernate properly, but just go dormant when the weather is cold and become active again when the temperature rises.

In early April 1977, I found 70 healthy looking larvae which I moved on to fresh grass; so it seems they had all come through the winter successfully. However, in early June I found several diseased larvae in the cage, and also two in one of the tubs. I moved the healthy looking ones to new tubs with fresh grass, but despite this I continued to have fatalities. Finally, only about 30 larvae went down to pupate, from which 21 produced butterflies, giving me a total of nine males and 12 females in this F_2 generation. Two of the females were ab. *holonops* (figs. 5 and 6), but only one of the males was aberrant, this having the top spot missing on the upper surface of the forewings (fig. 7), and a form that I have not seen or heard of before, as this is usually the last spot to vanish. Most of this brood were below average size, and looked quite small when compared with the large F_1 generation (fig. 8) specimens.

Ralph Tubbs had no disease in his brood of this stock, but nonetheless had a disappointing hatch, and again they were rather small sized insects. His hatch consisted of 12 typical and one female ab. *holonops*. Together this gave us a total of 31 type, three ab. *holonops* and the male ab. (which we do not think is connected with the *holonops* gene, but which

just turned up as a bonus). As *holonops* does not occur in the F_1 generation, it seems probable that it is a "simple recessive", but the numbers were below the 25% that would be expected in the F_2 hatch; however, the ab. gene may well be responsible for weakening the stock. It is strange that in the wild, this ab. is more frequently found in the males, while we only bred it in the females.

I sent several of the diseased larvae to Claude Rivers, whose department is the Unit of Invertebrate Virology, at Oxford University. The department found that they had died from Cricket paralysis virus, or a closely related virus, which reacted against cricket paralysis antiserum. I was told to keep a close watch on my other stocks as this virus seems to be able to infect a wide range of species of lepidoptera. Mr. Rivers gave me advice on ways to deal with this outbreak, and I accordingly purchased a large plastic dustbin, which I partly filled with a mixture of 10% solution of sodium hypochlorite, to 90% water. My cages, tubs and netting were all immersed in it for about an hour, and then thoroughly washed in clean water. Hopefully I have got rid of this virus, as none of my other stocks seem to have been infected up to the time of writing; however, I shall be making regular checks during the 1978 spring.

Abnormal Abundance of Moths in an M.V. Light Trap in July 1977. — While on holiday at Pont-ar-dulas, Llanafan Fawr, Builth Wells, Breconshire, from 9th-24th July, there were fantastic numbers of moths. So many gathered in the trap that we had to stop using it and rely on collecting from a sheet.

Having had to stop using the trap for several nights because of the vast numbers collected, the night of 12th July, 1977 was cooler and it was decided to use the trap again. In the morning there appeared to be a marked increase in the weight of the trap. It was therefore weighed on a spring balance and was found to be 18¾ lbs. The trap contained 14 half egg trays, one of which was carefully removed with its complement of moths and placed in a polythene bag with a small quantity of killing agent. The moths were then counted. There were 611, nearly all noctuids. It would appear that, as the trays were equally loaded and in addition there was a thick layer in the bottom, the total number of moths present was about 10,000. All the moths were removed, the egg trays returned to the trap which was weighed. To our surprise it weighed 14 lbs. This suggests that there were 4½-5 lbs. of moths in the trap. Of the 10,000 moths, at least 7,000-8,000 were *Agrotis exclamationis* L. — Dr. H. G. Parker, 2 Oaks Road, Kenilworth, Warwickshire, CV8 1GE.

CORRECTION

Reference "October in Scilly" by G. Summers (*antea* **90**: 66), in line four down insert between "following species: " and "*Vanessa atalanta*": *Pararge aegeria* L.

Observations on the Mines of Oak-feeding Species of *Phyllonorycter* (Lep.: Gracillariidae)

By Dr. M. W. HARPER[1] and Dr. J. R. LANGMAID[2]

Introduction

There has been confusion in the past over the identification of the mines of the oak-feeding species of *Phyllonorycter*. There are nine species in this country, but *P. saportella* Dup. has not been seen for some years, and these observations are confined to the remaining eight species. Observations were made on mines collected in the autumn in Herefordshire and Hampshire in 1975 and 1976. All species mine the under-surface of the leaves.

P. harrisella L.

Oval mines averaging 7 x 12 mm., variably positioned on the leaf, and occasionally on the leaf-margin causing the edge to fold (cf. *P. heegeriella*). Only 10% had a green patch of uneaten palisade tissue in the centre of the upper surface of the leaf. The under surface of the mine has a single central or off-central corrugation which runs nearly its whole length. It does not contort the leaf strongly.

The silken cocoon is strongly attached to both upper and lower epidermis. It has a tough texture which is reinforced with frass on its lateral and caudal aspects. When viewed against the light, this shows up as a characteristic U-shaped edging in the cocoon.

P. quercifoliella Zell.

This species produces a very similar mine to *P. harrisella*. There is no single character which can reliably separate the two species in the autumn generation. But P. F. Miller found that in the first generation mines, the cocoon was only attached to the upper epidermis, so that the frass covers the whole of the lateral and ventral surface. This will not show as a U-shaped cocoon but will appear uniformly dark. This feature does not appear in the autumn generation which are U-shaped, as in *P. harrisella*. We found that the green patch was present in approximately 50%.

P. messaniella Zell.

Similar to the two preceding species when the mine is on deciduous oak, but slightly smaller and, in our experience, never has a green patch. The cocoon is less tough but in other respects its construction is identical. This species emerges in the autumn and does not overwinter as a pupa.

P. muelleriella Zell.

The external features are again similar to the three preceding species, but the mine is slightly longer and contorts the leaf more strongly. A small variable green patch is present in 90%. A pronounced central corrugation is present in this species, which does not confirm the observation of the late D. W. H. Ffennell who stated that it was deeply and evenly

[1] The Cherry Orchard, Bullen, Ledbury, Herefordshire.
[2] 38 Cumberland Court, Festing Road, Southsea, Hampshire.

corrugated over the whole surface. The mines are sometimes multiple.

The cocoon is flimsy; frass-lined, but less so than in the preceding species, and attached to upper and lower epidermis. There are a few silk threads which run randomly within the mine, enmeshing some of the frass.

P. heegeriella Zell.

The smallest mine in this group, and usually less than 10 mm. long and situated at the leaf-margin, bending the edge over. Less than 10% were found in other positions. They do not have a green patch. Numerous small longitudinal ridges can be seen in the central part of the mine, probably responsible for the characteristic folding of the leaf edge.

The fine silken cocoon occupies the greater part of the mine. It is not frass-lined, the frass lying at the caudal end of the mine and outside the cocoon.

P. lautella Zell.

A long slender mine measuring 14-20 mm., situated between lateral nervures, often starting at the midrib, though seldom reaching the leaf-margin. The mines are frequently multiple, and contorting the leaf more strongly than any of the preceding species. Although an irregular green patch is sometimes present, the palisade is strongly fenestrated. The ventral surface shows a single strong corrugation with numerous lesser ridges on each side of it.

The cocoon is pale, semi-translucent, attached to the contorted upper epidermis, and only loosely to the lower. The frass is entirely separate from the cocoon, concentrated at the caudal end of the mine behind a pad of silk which is separate from the cocoon.

P. distentella Zell. (Figs. 1 & 3)

This species has the largest mine of the group. It usually extends from the midrib, between lateral nervures, and may even reach the leaf-margin, the length averaging 25 mm. High-

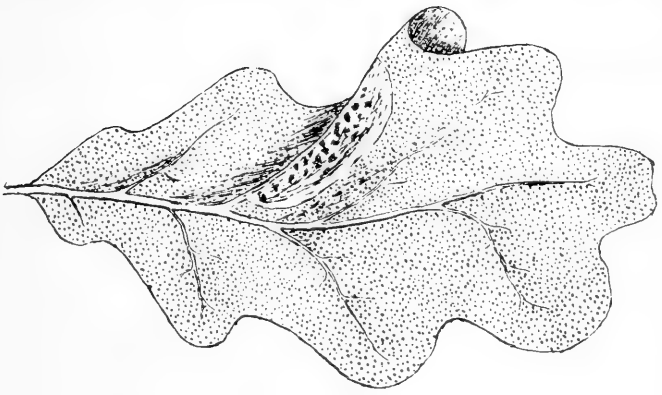

Fig. 1. *Phyllonorycter distentella* Zell. mine.
Uppersurface view on *Quercus petraea.*

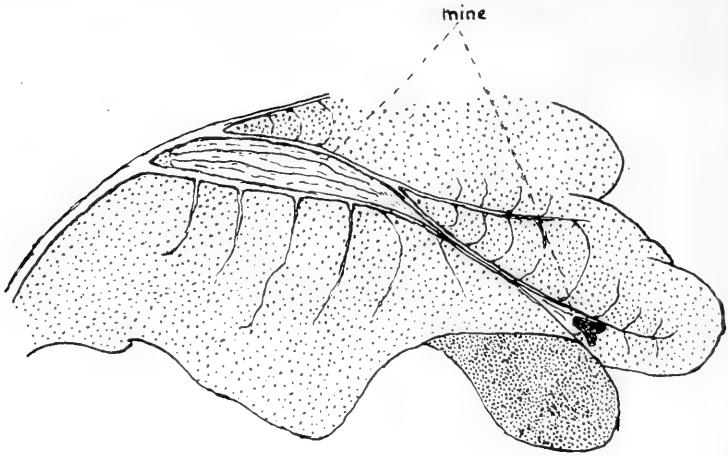

Fig. 3. *Phyllonorycter distentella* Zell. mine.
Undersurface view enlarged x 3 (approx.).

power magnification of the lower epidermis shows it to be finely and closely corrugated across its whole width, so that the two lateral nervures are drawn together. Indeed, so great is the contraction, that the nervures may even touch, while the upper epidermis is so balooned that the mine resembles a tube for much of its length. Frequently the leaf is grossly deformed. An irregular fragmented green patch is present.

There appears to be no cocoon within the mine, the interior of which contains a fine meshwork of silken threads. The frass, as in the preceding species, is placed behind a caudal pad of silk.

P. roboris Zell. (Figs. 2 & 4)

A large oval mine, average dimensions 7 x 18 mm., invariably with a near central green patch on the upper surface, and a macroscopically smooth and unwrinkled lower surface. On higher magnification, this proves to have a series of fine shallow spaced ridges.

The cocoon is pale, and is attached dorsally within the green patch, not extending beyond its margin. It has no contact with the lower epidermis, and the silken lower membrane of the cocoon is divided at its periphery into two layers. The outer layer is straight and stretches across to be attached to the edge of the green patch, while the inner layer is domed and attached within this. The frass is situated compactly behind the cocoon, without a silken pad.

It is difficult to be dogmatic about which species of oak is the primary foodplant for any particular species of *Phyllonorycter,* except *P. messaniella* whose first choice is *Q. ilex.* But from our own observations we have only bred *P. distentella, P. roboris, P. muelleriella* and *P. lautella* from *Q. petraea. P. harrisella, P. quercifoliella* and *P. heegeriella* were bred from *Q. petraea* and *Q. robur.*

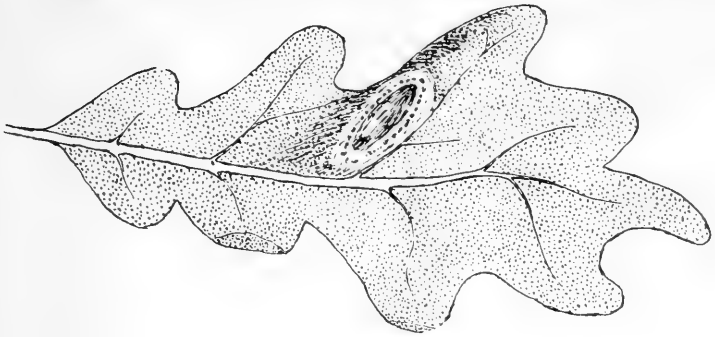

Fig. 2. *Phyllonorycter roboris* Zell. mine.
Uppersurface view on *Quercus petraea.*

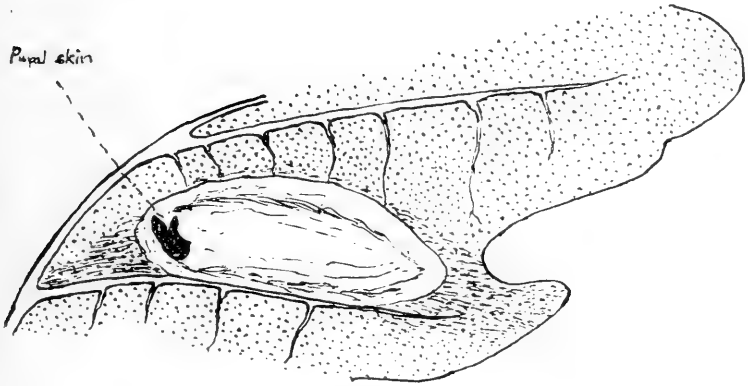

Fig. 4. *Phyllonorycter roboris* Zell mine
Undersurface view enlarged x 3 (approx.).

Tentatively, here follows a suggested key for oak-feeding *Phyllonorycter* mines, excluding *P. saportella.*

1. Cocoon incorporating frass 2
   Cocoon not incorporating frass 3
2. Smaller mine, imago emerging before winter ... *messaniella*
   Larger mine, pupa overwintering within mine 4
3. Under-surface of mine macroscopically smooth, upper-surface with pronounced green patch ..... *roboris*
   Under-surface of mine with corrugations 5
4. Cocoon flimsy, thinly frass-lined ..... *muelleriella*
   Cocoon tough, incorporating practically all of the frass ... 7
5. Mine small, usually at edge of leaf ..... *heegeriella*
   Mine large, between lateral nervures 6
6. Mine with strong central corrugation, leaf moderately contorted, mine length 15-20 mm. ..... *lautella*
   Mine evenly corrugated, leaf highly contorted, mine length 20-30 mm. ..... *distentella*

7. First generation mine with entirely frass-covered cocoon ..... *quercifoliella*
First generation mine with U-shaped frass ..... *harrisella*
Second generation mine with U-shape frass ..... *quercifoliella, harrisella*

Acknowledgements

We are grateful to Dr. I. Watkinson who read the manuscript and made several helpful suggestions. We also thank Mr. S. N. A. Jacobs for the drawings.

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SCOPULA NIGROPUNCTATA HUFN.: SHARP-ANGLED WAVE (LEP.: GEOMETRIDAE) IN 1977. — In view of the appalling summer experienced last year, it is nice to be able to record at least one local species which appeared to be present in larger numbers than usual: *Scopula nigropunctata* Hufn. I saw six specimens (all males) at m.v. light in Ham Street Woods, Kent, between 16th July (in good condition) and 15th August (in tatters). — R. G. CHATELAIN, 65 East Drive, Orpington, Kent.

A PREVIOUSLY UNRECORDED FOODPLANT OF GLYPHIPTERIX SIMPLICIELLA (STEPHENS). — On 4th July, 1976, near Holbeton, S. Devon, a number of small larvae were seen feeding on seed of *Festuca arundinacea.* These appeared to be identical with those of *Glyphipterix simpliciella,* but no moths were bred to prove their identity.

Later that year I was shown some seeds of the same grass which looked as if they could have been eaten by a *Glyphipterix*: these had been collected by Messrs. M. Nelson and R. Keymer of the Nature Conservancy Council in a wet field near Fallin, Stirlingshire. On 24th May, 1977, I went with them to the locality and collected a number of stems of *Festuca arundinacea* showing holes similar to those made by *G. simpliciella* in cocksfoot (*Dactylis glomerata*) stems and from these the expected species in due course appeared.

Glyphipterix simpliciella larvae have been recorded hitherto only from seeds of cocksfoot and the species is well known as a pest to growers of cocksfoot seed. — E. C. PELHAM-CLINTON, The Royal Scottish Museum, Chambers Street, Edinburgh, EH1 1JF.

Further Memoirs of a Butterfly Hunter

By the Rev. J. N. Marcon*

The last time I wrote of these it was of keepers, bulls and adders. This time bothersome obstacles are the hazards — some of which every hunter meets, whether collector or photographer — such as steep cliffs, tramps or just mere forgetfulness.

The first of these contingencies for the writer took place in 1929. A Birmingham collector, Mr. Wells, and I had gone over to Lulworth Cove in search of *Adopoea acteon*. Having trudged across the loose shingle to the far side — what a distance it was when in a hurry! — we proceeded to mount the cliffs and were soon well occupied with net and pillbox. I was somewhat surprised a bit later when Wells, who wanted a bathe in the sea, coolly picked up a stone, smashed the staple off a bathing hut door and calmly walked in! The fact that he had a stiff neck for the three following days may have been the reward of his effrontery! After eating our sandwiches and returning to the fray, I noticed an odd looking *Satyrus galathea*; it was above me on a steep slope and looked dark a-flying. Having clambered up, it promptly went down to where I had been. On climbing down, it went up again. This happened several times. At last, weary of this jeopardous safari, by stretching full length on my tummy it could be reached with the net: and there it was a nice smoky *galathea* female. Since then two or three others of this kind have been captured. F. W. Frohawk figures the Lulworth one in his *Varieties of British Butterflies,* plate 2, fig. 2.

On the same page he illustrates another Marbled White, which I have been told is unique. I was at Bulls Cross, near Painswick, in 1932, hunting for *Maculinea arion* — in those days to be seen in the Cotswolds. A naval captain accosted me somewhat gruffly at first and asked what I was doing. He soon softened and confided that there was a place nearby with greater likelihood of seeing this rarity. The directions were good, through windy lanes, turnings with no signpost, up a track, across two fields and there was a down covered with wild flowers, the like of which never seen before. No *arion* were visible, but something rather better as the net was swung casually at some flying *galathea.* One looked a bit odd on the underside, so it was boxed. Each time it was looked at the two sides appeared different in size and colour of the markings on the hindwings. It proved to be a halved gynandromorph.

The next hazard was the same year at Folkestone. The journey from Chingford took valuable time, the day was hot and cloudless and sixteen collectors were on the hillside including Mr. and Mrs. Castle Russell, Captain Manley, Newman and his son and the Rev. Stiff. Leaving the car by the roadside I was immediately accosted by a tramp asking for money. Brushing him aside, striding the wall, walking down the slope and netting on the way, took only a minute or two. Five *Lysandra bellargus* were visible inside, one a

* Raydale, Fittleworth, Pulborough, Sussex.

halved gynandromorph. I shouted to the boy friend accompanying me, who was still conversing with the tramp, "got something good here". The latter, suspecting his fortunes might rise, hurried down with the boy to where the treasure was being safely housed. It seemed a moment of expansiveness, so I took out a shilling and handed it to the vagrant, who departed I hope as delighted as I was.

Being in the right spot at the right time is the desideratum of all entomologists. Mr. Castle Russell had been away from home hunting the smaller fritillaries for a week or so. Getting bored with finding nothing to his taste, he decided to cut short his sterile operations, return home and see if anything of interest had emerged from his caterpillars. Some larvae of *Papilio machaon,* taken from the Broads the previous summer, had pupated and been left cageless in his greenhouse. One has no need to imagine his surprise and joy to see a black *machaon* flying about the windows trying to find an outlet! And how fortunate he was to come home before it had battered itself to pieces on the glass!

Mr. Wightman, at one time the expert on Noctuid moths, had bicycled from his home at Lewes to Vert Wood, near Laughton, where he wanted to collect some larvae of *Acidalia immorata* (the Lewes Wave), found in a particular area of the Race. He had not bothered, or needed, to bring a net with him. There, walking around the area, on a bramble blossom was the blackest *Argynnis cydippe* he had ever seen — both fore and hindwings with fulvous rays from the border, underside topwings largely black and hindwings with black spots on them. It was one of the best melanic *cydippe* ever seen in England. He decided it was worth a cycle-ride home, eight miles each way, to fetch his net; which he did and found this extreme insect still fluttering around adjacent brambles and captured it.

1933 was an exceptional year for the autumn brood of *Lycaena phlaeas,* and that uncommon immigrant *Colias hyale* was in one of its rarer evidences in the South-East. A boy and I set off from Chingford in search of lucerne or clover fields loved by these butterflies. Halfway along to Southend, a field beside the road ablaze with wild flowers came into view. "We had better take a cursory glance," I said to the boy. So without nets we walked in fifty yards or so and were nearly giving it up as hopeless, when I thought I saw a *Polyommatus icarus* ab. *arcuata* and a darkish *Lycaena phlaeas.* "Run to the car and get the nets," I suggested to the boy. On his return I swung at a Small Copper flitting from one flower to another. It proved to be an underside *ante-disco-elongata,* a well-marked example, with pale black streaks on the hindwings. Naturally this required a more adequate search of the field; with the result that a var. *auronulla,* an upperside nearly obsolete and another underside fell to the net. This last was a heavily barred hindwing *costa-juncta* and *basi-juncta* with a number of pale black spots in between. Good thing the net was available at the right moment, despite our forgetting to take it on our perambulations!

Something similar happened at the disused railway station at Fittleworth when I came to retire here in 1970. I had left the net in the car and had walked 300 yards along what used to be the railway track. In some bushes were some *Aphantopus hyperanthus* flying. The sun went in and they settled on the foliage of the bushes. One appeared to be a female var. *lanceolata,* but I had not brought the net. Marking the place at right angles to the track with two long dry grass stalks, I hared back to the car, collected the net and returned to the stalks. No *hyperanthus* visible. I couldn't be sure of the exact leaf on which it had settled, so swept the most likely spot; it was not there. But the movement had disturbed it: there being no sunshine it flew lackadaisically and was easily captured a yard or so away.

The final hazard to record is one of confused jottings in a notebook. A record has been kept of each entomological expedition since 1924. The west coast of Eire was visited in 1952, 1959 and again with Mr. R. M. Craske in 1977, in search of the single-brooded *Lycaena icarus* which used to occur there in reasonable numbers: now it is much less frequently seen, extensive farming having destroyed great areas of its foodplant. At the first visit I had walked a good mile across soft sand — every foot sank in 2 or 3 inches, an exhausting task — to a distant promontory. Halfway there — it had taken 25 minutes — I decided to look at a hollow in nearer hills, which proved to be a prolific spot. Amongst those flying all around me appeared a gynandro, but further search revealed no trace, so it was judged to be just optical wishfulness! In the log book was recorded "in the near-far distance there were more than seen anywhere before". The "near-far" meant not the mile and a quarter of soft sand to the promontory, but the sheltered hollow halfway there where foodplant and flowers were in abundance. This hopeful spot was searched for in 1959 and 1977 with eagerness and energy: each time the long trek, the grind through yard-high marram grass with no result save tired feet and baffled mind. And all because of a random and inaccurate jotting. Mr. Craske finally found the actual place; there were only two *icarus*; the ubiquitous cattle had munched off the *Lotus corniculatus*!

ACLERIS LITERANA (L.) IN BRECONSHIRE. — I took a specimen of this species out of my Robinson trap on 3rd April, 1978. It is one of the forms from the group 2 of Bradley, Tremewan and Smith *British Tortricoid Moths,* which are squarrose. It is perhaps referable to f. *mixtana* Sheldon, but the dark markings are reduced as compared with the illustration. On the same night a specimen from group 1 was taken in the Rothamsted trap at Llysdinam, Newbridge-on-Wye. These two specimens constitute the first records for VC 42. — A. G. PARKER, Pont-ar-dulas, Llanafan Fawr, Builth Wells, Powys.

A New Species of *Megaselia* Rondani (Diptera: Phoridae) from Norfolk

By R. H. L. DISNEY*

Among some scuttle flies collected by J. W. Ismay in Norfolk is a new species of *Megaselia* Rondani which is described below, and named after the collector.

Megaselia ismayi sp.n.

♂. Frons broader than high at eye-margin (1.4: 1) and dark brown to black in colour and with scattered hairs. Lower supra-antennals slightly closer than upper pair (0.035 mm. apart as opposed to 0.40 mm.) and measuring 0.08 mm. in length; and are thus shorter than the upper SA's, which measure 0.12 mm. The upper SA's closer together than pre-ocellars, which are 0.07 mm. apart. Antials are 0.06 mm. from upper SA's but only 0.02 mm. from antero-laterals, which are situated higher on the frons about 0.01 mm. from the eye margin. Antennae with third segment a slightly pointed hemisphere, whose greatest diameter is 0.13 mm., and blackish in colour. Palps dusky yellow with four robust bristles, the longest measuring 0.09-0.10 mm. Labella lobes with pre-apical, dorso-lateral, brown patches.

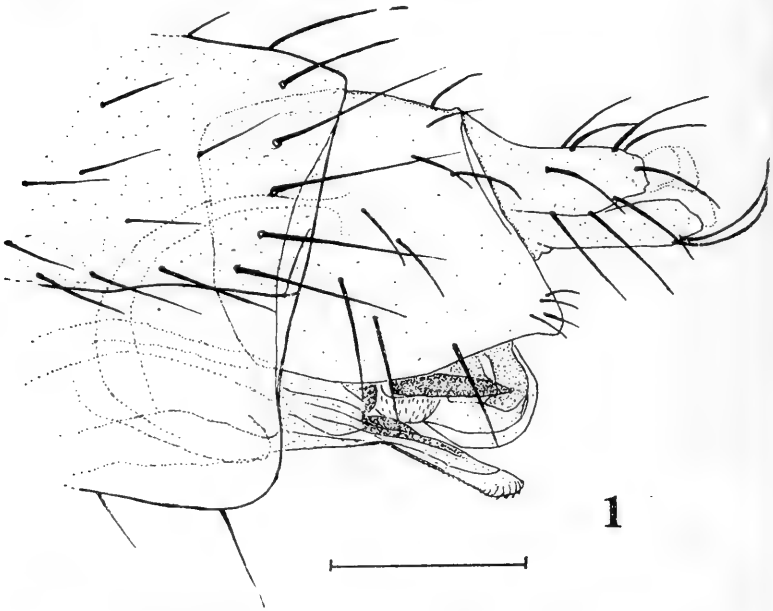

Fig. 1. *Megaselia ismayi* sp.n. male terminalia viewed from left side (Scale line=0.1 mm.).

Thorax brown laterally but black on top. Mesopleuron with four delicate hairs. Scutellum with a pair of long bristles and an anterior pair of small hairs. Haltere with stem and knob black.

* Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU.

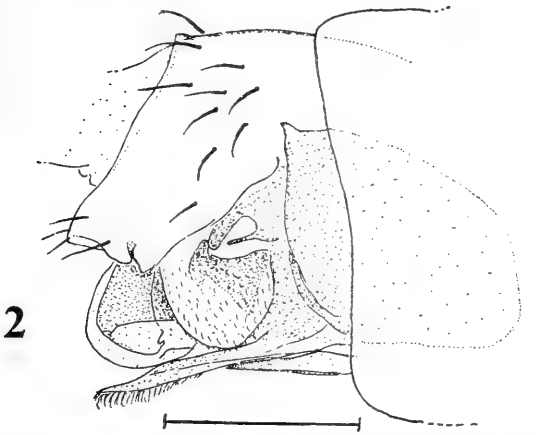

Fig. 2. *Megaselia ismayi* sp.n. male terminalia viewed from right side, with only base of anal tube indicated (Scale line=0.1 mm.).

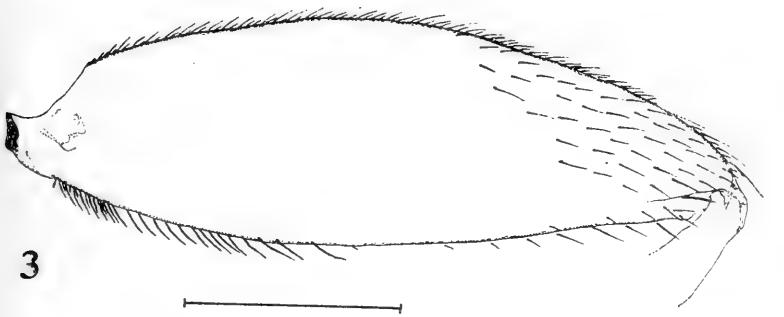

Fig. 3. *Megaselia ismayi* sp.n. posterior face of hind femur (Scale line= 0.2 mm.).

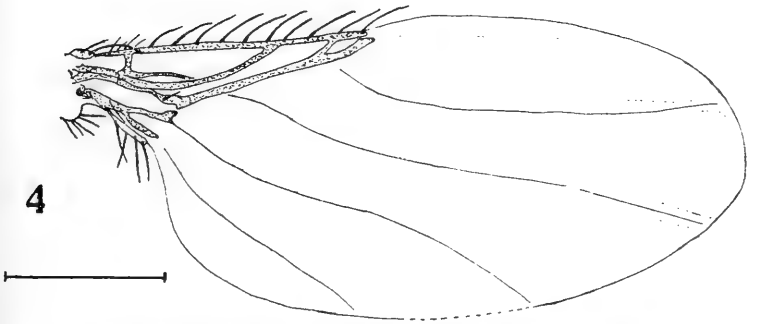

Fig. 4. *Megaselia ismayi* sp.n. right wing (Scale line=0.4 mm.).

Abdomen with dark brown to black tergites with scattered short hairs, apart from longer ones on posterior margin of segment 6. Belly dark with scattered hairs. Terminalia (figs. 1 and 2) dark in colour with dusky ventral plate, which is paler beneath. Hairs of dorsal part weaker than hairs on hind margin of segment 6 (fig. 1). Anal tube brownish.

Legs brown in colour, only tibia and tarsi of front legs being a little paler. Front tarsi with slender metatarsus and other segments of same width; the metatarsus is about 2 x length of second segment which is a little longer than the third, the fourth and fifth are shorter still and subequal. Hind tibia with about a dozen weakly developed postero-dorsal setae. Hind femur (fig. 3) with short hairs in basal half of ventral face, these hairs being closely packed towards the base.

Wing (fig. 4). 1.62 mm. in length. Costal index 0.42. Costal ratios 3.81: 1.6: 1. Costal cilia 0.14 mm. long. A small hair at base of vein 3. Veins brown. Membrane appears a little greyish.

Holotype ♂. Norman's Barrow Wood (Grid Ref. 53/891 239), 29th April, 1976, J. W. Ismay. Deposited in collection of author.

This species runs to couplet 34 (page 640) in the keys of Schmitz and Delage (1974). *M. ismayi* differs from *M. ignobilis* Schmitz in the form of the hypopygium (figs. 406 and 407 in Schmitz and Delage), the longer costa, different costal ratios and several other features. If one ignores the dark legs and runs on to couplet 36, the longer costa and very different costal ratios will at once distinguish *M. ismayi* from *M. paupera* Lunbeck. *M. criniticauda* Colyer is immediately distinguished by its peculiar hypopygium (fig. 402 in Schmitz and Delage).

Acknowledgements

I am grateful to the Royal Society for a grant to aid my investigations of Phoridae.

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THE DOTTED CARPET (ALCIS JUBATA THUNBERG) IN NORTH EAST SCOTLAND. — I spent the period 13th to 20th August, 1977 at North Kessock, Ross and Cromarty (v.c. 106), on the north side of the Moray Firth, in a part of Scotland known as the Black Isle. Most of the moths which attended the static traps, although welcome to a southerner, were species one expected to see, but a welcome and somewhat surprising visitor was *Alcis jubata* Thunberg, of which five males were taken. — R. G. CHATELAIN, 65 East Drive, Orpington, Kent. [It appears that this is the furthest north occurrence of *jubata* in Britain and a new county record. The species is not listed for Aberdeenshire and Kincardineshire by Palmer (1974-76) and Palmer and Young (1977) or for Banffshire by Barbour (1976), but according to South (1961) it has been noted from Argyllshire. — EDITOR.]

Five Days in Northern France in 1977

By Dr. C. J. LUCKENS*

The weather conditions could hardly have been less promising on June 20th when Dr. T. W. Tolman and I boarded the cross channel ferry at Dover intending a few days butterfly hunting in Northern France. Cold north winds and leaden skies had prevailed for two weeks, and there was no sign of alleviation, although we constantly tried to convince ourselves that the clouds were lighter over the French coast. We had discussed the expedition at length and in view of the short time available had a very rigid schedule, our main areas of interest being a small stretch of unspoilt calcareous downland near Reims and the Forêt de Compiègne.

Since the weather remained indefatigably bleak on the other side, we decided the downland ought at least to produce some butterflies at rest, and so we spent most of the first day driving to Reims. In the late afternoon, however, the sun came out for a short time just as we approached Compiègne and we got out to stretch our legs beside a piece of rough ground just outside the town. As we walked through the long grass our first French butterflies flipped up from rest. Nothing spectacular — *Polyommatus icarus* Rott., *Aricia agestis* D. & S., *Cupido minimus* Fuess. and *Coenonympha pamphilus* L., but at least they were prepared to fly!

After spending the night outside Reims, we lost no time in getting to the small area selected for operations, a stretch of rough chalk grassland in total extent about five acres, surrounded by trees and cultivated fields. The first butterly flushed out of the grass was *Lycaeides agyrognomon* Rev., which proved to be fairly common here, though most specimens flew rather reluctantly in the persistent dull conditions. The dominant species, however, was definitely *Coenonympha arcania* L., which was about in plenty, and fresh *Melanargia galathea* L. Later on, there were some brief spells of hazy sunlight, and during this time worn singletons of *Maculinea arion* L. and *Philotes baton* Berg. were netted for identification and we each retained a female *Colias australis* Ver. for breeding. A single female *Leptidea sinapis* L. was also recorded and we were pleased to take two fresh *Coenonympha glycerion* Bork. in the long grass at the lower edge of the short hillside. Throughout the afternoon the mellow fluting of a Golden Oriole coming from the thick scrub provided delightful background music.

Scattered everywhere over the chalk turf were Late Spider Orchids — local and rare plants in Britain. The other orchid so scarce in Britain but relatively common just a few critical miles across the Channel, was the "Lizard". We found this incredible looking plant in several places, including a *terrain militaire* which we explored (probably illegally) near Mourmelon that evening. Here, several *C. glycerion* were disturbed from the long grass and we also saw one or two *P. icarus.*

We returned to the same site the following morning, June 22nd, and found it also held *Plebejus argus* L. and *L. agyrog-*

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nomon, generally rather fresher here than on the Reims hillside. We called in at the latter locality later on, but the sun which had shone at intervals through the early morning, retired for the rest of the day. Another *M. arion,* which turned out to be ab. *alconides* Aur., and a fresh female *Philotes baton* were found however.

A party of French schoolchildren appeared on the scene for a short time, and immediately offered enthusiastic assistance — every Marbled White drifting up from the grass was greeted by an excited chorus of "Monsieur, Monsieur, il y a un papillon".

Just before we left, a partially stripped sallow bush caught my eye and on it were five full-grown larvae of *Nymphalis polychloros* L. The rest of the brood had presumably pupated. The first thing that I noticed on inspecting the bush, before even finding the larvae, was the neat cuff of hatched ova around one of the terminal twigs. Incidentally, only one of these five larvae proved unparasitised, the rest producing the typical pupae of *Tachinid* flies.

We spent the night outside Compiègne, and early the following morning started to explore the huge State Forest. We had been directed by Mr. Alan Palmer of the British Museum to several areas for *Euphydryas maturna* L. and *Limenitis populi* L., two species which we particularly wanted to find, but in spite of these directions and the fact that this was the first really sunny day of our stay, the Forêt de Compiègne seemed almost totally devoid of butterflies. In fact we saw only one *Pararge aegeria* L. and two or three *pamphilus* all day.

We encountered a group of wild boar in the centre of the forest and were rather glad that we were in the car at the time.

During the afternoon we stopped beside a large disused quarry on the edge of this immense wooded area and here there was an abundance of *Lysandra bellargus* Rott. and *P. icarus* with a number of *C. australis* careering over the rough ground. All six of the female *Colias* that we brought back for breeding from various localities produced typical larvae of *C. australis,* but one of the males captured here is, I am fairly sure, *Colias hyale* L.

Since our return ferry left at 1 p.m. on the 24th, we decided to drive north and spend the night nearer Boulogne. We stopped at Aumale in Picardy, having noticed an interesting stretch of downland where we decided to spend a couple of hours the following morning before driving on to the ferry. We arrived at the flowery hillside at about 8.45 a.m. in bright sunshine and already *arcania, icarus* and *bellargus* were on the wing. After a while a few *C. australis* were captured, fluttering like Whites over the *hippocrepis* and *coronilla,* until they really woke up at around 10 a.m., and then netting them was a different matter altogether as they dashed around at high speed. It was nearly time to leave when Dr. Tolman called out that he had netted a Fritillary. This turned out to

be a large fresh female *Melitaea phoebe* Schiff. We delayed our departure for another half an hour and along with a worn female *Melitaea cinxia* L. found several more of this Fritillary — mostly males and all in mint condition. Incidentally, Picardy seems out of the distribution area of *M. phoebe* according to the map in the Higgins and Riley field guide. The fact that we missed our scheduled ferry was a small price to pay for this unexpected last minute bonus.

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TRACHYPHLOEUS BIFOVEOLATUS BECK (COL.: CURCULIONIDAE) SWARMING UNDER A STREET LAMP; WITH A NOTE ON ITS VARIATION. — Further to my recent report (1977, *Ent. Rec.*, **89**: 340) of finding numbers of the weevil *Otiorhynchus ligneus* Ol. gathered upon a low wall under a street lamp near here one night last August, I have now to note a similar but still larger assemblage of another flightless ground weevil, namely *Trachyphloeus bifoveolatus* Beck (=*scaber* L.), under the same lamp on the night of 16th October. The night was rather misty and damp, but scarcely warm, and at a rough estimate somewhere between 50 and 70 weevils, possibly many more, must have been present. As before, the top of the wall was most frequented by them, but on this occasion the lamp standard too carried a good number, and even some metal railings to one side of it had their quota. The species is a common one in this district in suitable places on light soils, especially in heathy localities at roots of sheep's sorrel (*Rumex acetosella*) with *T. scabriculus* L. However, to encounter it in abundance in such an unlikely spot, and in such unusual circumstances, is certainly remarkable.

T. bifoveolatus exhibits a wide range of variation in the colour-tone of its clothing of scales—a fact barely mentioned in our standard works. This variation is clearly edaphic, i.e., correlated with the substrate on which the beetles live; thus, on sand or gravel they tend to be ochreous-brown, on chalk grey-white, on red sandstone brick-red, and on dark humus-rich soils, fuscous. At least on the latter type of substrate, fresh and unabraded examples—as in some other species, notably *scabriculus* L. *laticollis* Boh.—have a characteristic pattern on the elytra, which in *bifoveolatus* consists of a well-marked interstrial tessellation. The breadth of the body and degree of rounding of the elytral sides also varies considerably, but the broader forms (var. *angustisetulus* V. Hansen) seem much commoner with us than the narrower ones (nominotypical), whereas the reverse is the case in mid-Europe. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

Seasonal Polyphenism in *Artogeia napi* L. (Lep.: Pieridae)

By S. R. BOWDEN*

Just as the two sexes of a species have sometimes in error been given different "specific" names, so also seasonal forms of *Artogeia* subspecies have on occasion been named independently by the same or by different authors. The younger name should then fall as a synonym, but has often been retained as a name for the generation described; excessively fertile authors have even invented names deliberately to give every subspecies two or even three seasonal designations. How a "spring" form caught in high summer is then to be treated I am uncertain. Names such as *aestivoautumnalis* Müller do, however, raise *some* interesting questions.

Normal Seasonal Dimorphism

In general, marked seasonal dimorphism in bivoltine Holarctic butterflies is limited to those species in which some pupae undergo a winter diapause and some do not. Thus *Celastrina argiolus* L. shows distinct forms, whereas the two emergences of *Lysandra bellargus* Rottemburg are indistinguishable.

At the turn of the century, when Merrifield (1893) and Weismann (1896) were writing, the seasonal forms were thought to be generated by temperature differences at some stage of development. Later, day-length was implicated, and as recently as 1970 Oliver stated of *A. (napi) oleracea* Harris: "It is impossible yet to say whether it is the larval photoperiod itself or the occurrence of diapause in the pupa that actually directly determines which phenotype is to be produced, since larval photoperiod and diapause cannot here be separated".

However, Thompson (1947) alludes to "the simple and inescapable truth of the matter, which was explained by Jarvis (1942). There are two forms only; that in which development is arrested in the pupa throughout the winter, and that in which development continues without definite halt . . . until the emergence of the imago". Thompson reached this conclusion after rearing 150 broods of British *napi*. I can confirm its usual validity after thirty years' breeding of material from about twenty European, American and Asiatic populations — and from their hybrids. But I think the behaviour of *A. napi* is not always predictable.

The general situation is well put by Oliver (1970) and further experimental evidence is hardly required to establish the direct connection of the seasonal forms with the diapause/non-diapause alternative. The seasonal phenotypes that Oliver illustrates are those of the undersides of ssp. *oleracea,* a subspecies particularly suitable for his purpose, since the "spring" form carries dense, sharply defined black veining, whereas in the "summer" form the narrow veining is nearly unpigmented. *Artogeia napi napi* seasonal undersides are less contrasted, but this subspecies shows well-known differences

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on the upperside. Nevertheless Oliver's conjecture that *oleracea* and the European insect may have different systems of regulating seasonal development is unduly cautious. His uncertainty whether phenotype is determined directly by photoperiod or through photoperiodic induction of diapause is perhaps resolved by examination of those broods, reared uniformly at the same temperatures and photoperiods, in which part of the larvae produce non-diapause pupae (so-called "S" pupae) while the remainder ("L" pupae) lie over the winter. The S pupae yield the summer form, the L pupae the spring form. Such split broods occur very commonly, even usually, in British *napi*; most other subspecies, including those univoltine in nature, can become partly multivoltine in particular circumstances. Shapiro (1975) has recently established this for *A.* (*n.*) *microstriata* Comstock; breeders of the European *A.* (*n.*) *bryoniae* Ochsenheimer and *A.* (*n.*) *adalwinda* Fruhstorfer and of the American *A. virginiensis* Edwards will have met with occasional S emergences from their cultures — the phenotypes depart from the usual ones just as S forms normally differ from L forms.

The pre-pupa undergoes the S or L pattern of development according to the photoperiod in which the larva has been subjected, but this control does not operate uniformly. For practical purposes it is often convenient to induce L development by subjecting the larvae (after the first instar) to 16-hour nights. This is nearly always effective for pure subspecies. S development on the other hand is encouraged by long days, but is not ensured, since a genetic bias towards diapause (not always suspected in advance) may negative the response to photoperiod.

Irregular Diapause

So far we have assumed that all non-S pupae will lie over the winter, not even completing diapause till perhaps some time in January — after which warmth can induce imaginal development. It is usually safe to say that if there is no visible development in 14 days at ca. 20°C. the pupa is in normal diapause. But in some hybrids one sex may enter a "weak" diapause only, and eclose at some quite incalculable time. Less frequently this may happen in pure subspecies, irrespective of sex. I have reported (1966) the case of an apparently uniform batch of wild Corsican *Pieris brassicae* L., of which 10 females and 7 males eclosed 8-10th June, a further male on 2nd July, two males on or just before 12th August, and one male on 9th October, leaving none to over-winter.

During the past year (1977) alone there have been three comparable examples:

(1) On 25th October I received from Dr. F. Chew ca. 100 pupae of *A.* (*napi*) *oleracea,* formed by wild-collected Vermont larvae. Pupation had been before 25th July in every case, and there had been no subsequent refrigeration. On 8th November a female eclosed, of modified summer form, i.e. very narrow hindwing underside veining with light melanin pigmentation.

(2) Between 8th and 14th June, 26 adults of *A. melete melete* Ménétriès (brood 1977-*H*), reared from Tokyo eggs kindly given by Mr. T. Takakura, eclosed. On 1st October a cursory examination of the remaining 11 pupae (all of which had been reared separately with 16-hour nights and should have been in diapause) showed that a female adult had emerged and was still alive. Another of the pupae produced a female on 3rd October, after which the remainder were refrigerated. The phenotype of the last female, after its summer diapause of 3½ months, was of "spring" aspect (though not extreme), having well pigmented veining.

(3) A large hybrid brood 1977-*k* was obtained from a mid-June pairing of a Davos Platz *A.* (*napi*) *byroniae* female with *A. melete* ♂ *H*7. Emergences of 70 females, 6 males and one sex-mosaic took place in August. Two further males eclosed in the latter half of September. Emergences then seemed to be complete, and thereafter the boxes containing the pupae were "lost" till mid-October, when it was found that 9 more males had emerged, most of them being already dead. A large final male eclosed on 17th October, and 52 pupae were placed in refrigeration.

This last brood exemplified the sexually biased disturbance of diapause-control by hybridisation (Bowden, 1953, 1955). After 24th August, 12 males only came out, whereas the previous 6 had accompanied ten times as many females. The last male had a "diapause" of around two months only; its phenotype is probably best considered intermediate.

Intermediate and Extreme Phenotypes

What phenotype is to be expected in short-diapause butterflies? Does a distinct *"autumnalis"* form occur? Here it is necessary to consider how much, if any, environmental (temperature) variation occurs in S individuals. There is, of course, a good deal of confusing genetically determined variation.

It should be made clear that in L pupae a high temperature does not break diapause. Indeed, as is well known, pupae taken out of refrigerated storage too early in the winter and forced at 25-30°C. ultimately die without eclosion unless returned to the cold for a further period.

Though basically correct enough, Thompson's (1947) statement has to be qualified. If one takes a subspecies with very different seasonal forms, such as *meridionalis* Heyne of Corsica or *oleracea* of New Hampshire one finds that the extreme summer form with much-reduced underside veining characterises the emergence of high summer, but that autumnal emergences (often partial only), though still close to summer form, tend to depart from it slightly in the direction of the diapause generation. To that extent an autumn form does exist, but it is not distinct. In another subspecies with less marked seasonal difference, such as the English *septentrionalis* Verity, a specimen may on rare occasions be

difficult to allot correctly as a diapause or a non-diapause individual. But whereas a chilled S pupa may produce an intermediate, heating a dormant L pupa which has completed diapause does not seem materially to alter the spring phenotype.

In July 1970, an experimental batch of 33 refrigerated pupae of wild Hertfordshire stock was divided: after two days at room temperature, 17 were placed in an incubator at 26°C., 16 in a wet-fabric cooler at ca. 13-16°C. Emergences took place after a further 6-7 and 17-19 days, with one death in each lot. The adults were set as undersides in two rows, males opposite males and females opposite females. The rapidly developed insects were then obviously a little more extensively dark-veined than the others, with minimum overlap between the series — so that here heat even intensified the L pattern. Nevertheless, none departed significantly from the "spring" type.

There is, however, an artificial "super-spring" form which is produced, apparently, by holding over-wintered pupae (which have completed diapause) for some months at varying temperatures between 0°C. and about 6°C. Some individuals, though not all, then develop phenotypes with exaggerated "spring" characters, i.e. discal spot markings disappear completely or almost completely in both sexes, even on the underside, and the radial veins on the upperside are more or less blackened throughout their length. The result may be a fair phenocopy of the almost unmarked "restricta" upperside which characterises ssp. *oleracea* and *virginiensis* (but not *venosa* Scudder) in America.

Regrettably it is not yet possible to specify precisely the conditions which yield the "super-spring" form. It has appeared frequently but sporadically as a consequence of temporary refrigeration inadequacies, the primary effect of which on temperature variation has not been monitored. Moreover, individuals seem to differ in their liability to respond in the manner described, though many subspecies are susceptible.

The exact stage of post-diapause differentiation which is sensitive to slow or intermittent development may be difficult to decide. One can conjecture that it is interruption or continuity at nearly the same critical stage that determines the usual L or S phenotypes. Shapiro (1977) hopes to detect the initial reactivation of diapause pupae by monitoring their respiration (references given by Tauber, 1976), and to apply alternative temperature regimes at this point. The existence of the "super-spring" form does seem to make the pre-diapause initiation of the seasonal phenotype less likely. Also, once the pupal stage is reached, photoperiod is probably irrelevant in *Artogeia.*

Conclusions

As the breeding of certain hybrids also confirms, melanic markings on the wings of *Artogeia* comprise several gene-

tically determined pattern-systems which appear to be activated or inactivated separately and probably have different temperature coefficients. Pupae monitored as having just completed in-diapause changes are required for experimental investigation of thermal effects on post-diapause pattern development.

In *Artogeia napi,* exceptionally, phenotypes other than the "spring" and "summer" forms normal for the subspecies concerned may be produced. Late summer ("autumn") forms are generally summer forms modified to a variable extent. The artificial "super-spring" phenotype mimics the "restricta" form developed even in European stocks when they are made homozygous for a recessive gene present in ssp. *oleracea.*

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FEBRUARY IN HAMPSHIRE. — The temperature on the 11th at 11.30 p.m. was 27°F. By the 16th snow lay from 4 in. deep and temperatures were still at freezing point. From the 16th to 22nd snow drifts up to 6 ft. deep blocked many roads. On the 23rd it was warm and most of the snow had thawed. The temperature on the 24th at 11.30 p.m. was 50°F. and I recorded the following at my m.v. light: *Phigalia pilosaria* D. & S. (Pale Brindled Beauty) (21), a record for one night; *Erannis leucophaearia* D. & S. (Spring Usher) (6), not recorded before from the garden; *Theria rupicapraria* D. & S. (Early Moth) (5), a record for one night; *Operophtera brumata* L. (Winter Moth) (1), not previously recorded in February in my garden; *Conistra vaccinii* L. (Chestnut). After this remarkable night, one wonders what the rest of 1978 will hold. — R. A. BELL, Northwood Lodge, Northwood Park, Sparsholt, near Winchester, Hants.

The Preparation and Use of Artificial Diets for Rearing Insects

By Brian O. C. Gardiner*

Introduction

It has been known for a long time that alternative foodplants to those chosen in nature have been used for feeding larvae where their normal food is not available. Usually these alternatives are plants related to the foodplant normally chosen. Just why an insect, which is capable of utilising a variety of plants as food should specifically select one sort in preference to another is a mystery, but there are no doubt several explanations. There may be less competition from other species; a differential rate of growth may provide more favourable conditions at a given time of year; the spread — often by human agency — of a species may introduce it to plants not previously accessible but which happen to be ideal pabula.

The breeder can, however, utilise the fact that other foods are acceptable to rear very many species away from their normal location and where their foodplant does not occur. This applies particularly to tropical species and it is often a fact that many of these are easier to rear in a temperate region than they are in their place of origin. The explanation may well be that they have been removed from sources of their normal disease organisms which would otherwise be introduced with the food and cause a high mortality.

Nevertheless, even alternative foods may present certain difficulties. In England, for instance, imported Japanese Lycaenidae have a habit of hatching before the leafbuds have developed enough to be suitable as food. Evergreen oak (*Quercus ilex*), in winter, is sere and hard, producing undersized silkmoths. Fresh spring Privet (*Ligustrum ovalifolium*) gives Eri silkmoths diarrhoea. Finally, all foodplants, natural or alternative, have to be collected, usually daily and often from a considerable distance, and they also have to be kept fresh — no easy task with some plants such as Poplar (*Populus* sp.). For the town flat dweller in particular, the collection of foodplants, for which he may well have to rely on the benevolence of friends with gardens, can present problems. So can the housing of his larvae.

Tropical fish, cats, dogs and canaries can all be fed from a packet obtainable from the nearest grocer. It is now possible to rear caterpillars and other insects on exactly the same basis.

There are, of course, a few insects that have always been known to feed on "artificial" food. These belong to the so-called "Pest" species and include the well-known Clothes moths, Flour moths, Wax moths, Carpet beetles, Tyroglyphid mites, etc. The ever-increasing demand for more and better (sic?) insecticides, led in turn to the demand for ever-increasing quantities of larvae to be available 365 days a year so that continuous research could be kept up. The possibilities of

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silk production also led to the search for ways of feeding larvae on some form of artificial diet. These two industries between them have poured large sums of money into investigating the problem and after many years results were obtained. The problem has now passed its infancy, and several hundred species of Lepidoptera, as well as those of other orders, have been reared, some for many generations, entirely on artificial foods.

There are several of these. Basically they are a jelly which is poured, warm, into a suitable container and allowed to set. They may or may not contain a percentage of the natural food, which acts as an initial feeding stimulant. It is initial feeding which is one of the problems. If natural food be not added (in the form of dried powered leaf) it may be necessary to add an alternative feeding stimulant, which in the case of cabbage feeders, is the mustard oil glucoside "sinigrin" available from a chemical firm.

Not unnaturally, perhaps, species normally polyphytophagous appear to date to be in the majority reared by this method. Also, somewhat surprisingly, a cabbage-flavoured medium has proved acceptable and suitable to a Privet feeder (Eri silkmoth); Nettle feeder (Scarlet tiger), and at least initially acceptable for several instars (ultimate death having been due to disease) to such unlikely species (whose natural foodplants are unknown but are certainly various tropical trees) as *Automeris pyrrhomelas* and *Copaxa multifenestrata.* Locusts, Stick insects, Blow flies and Fruit flies will also accept this same pabulum.

Quite clearly the use of medium for rearing larvae requires much further investigation. It is a subject in which the amateur, who is prepared to take a little trouble in the fairly accurate initial making-up of the medium, and who is willing to risk losses, can play a considerable part.

The advantages of using a medium are: — That one is independent of the seasons and the often daily collection of foodplant in all weathers; the medium is sterile and unwanted organisms are not accidentally supplied to the larvae; jars of medium take up less room than cages; larvae require attention about once a week instead of daily, although large larvae need to be cleaned out more often. This last factor brings the rearing of larvae within the range of many who for business reasons, may have to be absent from home for regular periods. It is also ideal for cannabilistic larvae (Dunbar moth) which must be reared in isolation and hence represent an awful lot of work. These can be set up individually in small glass tubes.

Once the required apparatus and ingredients are assembled, the making of the media presents little trouble. The main disadvantage is primarily the initial expense, although even this need not be great and will depend to a large extent on what facilities the breeder already has to hand, and also how much he is prepared and able to improvise. In

any case, this expense is certainly no more than that of a well equipped tropical fish tank or small aviary. Furthermore, it may be balanced to some extent against the saving in conventional larvae cages.

There are a number of diets in existence and there is a fair amount of variation between them. Some have been developed for a particular insect and then further refined. Others have been used for a number of species. Some rather different mediums are described below. But first a few words about their preparation.

Ingredients

These may nearly all be bought through usual trade sources, such as laboratory supply houses and chemists, althogh some of them may have to be specially ordered. Ready dried leaf powders of alfalfa, grass, cabbage and nettle are also available, though no one supplier appears to stock all of them. A prepared medium is available from one well known laboratory supply house.

The dried leaf powder when used will depend on the species being reared. For Pierids, Arctiids and many Noctuids, it does not appear to be necessary. However, in order to prepare dry leaf powder not commercially available, the freshest possible leaves of the natural foodplant should be gathered and all the coarser stalk removed. The leaves should then be placed in single layers on wire cake trays and dried for at least half an hour at about 120°C., using any suitable oven. They can then be ground to a fine powder using a blender, but there needs to be more than enough of the dried leaf when powdered, to entirely cover the blades.

Wesson salts, which is a mixture of essential minerals, requires to be as finely powdered as possible. It is on the market in America but does not appear to be readily obtainable in U.K., the only source known to me being Messrs. Kodak Ltd. Its constituents, however, are all available and for those who have difficulty, or would prefer to mix up their own, these are given in Table I.

TABLE I

The constituents, by proportion, of Wessons salts as used for the artificial diets.

$CaCO_3$ (Calcium carbonate)	120
K_2HPO_4 (di-Sodium hydrogen orthophosphate)	129
$CaHPO_4$ (Calcium hydrogen phosphate)	30
$MgSO_4$ (Magnesium sulphate)	40.8
NaCl (Sodium chloride)	67
FeC_6H_2O (Ferric citrate)	11
K1 (Potassium iodide)	0.32
$MnSO_4$ (Manganese sulphate)	2
$ZnCl_2$ (Zinc chloride)	0.1
$CuSO_4$ (Copper sulphate)	0.12

The vitamin solution generally used in the various diets is perhaps best prepared by a chemist. The ingredients are expensive and an extremely accurate balance is necessary. Once obtained however, in the minimum available quantities, there will be enough for hundreds of batches of media and many thousands of larvae. When made up, the vitamin solution must be stored in a refrigerator. It is very possible that the medical preparation "Lederplex" (manufactured by Cyanimid of Great Britain Ltd.) would prove a suitable alternative. It lacks, however, Folic acid and D-biotin which it would be essential to add separately. It also contains Choline and Inositol, which are known to be advantageous to larval growth. The composition of the vitamin solution is shown in Table II.

The made up vitamin solution should be kept refrigerated. It can be made up using water only, but in that case there is a serious risk of bacterial decomposition which is normally prevented by the alcohol. The following solutions will also be required and once made up should all be kept under refrigeration.

Choline chloride: This is used as a 10% aqueous solution.

Methyl parahydroxy-benzoate: This is added in the form of a 15% solution in Ethyl alcohol also used with the vitamins, a substance which is very expensive indeed. Since the rearing of larvae is a legitimate scientific pursuit, application should be made to H.M. Customs and Excise for a permit to buy duty-free alcohol. It is also possible that the ready-made solution may be bought free of duty. Enquiries should be made beforehand.

Formaldehyde: This is used at a strength of 10%.

Agar: This should be added to cold water and heated in a double saucepan or suitable waterbath, otherwise it will burn. The use of Gelatine and Sodium alginate in place of agar requires investigation.

TABLE II

The composition of the vitamin additive for the artificial diets.

Ethyl alcohol	50 ml.
Water	50 ml.
Nicotinic acid	600 mg.
Calcium pantothenate	600 mg.
Riboflavine	300 mg.
Aneurine hydrochloride	150 mg.
Pyridoxine hydrochloride	150 mg.
Folic acid	150 mg.
D-biotin	12 mg.
Cyanocobalamine	1.2 mg.

(*To be continued*)

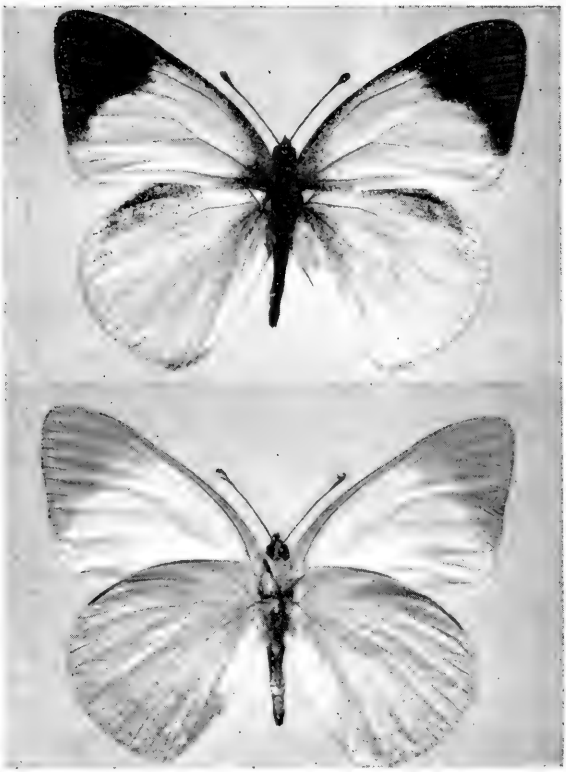

Photo: H. N. Wykeham

Colotis sp. from South West Africa,
♂, upperside and underside.
Figures 1.5 times natural size.

Note on an Apparently New Species of *Colotis* Hübner (Lepidoptera: Pieridae) from South West Africa

By C. G. C. Dickson, M.Sc.*

A single male specimen of a *Colotis* which does not seem to answer to any known species was captured by Mr. C. W. Wykeham in June, 1977, when he was serving on the South West African Northern Border, at the Rua Cana Falls. This butterfly shows affinity in certain respects to *C. agoye bowkeri* (Trimen) and *C. eris eris* Klug, but also differs very markedly from both these species. It is apparently more closely related to *eris*. The male genitalia have been dissected and several differences have been found in comparison with those of the other two species — in, for instance, the uncus, valves and aedeagi. The genitalia are closer to those of *eris*. In the opinion of Dr. C. B. Cottrell, to whom the dissections have been shown, the points of difference concerned are of considerable significance. In the case of the new insect, the aedeagus itself is remarkably small.

The present insect is pale creamy-white on the *upperside*, with the forewing apical patch of a light fawn tone (of much the same tint as that in the male of *eris*, as regards the separate markings therein) and with a rather faint shifting violaceous lustre in this general area; and black marking and scaling, in all wings, as shown in the accompanying figure. On the *underside*, the greater portion of the forewing is creamy-white and the subapical portion pinkish-cream, with the dark inner bordering of the apical patch of the upperside showing through to a limited extent; while the hindwing is of a rather less deep pinkish-cream coloration than the forewing subapical area. A large part of the costa is distinctly edged with bright orange and some dull orange coloration is apparent along vein 1b and in area 1c, adjoining vein 1b. The underside is obviously of a "dry-season" type. A formal description of this butterfly will be drawn up if further representative specimens are procured; and the intention is to name it after its discoverer.

The following relevant observations have been furnished by Mr. Wykeham himself: — "During May and June, 1977, I made a field survey of the butterflies of Rua Cana, which lies on the Cunene at the point where this river meets the border between South West Africa and Angola. It was noticeable that as the dry winter season set in the butterflies became more dependent upon the moisture of the river and by mid-June collecting was only good within a few hundred metres of the river.

"It was in this area that I found a few male *Colotis celimene pholoe* (Wallengren), and after taking a few male examples, I made an attempt to locate the females. It seemed most likely that I would find one among the many white Pierids feeding on the low flowering scrub along the river, and here I found the Pierid which is shown in the photograph. No further specimens could be found."

* "Blencathra", Cambridge Avenue, St. Michael's Estate, Cape Town.

Thanks are due to Dr. C. B. Cottrell and Dr. E. C. G. Pinhey for kindly giving, in each case, their own views concerning the above butterfly; and to Baron de Worms for ascertaining that no specimen which matches it could be found in the British Museum (Nat. Hist).

Notes and Observations

BOOK TALK. — One of the rarest, taxonomically important, and most interesting of entomological books, is A. H. Haworth's *Lepidoptera Britannica.* This somewhat dumpy, unillustrated 8vo., printed on a cheap, poor quality paper, was published in four parts, the first of which appeared in 1803, the last in 1828. Odd parts occasionally come on the market, but the complete work is seldom ever offered for sale. In fact, the book is so rare that in 1859, H. G. Bohn (in Lowndes' *Bibliographer's Manual*) estimated that there were then probably only 50-100 copies in existence.

Especially noteworthy therefore, is item B22 of Messrs. Classey's current catalogue (Special Subject List: Lepidoptera List B), which has all four parts present, with parts 3 and 4 in the *original printed blue paper-covered boards.* The price asked for this bibliographical gem was £400. Several orders were received and the book was bought by Mr. W. De Prins, an Antwerp schoolmaster and editor of the Belgian entomological periodical *Phegea,* who kindly let me examine his latest purchase when I visited him last month. — J. M. CHALMERS-HUNT.

CONSERVATION OF WILD CREATURES AND WILD PLANTS (AMENDMENT) BILL (H.L.). — Many of our readers may be unaware of the threat to their interests posed by the above Bill which has now passed Committee Stage and is to go to the Commons.

This proposes two new Schedules of insects which are to be protected by law. Schedule 3 includes 13 species of butterflies; Schedule 4 includes 73 moths, three bugs, two beetles, 13 dragonflies and 12 Orthopterans.

The Earl of Cranbrook, who is responsible, knows nothing of insects. To him, an egg is an egg, whether it be of an osprey or *pronuba.* He has simply lifted the list of local species about which more information is needed by the Record Centre, which was published some time ago in the *Entomologist's Gazette.*

He proposes that only authorised persons (Schedule 3) or others (Schedule 4) shall be permitted to take or kill more than two specimens in one calendar year in any one 10 kilometre square, provided that they report their action to the Nature Conservancy Commission. This is to cover ova, larvae and pupae, as well as imagines. The N.C.C. consider the Bill unworkable and they have been advised by the Red Book Committee and the B.E.N.H.S. that only three or four of the

species listed are in any danger from collectors. Despite the advice given, the Bill was smuggled through the Committee stage by avoiding mention of actual species because the noble lord is most anxious to get his name to another Bill on the Statute Books. Readers are urged to write to their M.P.s as soon as possible to prevent this stupid nonsense from becoming law.

Schedule 3 includes such common butterflies as *Coenonympha tullia, Lysandra bellargus, Melitaea cinxia* and *Thymelicus actaeon,* while among the moths in Schedule 4 are *Aplasta ononaria, Endromis versicolora, Eupithecia millefoliata* and *Lithosia pygmaeola.* The discovery and known distribution of almost all the species on the lists are the work of amateur entomologists. If the Bill does become law we could all change our hobby to "Prosecuting the Forestry Commission for their wholesale slaughter". — E. H. WILD.

DISSEMINATION IN THE PSYCHIDAE. — Consideration of certain Psychidae raises a problem: how can species with apterous females, and with only small larvae, achieve a reasonable rate of dissemination? In larger species, e.g. *Orgyia antiqua* (Linné) [Lymantriidae], it is reasonable to consider the present distribution as resulting solely from larval perambulations over many generations. The same cannot be assumed of such Psychid genera as *Solenobia.* Furthermore, even if the adults were to walk as well, little benefit would be conferred; many are inactive, or even nearly apodal. Bisexual species could be moved about in courtship — the female could be carried by the male in the mating flight; this is pure conjecture, and I have no evidence for its occurrence.

In parthenogenetic species, it would seem that some mechanical means of transfer must occur, presumably of ova, though small-scale transfers of pupae by wind could perhaps occur. Ova could be transferred relatively easily, either by adhesion to animals, or by being eaten accidentally and surviving their passage through the alimentary canal. Both possibilities appear unlikely at a first glance, but there would seem to be little else available, and examples of both of these techniques can be found used by seeds of plants.

Parthenogenesis may also be partially responsible for the large number of synonyms for many of the Psychidae, though apterogy, and the consequent difficulty of identification, is probably a more major factor. Because of the lack of genetic variation in a parthenogenetic species, each mutation, if it is not eliminated, will give rise to a new gene pool: there will be as many gene pools as there are genotypes. This will lead to a lot of apparent speciation (a fairly obvious mutant may well be construed as a new species), and so to much synonymy, unless occasional bisexuality allows mixing of the gene pools. Parthenogenesis can present a challenge to our definition of the species, and the Psychidae may be the place to resolve it. — P. J. JOHNSON, 7 Haverhill Road, Horseheath, Cambridge, CB1 6QR, 12.iv.1978.

LEPIDOPTERA IN STAFFORDSHIRE IN 1977. — Experience in Staffordshire was much in line with that in Shropshire reported by Mr. D. J. Smith (*Ent. Rec.*, **90**: 85). The first three weeks in June were almost a blank and I quite failed to see many of the usual local species such as *Hypena crassalis* F.

Results from moth traps in late June and through July were variable, but there were some notable features, one concerning two very common species, *Agrotis exclamationis* L. and *Noctua pronuba* L. The first was even more abundant than usual, 135 of this species out of 200 moths in a garden actinic trap being fairly typical; the second hardly appeared at all before August and was then far below its usual numbers. *Agrotis puta puta* Hübn., which until recently had been rather scarce in Staffordshire, was common, and *Dypterygia scabriuscula* L., of which there had been no record for a number of years, turned up in several places.

The weekend of 22nd/23rd July produced two species of which there was no previous record for the county, both at actinic lights in warm, humid conditions. *Pammene fasciana* L. was among 84 species on Cannock Chase, and Mr. D. Emley had an *Eilema sericea* Gregs. in his trap at Trent Vale, on the edge of the Stoke-on-Trent conurbation. The nearest locality I know for this species, Whixall Moss in Shropshire, is 25 miles away; it would be interesting to know if there have been other instances of its occurrence as a vagrant.

Among butterflies, most interesting have been reports of *Strymonidia w-album* Knoch from so many places as to suggest that it must now inhabit most woods in the north of the county where there is wych elm. Dutch elm disease is present in the area and some wych elms have been affected, but so far not to anything like the extent that one sees on the common elms farther south. Is this situation promoting a northward movement on the part of the butterfly? — R. G. WARREN, Wood Ridings, 32 Whitmore Road, Trentham, Stoke-on-Trent, ST4 8AP.

PHLOGOPHORA METICULOSA L. AND OTHER HETEROCERA AT WISSETT, SUFFOLK, IN 1977. — Mr. Skinner's note (*Ent. Rec.*, **90**: 87) regarding the abundance of larvae of *P. meticulosa* L. at Torquay in December 1977 prompts me to record that the imagines of this species were very numerous here at Wissett during October. I recorded the species at my light trap from 4th June to 11th July, and then again in larger numbers (presumably immigrants?), from 10th-26th October. In general, 1977 was a poor year for moths with many normally common species scarce or even absent. However, certain species seemed to fare rather better than usual: notably *P. meticulosa* L., as already mentioned, *Crocallis elinguaria* L., *Phalera bucephala* L., *Lacanobia oleracea* L. and *Eremobia ochroleuca* D. & S. Few migrants of any note occurred but unusual records included *Xestia castanea* Esp., *Eupithecia indigata* Hübn. and *Bupalus piniaria* L. — F. B. S. Antram, Valley Farm, Wissett, Halesworth, Suffolk, IP19 0JJ.

ERIOPYGODES IMBECILLA HB.: THE SILURIAN (LEP.: NOCTUIDAE) IN MONMOUTHSHIRE. — On 22nd July I was fortunate enough to take 12 male examples of this very local moth, and it is worth recording that without exception they entered the m.v. trap after 2.30 a.m. The date was a little late, even for 1977, and the moths were becoming worn. — R. G. CHATELAIN, 65 East Drive, Orpington, Kent.

TWO NEW RECORDS OF MONOCHROA HORNIGI (STAUD.). — In recent correspondence with Mr. O. Karsholt, a Danish entomologist, I have discovered that a small Gelechid moth I took in the garden several years ago is *M. hornigi* (Staud.). The moth was taken at an actinic blue lamp I ran for a few months at one period. On recollection, the garden at the time was rather prone to an abundance of *Polygonum* spp., the pabulum of *M. hornigi.*

The larva of this species feeds in the main stem or side branches of *Polygonum* and there is said to be no external evidence at all of its feeding place. On emergence from the stem the larva spins a cocoon at or near one of the nodes for pupation.

The second record is of one being found amongst light trap material from Barnsfield, near Rothamsted, by Mr. Karsholt. I have no date for this specimen, but it must be recent, as Mr. Karsholt mentions it as being the second specimen to be taken in Britain. — E. S. BRADFORD, 6 Maple Court, Drayton Road, Borehamwood, Herts.

FIEBEROCAPSUS FLAVEOLUS REUT. AND TERATOCORIS SAUNDERSI D. & S. (HEM.: MIRIDAE) IN S.E. LONDON AND PROBABLY NEW TO W. KENT.—During the hot spell in the summer of 1976 a single specimen of each of these plant-bugs, among many others, came to my m.v. lamp here; the former on 3.vii, the latter on 25.vi. Both are of course macropters, which are very uncommon in the case of the *Teratocoris*; this last is a ♂, the *Fieberocapsus* a ♀. The bugs are associated with various marsh plants and are very local in this part of the country. Indeed they appear to be decidedly rare in Kent, with only two records given for each by Massee (1963, *The Hemiptera-Heteroptera of Kent,* ed. 2, 163, 174), thus: *F. flaveolus,* Whitstable (Butler) and Dungeness (Massee); *T. saundersi,* Whitstable (Butler) and Deal (Saunders). It will be noticed that these three localities are in East Kent, and there may well be no record of either species for the western vice-county. I know of no likely habitat for these Mirids in the vicinity. A surprising number of the insect visitors to the lamp during the period in question must, it seems, have originated in the Thames marshes some miles east of here, and been stimulated by the heat into abnormal migratory activity. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

Current Literature

A Compendium of the Biographical Literature on Deceased Entomologists by **Pamela Gilbert.** Pp. xiv + 456 (including 4 plates of 28 portraits). British Museum (Natural History), 1977 (published 4.i.1978). Price £25.

This book is based to some extent on the late Mathilde Carpenter's pioneer *Bibliography of Bibliographies of Entomologists* (1945) and *Supplement* (1953), published in the *American Midland Naturalist.* The present work, however, is much more comprehensive since it includes many additions and corrections to the references in Carpenter, and furthermore incorporates biographical references to deceased entomologists published up to the end of 1975.

Miss Gilbert is librarian of the Department of Entomology (BMNH), and all entomological periodicals and books in her department have been systematically searched for relevant material, and a similar search made of scientific journals held in other departments of the Museum. It is estimated that 95% of the references given are from these sources.

The *Compendium* contains the names of some 7,500 entomologists arranged alphabetically in double columns, with the literature citations under each, and the years of birth and death when known. If published bibliographies of entomogists's work exist, these are also noticed, as are references to any published portraits.

The compiler seems to have done a pretty thorough job, and one has the impression that relatively few obituaries have been overlooked. On the other hand, I noticed listed two entomologists who, to my knowledge, are still very much alive!

There is a number of misprints and misspellings, as well as the occasional placing of a name out of sequence and the odd duplication. In a work of this nature though, such oversights were almost bound to occur, and as requested in her Preface, these and any omissions or errors apparent are being notified to the compiler.

It is disappointing that such poor workmanship and materials were used in the construction of this useful and important book. Cased in plastic, with the wrong title on the spine and the letterpress and plates printed throughout on an inferior paper, this volume compares unfavourably with the customary high quality of production that one has come to expect of the British Museum (Nat. Hist.).

The price may appear exhorbitant, but this is very much a book for the specialist, and only 500 copies have been printed.

The *Compendium* will be of inestimable value to research entomologists, and all such are recommended to obtain it at once. Finally, a word of congratulation for the compiler, who one hopes will go on to issue periodic supplements, and so keep the work up-to-date. — J.M.C.-H.

INTERNATIONAL CONFERENCE ON THE HISTORY OF MUSEUMS AND COLLECTIONS IN NATURAL HISTORY (APRIL 1979)

The Society for the Bibliography of Natural History, together with the specialist professional Biology Curators Group and the Geological Curators Group, are sponsoring this Conference, to be held at the British Museum (Natural History), London on the 4th-6th April, 1979.

Papers are invited upon a very wide range of subjects, which will be presented in the four sessions of the meeting. The range of topics includes: the history of individual public and private museums; studies of museums within a particular geographical area, time-span, or scientific discipline; the lives and activities of collectors of fossils, minerals, plants, or animals; studies of natural history libraries and book-collectors; the history of zoos and botanical gardens; the sale and dispersal of notable libraries and natural history collections; the documentation of museums and private collections; the relationship of bibliography to collecting; and the growth of museums and studies on collections resulting from expeditions and exploration. All papers submitted, whether read or not, will be considered for publication in a special volume.

For further information, please contact:
Mrs. J. A. Diment (Organising Secretary), Palaeontology Library, British Museum (Natural History), Cromwell Road, London SW7 5BD, United Kingdom.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting shoud bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted — Butterflies of Western Kenya. Parts 8-9 by H. F. Stoneham. — *L. McLeod,* Quartier des Ecoles, St. Pierre de Vassols, 84330, France.

Wanted — Oberthur's Etudes de Lepidopterologie Comparee. — *M. J. Percival,* Holmsdale Cottage, Mid-Holmwood, Dorking, Surrey. Dorking (0306) 6104.

For Sale — Large selection of tropical and British butterflies and moths surplus to requirements. — Further details from: *T. W. Harman,* Little Oaks, Church Lane, Westbere, Canterbury, Kent, CT2 0HA.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L.Inst.Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr. Wild on payment of 60p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber, plus 10p postage.

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Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

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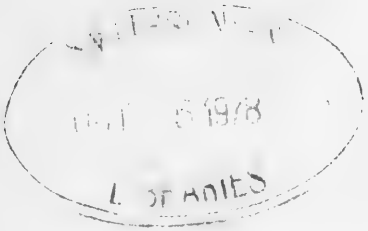

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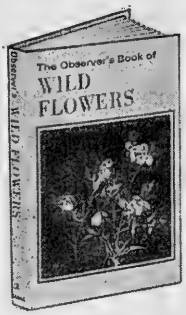

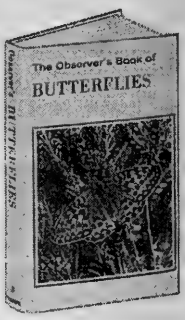

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Butterfly Collecting in Afghanistan

By Torben B. Larsen*

Introduction

In July 1977 I had the good fortune to go on a business trip to Afghanistan, in the course of which I was also able to collect more than sixty species of butterflies. On my return to London, I delved into the relevant literature in order to identify the species and found that not only was it remarkably sparse, but that apparently no general account has been published in an English journal this century. Furthermore, my material complements earlier published records to the extent where it seemed worthwhile presenting it in a separate paper. It should also serve to illustrate the richness of the Afghan fauna and the extent to which good collecting results are possible, even with a very limited amount of time available. It will be noted that the bulk of the material is clearly of Palaearctic origin, particularly from the Iranian and Turkestan faunae. I did not have the chance to visit the Nangrahar area where there is a strong representation of the Oriental fauna.

As the systematic part of the paper will show, there are significant differences in the subspecific nomenclature employed in the major recent works cited (Forster 1937, Heydemann 1954, Clench & Schoumatoff 1954, Wyatt 1961, Wyatt & Omoto 1966 and Howarth & Povolny 1973, 1976). Final stabilisation of the nomenclature will doubtless take some time, and my use of a name does not necessarily imply that I am "taking sides", unless this is clear from the text. Although there will be cases where several good subspecies of a given species exist in Afghanistan, some will almost certainly need to be relegated to synonymy. In particular it appears that the effects of an extreme, diverse and erratic climate has not always been taken adequately into account.

The localities exploited are given in the following list, which includes the abbreviation used for localities in the systematic list.

Kabul, Intercontinental Hotel, 1,800 m., 5.vii.1977 (KAB). On a dry and rather impoverished stony steppe hillside for two hours; several species mainly on water-mint along a watering canal. 17 species.

Hindu Kush, Salang Pass, 3,200 m., 9.vii.1977 (HS). In an open, typical subalpine landscape with pillows of *Astragalus* and *Acantholimon*. Half an hour was available with 15 species caught. Butterflies were far from plentiful.

Hindu Kush, Salang Pass, 2,600 m., 9/11.vii.1977 (LS). In a north facing valley with some trees and a fairly lush vegetation along a stream. One and a half hours was available, on two occasions, in what proved to be a rich collecting ground.

Doshi, 1,500 m., 9.vii.1977 (D). Along a river bed snaking through emerald green rice fields in what otherwise was virtually subdesert, though traces of a rich spring flora could be seen. 10 species were seen in half an hour.

* 23 Jacksons Lane, London, N.6.

Mazar-i-Sharif, 1,000 m., 10.vii.1977 (MIS). One hour of collecting in gardens inside the town yielded 12 species.
Qunduz, 1,000 m., 11.vii.1977 (Q). Half an hour's collecting in a very poor hotel garden, only 6 species.
Paghman Mts., 2,200-3,000 m., 15.vii.1977 (PG). An excellent and well known collecting area, stretching from the town of Paghman to the top of the mountains along a river valley with diverse vegetation and some irrigated agriculture. 34 species were noted in six hours.

Afghanistan is a lovely and most productive place in which to collect and its hospitality and friendliness is evident even during a short stay. In one or two places, such as Bamian, Paghman, and on the Salang Pass, hotel accommodation is available within easy striking distance of good collecting grounds. Unfortunately, it is not possible at present to hire a self-drive car which would assist collecting considerably.

I would like to thank Mr. and Mrs. K. Tarzi and Mr. and Mrs. A. Ramsay for their kind assistance, as well as Mrs. A. Yousefi and Ms. E. Bazalgette for the cheerful way in which they accepted my total disregard for what would otherwise have been excellent picnics at Doshi and on the Salang Pass. I am indebted to Mr. S. Sakai, Dr. L. G. Higgins and the British Museum (Natural History) for their assistance in the determination of the material.

Systematic list

Pieris brassicae ottonis Röber. KAB, LS, PG. This is a common and widespread butterfly in Afghanistan, not least near human habitation. The subspecific name *nepalensis* is sometimes applied also to Afghan material.
Artogeia rapae tochica Peile. KAB, LS, MIS, Q, PG. My series shows considerable variation which is hardly surprising given the diverse ecological conditions under which they were found. I follow Howarth in using the name *tochica*; others have used *leucosoma* Schawerda. Correct attribution of subspecies in an ecologically and generationally variable species such as *rapae* is not easy, especially as it is known to migrate in the area.
Artogeia canidia indica Evans. LS, PG. A small series of this fine subspecies was caught on rocky ground. It appeared to be less tied to agricultural land than *rapae*.
Pontia daplidice daplidice Linné. A very common species. Wyatt & Omoto use the subspecific name *nubicola* Röber; Howarth uses *moorei* Röber; some older authors use *persica* Bienert. Considering that *daplidice* is a strong migrant, able to travel for thousands of kilometres, and that the migration pattern is essentially nomadic (Larsen 1976), it is difficult to accept defined subspecies in the west Palaearctic.
Pontia glauconome iranica Bienert. D. A few were taken in this tinder-dry locality. They are probably referable to *iranica*; Howarth reports ssp. *vipasa* from the Nangrahar area which is in the Oriental zone.

Colias fieldii Ménetries. P.G. Although this is considered to be a common and widespread species, I met with it only in Paghman. The series is somewhat variable, and I initially believed two species to be involved.
Colias erate afghana Bang Haas. Everywhere. At the time of my visit this was by far the most common butterfly throughout the country. Clench & Schoumatoff use the name *undina* Gr.-Grsh.; Howarth unaccountably uses the name *marnoana* Rogenhofer, which refers to the morphologically very distinct form living in the Sudan and South Arabia.
Colias alpherakyi roschana Gr.-Grsh. HS. A couple of this striking butterfly were caught at the very high point of the Salang Pass, where it was both uncommon and uncommonly difficult to catch as it cruised on bare hillsides. I missed catching a specimen of what was probably the same species at Paghman; this would have been referable to ssp. *kohibaba* Wyatt & Omoto.
Danaus chrysippus chrysippus Linné. Near Charikar. A single specimen was observed from the car near the foot of the Hindu Kush. The species has no chance of surviving winter in these parts, and it appears to migrate into Central Afghanistan every summer. It is probably resident in the Nangrahar region.
Vanessa cardui cardui Linné. Everywhere. Local migration of this butterfly has been noted from Afghanistan.
Aglais cashmiriensis cashmiriensis Kollar. PG. At Paghman I only found the species near watering canals bordered with nettles. Specimens observed at 3,200 m. on the Salang Pass are likely to have been *A. rizana.*
Nymphalis xanthomelas fervescens Staudinger. LS, PG. Wyatt & Omoto described ssp. *hazara*; especially in view of the fact that *xanthomelas* is known as a migrant, I tend to agree with Howarth when he sinks *hazara* as a synonym of *fervescens.*
Polygonia egea undina Gr.-Grsh. LS. A single specimen seen near a village.
Issoria lathonia lathonia Linné. HS, LS, PG. Judging from my experience this is the most common of the Argynninae in the country. I saw scores of it without meeting any other species. The subspecific name *saturata* Röber is often used for Afghan specimens; I have previously stated my view that it is impossible to define subspecies of this butterfly west of the Himalayas (Larsen 1974).
Melitaea didyma nadezhdae Sheljuzhko. LS. A small series of rather unexceptional *didyma* is probably best referred to this subspecies. My two females are very different from each other.
Melitaea avinovi Sheljuzhko. HS. I caught a single male of this fairly common Afghan endemic.
Karanasa pamira ssp. HS. The single male is so poor that subspecific attribution is not possible. The most likely candidate is *twomeyi* Wyatt.
Karanasa bolorica hodja Avinoff & Sweadner. HS. Sakai kindly studied photographs of the single specimen to arrive at the exact determination.

Aulocera swaha parthicola Clench & Schoumatoff. PG. Very common all the way from Paghman town to 2,800 m. My series all have more narrow white bands than the specimen from Paghman figured by Wyatt & Omoto.

Hipparchia parisatis Kollar. KAB, D. On dry, stony ground where the butterflies liked to settle in the shade of rocks or trees. I follow Kudrna (1977) in not allocating subspecific names to the erratic clinal variation in the species.

Satyrus pimpla ziara Talbot. KAB. I was surprised to take a small series of this interesting butterfly next to the Kabul Intercontinental Hotel in a lunch break.

Chazara briseis fergana Staudinger. LS. A single female with wide white bands and a light underside. I follow Sakai (pers. comm.) in using the name *fergana* for Afghan material; other authors have tentatively advocated *maracandica* Staudinger.

Chazara enervata Staudinger. KAB, LS. This taxon was considered specifically distinct from *persephone* Hübner (=*anthe* Hoffmannsegg) by Clench & Schoumatoff. It appears to be common and widespread on dry ground.

Pseudochazara telephassa Hübner. PG. I caught only one specimen. Elsewhere it occasionally occurs in masses.

Pseudochazara baldiva porphyritica Clench & Schoumatoff. PG. A single female was taken with *telephassa* at about 2,600 m.

Hyponephele davendra latistigma Moore. PG. I caught three different species of this difficult complex flying sympatrically at Paghman. One male clearly belongs to the above taxon. After consultations with Sakai, I have decided to consider Howarth's subspecies *kondoi* synonymous with *latistigma.* The genitalia of the three species are shown in figure 1.

Hyponephele tenuistigma Moore. PG. A single male of this species was also caught. It is readily distinguished from the two others both in habitus and in the genitalia.

Hyponephele sp. PG. Four males and three females of this species were caught and originally assigned to *H.* ? *davendra evanescens* Wyatt & Omoto, since the androconial band is vestigial. Sakai kindly informed me this could not be so and that judging from the photos it was closer to *tenuistigma.* However, as the genitalia clearly differ, it is a distinct species.

Hyponephele mussitans mussitans Clench & Schoumatoff. PG. This little species was quite common at about 3,000 m., but I did not see it on the lower part of the mountain.

Hyponephele interposita Erschoff. KAB. Females were common on water-mint, together with both sexes of *H. lupinus.*

Hyponephele lupinus centralis Riley. KAB, MIS. I range my series as ssp. *centralis,* which Howarth also did for specimens from Kabul. Wyatt & Omoto used the name *turanica* Rühl. Howarth described a separate ssp. *herata* from Herat. There are almost certainly not three good subspecies of this widespread butterfly in Afghanistan, but a final decision must await the study of a comprehensive material from all parts of the country.

Pararge eversmanni shiva Wyatt. LS. A pair was beaten out of low trees. They are even more lightly marked than Wyatt's

types. Howarth records the much darker ssp. *cashmiriensis* Moore from Nuristan, which makes good zoogeographical sense.

Lasiommata menava Moore. LS. A single female was caught along with the previous species. Heydemann's linkage of this species with the Yemeni *L. felix* Warnecke was effectively dealt with by Wiltshire (1956).

Coenonympha mangeri Bang Haas. PG. Fairly common on wet meadows, but well past its peak.

Chaetoprocta odata Hewitson. PG. Incredibly common inside the old royal summer capital of Paghman. Every walnut tree, the dominant tree in Paghman and foodplant of the species, housed thousands of butterflies. A couple of walnuts thrown into a tree crown would provoke a veritable explosion of butterflies. In the late afternoon sunshine, dancing strings of 40-50 specimens would dash round the trees. I have never seen so many individuals of a species of Rhopalocera in one spot. I have not seen records of this species in print from Afghanistan before; it may recently have colonised the locality.

Strymon sassanides Kollar. PG. Common on a *Sorbus*-like flower.

Lycaena phlaeas stygianus Butler. KAB, LS, MIS, PG. As in many hotter parts of the world, *phlaeas* is widespread but not very numerous.

Lycaena thersamon kurdistanica Riley. D, MIS, PG. A few were caught in very different terrain; *thersamon* appears to be quite catholic in its ecological choice within its area of distribution.

Lycaena caspius evansi de Nicéville. LS, PG. My series appear to be typical *evansi* which Forster also reports from Badachshan. The uppersides are dark and there is no orange lunule in the anal area of the hindwing. Howarth described *L. caspius afghana* from Paghman, but from the description and the photos, I wonder whether this is not a form of *L. sarthus,* which I caught sympatrically with *caspius evansi* at Paghman. The complex is a difficult one, but I definitely have two distinct sympatric species.

Lycaena sarthus Staudinger. PG. The species is smaller than *evansi* and has an orange spot on the upperside of the anal angle of the hindwing, which is prominently tailed.

Apharitis acamas hypargyros Butler. KAB, D. In these two very dry localities I saw more *acamas* than I have ever seen in one spot before. The females, of which I caught most, are very variable in size and markings.

Lampides boeticus Linné. Everywhere. It would seem that 1977 was a good year for *boeticus* in Afghanistan.

Tarucus balkanicus Freyer. MIS. In principle the Afghan specimens should be referable to ssp. *areshana* Evans; in fact the series is comprised of small, clear blue and quite typical specimens, some of which even lack any traces of black discal spots. I do not believe *areshana* deserves subspecific status.

Chilades galba Lederer. MIS, Q. Until Howarth and Povolny recorded this species from Herat, there were no Afghan

records. The present series represents a considerable extension of its known range. The series was associated with *Prosopis* under ecological conditions exactly matching those in the Middle East.

Freyeria trochylus trochylus Freyer. D. Heydemann described var. *obscura* on the basis of Afghan material. My series does not suggest that Afghan *trochylus* differ consistently from the nominate subspecies. Howarth records the Oriental ssp. *putli* from Nangrahar, but treats it as a distinct species.

Turanana cytis laspura Evans. HS. A single male was caught in the same area as *Colias alpherakyi roschana.*

Philotes vicrama ssp. LS, MIS, PG. I caught one female in each locality. The Paghman specimen is like a very silvery specimen of ssp. *astabene* Hemming, to which Howarth refers Afghan material. The two others are dark and closer to Asian than to Middle Eastern material.

Plebejus eurypilus iranica Forster. HS. A single male was caught. I can find no record of this species in print from Afghanistan, but Sakai (pers. comm.) has taken it in several localities as well.

Polyommatus candalus nuksani Forster. LS. A few males were taken along with larger numbers of *P. eros bilucha.*

Polyommatus eros bilucha Moore. LS, PG. This is by all accounts a common and widespread butterfly in Afghanistan.

Polyommatus sp. LS. I caught two males which I cannot place. They are the size of *icarus,* but otherwise match *candalus.*

Polyommatus icarus fugivitta Butler. Everywhere. This is the subspecies to which Afghan material is usually referred. However, at Mazar-i-Sharif and elsewhere I caught specimens whose underside is almost unmarked white and which could be referred to ssp. *persica* Bienert.

Polyommatus bogra Evans. KAB. As I caught it next to the Intercontinental Hotel, it is surprising that the first records of the species were those of Howarth & Povolny. On the wing it both looks and behaves like *A. loewii.*

? *Vacciniina iris ashretha* Evans. HS, LS, PG. I found this butterfly abundant, though other authors have considered it scarce. Higgins (pers. comm.) is unhappy about its placement in *Vacciniina.*

Erynnis marloyi pathan Evans. KAB. A series from the vegetable garden of the Intercontinental Hotel. It must be very localised since the only other Afghan record is that of two males caught by Povolny at Nangrahar in 1967.

Carcharodus alceae insolatrix le Cerf. KAB, LS, D, Q, PG. A common species. Evans records ssp. *gooraisa* Evans from the Paghman Mts. Other authors have used the name *swinhoei* Watson, which rightly refers to specimens from Baluchistan. Two of my three specimens from Paghman do match *gooraisa*; the third and a series from Kabul, 25 km. to the east, are *insolatrix.* Heydemann's attempt to link the Afghan *alceae* with the Yemeni *wissmanni* Warnecke is not promising. The species is so variable that subspecific attribution is not easy.

Carcharodus dravira Moore. LS, PG. A few specimens only were caught. This taxon is best considered specifically distinct until its relationship with *C. orientalis* Reverdin has been fully investigated.

Spialia geron geron Watson. KAB (Ramsay leg.). The species has previously been recorded from Kabul.

Spialia orbifer carnea Reverdin. LS, PG. The Paghman specimens are typical *carnea,* a large subspecies with almost incredible brick red undersides. Specimens from the Hindu Kush seem intermediate to ssp. *lugens* Staudinger. For a discussion of the relationship between the two, see de Jong (1974).

Syrichtus poggei lutentulus Gr.-Grsh. LS. A large, well marked subspecies, with remarkably rounded forewings. Nothing resembling ssp. *patta* Evans, also from Afghanistan, was met with.

Syrichtus musta musta Evans. LS, PG. Clench & Schoumatoff separated this taxon from *staudingeri,* under which Evans (1949) ranged it as a subspecies. My single specimen from Paghman is typical *musta,* while the one from the Salang Pass is transitional to ssp. *loga* which is found in the southern mountains of Afghanistan.

Syrichtus staudingeri plurimacula Christoph. HS. I took a single male of this species in a spot about 500 m. higher up the pass from the locality where I found *musta*; it has not previously been caught in Afghanistan. The genitalia differ from those of *musta* and *loga* in missing the spined processes flanking the aedaeagus sheath. This interesting discovery substantiates the decision of Clench & Schoumatoff to separate *staudingeri* and *musta* at the specific level.

Pyrgus badachschanus Alberti. PG. I was lucky to take a specimen of this interesting Afghan endemic at about 3,000 m. According to Sakai it is a new record for the Paghman range.

Thymelicus lineola lineola Ochsenheimer. LS, PG. The small series from the Paghman Mts. are typical. A single male from the Salang Pass has the upper hindwing slightly overlaid with black scales and has a prominent end cell bar; this may indicate a clinal relationship to ssp. *kushana* Wyatt, which has completely black hindwings.

Thymelicus alaica Filipjev. LS. A series of seven males and one female match the single male which was at Evans' disposal, and which he ranged as a subspecies of *hamza.* The genitalia, however, are closer to those of *flava* (see Higgins 1975), though their general aspect is rather more elongated. As *flava* is entirely missing between Syria and Afghanistan, it seems more reasonable to consider *alaica* specifically distinct. The species must be very local as there are no other records of *hamza/flava* from Afghanistan. In three of the specimens the male androconia are clearly divided into three segments; in three the third segment is only partly disjunct; in the last there are only two distinct segments.

Parnara guttatus mangala Moore. D. A flourishing colony was found near a damp place in some rice fields. It is unlikely that this Oriental species managed to cross the Hindu Kush on its own; it is more likely to have come in a semi-circle via Herat.

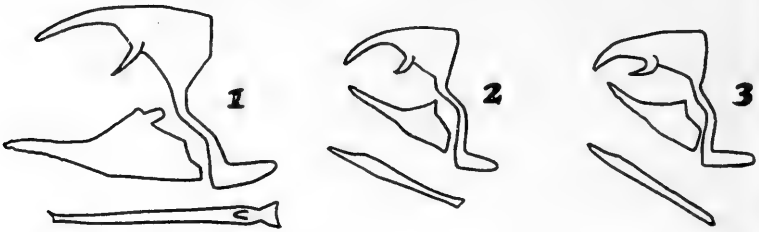

Figure 1. Genitalia of three Afghan species of *Hyponephele*; Paghman Mts., 15.vii.1977. 1. *H. davendra latistigma* Moore; 2. *H. undetermined*; 3. *H. tenuistigma* Moore (Scale 21: 1).

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Postscript

Since the manuscript went to print I have discovered that the series of *Apharitis* from Doshi was *A. epargyros* rather than *acamas,* but this does not invalidate the comment on the individual variation.

Mr R. de Jong kindly informed me that he considers *Syrichtus plurimacula* to be specifically distinct from *Syrichtus staudingeri* and that in this sense my specimen is not *plurimacula.* It may be an extreme *S. s. staudingeri* or an undescribed subspecies of this butterfly.

A Review of *Cydia leguminana* (Lienig & Zeller, 1846) [Lepidoptera: Tortricidae] in Britain together with an Account of the Breeding of the Species

By P. J. Johnson*

Summary

The history of *Cydia leguminana* as a British species is considered from the time of its first mention in the literature to the present. This is followed by an account of the breeding of the species, and, finally, by a prologue for its future in these islands.

This species was first mentioned in the British literature by Stainton (1859: 245) under the name *"Stigmonota interruptana"*. Apart from a description, the only information offered is "One specimen taken in Devonshire some years ago". This sketchy introduction was enlarged by Wilkinson (1859) who gave an excellent description of the imago. In addition, he prefaced some modern work, though not the most recent, by splitting the Tortricidae into two families, Tortricidae and Stigmonotidae, the latter containing the genus *Stigmonota* Guenée, and corresponding with the later Eucosmidae. However, like Stainton, Wilkinson did not mention the biology of the species, and he, too, only knew of one British specimen, which he stated to have come from Devonshire, and to be in the cabinet of Mr. H. Doubleday. It is unfortunate that—either through confusion with other species (which seems unlikely, though possible, since the use of the name *interruptana* arose through misidentification) or carelessness in observing all the plant species present in localities for *C. leguminana*—reports of experiences on the Continent led Wilkinson to write that the species was there captured amongst fir-trees. Whilst this does not necessarily imply that it feeds on them, this could only have confused British entomologists, and may have been part of the cause behind the long delay in the discovery of the life-history of the species.

H. Doubleday himself (1865, p. 2) referred the species to *Stigmonota leguminana* Zeller (*teste* Lederer), with *lunulana* D.L. as a doubtful synonym. In 1866 (p. 2), he left the name the same, but altered the syonymy, removing *lunulana,* and inserting *deflexana* Herrich-Schäffer as a certain synonym.

The next step was taken when E. G. Meek reported that he had captured several specimens of "this hitherto undetermined species" in June 1866 in Epping Forest.

Seven years later, in 1873, C. G. Barrett made an attempt to correct a misunderstanding which had arisen. He wrote, "*Stigmonota interruptana* Wilk. — This is not *interruptana* H.-S., but *leguminana* Zell. Mr. Doubleday inserted this name in the supplement to his list, but omitted the reference to the displaced name. The capture of several specimens is recorded in *Ent. mon. Mag.*, **3**: 163; *interruptana* H.-S. (*duplicana*

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Zett.) is a very different species, allied to *coniferana,* but larger and handsomer. I have seen no British specimen of it."

Meyrick (1895) was the first of our text-book authors to give the species its proper name. He altered the genus from *Stigmonota* to *Laspeyresia* Hübner, and used the name *leguminana.* Finally, he gave *interruptana* as a synonym, and followed Barrett by attributing it to Wilkinson, not Herrich-Schäffer. In addition to this considerable updating of the nomenclature, Meyrick made one important addition to the information given by previous British authors; he stated for the distribution, "Essex, Devon, scarce and local; Germany, Austria, N.W. Russia". There are two important points here: —

(i) Essex is added to Devon. Therefore, at least one more British specimen must have been taken since Wilkinson. Furthermore, the phrase "scarce and local" implies that, though rare, more than two specimens had been taken in Britain, and probably in more than two localities. It is possible that the British entomologists had lost interest in fir-trees as a (rather dubious) source of this species, and that search elsewhere had proven more fruitful.

(ii) A continental distribution is given, suggesting that Meyrick had read up the continental literature on the species; this may have been the source for his updating of the nomenclature.

As important as what was mentioned is what was omitted: Meyrick mentioned neither the larva nor the foodplant, thus suggesting that any further specimens taken had given no satisfactory evidence of the latter; indeed, they may have detracted from the value of fir-trees as a possible source of the species. It may, of course, just be that entomologists of the time could not imagine *C. leguminana* feeding on elm (though this is hardly less likely than fir-trees) when most of the other British species of the genus are associated with fruits, often of Papilionaceae—the very name of the species suggests a connection with this family of plants.

By 1928, Meyrick had made some changes, and had learned rather more. His comments on the distribution and biology were: "Essex, Cambridge, scarce and local; C. Europe to Siberia. Larva ochreous-grey-whitish, head reddish-brown; plate of 2 light brown, with two darker crescents: in dying bark of elm". The life-history has now been mentioned, the first account in a British text-book, a description of the larva, its feeding and rearing of the moth having first been given by Sheldon in *The Entomologist* for 1921 (pp. 228 *et seq.*). In addition, the following changes have been made to the distributional information: —

(i) The Devonshire record has been omitted: perhaps the only specimen ever taken in Devon was the original one. The absence of further records may have led Meyrick to decide that the species no longer occurred there. Alternatively, it may never have done so! The original specimen may truly

have been *C. interruptana*: it would be well worth while to check the specimen if it is still in existence.

(ii) Cambridgeshire has been added to the list. This probably refers to Wicken Fen, where Lord Walsingham took five specimens in 1869, and where the species was rediscovered in 1915. Subsequently, it was also found in Chatteris. This is an important change, since Wicken Fen was to become a major source for the species, as well as for many other rarities, in the present century.

Wicken Fen seems to have become the main refuge of the species: it was recorded there on a fairly regular basis and in reasonable numbers until 1921, when it was lost for some time. However, it was rediscovered in the same place in 1970, and has been seen there in reasonable numbers from then until 1975.

On 29.ii.1976, I visited Wicken Fen in the company of Col. Emmet, he having previously discovered that the row of pollarded elms which was the abode of *C. leguminana* had been cut down. Unfortunately, these had been growing on the land of a neighbouring farmer, so had not enjoyed the protection of the National Trust, as does the Fen itself. Fortunately, the fallen trees had not yet been carted away, so we were able to cut off pieces of bark in the hope of obtaining *C. leguminana*. There was no clear external evidence of the presence of the species, but bolls on the trunks were often found to have contained a larva. (Any larvae present had presumably pupated by now, since none was seen; this would accord with the time of pupation, deducible from the larval period given by Meyrick (1928).)

The pieces of wood thus obtained were taken away, and kept indoors. Nothing seemed to happen, and I was beginning to despair when a male *C. leguminana* emerged on 11.iv.1976. Subsequently, on 12.v.1976, a female emerged from the wood kept by Col. Emmet. Neither of us succeeded in producing any further specimens. Examination of the wood after emergence did not indicate that the site of pupation was significantly differentiated from the larval feeding cavity. The pupal case was of the same appearance as those of other members of the genus, and was extruded from the bark on emergence of the imago.

It remains to be seen whether the species has now been lost to Wicken; this does seem possible. However, it is a species which has occasional periods of scarcity, yet still survives: if it suffers a population decline, or has to move to new trees, it may take longer to re-establish itself in its former numbers than do many other species. Clearly, this will not be known for some time, but, meanwhile, it is important that a close watch should be kept for the insect: any other localities in Britain (if any such there be) should be protected. The combination of the reliance of the species on old elms, and the preference of the beetles which carry Dutch Elm Disease for the same, can only place the species in some jeopardy, and the future for it would appear bleak. The only hope is that, by a

careful monitoring of any still existing localities, the species might be kept going until such time as more old elms are available to support it once more in its former state. If such can be done, the future may, indeed, be much brighter than it would at present appear.

Acknowledgement

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BEHAVIOUR OF LYCIA LAPPONARIA (BOISDUVAL) IN SUNSHINE. — Spring lepidoptera were at least three weeks late in Inverness-shire in 1978, so that on 2nd May Mr. Richard Fairclough and I found over a dozen males and twenty females of *Lycia lapponaria* on a fence which crossed a growth of bog myrtle near Loch Laggan. The time was noon to 1 p.m.; there was brilliant sunshine in a cloudless sky, but a bitter north east wind. With few exceptions the males were resting torpidly low down on the shady side of the posts, though one paired couple was found in sunshine. The females, on the other hand, mostly apparently newly emerged, were all on the sunny side and crawling slowly upwards. Many had reached the flat, lichen covered, tops of the posts, where they sat in full sun, propped on their forelegs and with antennae extended, as if praying to the sun-god. Many of the males appeared to be also newly emerged but showed no sign of a similar need for warmth. Three days later in a similar locality, with probably a higher air temperature but heavy cloud and no sunshine, we could find only three males and no females. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, GU5 0LE.

Contribution to the Knowledge of Phasmida I. The Changing Egg-size in *Extatosoma tiaratum* MacLeay

By Ulf Carlberg*

Introduction

E. tiaratum was originally an Australian stick-insect, but is now a commonly bred species in Britain.

From an Australian specimen, Korboot (1961) described the eggs. She found two sizes of them, a smaller and a bigger one. The smaller (width: 2.91 mm.) took nineteen months to hatch, while the larger ones (width: 3.21 mm.) hatched after only nine months. As the smaller only produced females, she thought that they were unfertilised. Handlington (1966) showed that parthenogenetic development of the eggs occurred in the species. Clark (1976) gives data for fertilised and unfertilised eggs of the British stock. He found the following dimensions for unfertilised eggs: width: 2.8-3.1 (mean 2.97) mm., and height: 3.5-4.2 (mean 3.74) mm.

As I earlier had noticed that eggs laid at the end of the egg-laying period seemed to be smaller than those laid at the beginning of the period, I measured all unfertilised eggs (240) laid by one female. I measured them with a micrometer and followed the same terminology as Clark (*l.c.*). Perhaps the female died too early. From four females the number of eggs varied from 185-456 (mean 285), and this female laid 242. But the life-span of the adults varies a lot, and maybe it was a natural death.

Results

The sizes of the eggs are showed in Table I. Here an obvious diminution in the width is visible at the end of the oviposition period. In Table II the products of the width and the height are shown. Here one can see that the size of the eggs became bigger after c. 40 eggs, but after c. 170 eggs they became smaller and smaller.

Discussion

The mean value of the width (3.32 mm.) of all eggs is similar to those of bigger eggs (3.21 mm.) described by Korboot (*l.c.*). But she suggested that those larger ones were fertilised, and mine were unfertilised. So therefore I do not think that the size of the eggs from British stock does correspond with the eggs from the Australian specimen. But we must bare in mind the fact that the animal used by Korboot was just brought in from nature, and the British stock has for several generations been bred in unnatural conditions indoors.

On the other hand, the figures by Clark (*l.c.*) are a bit different from mine. But since I made the measurements during a whole egg-laying period, the mean value perhaps is not so representative for one egg in the beginning or at the end of the period. But the ratio: width-height had the same value during the whole time, about 77-79%.

* Atlasvägen 53I, S-131 00 Nacka, SWEDEN.

Egg-number	Width			Height			Width/Height Ratio
	Min.	Max.	Mean	Min.	Max.	Mean	
1-20	3.17	3.44	3.32	4.19	4.43	4.22	79
21-40	3.22	3.48	3.36	4.23	4.38	4.32	78
41-60	3.02	3.56	3.38	4.18	4.45	4.36	78
61-80	3.22	3.48	3.40	4.27	4.55	4.40	77
81-100	3.25	3.50	3.40	4.17	4.44	4.32	79
101-120	3.32	3.56	3.46	4.26	4.50	4.40	79
121-140	3.15	3.54	3.40	4.20	4.45	4.32	79
141-160	3.13	3.50	3.40	4.16	4.49	4.34	78
161-180	3.12	3.50	3.31	4.08	4.48	4.32	77
181-200	3.11	3.56	3.32	4.05	4.49	4.31	77
201-220	3.05	3.38	3.23	4.06	4.49	4.22	77
221-240	2.65	3.20	2.99	3.65	4.05	3.86	77

TABLE I. The changing size of the eggs during the egglaying-period.

Egg-number:	1-40	41-80	81-120	121-160	161-200	201-240
Mean-value:	14.4	14.8	14.9	14.8	14.2	12.6

TABLE II. The product of the width and height of the eggs.

As the eggs of phasmids vary in size generally, it might be an unobserved fact that they lay smaller ones at the end of the oviposition period.

Conclusion

After c. 40 eggs were laid, the size increased and became constant, but after c. 170 eggs, they became smaller and smaller.

The following measurements were found in 240 unfertilised eggs:

width:	2.65-3.56 (mean 3.32) mm.
height:	3.65-4.55 (mean 4.28) mm.
product (width x height):	10.4-15.8 (mean 14.3) (mm.^{2})

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Collecting Butterflies in Central Europe, July 1977

By N. J. and A. C. Derry*

My brother and I set off from home by car with provisions and a tent and spent nearly a month driving in Central Europe. Unfortunately, we were very much dependent on the weather and after a few days of healthy sunshine, rain tended to play a prominent role in the proceedings and several days, including the last three, were "washed out" by torrential downpours. Our collecting in Austria, for instance, was limited to one afternoon only, continuous rain making it pointless staying longer. Thus there are several interesting species that we hoped to see but failed to observe. However, there was some sunshine, and the following is an approximate guide to the places we visited and butterflies observed.

Unfortunately, we appear to have been too early for some interesting species and many had only just emerged by late July. The high mountain species in particular, did not emerge until the latter half of July as shown by the wealth of these that we encountered near Pontresina (such as *P. callidice, C. palaeno europome* and *C. phicomone*) many of which had not been much in evidence before 19th July, despite our visiting suitable localities. We had anticipated that most of these would have been flying in early July. Furthermore, species such as *P. mnemosyne* were still on the wing, and not worn, and we saw no *P. phoebus* at all. Nevertheless, the holiday was a success and the total number of butterfly species seen was approximately 150.

30th June. (1) Near Laon, N.W. of Reims, France: marshy field surrounded by oak woodland. 1 ♂ *Lycaena dispar rutila* Werneberg (very worn). (2) North of Langres, N. of Dijon, France: fields rich in flowers.

1st July. (3) Near Pontarlier, S.E. of Besançon, France: marshy and flowery meadows. 2 *Erebia medusa medusa* S. (battered) — the only *medusa medusa* encountered on the trip. (4) Near Nyon, Lake Geneva, Switzerland: deciduous woodland (largely oaks). 1 ♀ *Apatura iris* L.; 2 *Nordmannia ilicis* Esper.

2nd July. (5) Near Thônes, E. of Annecy, France: wooded hillside giving way to ungrazed meadows higher up. 1 ♂ *Hipparchia fagi* Scopoli; several *Erebia oeme* H.; *Mellicta parthenoides* Kerferstein (abundant); 1 *Maculinea arion arion* L.; 1 ♀ *Plebicula thersites* Cantener; 1 ♂ *Glaucopsyche alexis* Poda (badly worn); 2 *Spialia sertorius* Hoffmannsegg; several *Pyrgus malvae malvae* L.; 3 *Melitaea didyma* Staudinger, larvae found (feeding on narrow-leaved plantain). (6) Near La Clusaz, E. of Annecy, France: scree and grassed slopes (grazed).

3rd and 4th July. (7) Mont Blanc area, Italy: north-facing and south-facing slopes. 1 ♂ and 2 ♀ *G. alexis*; several ♂ *Erebia triaria* De Prunner — on south-facing grassy slopes

* Limeburners, Lincoln Hill, Ironbridge, Telford, Salop, TF8 7NL.

with scattered spruce trees; a few *Melitaea cinxia* L.; a few ♂ *Cupido osiris* Meigen; a few *Pyrgus andromedae* Wallengren.

4th July. (8) Col du Grand St. Bernard, Italy: south side. (9) Near Sierre, Switzerland: dry grassy slopes. A few *Hipparchia alcyone* S.; 1 *N. ilicis.*

5th and 6th July. (10) Simplon Pass, Switzerland: north and south sides (varied habitats). Several *E. triaria*; 1 fresh ♂ *Plebicula dorylas* S.; *Parnassius mnemosyne* L. (common, with 1 ♀ extensively suffused with fuscous, f. *melaina* Honrath); 1 ♂ *Plebejus pylaon trappi* Verity (fresh) — the only specimen seen on the trip; 1 ♂ *Plebicula escheri* H.; 1 *Erebia alberganus* f. *tyrsus* Fruhstorfer; 1 *S. sertorius*; 1 *Ochlodes venata* f. *alpinus* Hoffmann.

6th July. Near Fiesch, N.E. of Brig, Switzerland: dry grassy areas among pine woodland. Very little of note seen, disappointing after seeing insects in plenty here in August 1972. 1 *Parnassus appollo* L.; 1 *Melanargia galathea* L.; 1 *Lasiommata maera* L.; a few *Thymelicus lineola* Ochsenheimer; 1 *Pieris rapae* L.

7th July. (11) Lukmanier Pass and nearby, Italy: south side to Camperio. 1 ♂ *Clossiana thore* H. — among spruce woodland. (12) Near Biasca, N. of Bellinzona, Italy: rough ground amongst a conifer plantation. 1 *M. arion arion*; a few *Clossiana dia* L. Near Roveredo, N.E. of Bellinzona, Italy: deciduous woodland. 1 ♂ *Lopinga achine* Scopoli (badly chipped); several *M. galathea*; several *Mellicta athalia celadussa* Fruhstorfer.

8th July. (13) Albula Pass area, north of St. Moritz, Switzerland: damp grassy areas.

9th July. (14) Near Lermoos, Austria: north-facing slopes. A few *Mellicta aurelia* Nickerl; several *Erebia manto* S.; several *E. oeme.*

11th July. (15) Near St. Leonardo, north of Merano, Italy: varied habitats.

11th and 12th July. (16) Brenner Pass, Italy: south-facing grassy slopes. *Euphydryas cynthia alpicola* Galvagni (common and especially fond of settling on *Vaccinium* bushes); several *Mellicta asteria* Freyer (fresh); 1 ♀ *Pontia callidice* H.; 3+ *Erebia eriphyle tristis* H.-S.; several *Erebia nivalis* De Lesse & Lorkovic (fresh ♂♂).

12th July. (17) Near Laion, N.E. of Bolzano, Italy: banks of vetch by roadside (light woodland). 1 fresh ♀ *Hipparchia semele cadmus* Fruhstorfer.

12th and 13th July. (18) Passo di Sella area, E. of Bolzano, Italy: varied habitats. 1 *Erebia pluto alecto* H.; 1 ♂ *G. alexis* (worn); 1 *P. andromedae*; 2 ♂ *Plebicula amanda* Schneider.

14th July. Passo di Falzarego, W. of Cortina, Italy: top of Pass. 4 ♂ and 2 ♀ *Erebia pluto* De Prunner, ranging from *pluto pluto* to *pluto alecto.* (19) Near Misurina, N.E. of Cortina, Italy: boggy fiields and spruce woodland. 1 fresh ♂ *C. thore.* (20) Near Stabiziane, E. of Cortina, Italy: damp flowery meadows, bordered by spruce woodland.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Papilio machaon L.						2	2			F																				2
Parnassius apollo L.					1				F	S	1				S													3		
Pieris brassicae L.				3											1														1	
P. rapae L.				F		1		1		3		F					F						F		F	F	1	2	1	1
P. napi L.				S																			1						F	1
P. napi byroniae H.						S	C			C	S		F	F		S		S	2		C					S				
Aporia crataegi L.		C										1										2					1			
Euchloe ausonia H.						S	C	2		3																				
Anthocaris cardamines L.						S	S			S	1							2							1				1	
Colias phicomone Esper										1			2												F				
C. hyale L.					1				1					1				1			2		1							
C. australis Verity			1		1		2		1												2									
Gonepteryx rhamni L.				S								S					1				3		F		1		1		S	S
Leptidea sinapis L.					2		F			F		F		1			2	2		1							1		3	
Limenitis camilla L.				C																								1		S
Inachis io L.										4											1	2							1	
Vanessa atalanta L.	1	1		1			1			F	1				1			1				F	F	1		1	1		1
V. cardui L.				2		1	F			2						1	1					1	1						1	
Aglais urticae L.			F		1	C	S			C				1				F	1		F	F			2					
Polygonia c-album L.				1																										
P. c-album f. *hutchinsoni* L.				2																		1					1		1	
Argynnis paphia L.				C																				1			1			1
Mesoacidalia aglaja L.										2		F	1	1							F	S						S		
Fabriciana adippe S.												F																	1	
F. niobe f. *eris* Meigen										2												1			F					
Issoria lathonia L.				1					1	2							1								1					
Brenthis daphne S.																	2													F
B. ino Rottemburg	2			S										2										1	F	2				
B. pales palustris Fruhstorfer															1	S										F				
B. napaea Hoffmannsegg													F					1	S											
Clossiana selene S.											S		1		2										F		1			
C. euphrosyne L.					3	1	S			S	C		F		F	F		F	1	1					S			1		
C. titania cypris Meigen					1			3		F	1		F	S				2		1					F					
Melitaea phoebe S.		1			2		4		1			C																		
M. didyma meridionalis Staudinger					1					F																				
M. d. occidentalis Staudinger																	S						1				2		F	
Mellicta diamina Lang			2				2			S																2				
M. athalia celadussa Fruhstorfer							S			C	C	S	1	C		1				1	F	S			S		F	S	F	F
Euphydryas aurinia debilis Oberthur							F			1						C			S	F						S				
Melanargia galathea L.	3	1	F	S	S				F		C	C					F					F	F				S	S	S	F
Oeneis glacialis Moll							S			3					1	S		2								C				
Erebia ligea L.											1			1			F													
E. euryale euryale Esper														1																
E. e. adyte H.										C	F	C	S									C		S	S	C				
E. e. ocellaris Staudinger																3		C	F	F	C									
E. epiphron aetheria Esper										C								1								S				
E. pharte/phartina Staudinger													C			C		S	C	S										

Butterflies observed in Central Europe (30th June–28th July, 1977)—continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
E. melampus Fuessli										C						1		F								2				
E. medusa hippomedusa Ochsenheimer															C	C		C	S	F		C		1		3		1		
E. alberganus De Prunner					C		S	S		C	C		F		F			2								2				
E. mnestra H.										C															S	C				
E. tyndarus Esper										S			S		1											C				
E. pandrose Borkausen						1	3						1		S	C			S		C					C				
Maniola jurtina L.	F	F	F	S	F							1					F					1	1				S		C	S
Aphantopus hyperanthus L.	1			S	1							F									2						1	1	C
Pyronia tithonus L.	1																													C
Coenonympha pamphilus L.	F	F	F				1	1				S						F			F	F			F		1	1	1	
C. arcania/darwiniana L.	1						1			C	C	2			F		F				S	S				F	S	F	
C. gardetta De Prunner					1		1	C					F	1	S	C		F	S		S					C				
C. glycerion Borkhausen			F											S																
Pararge aegeria L.				F							F												1					3		
Lasiommata megera L.															1								C					F		
L. maera L.					F		1		3	S	F			S	F			1			S	S	1				S	F		
L. petropolitana Fabricius							C			C	F		2								1									
Callophrys rubi L.						1	C	F		F									1											
Lycaena phlaeas L.										1		2														1		F		1
Heodes virgaureae/montanus L.										S		2													F	S		F		
H. tityrus/subalpinus Poda													F					I	3		2					2	2		1	
H. alciphron gordius Sulzer										F		S														1	1		F	
Palaeochrysophanus hippothoe L.				F	1																									
P. h. eurydame Hoffmannsegg																									F	F				
Cupido minimus Fuessly					F	F	S	3		C	S		F	F		C		S	F		S	F				F		1		
Maculinea arion obscura Christ							4			S	F		1		F	F		1							1	1				
Philotes baton Bergstrasser										2																				
Plebejus argus L.										F												S								
Lycaeides idas L.										C			F								2									
Eumedonia eumedon Esper					1		2	1		F			1			C			F	2										
Aricia artaxerxes allous Geyer							1			4			1	F							F	F				F				
Albulina orbitulus De Prunner													1			F		C								S				
Cyaniris semiargus Rottemburg			2		2		F			S	F		S	F	I	C		C	F	F	F	F			F	F				
Lysandra coridon Poda										S				2				1			F	F				1		F		
L. bellargus Rottemburg			S		1																					F				
Polyommatus icarus Rottemburg			F		F		F			F		F				1		1							1	1				1
Pygus malvae malvoides Elwes & Edwards							F								F	S														
P. alveus H.							F			S	F							1			1	S				F				
P. serratulae Rambur													1		F	1		1	1											
P. fritillarius Poda			1						1	3																				
P. cacaliae Rambur							1								F	S										F				
Eyrnnis tages L.				1	1		S			S	F					F		F			F	1								
Carterocephalus palaemon Pallas							2			F			3					1	3											
Thymelicus lineola Ochsenheimer				1						F		S			1		F								F		F			
T. sylvestris Poda	2									F		S			1							1			F		F	S	F	S
Ochlodes venata Turati	3	1	F	S	S		S			S		F		F			1	1		1	1	1			F		1	1	F	S

15th July. (21) East of Belluno, Italy: varied habitats. 1 perfect *Limenitis populi* L.; 1 *Maculinea alcon rebeli* Hirschke; 1 *Colias crocea* Geoffroy; 4 *Euphydryas intermedia wolfensbergeri* Frey. — scattered sightings. Near Mattarello, S. of Trento, Italy: clearing in deciduous woodland. 1 ♀ *Lycaeides idas* f. *opulentus* Verity; 2 *Polygonia c-album* f. *hutchinsoni* L.; 2 *Inachis io* L.; 1 *Quercusia quercus* L.; 1 ♂ *O. venata*; a few *T. lineola.*

16th and 17th July. (22) East of Lake Garda, Italy; varied habitats. 2 *Strymonidia spini*; several *Coenonympha tullia rhodopensis* f. *italica* Verity; *Carcharodus flocciferus* Zeller; many *P. mnemosyne*; many *Erebia gorge triopes* Speyer (fresh, and especially brightly marked).

18th July. (23) Near Torbole, S.W. of Trento, Italy: rocky hillside, with rough terraced orchards. Several *Pieris mannii* Mayer; a few *S. spini*; a few *Iphiclides podalirius* L.; several *Satyrus ferula* Fabricius; 1 *Scolitantides orion* Pallas. (24) Near Madonna di Campiglio, N.W. of Trento, Italy: mixed woodland. 1 ♀ *Argynnis paphia* f. *valesina* Esper; 1 *C. thore* (♂). (25) Near Vermiglio, N.W. of Trento, Italy: rough meadows, near R. Noce. 1 ♂ *P. mnemosyne*; 1 ♂ and 1 ♀ *P. amanda.*

19th July. (26) Near Pontresina, E. of St. Moritz, Switzerland: varied habitats. Many *E. cynthia alpicola* (associated with *Vaccinium* bushes); 1 ♂ *Mellicta varia* Meyer Dür; several fresh ♂ *Erebia flavofasciata* f. *thiemei* Bartel (local); 1 ♀ *E. pluto* (transitional to *oreas*); 1 ♂ *Argiades glandon* De Prunner; several ♂ *Polyommatus eros* Ochsenheimer; 2 *Colias palaeno europome* Esper (fresh); many *E. gorge* (transitional to *triopes*); several *Vaccinia optilete* Knoch (near *Vaccinium* bushes); 1 *M. alcon rebeli*; 1 ♂ and 1 ♀ *P. amanda*; several *P. callidice.*

20th July. Albula Pass: see (13), grassy slopes. A few *E. gorge* (transitional to *triopes*); 2 *Erebia manto pyrrhula* Frey; 1 ♂ *V. optilete*; a few *P. eros.*

20th July. (27) Near Chiavenna, S.W. of St. Moritz, Italy: grassy clearings, in deciduous woods. 1 ♂ *Minois dryas* Scopoli; 1 *S. orion.*

21st July. (28) S.E. of Lugano, Switzerland: hillside. 2 ♂ and 2 ♀ *Erebia styx triglites* Fruhstorfer — rocky slopes; 1 ♂ *P. dorylas.* N. of Rivera, S.W. of Bellinzona, Italy: clearing by roadside. 1 *M. athalia celadussa*; a few *M. galathea*; 1 ♀ *Heteropterus morpheus* Pallas; a few *O. venata.*

21st and 22nd July. (29) Near Vogogna, Italy: varied habitats. 1 *Libythea celtis* Laicharting (fresh); several *H. morpheus*; 1 ♂ and 1 ♀ *Celastrina argiolus* L.; 1 *C. flocciferus*; 1 *Fabriciana adippe* f. *cleodoxa* Ochsenheimer; several *S. orion*; a few *I. podalirius;* 1 *S. ferula*; 2 *M. arion arion.*

22nd and 23rd July. Simplon Pass: see (10). Several *Erebia christi* Raetzer (1 worn ♀) — local; several *Erebia montana goante* Esper (only 1 ♀); 1 ♂ *P. dorylas*; 1 *Philotes baton* Bergstrasser; 1 ♂ *A. glandon;* 1 ♂ *P. eros*; 1 *Erebia aethiops* Esper; several *Hyponephele lycaon* Kuehn; 1 ♂ *Hesperia comma* L.

23rd and 24th July. Near Nyon: see (4). 2 *Nymphalis polychloros* L.; 2+ *Apatura iris* (1 ♀) — 1 was observed feeding on umbellifers; 3+ *Apatura ilia* S. — 2 worn ♂♂ and 1 fresh ♀ (f. *clytie*); 3 fresh *Brintesia circe* Fabricius; many *Q. quercus.*

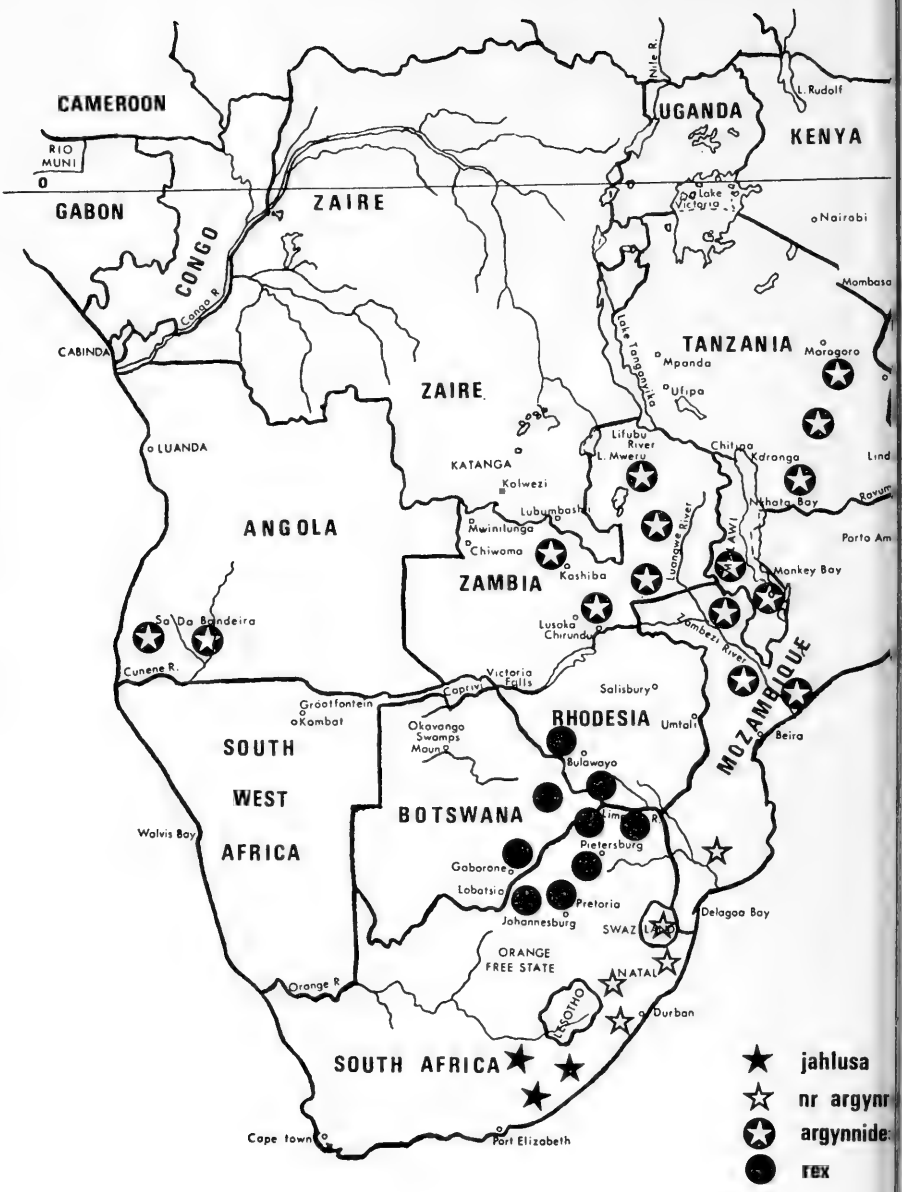
25th July. (30) E. of Chalon-sur-Saone, France: mixed deciduous woodland. 1 *Limenitis reducta* Staudinger; 1 *Q. quercus.*

KEY TO TABLE

F=Few : 0–10 specimens seen.
S. & Sev.=Several: 10–20 specimens seen.
C=Common : over 20 specimens seen.
Where known, exact numbers of specimens seen are given.
N.B. Figures used in the text correspond to those used in the table and they serve as abbreviations for the localities.

RHYACIA SIMULANS (HUFN.): DOTTED RUSTIC IN HAMPSHIRE. — A single specimen of this scarce species was taken by m.v. trap at Ashurst, Hants., on 28th July, 1976. It was incorrectly identified and placed in a series of *Spaelotis ravida* (D. & S.): Stout Dart, taken at the same site. Its true identity was recently pointed out to me by Barry Goater. — J. C. A. CRAIK, 48 Whartons Lane, Ashurst, Hants.

A SECOND(?) OCCURRENCE OF ELACHIPTERA UNISETA COLL. (DIPT.: CHLOROPIDAE), A NOTABLE ADDITION TO THE KENT FAUNA. — Examination of some dead reeds (*Typha*) by a lake in Danson Park, Bexleyheath, about five miles east of here, on 9th March last, revealed large numbers of the common little Chloropid *Elachiptera cornuta* Fall. (Oscinellinae) hibernating between the leaves and stems. Among them was one smaller fly, paler and obviously different, but apparently of the same genus; this proved later to be very distinctive, especially in its coloration — the yellowish thorax having an elongate dark patch at each side. It was readily determined from Collin, 1946, *Trans. R. ent. Soc. Lond.*, **97** (5): 146, as the hitherto very rare and little-known *Elachiptera uniseta* Coll., described in 1939 (*Ent. mon. Mag.*, **75**: 150) on 3 ♂♂ and 2 ♀♀ bred in July 1933 from a reed-bunting's nest at Black Park, Bucks., by Mr. E. B. Basden. Mr. Collin, in his 1946 paper, stated that he had seen no further specimens. Having searched only the literature at my disposal, without finding any later record of the species, I cannot assert categorically that mine is only the second — though it appears likely. The Kentish example tallies in every respect with the description, including the critical character of the single pair of orbital bristles which distinguishes *E. uniseta* from the Mediterranean and Atlantic *E. bimaculata* Lw. The situation in which the fly was obtained on both occasions makes it probable that this is a reed-feeding species. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE3 8QG.



MAP

Distribution of the southern races of *Charaxes jahlusa* Trimen.

Description of a New Subspecies of *Charaxes jahlusa* Trimen (Lep.: Nymphalidae) from Southern Africa

By S. F. Henning*

Abstract

The relationships between the southern races of *Charaxes jahlusa* Trimen are discussed and a new subspecies is described with notes on its early stages and habits.

Introduction

Charaxes jahlusa from the Transvaal and adjacent areas was treated by van Someren (1974) as an intermediate form between nominate *jahlusa* and subspecies *argynnides*. However, examination of further material has revealed that the Transvaal insect differs from both *jahlusa* and *argynnides* in being larger with a reduction of the black markings on the upperside and with more extensive buffish-orange on the underside. In reality *jahlusa* and *argynnides* are closer to each other than to the Transvaal subspecies. The Natal members of the species are nearer to *argynnides* than either *jahlusa* or the Transvaal race. It is possible that the Natal *jahlusa* connects up with *argynnides* by following the coastal bush through southern Mozambique and meeting with *argynnides* in the region of the Zambesi River. The inland subspecies occupies the higher and drier bushveld areas of the Transvaal, southern Rhodesia and Botswana.

Charaxes jahlusa rex subsp. nov.

Diagnosis

Forewing length, male 28,8 ± 1,8 mm. *Upperside*: ground colour more orange than *jahlusa,* being similar to that of *argynnides.* This is the only subspecies in which the postdiscal spots are restricted to 6 and 7, while in the others they are found in areas 4 to 7. Other black markings on the upperside are less well developed than those in other subspecies. *Underside*: forewing lacks the silvery subapical costal mark found in *jahlusa* and *argynnides.* Hindwing basal area darker than *jahlusa* and more orange than *argynnides.* Tails generally longer and more slender.

Forewing length, female 33,4 ± 3,2 mm. *Upperside*: more orange than either *jahlusa* or *argynnides.* Postdiscal black spots absent, or if present, only faintly indicated in areas 6 and 7. *Underside*: ground colour differs from other subspecies in being orange-buff with the black markings reduced. Hindwing white spots slightly larger than those of *argynnides.*

Description of Male Holotype

Forewing length 28,4 mm.; antenna-wing ratio 0,45. *Head*: Frontoclypeal region thickly covered with brownish-grey hairs; epicranial region thickly covered with orange hairs. There is

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a patch of white scales anterior and posterior to each antennal base. Compound eye is ringed posteriorly with white scales. Labial palps medio-dorsally orange, dorsolaterally black, ventrolaterally creamy-white. Antennae black, proboscus ochre. *Thorax*: Dark brown covered with orange hairs and scales dorsally; laterally dark brown with white patches and ventrally with dense creamy-white hairs. *Legs*: Femur dorsally black, otherwise legs whitish-ochre. *Abdomen*: orange-brown dorsally becoming dark brown ventrally. *Wings*: Forewing shape, costa slightly curved, apex produced, enhanced by the strong concavity on the outer margin of the wing in region 3-5 and the prominent hind angle in 1a-1b. *Upperside*: Ground colour brownish-orange shading to orange-ochre on the inner fold of the hindwing. Pattern of the forewing black spots arranged as follows: a small black dot basally in cell, followed by a curved mark at about mid-point and black patch at its end; two smallish spots in the sub-bases of 1b and 2, a series of more linear marks in the discal line becoming only a small dot in 1b; in the post-discal line are two squarish marks in areas 6 and 7; submargin brownish-black with the margin brownish-orange broken by brownish-black along the veins. Hindwing costal area paler than the rest of the wing, with a small black spot in the subcosta and below this a large double mark in area 7. Some of the paratypes have a spot just distad to the junction of veins 6 and 7 which is faintly indicated in the holotype. Submarginal border black with orange marks in areas 1c to 4; margin brownish-orange. Tail on vein 2 is 4,4 mm long, and on vein 4 is 2,5 mm. *Underside*: Forewing ground colour orange-buff along the base of the costa and beyond cell, shading into the pinkish-orange of the rest of the wing. There is a black mark at base of cell, otherwise black markings as on upperside. Submarginal line black only in areas 1b and 2, otherwise ochre-orange. Hindwing ground colour orange-buff, being slightly darker basally. Large silvery white spot margined with black sub-basally in 5 and a larger one sub-medially in 4. The discal silvery-white band well developed. Submarginal row of blackish-brown spots margined with pale blue and with a pinkish-white mark in the centre. Margin of wing orange-buff.

Description of Female Allotype

Forewing length 36,5 mm.; antenna-wing ratio 0,37. *Head*: Frontoclypeal region thickly covered with brownish-grey hairs; epicranial region covered with orange-ochre hairs. There is a patch of white scales anterior and posterior to each antennal base. Compound eye ringed posteriorly with white scales. Labial palps medio-dorsally ochre, dorsolaterally greyish-brown, ventrally buffish-white. Antennae black, proboscus

PLATE 1 (facing page 212). Uppersides

1. *Charaxes jahlusa jahlusa* ♂ (Cape). 2. *Charaxes jahlusa* near *argynnides* ♂ (Natal). 3. *Charaxes jahlusa rex* ♂ — Holotype (Transvaal). 4. *Charaxes jahlusa argynnides* ♂ (Mozambique). 5. *Charaxes jahlusa argynnides* ♂ (Malawi). 6. *Charaxes jahlusa argynnides* ♂ (Zambia).

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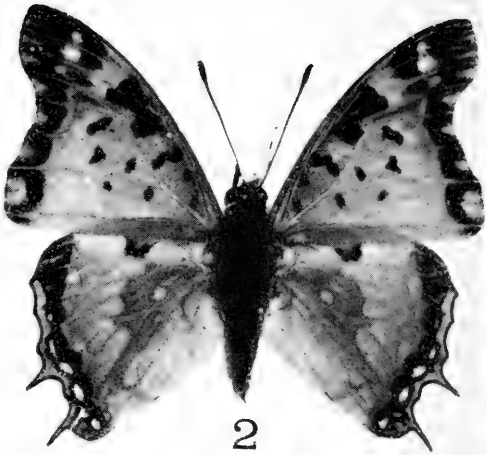

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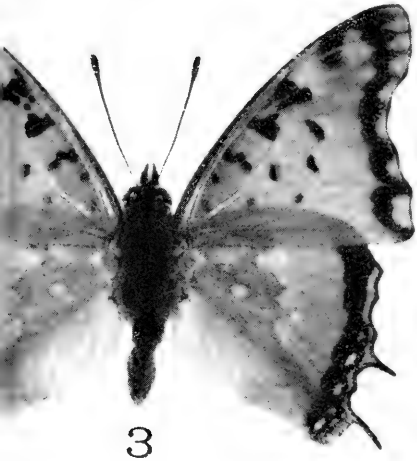

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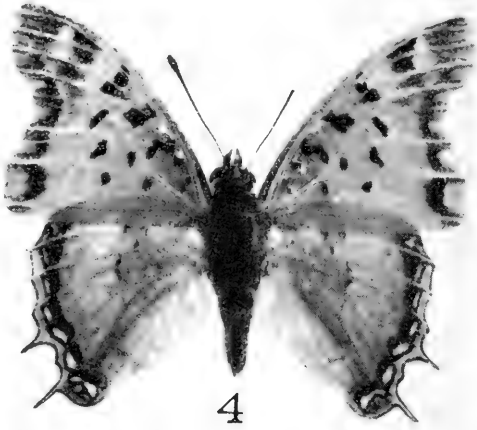

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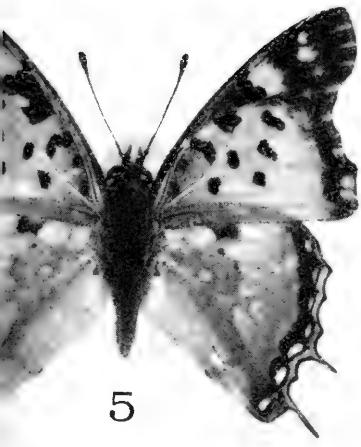

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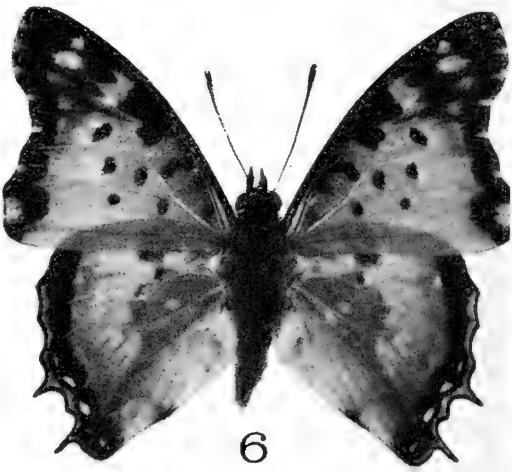

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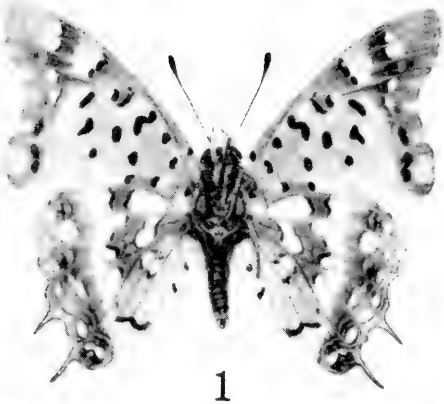

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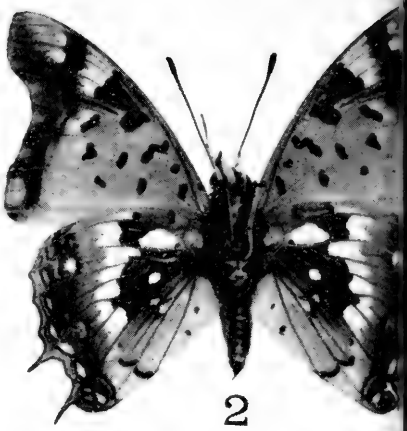

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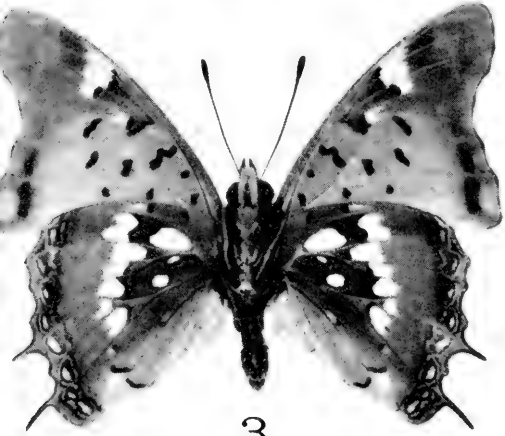

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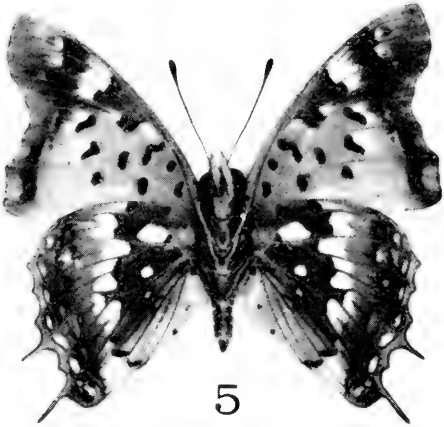

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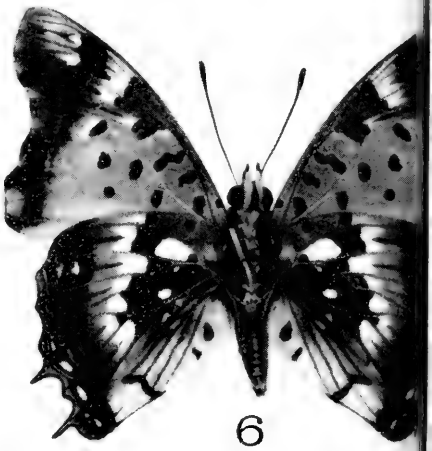

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ochre. *Thorax*: Dark brown covered with orange-ochre hairs and scales dorsally, laterally greyish-brown with white patches and ventrally with dense yellowish-white hairs. *Legs*: Femur dorsally blackish-brown, otherwise greyish-white. *Abdomen*: Orange-buff dorsally, becoming blackish-brown ventrally. *Wings*: Both wings differ in shape from those of the male, the forewing is less falcate, while the hindwing is more rounded and less pointed at the anal angle. *Upperside*: Ground colour tawny-orange; the dark spotting of the forewing, arranged as in the holotype but better developed. Postdiscal dark marks present only as faint scaling in area 7. Marginal and submarginal areas as in the holotype. Hindwing dark spotting as in holotype but with medial spots also in areas 4 and 5. Submarginal border black with ochre markings in areas 1c to 7; margin tawny-orange. Tail on vein 2 is 4,5 mm. long and on vein 4 is 5 mm. *Underside*: Forewing paler than holotype and the dark spotting similar. The hindwing ground colour paler than in male, but the markings are the same.

♂ HOLOTYPE: Bred from a larva collected by G. A. Henning on *Pappea capensis* Eckl. & Zehr at the Saltpan, Vivo, Transvaal, emerged 29.vi.1973; in Transvaal Museum, Pretoria.

♀ ALLOTYPE: Saltpan, Vivo, Transvaal, 15.xi.1972, S. F. Henning; in Transvaal Museum, Pretoria.

PARATYPES: All collected at Saltpan, Vivo, Transvaal on the following dates by the Hennings: 2 ♂♂, 4 ♀♀, 4-6.iv.1965; 2 ♀♀, 17.ii.1969; 2 ♀♀, 2.ix.1969; 1 ♀, 5.ix.1971; 2 ♀♀, 12.iv.1972; 1 ♂, 1 ♀, 2.ix.1972; 1 ♂, 15.ix.1972; 3 ♂♂, 6-8.iv.1973; bred 2 ♂♂, 1 ♀, emerged 27.vi-9.vii.1973 and 1 ♂ emerged 1.ix.1973. By I. Bampton: 8 ♂♂, 5 ♀♀, 7-9.vi.1977. By G. van Son: 1♀, 11.vii.1954. R. Badham: 5 ♂♂, 27.iv.1952. Paratypes are in the British Museum (Natural History), the Transvaal Museum, Pretoria and in collections of W. H. Henning and sons, Dr. V. Allard, S. C. Collins, J. Plantrou and B. Turlin.

Numerous other specimens from a number of other localities in the Transvaal, Rhodesia and Botswana were examined during the course of this study but only the specimens taken at the type-locality, i.e. the Saltpan, Vivo, Transvaal, were designated as paratypes.

Biology

Foodplant: *Pappea capensis* Eckl. & Zeyh. (SAPINDACEAE) and *Dalbergia melanoxylon* Guill. & Perr. (LEGUMINOSAE). The latter is probably an alternative foodplant in Southern Africa.

Egg: Oval, about 1,0 mm. in diameter, with a fluted depression on the top. It is green when first laid and develops

PLATE 2 (facing page 213). Undersides

1. *Charaxes jahlusa jahlusa* ♂ (Cape). 2. *Charaxes jahlusa* near *argynnides* ♂ (Natal). 3. *Charaxes jahlusa rex* ♂ — Holotype (Transvaal). 4. *Charaxes jahlusa argynnides* ♂ (Mozambique). 5. *Charaxes jahlusa argynnides* ♂ (Malawi). 6. *Charaxes jahlusa argynnides* ♂ (Zambia).

a brown ring within 48 hours if fertile. Takes 6-14 days to hatch. Eggs are laid singly on the upper surface of the leaves of the foodplant. At eclosion the larva eats the entire egg shell.

1st instar larva: At eclosion the larva is about 3,5 mm. long. Body dull olive-green, without markings, anal processes long and brown. Headshield blackish-brown, diameter 0,9 mm.; dorsal horns 0,5 mm. long, lateral horns 0,2 mm. Length attained is about 5,5 mm. Duration of instar normally 1-2 weeks.

2nd instar larva: Body green, finely spotted with cream. It has fine creamy-yellow oblique lateral lines running from the head to the penultimate segment. Each segment, except the last, has two small creamy-yellow dorsal spots. Anal processes are long and pointed and are reddish-brown. Headshield diameter 1,5-1,7 mm., pale brown becoming slightly green in the ventral half in some specimens. Faint black line around lower margin and ventral side of lateral horns which are 0,4 mm. long. Dorsal horns are 1,0 mm. long. Length attained is about 8,5 mm. Duration of instar is normally 2-3 weeks.

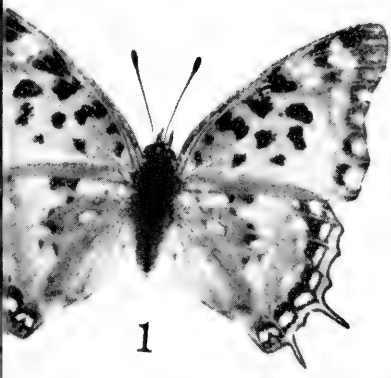
3rd instar larva: Body green, markings as in the second instar, but if the larva is going to develop a yellow somite bar on the sixth segment, the first signs will now be apparent. Anal processes are yellowish-white. Headshield, diameter about 2,3 mm., green, rimmed around lower margin and ventral side of lateral horns with yellow. Horns have a varying amount of brown on them and are straighter than those of previous instars. The dorsal horns are approximately 1,2 mm. long, while the lateral horns are about 0,6 mm. Length attained by the larva is 12 mm. Duration of instar normally 2-3 weeks.

4th instar larva: Body colouring and markings as in the third instar but some specimens have a well developed yellow somite bar. Headshield also similar, although generally the horns appear to have less brown on them. Diameter of headshield is about 3,3 mm., dorsal horns 2 mm., lateral horns 1,0 mm. Length attained by the larva approximately 20 mm. Duration of instar normally 2-3 weeks.

5th instar larva: Body short and stocky, green with fine creamy-yellow oblique lateral lines and two dorso-somitic yellowish-white spots running from the head to the penultimate segment. The body usually has a thin yellowish dorsal somite bar on the sixth segment. Lateral ridge yellow and anal processes short and square. The headshield is green, marginally bordered with yellowish-green and the diameter is about 4,9 mm.; horns short, the dorsal horns being only 2 mm. long while the lateral horns are 1,0 mm., usually tipped with reddish-brown. Length attained by the larva about 34 mm. Duration of instar normally 2-3 weeks.

PLATE 3 (facing page 214). Uppersides

1. *Charaxes jahlusa jahlusa* ♀ (Cape). 2. *Charaxes jahlusa* near *argynnides* ♀ (Natal). 3. *Charaxes jahlusa rex* ♀ — Allotype (Transvaal). 4. *Charaxes jahlusa argynnides* ♀ (Mozambique). 5. *Charaxes jahlusa argynnides* ♀ (Malawi). 6. *Charaxes jahlusa argynnides* ♀ (Zambia).



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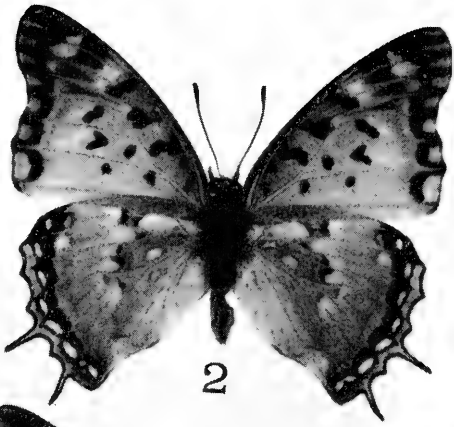

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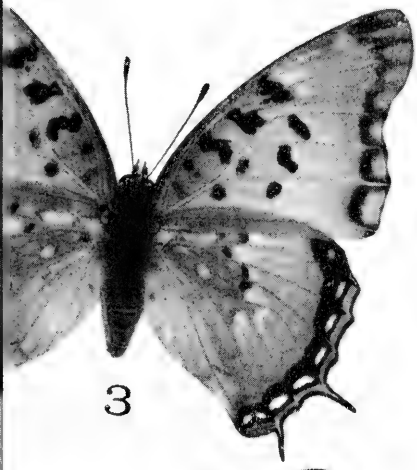

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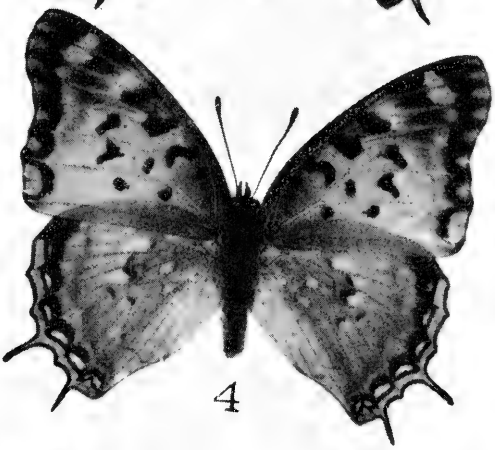

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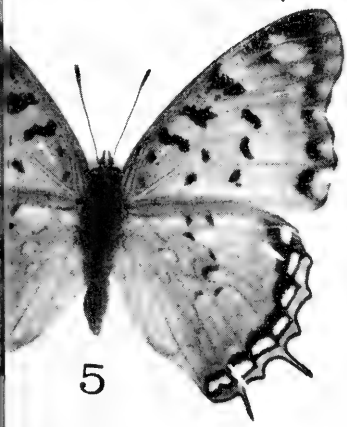

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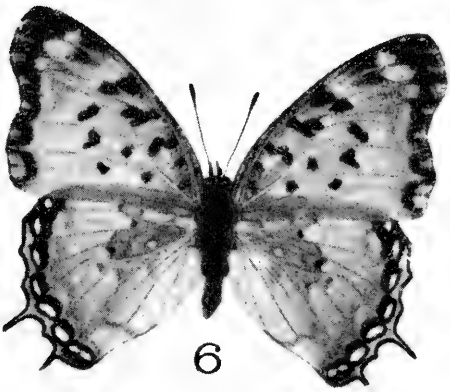

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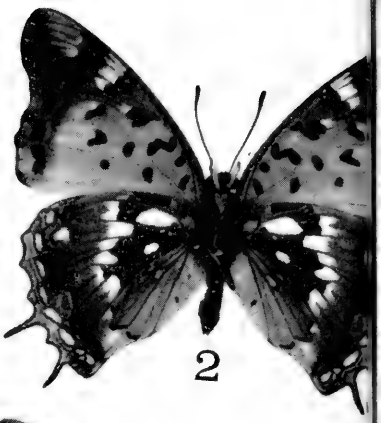

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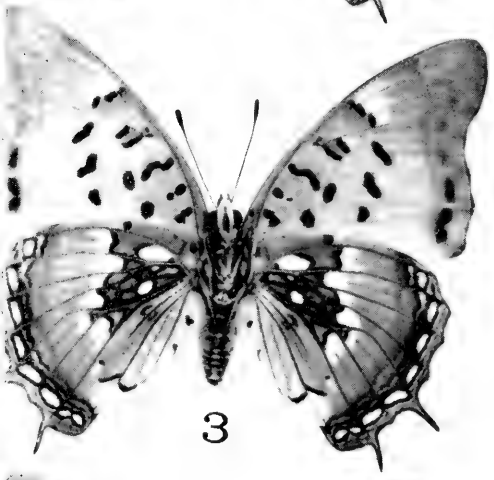

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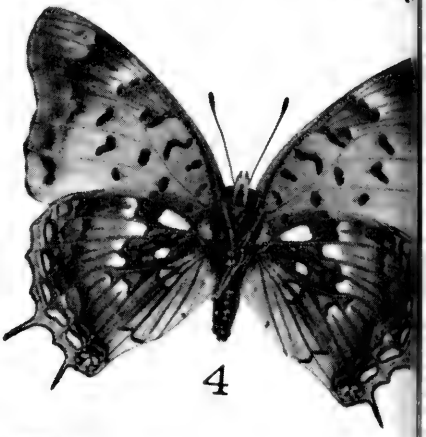

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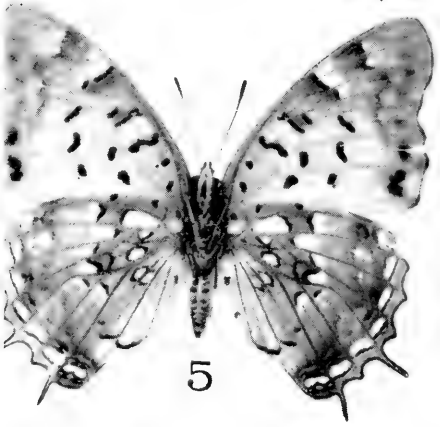

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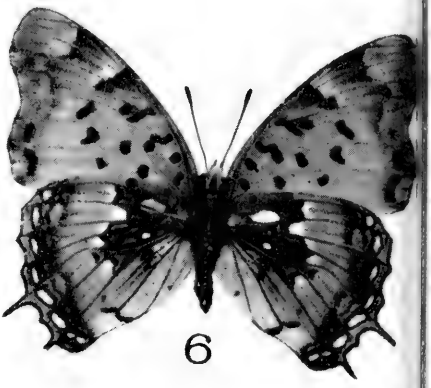

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Pupa: Pale green with creamy-white lines in a leaf-like pattern and fine creamy-white striations. It is more rounded than the usual *Charaxes* pupa. The spiracles are creamy-yellow. Length of pupa is usually about 17,5 mm. The pupal stage lasts about 3 weeks.

Habits of Adult

In the bushveld of the Transvaal *Charaxes jahlusa rex* can be found almost everywhere, with the males being particularly common on the tops of koppies where they establish territories from which they chase all intruders. They are also found coming to muddy places along streams or feeding at sucking-places in trees, or sometimes on monkey and cow-dung (Swanepoel, 1953).

The female is seldom seen and is most often found sucking at wounds in trees or around its foodplant.

Distribution

Charaxes jahlusa rex is found throughout the bushveld areas of the Transvaal, southern Rhodesia and western Botswana.

Acknowledgements

I wish to express my gratitude to my father W. H. Henning and my brother G. A. Henning for their active support and encouragement throughout the preparation of this paper; to Mr. I. Bampton for the provision of much information and material; to Mr. C. G. C. Dickson and Dr. L. Vári for reading the manuscript; and to Mrs. F. I. Martin for typing the manuscript.

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Note

Actual forewing length of specimen 3 in plates (photographs) 1 and 2 is 28.4 mm. from the middle of the thorax to the apex of the wing. Actual forewing length of specimen 3 in plates (photographs) 3 and 4 is 36.5 mm. from the middle of the thorax to the apex of the wing.

(*Photographs taken by Mr. J. Thompson*)

PLATE 4 (facing page 215). Undersides

1. *Charaxes jahlusa jahlusa* ♀ (Cape). 2. *Charaxes jahlusa* near *argynnides* ♀ (Natal). 3. *Charaxes jahlusa rex* ♀ — Allotype (Transvaal). 4. *Charaxes jahlusa argynnides* ♀ (Mozambique). 5. *Charaxes jahlusa argynnides* ♀ (Malawi). 6. *Charaxes jahlusa argynnides* ♀ (Zambia).

Macrolepidoptera in Rainham, South-West Essex

By Dr. GADEN S. ROBINSON*

Rainham is an eastward extension of the east London conurbation and juts into the green belt 4 km. north of the Thames. The northern half of Rainham comprises a housing estate of roughly rectangular shape with my garden half-way along the eastern edge of the rectangle. The northern boundary of the rectangle is an artificial lake, Berwick Pond. This lake was established in its present form at least as early as 1840 and probably for some time before then. It was probably the manor-house fish-pond. It is now heavily silted — but still heavily fished—and has extensive beds of *Phragmites* and *Typha* and a total area of about 50,000 m^2. At the western end of the pond lies Abbey Wood, a small (3 ha.), wet wood with some mature oak, willow and poplar. Abbey Wood separates Berwick Pond from the small area of water-meadow on the eastern bank of the Ingrebourne River. The south-eastern bank of Berwick Pond is less than 200 m. north of the site of the M.V. trap which I have operated in my garden since the beginning of 1976. North of the lake lies a large area of unrestored gravel-workings and there is arable farm-land to the east and south of the trap. There are some small woods about 2 km. east of the trap-site and Rainham Marshes are 3 km. to the south-west.

The records below are based on captures in the M.V. trap which is operated at weekends and on "good" nights during the week. They are also based on extensive collecting at sugar in Abbey Wood during 1976 and some collecting at a portable fluorescent light in Abbey Wood and at the western edge of Berwick Pond. Sugaring was enormously successful during 1976 when I established a "round" of eight fixed treacle-stripes on tree-trunks, replenishing the sugar two or three times a week through August and September. Results were spectacular with between five- and seven-hundred moths occupying the eight treacle-stripes each night. While the diversity of the species at sugar was low (most individuals were *Mythimna pallens*), species such as *Dypterygia scabriuscula* (L.), *Catocala nupta* (L.) and *Celaena leucostigma* (Hübner) were relatively abundant — the more surprising as they were of only occasional occurrence in the trap.

My notes to date record a total of 17 species of Rhopalocera and 191 species of Macroheterocera from Rainham. Complete records have been lodged with the Biological Records Centre. An up-to-date catalogue of the Macrolepidoptera of Essex has recently been published (Firmin *et alii*, 1975) and, despite the bizarre nomenclature used, this work provides a standard for the comparison of further observations. I have, therefore, included here only records or observations which may be complementary or contradictory to this work and I have omitted listing species which are already recorded in the "Essex list" as being common on Thames-side. My

* 21 Lakeside, Rainham, Essex.

records of Microlepidoptera from Rainham, among which the Tortricoidea and Tineidae (*sensu stricto*) are most strongly represented, are not recorded here as they will be included in the check-list of Essex Microlepidoptera now in preparation.

The most notable feature of the Macroheterocera of this locality is the strong representation of "good" marsh species originating from Berwick Pond.

GEOMETRIDAE

Xanthorhoe quadrifasciata (Clerck) — a single worn example in 1976. *Horisme tersata* (D. & S.) — single fresh example on 22.vii.1977. *Eupithecia intricata arceuthata* (Freyer) — not uncommon: several examples in 1976 and 1977. *Eupithecia venosata venosata* (F.) — single fresh specimen on 12.vi. 1977. *Eupithecia subumbrata* (D. & S.) — several in 1976: specimen retained dated 26.vi.1976. *Semiothisa alternaria* (Hübner) — single specimen on 3.vii.1976. *Semiothisa liturata* (Clerck)—a pair in 1976: not seen in 1977. *Aspitates ochrearia* (Rossi) — one or two in 1976, probably from the south.

NOTODONTIDAE

Ptilodontella cucullina (D. & S.) — single fresh specimen on 10.vii.1976.

ARCTIIDAE

Thumatha senex (Hübner) — a pair in late July 1977, one at Berwick Pond and one in the M.V. trap.

NOCTUIDAE

Spaelotis ravida (D. & S.) — about a dozen in 1976 and half that number in 1977. *Lacanobia suasa* (D. & S.) — three or four each year, including melanic specimens with obscured markings. *Hadena perplexa perplexa* (D. & S.) — single specimen on 15.vi.1976. *Mythimna straminea* (Treitschke) — first recorded on 16.vii.1977 and at least one more the following month. *Aporophyla lutulenta lutulenta* (D. & S.) — moderately common. *Amphipyra pyramidea pyramidea* (L.) — with the next species common at sugar at Abbey Wood: the two species about equally abundant in 1976. *Amphipyra berbera svenssoni* Fletcher — see *pyramidea. Mormo maura* (L.) — four or five at sugar at Abbey Wood in 1976. *Dypterygia scabriuscula* (L.) — fairly frequent at sugar at Abbey Wood, 1976: three or four at M.V., 1976 and 1977. *Apamea oblonga* (Haworth) — one on 11.viii.1977. *Apamea remissa* (Hübner) — a few at M.V., 1976 and 1977. *Apamea unanimis* (Hübner) — as *remissa* — uncommon. *Oligia versicolor* (Borkhausen) — one determined from ♂ genitalia in late July 1976 and another in 1977: apparently these are only the second and third Essex records. *Photedes pygmina* (Haworth) — scarce, one or two each year. *Celaena leucostigma* (Hübner) — common at sugar at Abbey Wood and occasionally taken at M.V. *Nonagria typhae* (Thunberg) — common at M.V. and in *Typha* stems

at Berwick Pond. *Archanara geminipuncta* (Haworth) — common at M.V. and at Berwick Pond. *Archanara dissoluta* (Treitschke) — one on 10.vii.1976. *Archanara sparganii* (Esper) — common at M.V. and at Berwick Pond. *Rhizedra lutosa* (Hübner) — common late in the year as *sparganii* finishes. *Arenostola phragmitidis* (Hübner) — uncommon: two or three each year at M.V. and at Berwick Pond. *Chilodes maritimus* (Tauscher) — not seen in 1976 but quite common at M.V. at the end of July 1977.

Acknowledgements

I am most grateful to my colleagues at the British Museum (Natural History), Mr. D. S. Fletcher and Mr. D. J. Carter, for their help with the determination of certain species and to Dr. K. Sattler for his advice during the preparation of the manuscript.

Reference

Firmin, J. *et alii*, 1975. *A guide to the butterflies and larger moths of Essex*. 152 pp., 4 pls., 1 map. Fingringhoe Wick.

Notes and Observations

THE USE OF THE ROTHAMSTED TRAP. — Having read Mr. Burton's note in the December issue of last year, in which he refers to the use of a Rothamsted type trap, we have been prompted into writing the following upon the use of such traps.

The survey was primarily designed in order to investigate the movements of immigrant moths, and those species of moth which could be damaging to crops. It is also claimed to be of value in conservation, as farmers would be able to be more selective in their spraying if the movements of harmful species were more accurately known. As such we have no quarrel with the survey's objective, although we are a little doubtful about its potential value to conservation. The traps use a 200W. tungsten bulb and all the insects entering are killed, a number of dubious arguments being advanced to justify this, namely (1) That trap operators do not have the time to identify the moths when they are alive, and that because some people cannot identify them at all, it is necessary to send away the catch for identification. (2) That "it has been shown" that it is almost impossible to wipe out any moth population by intensive trapping. (3) That the number killed is only a small proportion of that accounted for by cars. (4) That because a 200W. tungsten bulb is used, only a small sample of the local population is caught. (5) That some moths when released do not survive anyway.

Our contention is that not only is the killing of the whole catch unjustified, but also that it will prove damaging, although being collectors ourselves this is based on conservation, not moral, grounds. Firstly, it seems reasonable to suppose that anyone agreeing to operate one of these traps should have the knowledge, time and interest to count and identify for them-

selves the insects while they are alive. The fact that on a national basis the number killed is only a small proportion of that killed by cars is no justification. On a local level the number killed by a trap will be a much larger proportion but, more importantly, whereas cars kill on a random basis a trap is operated nightly in the same place. Such a trap is bound to exert a damaging effect on the surrounding population, especially if operated in a locality for a species of rare and local distribution. It is also a fallacy to assume that tungsten rather than mercury vapour light is more acceptable. Our own experiences both in the New Forest and here in the garden, have proved that even using a 60W. tungsten bulb very sizeable catches, including rarities, can be obtained. The fact that some moths don't survive when released is no justification for killing the lot!

It is stated that "it has been shown" that it is almost impossible to wipe out any moth population by intensive trapping, and that the catch will consist of species only in relation to their abundance. This is cold comfort when, having run a lamp here[1] for many years, many erstwhile quite common moths are nothing like as plentiful as they used to be. The local insect population is steadily being depleted by factors such as agriculture, reclamation of waste land, tree felling, building and caravan site promotion, and it is difficult to see why the regular killing of all catches throughout the flight period will not simply add to the toll.

In conclusion, it is hoped that this letter will persuade operators of Rothamsted traps that the wholesale killing of the catch is unnecessary and damaging. It is a pity that the Joint Committee for the Conservation of British Insects has shown so little determination in tackling this problem, even though their Code for Insect Collecting is quite specific about excluding the casual killing of catches in moth traps for subsequent examination. — D. C. N. Smith and Dr. F. H. N. Smith, "Turnstones", Perrancoombe, Perranporth, Cornwall, TR6 0HX.

Thera juniperata L. (Lep.: Geometridae) in the North. — Further to Mr. C. I. Rutherford's note concerning this species in 1974 (*Ent. Rec.*, **86**: 121), larvae have been found on Juniper purchased at a garden centre near here ("Plantland" on the A64 York Road outside Leeds) and the species is now established in the garden of Mr. A. Kelly of Red Hall, N.E. Leeds. He caught a number in his actinic trap and subsequently found the larvae. The plants involved have been traced back to a nursery at Green Hammerton, near Harrogate. Mr. Rutherford's supposition that the species has been introduced via garden planting would seem entirely correct, but the original source has yet to be established. — Dr. S. L. Sutton, Southlea, Gateland Lane, Shadwell, Leeds, LS17 8LN.

[1] Always ensuring that only those specimens required are killed, and that the remainder are carefully released out of harm's way.

CURIOUS COURTSHIP DISPLAY. — My wife and I saw a most extraordinary thing yesterday morning here in our garden — a courtship display between a male Small Tortoiseshell (*Aglais urticae* L.) and a female Peacock (*Inachis io* L.). My wife was so amazed that she called me out to see it. It was quite obviously not a fight over territory. Both in fact were crawling very close to each other with wings quivering, over a patch of aubretia, apparently trying to pair. My wife says they first confronted each other in a curious way, then the Tortoiseshell twice attempted to mount on the Peacock. This, however, I missed. The display must have lasted nearly 15 minutes. Has anything of this sort been noted before? Presumably the two species are not sufficiently near related for pairing to be possible. — J. P. SANKEY-BARKER, Plas Llangattock, Crickhowell, Breconshire, 18.iv.1978.

STIGMELLA TILIAE (FREY) IN ESSEX. — Prompted by Mr. P. J. Johnson's discovery in 1976 of a colony of *S. tiliae* astride the Cambridgeshire-Essex border at Bartlow (*Ent. Rec.*, **90**: 125), I looked for it in 1977 elsewhere in Essex and found five more localities, two in south Essex (VC18) and three in north Essex (VC19). In MBGBI (p. 245), I wrote that the species had a western distribution. It is now evident that my wrong opinion sprang from underrecording and microlepidopterists who search stands of *Tilia cordata* (small-leaved lime) in their areas will probably be able to establish new county records for the species. Mr. Johnson's colony was feeding solely on *T.* x *vulgaris* (common lime), a new foodplant for Britain; at one of the south Essex localities (Fryerning), it was also on common lime and at the other (Woodham Walter) it spilled over on to that tree from the usual foodplant.

Other leaf-miners of *T. cordata,* which are very sparsely recorded in the south-east but are present in two of the north Essex localities, are *Bucculatrix thoracella* (Thunberg) and *Roeslerstammia erxlebella* (Fabricius), the latter of which in its first instar makes a small blotch on the margin (often at the apex) of a leaf. Records for species such as these are urgently needed for forthcoming volumes of MBGBI. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 20.iv.1978.

THYMELICUS LINEOLA OCHS., NEMOPHORA FASCIELLA F., ETC., AT BLACKHEATH, 1977. — During my many years' residence in the above London suburb, *Thymelicus lineola* Ochs., the Essex Skipper, has been noted only once (in the garden about the early 1960s, clearly a stray), though abundant further east along the Thames marshes in suitable spots at least in the '50s. It was therefore a pleasant surprise, on a return visit last year (30.vii), to find *T. lineola* common in a small area — possibly also more widely — just inside a large rough fallow field very near my former house. The first one was seen (and caught for checking) on a broad grassy strip on the roadward side of the boundary-hedge, about which a *Celastrina argiolus* L. was flying.

In the area most favoured by the skippers was a large

patch of yarrow (*Achillea millefolium*) in flower, and here, on one of the heads, another unexpected sight greeted me in the shape of a fresh ♀ of the very local and beautiful longhorn moth *Nemophora fasciella* F. — a species never before seen, I believe, at Blackheath (certainly not by me), though I had taken it not very far away at Abbey Wood (1963, *Ent. Rec.*, **75**: 62); its foodplant, *Ballota nigra,* was close by. Some of the yarrow heads were tenanted by the Tortricoid *Dichrorampha gueneeana* Obr. (=*politana* auct.), which was fairly active in the warm sunshine. (I had previously found the rather similar *Chrysanthemum*-feeding *D. alpinana* Tr. in another part of the field, in evening flight about a mass of the large white garden daisies.) *Aglais urticae* L. in some plenty jostled the skippers for possession of the yarrow and thistle heads, together with numbers of *Maniola jurtina* L.; the former was extremely erratic in this district in 1977, and indeed has been so for many years. Single specimens of *Platyptilia pallidactyla* Haw. and *Sitochroa verticalis* L. were disturbed.

The recent appearance of *T. lineola* and *N. fasciella* at Blackheath would seem to indicate a westward movement on the part of both species in North Kent during the past six years or so, analogous perhaps to the more pronounced and less recent westward spread of the Geometrid *Idaea vulpinaria* H.-S. — A. A. Allen, 49 Montcalm Road, Charlton, London, SE7 8QG.

The Lead-coloured Drab (Orthosia populeti F.) in West Kent and East Sussex. — I have this year been collecting at Brokes Wood in Southborough, Kent, and there recorded three specimens of this moth. I have in the past recorded it from here (Wadhurst), and at Dallington, Sussex, but never in any numbers, and consider the species rather scarce in these parts. — A. E. C. Adams, Perrins Farm, Woods Green, Wadhurst, East Sussex, TN5 6QN, 16.iv.1978.

Observations upon Two Species of Spring Lepidoptera in Hailsham, nr. Eastbourne: Apocheima hispidaria D. & S. and Lycia hirtaria Clerck. — The latter species although not common, does occur in several localities in the area. Scattered individuals were taken in Abbot's Wood on 13th April, 1977 and quite a number were taken in the area of Friston, near Jevington. This species is not recorded in Adkin, *The Moths of Eastbourne* (1930), which covered an area of seven miles radius from the centre of the town.

The former species has only been recorded from Abbot's Wood, and there is reasonable justification for saying that it is no longer common in that locality. Only a single specimen has been taken in several years collecting, on 22nd February, 1977. More recently, however, a strong colony has been investigated at Bushy Wood, near Hailsham, and the following occurrences were noted in 1978: 28th February (3), 4th March (1) and 12th March (9). It was also recorded from Park Wood, near Hailsham on 6th March, 1978, when two more specimens were taken. — Mark Hadley, 7 Beverington Close, Eastbourne, E. Sussex, BN21 2SB. [It is perhaps worth noting that

in the Weald of Kent, *hirtaria* was apparently rare or absent from much of this area up until about 1950, when it appeared there in many country areas for the first time on record, and has been relatively numerous since. One suspects that perhaps a similar situation occurred in the adjacent area of East Sussex. — J.M.C.-H.]

LEIOPTILUS LIENIGIANUS (ZELL.) IN YORKSHIRE. — On going through some micros from a Rothamsted trap run in Harrogate in 1976, I came across one specimen of this rather local plume moth. According to Meyrick the moth is of southerly distribution — Kent to Devon and Norfolk, local. This record appears to show a more northerly extension of its range. A slide preparation was made of the genitalia confirming the identity. — E. S. BRADFORD, 6 Maple Court, Drayton Road, Borehamwood, Herts.

Current Literature

The Insects. (Readings from Scientific American) compiled by **T. Eisner** and **E. O. Wilson.** 344 pp., 6 colour plates + numerous illustrations. A4. W. H. Freeman & Co., 1977. £4.90 (limp) or £10.10 (hardback).

This volume is a collection of 35 papers, written between 1953 and 1976, reprinted from the journal *Scientific American*. The compilers have arranged the papers in five chapters, each prefaced by a short introduction and a very brief bibliography. The articles are well written, should be easily understood by the non-specialist, and are copiously illustrated with diagrams, charts, half-tones and colour plates. A number of distinguished entomologists have contributed papers, for example Paul Ehrlich on "Butterflies and Plants"; Sir Vincent Wigglesworth on "Metamorphosis and Development"; the late Prof. Hinton on "Insect Eggshells" and the Hon. Miriam Rothschild on "Fleas". Many other papers with intriguing titles, such as "Moths and Ultrasound", "The Energetics of the Bumblebee" and "The Biological Control of Dung", provide fascinating and informative reading.

The compilers describe the book as " . . . an anthology which develops the themes that insects are an ideal model for basic biological research and that fundamental biological questions may be answered through the study of insects . . . " and that the articles " . . . give in depth coverage to basic topics . . . " The former is a rather ambitious description of this entomological miscellany, and the latter is simply untrue. Each article gives a tantalising glimpse of a particular aspect of insects, but leaves one with the impression that the articles could have been much longer, without detracting from their "readability". Nevertheless, they provide interesting and enjoyable reading.

The presentation is in the style of the parent journal, and whilst some of the half-tone plates are rather poor, the standard of illustration is high. The text is arranged in three columns, and at today's prices the paperback version represents reasonable value for money. — PAUL SOKOLOFF.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting shoud bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted — Butterflies of Western Kenya. Parts 8-9 by H. F. Stoneham. — *L. McLeod,* Quartier des Ecoles, St. Pierre de Vassols, 84330, France.

Wanted — Oberthur's Etudes de Lepidopterologie Comparee. — *M. J. Percival,* Holmsdale Cottage, Mid-Holmwood, Dorking, Surrey. Dorking (0306) 6104.

For Sale — Large selection of tropical and British butterflies and moths surplus to requirements. — Further details from: *T. W. Harman,* Little Oaks, Church Lane, Westbere, Canterbury, Kent, CT2 0HA.

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AND JOURNAL OF VARIATION

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

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Arctornis l-nigrum (Müller, O.F., 1764) (Lep.: Lymantriidae): The Black V Moth — a Possible Occasional Resident Species in Britain

By A. J. Dewick*

Although there has been a number of references to this species in Britain over the years, for the purposes of this note it is proposed to deal purely with occurrences this century.

A single specimen appears to have occurred at Chelmsford in July 1904 (*Ent. Rec.*, **67**: 213) and a single male was taken at light at Arundel, Sussex, on July 7th, 1946, by Mr. G. Haggett.

On June 27th, 1947, I was astonished to find two males here in my own light-trap. On the 29th, there were two more, and these were followed by a single male specimen on each of the next two nights. The three best specimens were retained and one of these subsequently went to the late W. P. Seabrook. At the time, it was assumed that these were stray migrants from the Continent. Then, in 1948, another male occurred on June 26th and a second on July 30th.

These two further specimens naturally raised the question that the species might be breeding locally and it was considered only prudent to supress the fact of these occurrences while waiting to see if further specimens occurred here or elsewhere.

In 1949, two more males appeared, on July 12th and 14th. In 1950, yet another male occurred, this time on June 29th, followed by another on July 3rd, yet another on July 4th, two on the 5th, another on the 6th and three on the 7th. Since it now seemed reasonably certain that the species must be breeding locally, one felt that it was time to see if specimens could be found other than in the moth-trap.

The next night, therefore, the car headlights were trained on a row of elm trees and this did, in fact, attract a single male, while the moth-trap also produced a single male. On July 13th, two more males occurred in the trap, and the next night a single male appeared on one of the lighted windows of the farmhouse. The last specimen of the season occurred in the moth-trap on July 16th, and this turned out to be a female, the only one obtained so far.

Without much difficulty, this female was persuaded to lay, and the small caterpillars hibernated with very few casualties. In the light of subsequent events, this success in hibernating seemed curious, as two later attempts to repeat the performance were an almost unmitigated disaster. One can only assume that the first attempt was beginner's luck!

In 1951, three males occurred in the light-trap on July 9th, with another male on the 12th and another on the 15th. Meanwhile, specimens from the previous year's female had begun to hatch, the majority being released though a small series was retained. Two males were attracted to a bred female on the 14th and three more on the 15th, at places about a

* Curry Farm, Bradwell-on-Sea, Essex.

mile and four miles from the trap. Attempts to "assemble" at greater distances were unsuccessful but were strictly limited when it was found that after two nights females stopped "calling" and began to lay infertile eggs. Once this had occurred, they would not pair even if males were introduced. The light-trap produced two more males on the 16th, one on the 17th, one on the 19th and a final one for the year on the 23rd.

In 1952, the first two specimens, both males, occurred in the trap on June 26th; four more occurred on the 29th, two on July 1st and five on July 2nd.

On June 22nd, 1953, I noticed a larva, which I immediately recognised as that of *L. nigrum,* feeding on an elm hedge; this duly pupated and the resulting moth (a male) emerged on July 7th. The first male of the season in the light-trap appeared on the last day of June, followed by a single specimen on each of the next five nights, with two on July 6th and a final male on the 7th. On July 16th, another female was taken in the light-trap and this was the last of the species for that year.

In 1954, a male appeared on July 9th, two more singles on the 14th and 16th respectively, two on the 24th and a final one on the 25th.

In 1955, a male appeared on July 13th, another the next night, one more on the 20th and a final one for the year on the 30th. At this stage one began to think the colony was in decline, but on July 7th, 1956, four males occurred in the trap, with singles on the next three nights, one more on the 12th, another on the 14th, two on the 17th and two more on the 19th. Then, a female occurred on the 20th and a final male for the year on the 29th.

In 1957, the first specimen occurred on July 3rd, two on the 4th, one on the 5th, one on the 7th and one more on the 11th. In 1958, only a single male occurred in the trap, on July 2nd. This sudden decrease proved to have been a bad omen. In 1959, a male was taken on June 24th, followed by three the next night and a final one for the year on the 27th. In 1960, only two specimens occurred, both on July 5th. None has occurred here since.

It would, therefore, seem that the colony died out from natural causes, as no wild specimens had been killed except the three in the first year. Since 1946, none appears to have been reported from anywhere else in Britain.

I am not aware of any other record of the species occurring in an unbroken series of years anywhere else in the British Isles and it seems quite likely than an important factor in a colony being able to maintain itself is a dry climate; Bradwell-on-Sea being within a few miles of Great Wakering, which is apparently officially the driest place in Britain.

It is interesting to note that part of the period during which this colony existed, i.e. 1947-1951 inclusive, were the

years in which the Pale Clouded Yellow, *Colias hyale* L., also appeared to be temporarily established in this immediate vicinity, as it occurred annually in a spring and summer brood. It therefore seems likely that this butterfly can also survive the English climate for limited periods given dry enough conditions.

It may also be significant that the moth, *L. albipuncta* D. & S., also occurred with great regularity from 1949-1956 inclusive, again in two broods and, in some years, in considerable numbers, although since the latter date this species has been rare to the point of virtual non-existence.

It is probable that *L. nigrum* would be an extremely difficult species to locate except by the use of light, as there is reason to believe that the whole life-cycle may well be entirely in the tops of the tallest trees. The specimens that occurred in the light-trap were all removed and marked, to avoid any possibility of counting them twice, and, although these were all released into thick cover, any which did not settle down quietly always flew to the very top of the elm trees, where they appeared to settle. In this connection, it is significant that the only larva found wild was under the most active part of our rookery, which at least suggests that it might have been dislodged by the movement of the rooks.

The egg is in the form of a flat disc and pale green in colour and the larva emerges by eating a hole in the side. Although the normal form of the larva has yellowy-golden hairs, in a small proportion these are replaced by white. The moth when first hatched is a light green, but this soon fades and it appears always to have been described as a "white" moth. All my bred specimens had been fed on lime as larvae and the resulting moths were slightly larger than those occurring in the wild. It is likely that in this area at least the foodplant in the wild would be elm.

Owing to the insect's infrequent appearance in Britain, it is probable that the year in which this latest migration took place was, in fact, 1946, the year of Mr. Haggett's specimen at Arundel. At that time my trap was still in the development stage and there is no doubt it was nothing like as effective as in the following year, when the first six specimens were taken.

THE SCARCE PROMINENT (ODONTOSIA CARMELITA ESP.) AND OTHER SPECIES AT TROTTISCLIFFE, KENT. — On the evening of 6th May, 1978, two specimens of *O. carmelita* Esp. came to my m.v. trap operated in the wood area at Trottiscliffe. I don't know whether this is a new Kent locality for this moth, but I can find no record of it being taken there in Volume II of the *Lepidoptera of Kent.* Among the 21 moths of 13 species, were also four *Drymonia ruficornis* Hufn., one *Selenia tetralunaria* Hufn. and one *Trichopteryx carpinata* Bork. — DENNIS DEY, 9 Monmouth Close, Rainham, Gillingham, Kent ME8 7BQ.

Melanostoma dubium (Dipt.: Syrphidae) in Britain and a Key to the British Isles *Melanostoma* Species

By Dr. MARTIN C. D. SPEIGHT*

Verrall (1901) added *Melanostoma dubium* (Zett.) to the British lists on the basis of two females collected in the Scottish highlands by Col. Yerbury. But while he was evidently convinced that *M. dubium* (Zett.) was a valid species he was less certain of the British specimens, remarking that "until the male is found the species must remain dubious". The status of *M. dubium* in the British Isles does not seem to have been discussed since, but subsequent authors have all omitted *M. dubium* (Zett.) from the British lists. Some, as in Kloet and Hincks (1945, 1976), have gone as far as to give *M. dubium* (Zett.) as a synonym of *M. mellinum* (L.). Coe (1953) and Parmenter (1954) accredit Verrall with erecting a named variety of *M. mellinum, "M. mellinum* var. *dubium* Verr.", and do not mention *M. dubium* at all. If *"M. mellinum* var. *dubium* Verr." was mentioned in any publication prior to Coe (1953) I have failed to locate it — certainly Verrall mentions no "var. *dubium"* of *M. mellinum.*

So what is the status of *M. dubium* (Zett.) in the British Isles? In Verrall's (1901) text he says: "I only know British females and European males". Through the writings of Andersson (1970) and Kanervo (1938) the validity of *M. dubium* (Zett.) and its distinguishing characteristics, have been established. Comparing Verrall's descriptions of his *M. dubium* with *M. dubium* as described by these authors, it can be stated that Verrall's Scottish *M. dubium* females did belong to *M. dubium,* but that his "European males" did *not.* This latter point is of particular relevance, since it was due to differences between a *"M. dubium"* male from Austria and putative Scottish *M. dubium* males collected by Yerbury that Verrall concluded that the male of *M. dubium* (Zett.) had yet to be taken in the British Isles. Of his Austrian *"M. dubium"* male, Verrall (1901) says "beneath the front femora there are two yellow bristly hairs near the base, and behind there is a neat fringe of rather long black hairs ending in a long curled bristly hair as in *M. ambiguum*". It have not attempted to establish whether this Austrian male still exists, but it would seem to have been some species of *Platycheirus.* In any event, *M. dubium,* as now recognised, possesses in the male neither the basal "yellow bristly hairs" nor the apical "long curled bristly hair" alluded to by Verrall, in his description of this Austrian specimen. Neither have I located the putative males of *M. dubium* collected in Scotland by Yerbury, though Verrall's description of them as "obscurely marked, very dark legged, *M. mellinum"* would fit the real *M. dubium* male rather well.

Although the information provided by Verrall can now be seen to be in itself sufficient to establish that the real *M.*

* Research Branch, Forest and Wildlife Service, 2 Sidmonton Place, Bray, Co. Wicklow, Eire.

dubium (Zett.) does occur in the British Isles, there remains a need for a revised key to British Isles *Melanostoma* species. In particular, there is need for female *M. dubium* to be distinguished from melanic females of *M. mellinum,* since in Coe (1953) these two different taxa are combined in "*M. mellinum* var. *dubium* Ver.". I have attempted to provide such a revised key below. The characters used here to distinguish *M. dubium* are based on material of *M. dubium* collected by myself in Scotland, on material from the Verrall-Collin collection, and on features cited by Andersson (1970), Kanervo (1938) and Verrall (1901). Standing under *M. dubium* in the Verrall-Collin collection there are three separate groups of specimens. I have examined a male and a female from each group. The male and female from group 3 proved to be *M. dubium,* the other females *M. scalare* and the males *M. Mellinum* (gp. 1) and *M. dubium* (gp. 2).

Melanostoma ambiguum, sensu Coe (1935), is omitted from the key here, because Andersson (1970) has demonstrated that *M. ambiguum* is a species of *Platycheirus.* As to other European *Melanostoma,* Goeldlin (1976) has showns that *M. cingulatum* Egg. is a species of *Meligramma* and Seguy (1961) suggests that *M. pumicatum* (Mg.) is a melanic form of *M. mellinum,* though it should perhaps be noted that from Meigen's illustration of *M. pumicatum* (see Morge, 1976) it looks more like a melanic female of *M. scalare* (Fab.). This leaves *M. dubium, M. mellinum* and *M. scalare* as the only *Melanostoma* species known in Europe at present.

Key to British Isles Melanostoma species

1. ♂♂ 2
   —♀♀ 4
2. Second visible sternite twice as long as wide ..... *scalare* (Fab.)
   — second visible sternite at most one and a half times as long as wide 3
3. Tergites almost entirely white-haired, except for a few black hairs along rim of t.4; t.2 often unmarked; t.3 and t.4 with vague yellowish/greyish markings, frequently greatly obscured by the heavy grey dusting; third antennal segment nearly always all black ..... *dubium* (Zett.)
   — tergites extensively black-haired, black hairs present at least along black mid-line of all tergites and in a broad apical band across entire width of t.4; t.2 with a pair of yellowish spots (sometimes much reduced, but seemingly always discernible); t.3 and t.4 with distinct, well-defined yellowish or greenish markings, without a thick overlay of grey dusting; third antennal segment nearly always partly yellow beneath ..... *mellinum* (L.)
4. Tergites unmarked, black 5
   — tergites with yellowish markings 9
5. Humeri hairy ..... *Cheilosia* etc. (Cheilosini)
   — humeri bare 6

6. Metasternum making post-coxal bridge behind meso-coxae (see fig. 1A) ..... melanic *Platycheirus* spp.
— metasternum confined to mid-ventral area, not extending laterally to make a post-coxal bridge (see fig. 1B) 7
7. Frontal dust-spots very small, deeper than wide, reaching furthest across frons at their upper ends, where about three-quarters of width of frons remains quite undusted, shining black ..... *mellinum* (L.)
— frontal dust-spots larger, as wide as deep or wider than deep, reaching furthest across frons slightly above their mid-point, where at most only about half of width of frons remains undusted, shining black 8
8. Third antennal segment about twice as long as deep; abdomen (from tip of t.1 to tip of t.5) usually longer than head + thorax (from central prominence to tip of scutellum); antennal segments 1-2 usually largely yellow; antennal segment 3 usually yellow below ..... *scalare* (Fab.)
— third antennal segment less than one and a half times as long as deep; abdomen (from tip of t.1 to tip of t.5) shorter than head + thorax (from central prominence to tip of scutellum); antennal segments 1-2 all-black; antennal segment 3 usually all-black ..... *dubium* (Zett.)
9. Arista with short hairs for entire length; frontal dust-spots occupying more than half the width of the frons at their maximum extent ..... *scalare* (Fab.)
— arista bare on basal quarter; frontal dust-spots occupying no more than a quarter of the width of the frons at their maximum extent ..... *mellinum* (L.)

In the British Isles both *M. mellinum* and *M. scalare* are polyvoltine and well-nigh ubiquitous. As Coe (1953) points out, both species exhibit a confusing range of variation in abdominal shape, particularly in the females. Both species are also rather variable in size, though *M. scalare* is generally the larger of the two. Most of the characters used to distinguish these species are in fact rather variable, the third antennal segment sometimes being uncharacteristically short and or all-black in *M. mellinum*, for instance. Leg colour varies extensively, thus while *M. scalare* usually has predominantly yellow femora, specimens occur in which all the femora are nearly entirely black. A further complication is that the male genitalia of all three *Melanostoma* species appear to be virtually identical. In the face of these difficulties I doubt that the key provided here will always work — certainly it would be useful if an improved version could at some time be produced. However, the key does work with all the material at my disposal and in particular I believe it will serve to distinguish *M. dubium* from the other two species, including melanic specimens. In my experience, melanic *Melanostoma* specimens are always female, or intersexes.

Assuming the interpretation of *M. dubium* followed here is correct, then Coe's (1953) "*M. mellinum* v. *dubium* Verrall"

is a hybrid concept, embracing at least melanic *M. mellinum* females and typical *M. dubium* females. Indeed, as defined by Coe, "*M. mellinum* v. *dubium*" would also include melanic females of *M. scalare* (which do occur), males of *M. dubium* and some males of *M. mellinum,* perhaps. Since "v. *dubium*" was apparently wrongly accredited to Verrall anyway (I do not know whether Coe was the first author to use this term) and *M. dubium* has been re-established as a distinct species, the term "*M. mellinum* v. *dubium* Verrall" is now totally meaningless. Luckily, in case there was ever a need to ascribe varietal status to melanic females of *M. mellinum,* a more appropriate alternative to Coe's (1953) "*M. mellinum* v. *dubium* Verrall" is available, in v. *melanatus* Kan., defined by Kanervo (1938).

Melanostoma dubium (Zett.)

To the characters used in the key could be added the following features, to help characterise the species (though most of them are shared with either *M. mellinum* or *M. scalare*):

♂: third antennal segment less than one and a half times as long as deep; frons dusted above lunule, but somewhat shining; face wider than maximum width of an eye, mesonotal hairs uneven in length, in length up to as long as hairs on frons; pleura entirely, but lightly, dusted greyish, except for hypopleura, which are undusted and brightly shining; all femora black at base; fore and mid femora with a posterior fringe of very dark, grey hairs.

♀: face thinly grey-dusted all over, except for actual central prominence; frontal dust-spots frequently extending inwards to make a complete, narrow, band of dusting across frons; sides of mesonotum thinly dusted greyish; pleura thinly dusted greyish, except often the mesopleura, which can have an undusted strip; hind femora usually black at base; abdomen entirely whitish-haired.

Verrall (1901) records *M. dubium* as collected at 3,000 ft. on "Grey Fell" in Perthshire (Scotland). To this record I can add the following: ♂♀ 11th June 1934, Pen-y-ghent, Yorkshire, J. E. Collin. ♂♂ ♀♀ 4th July 1962, at 2,500 ft. on Beinn a'Chuallaich, Rannoch, Perth, MS. ♀♀ 3rd July 1962, at 1,500 ft. on Schiehallion, Rannoch, Perth, MS. ♀ 7th July 1962, Black Wood, towards Camhouran, Rannoch, Perth, MS.

The Yerbury specimens recorded by Verrall were caught in June at flowers of *Rubus chamaemorus,* while I found the species at flowers of *Potentilla erecta.* On Schiehallion, *M. dubium* occurred alongside one of the burns (Tempar burn) in boggy moorland. Boggy moorland was again the habitat at the other two localities, though the Black Wood specimen was found at a much lower altitude, just above the shore of L. Rannoch. One can only guess that *M. dubium* is more widely distributed in the British Isles than the above records suggest, but the Irish specimens of *"M. mellinum* v. *dubium"* referred to in Speight *et al* (1975) are all melanic females of *M. mellinum. M. dubium* would appear to be a univoltine, montane species. Its larvae are undescribed.

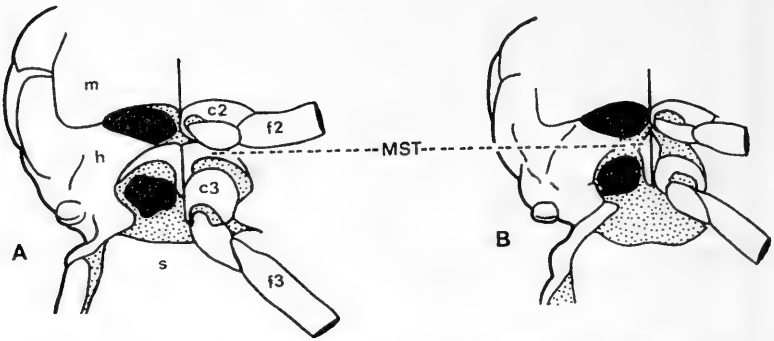

FIGURE 1: Thorax, underside of pterothoracic region in (A) *Platycheirus albimanus* ♀, (B) *Melanostoma scalare* ♀, showing the metasternal bridge characterising *Platycheirus* species, but absent in *Melanostoma* species.
c2=coxa of mid leg; c3=coxa of hind leg; f2=femur of mid leg; f3=femur of hind leg; h=hypopleuron; m=mesopleuron; MST=metasternum; s=first visible abdominal sternite.
The legs have been removed on the right side of each specimen, leaving the coxal cavities, shown in black. On the left side of each specimen the leg bases are intact, but the femora have been cut off part-way along their length. The outside edge of the thorax and base of the abdomen is only shown on the right side of each specimen (right side of each specimen=left side of each diagram, since specimens are shown inverted).

Acknowledgements

I am grateful to John Ismay for arranging for me a loan of material from the Verrall-Collin collection, housed in the Hope Department at Oxford.

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The Moths of Wimbledon: Further Records 1971-1977

By J. V. Dacie, M.D.*

In 1962 and 1971, I recorded in the *Entomologist's Record* (**74**: 109; **83**: 204) a list of the species of moths (macrolepidoptera) which I had taken in Wimbledon since 1956, when I first started running a mercury vapour trap in my garden near the top of Wimbledon Hill, about half a mile from Wimbledon Common. The total number of species listed was 332. Three hundred had been taken between 1956 and 1961 and 32 between 1962 and 1970. I can now add an additional 18 species to the list, all but one trapped in my garden.

NOTODONTIDAE: 1 species

Harpyia furcula Clerck, 1 only, 5.8.71.

LYMANTRIIDAE: 1 species

Euproctis chrysorrhoea L., 1 on 2.8.75; 1 on 22.7.77.

ARCTIIDAE: 1 species

Thumatha senex Hübn., 1 only, 7.7.77.

NOCTUIDAE: 9 species

Polia hepatica Clerck, 1 only, 26.6.73. *Mythimna straminea* Treits., 1 only, 21.8.77. *Chilodes maritimus* Tausch., 1 1 on 25.7.74; 1 on 30.7.77. *Cidaria fulvata* Forst., 1 only, 28.10.77. *Eupsilia transversa* Hufn., 3 between 3.10.76 and 17.10.76. *Nycteola revayana* Scop., 1 on 19.8.76, 29.7.77 and 6.8.77.

GEOMETRIDAE: 9 species

Idaea vulpinaria atrosignaria Lempke, 1 on 28.7.75 and 2.8.75; 6 between 23.7.77 and 7.8.77. *Idaea dimidiata* Hufn., 1 on 25.7.74; 1 on 30.7.77. *Cidaria fulvata* Forst., 1 only, 24.6.71. *Perizoma bifaciata* Haw., 1 only, 30.8.77. *Eupithecia tenuiata* Hübn., 1 only, 12.7.76. *Eupithecia satyrata* Hübn., 1 only, 29.7.74. *Eupithecia phoeniceata* Ramb., 1 only, 15.9.77. *Eupithecia tantillaria* Boisd., 1 only, 12.6.77. *Chloroclystis chloerata* Mabille, 5 bred from larvae.

In my 1971 report I referred to the lists published by de Worms (1953-57) and that compiled by Mr. L. J. M. Wakely from the records of his father, Sir Leonard Wakely, who had collected on Wimbledon Common between 1910 and 1959. Of the 18 "new" species, six are recorded by de Worms as having been taken in Wimbledon or on Wimbledon Common and three were caught by Sir Leonard Wakely. Eleven of the species do not appear in either list. Perhaps the most interesting of these are *E. chrysorrhoea, M. straminea, C. maritimus, L. leautieri, Idaea vulpinaria, E. phoeniceata* and *C. chloerata.* The two wainscots are presumably vagrants for it is difficult to believe they can be breeding locally. However, the capture of single specimens of *L. leautieri* and *E. phoeniceata,* both in 1977, presumably reflects their eastward and inland spread as breeding species, and the appearance of *I. vulpinaria* in 1975, and more strongly in 1977, indicates how it is spreading westwards from Kent. According to Evans and Evans (1973),

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this species was first noticed south of London in 1961. As for *C. chloerata,* several larvae were obtained within a few minutes by beating blackthorn in flower on Wimbledon Common in April 1974. It is presumably well established there amongst the scanty blackthorn bushes.

It is interesting to speculate as to how many of the 350 species of moths caught between 1956 and 1977 still reside in the Wimbledon area. Some caught in the 1950s and 1960s have not been seen for many years. But they may still survive and I was encouraged to find a specimen of *Acronicta alni* L. in my trap on 2.6.76, after a lapse of 20 years, my only other record being one caught on 28.5.56. *T. senex* is another interesting survivor; it found its way into my garden in July 1977. It is not on Sir Leonard Wakely's list but de Worms gives a record for it — on Wimbledon Common in 1889!

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ARCHINEMAPOGON LATERELLA (THUNBERG): ARCTUATELLA (STAINTON) (LEP.: TINEIDAE) IN INVERNESS-SHIRE. — Mark Stirling and I, whilst recording Lepidoptera for the Nature Conservancy on the banks of Loch an Eilein, Aviemore, caught a specimen of *A. laterella* flying around birch on 5th July, 1977. I understand that this moth has only been caught infrequently in recent years. — H. C. J. GODFRAY, St. Peter's College, Oxford OX1 2DL.

HARMONIA QUADRIPUNCTATA (PONT.) IN KENT. — Whilst beating Spruce in Andrew's Wood, N.W. Kent on 28th April, 1978, a large and unfamiliar Ladybird fell into the tray, which I subsequently determined as *Harmonia quadripunctata* (Pont.). There appears to be no previous published record of this beetle for Kent. The species was first added to the British list in 1941 on a specimen taken during 1939 in Suffolk. Since then, it has colonised a number of southern counties, especially Suffolk, Norfolk and Essex. The beetle is mainly associated with conifers, but has been recorded from apple orchards abroad. My thanks to A. A. Allen and R. D. Pope for their useful observation on this beetle. — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

Memories

By A. H. Dobson*

In my tender years I developed a passion for philately and entomology, and indeed these two hobbies had for me much in common. The thrill of discovering a stamp or moth scarcer or even rarer than the rest spurred me on to greater efforts. I used to browse lovingly through my small collections, examining the "mint" or "used", "perforated" or "imperforated" specimens and planning how to improve the collections. Alas, stamps had to be purchased and I could foresee a never ending increase in their numbers, whereas there was a ceiling to be reached in the number of insect species. The moths and other insects could be obtained by using up my boundless free energy cycling in my home county Devon, and when I grew older I could travel further afield. Before long I realised, when looking at my two collections, that insects conjured up memories of sunny days in the meadows and lanes, on the heaths and moors, and scrambling up and down cliffs, sallowing or searching ivy blossom at night, whereas stamps only conjured up memories of approval books, stamp shops or the faces of my peers who "swopped" stamps. So I sold my small stamp collection for a pitiful amount compared to the money spent on acquiring those one and a half thousand stamps.

As I grew older I became a devotee of the moths, loving them all, commoners or rarities. Later, collecting took second place to studying their habits, habitats and distribution. I felt I was adding to scientific knowledge and my very portable collection became a most useful aid in illustrating my talks on moths and conservation to groups of children or adults. Some of the specimens have faded a little because of this, and also through my frequent browsing, rekindling many memories: in East Africa with rifle in one hand and pill box in the other, and encounters with leopards, monkeys and snakes; in Austria when I nearly pinned myself dead on to some rocks on a mountain slope; in Devon, when crawling on my hands and knees in wet woodland, I found for the first time in the wild, ova and larvae of *Lampropteryx otregiata* Metcalfe on *Galium palustre* L., and one night in Exeter, of a police constable cycling around a corner when I slid down a lamp-post; and in Sussex, when a "black maria" with three policemen went out to investigate a burglar's torch light in a hedgerow near some large houses, only to find me searching ivy blossom for moths.

I have recently experienced a few unforgettable events, which I will never forget when I look at the specimens concerned. Firstly, I will start with this second generation specimen of *Hada nana* Hufn., Butser Hill, Hants., 16.viii.1976. That was the first nightly visit of my moth population survey of a Butser Hill spur for Peter Reynolds, Director of the

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Ancient Iron Age Farm Project. The spur is being conserved to regenerate the chalk downland flora and fauna, and is closed to the public at present. It was a very warm evening of that memorable hot, dry summer. Every moth was in flight and they were fluttering in large numbers around the portable actinic trap. I was all alone except for interested rabbits which took fright when I suddenly pursued a moth across the dead turf, whilst in the distance a fox could be heard barking. When finished, I staggered back in the dark with all my equipment to the car park. After losing my way twice on the downland, I eventually found "Daffodil" my yellow car all by herself in the grassy car park. I switched on the side lights, and on opening the boot heard a roaring sound and saw two low round dazzling lights which temporarily blinded me. Their owner looked like a mini, whose two doors swung open in unison when two policemen jumped out and strode towards me. There was a string of questions, checking my identity and my strange habits. After a short discourse and a practical demonstration with the trap, they were satisfied. I was advised not to leave Daffodil there again for I might find her tyreless on my return, a fate which happened commonly to cars left there. Whilst I had been mothing, the police had obtained ownership details from the registration number, and had feared the car had been stolen and abandoned, or the owner had incurred an accident on the steep slopes. On subsequent visits, the car has been hidden well out of sight elsewhere. *Spaelotis ravida* Schiff., Butser, Hants., 11.viii.1977, brings back pleasant memories. After arriving late and hurrying up the 1 in 3 slope, I felt exhausted. I assembled the trap and when it was operating, I walked over the brow to find two ridge tents silhouetted in the gathering darkness. I could hear singing in the distance. I found a camp fire surrounded by the project staff and a party of Belgian girl guides who had been assisting in conservation work. A hot tasty onion soup made by the girls and a glass of lager around a glowing camp fire with the girls singing French songs accompanied by guitars, was a warming experience on this usually silent hill with its forgotten memories of hearth fires in Iron Age huts. When revived, I took the deputy director around the spur, and caught, named and released moths. When we arrived at the trap, I found the *S. ravida* at rest on the casing. Chalk downland is an unusual habitat for this species; it must have flown up from the not so far distant damper clay lowland.

There is no stamp that can excel the beauty of a mint *Catocala promissa* Schiff., Parkhill, New Forest, bred larva, 3.viii.1977. As I look at that specimen, I recall aching arms. Michael Britton came down for the last weekend of May to stay with us. On 28th May, he was beating all afternoon in the New Forest for *C. promissa* or *sponsa* larvae. In the evening we both decided to go into the Forest. In the garage I had a long bamboo carpet cane which I had kept in case I found a use for it. It would be ideal for reaching higher

branches of oak, so I cut it to the length of Daffodil, my Ford Escort car, and tied it to the nearside handles and off we went. We were beating for hours, jarring the low and high branches of oak trees with the long cane and the resulting larvae falling on to the sheet. The larvae were *Quercusia quercus* L., common; *Lymantria monacha* L., common; *Nola strigula* D. & S., one; *Polyploca ridens* Fab., four; *Poecilocampa populi* L., one; *Dichonia aprilina* L., five; *Brachionycha sphinx* Hufn., two; *Orthosia miniosa* D. & S., five, and other commoner species of that genus, plentiful; *Cosmia trapezina* L., five; *Apocheima pilosaria* D. & S., common; and many other common Geometers, but no *C. promissa* or *sponsa*! We then used our beating trays and wandered from the main ride. Along one ride I found a solitary oak; I jarred the lower branches. I noticed geometer larvae suspended on their threads hanging from the branches. I remember thinking that I had not jarred the branches hard enough; my arms were tiring. So I jarred them harder and plop, a full grown larva of *C. promissa* dropped on to the tray. In the torch light, it looked like a plump straight twig covered with grey and green lichen. At home in one of my puparia, it started to spin a flimsy cocoon on the surface of the damp earth. A lazy *A. pilosaria* larva in the same puparium crawled into the cocoon and wriggled violently until the *promissa* larva was forced to move out. I hurriedly removed the commoner, but the *promissa* would not go back, but on the 17th June it pupated. I witnessed the imago emerge on 3rd July, and gave a sigh of relief when its wings were fully expanded and dry. To obtain that larva had involved a total of 36 larvae beating hours.

When I look at this specimen of *Chlorissa viridata* L., obtained on 4.vii.1977, I shudder when I think that both the moth and I could have been crushed to death. Before I set out that evening for a nearby marsh, my wife jokingly said, "Take care, I don't want you in Romsey Hospital with broken bones and stitches." To reach the marsh I had to cross a common a few miles from here, which I had not visited for some time. I walked along the public footpath across the common, occasionally putting down my light trap equipment to secure a moth and check its identity. I was pleasantly surprised to a find a number of *C. viridata* in flight at dusk. I kept one specimen in a pill box in my jacket pocket. A few minutes later I noticed a herd of cattle, friesian cows and calves, roaming on the grassier south-eastern end of the common. They looked a little uneasy as I walked along the path towards them. Then they looked north-eastwards, and across the grass and heather came bounding a sleek red steer with long horns. He rounded up the hareem in a most bull-like manner and then stood between me and the two hundred yards of path I had to traverse. The cows looked at me amusingly as if thinking "What will he do?" In the dim light of dusk I tried to pick out the glint of a ring through his nose, but there was none. I remembered my wife's warning.

I tried staring him out. I quickly glanced to the left and saw a two-strand barbed wire fence about fifteen yards to the left. I gradually moved one step at a time, glowering at him, and he at me! He pawed his right hoof and lowered his head and started to advance. I suddenly sprinted the remaining distance, dumped my equipment and rolled under the lower strand, and dragged my equipment under that life-saving barbed wire. He charged only halfway; he knew that fence and he looked quite disappointed. I felt most relieved. I made my way across the thick heather to the marsh, safely behind the fence. It was a warm beautiful night, squelching amongst the reeds, sedges and damp vegetation. *Thumatha senex* Hübn., *Eustrotia uncula* Clerck, *Macrochilo cribumalis* Hübn., *Scopula immutata* L. and many *Hepialus hecta* L. were in flight. The actinic trap by a large pond was bombarded by *Mythimna obsoleta* Hübn., with a few *Chlorissa viridata* L. Altogether a total of 37 species and 84 specimens put in an appearance at the trap. When I returned stealthily and nervously across the common in the early hours, the cattle were sound asleep dreaming of an entomologist in full flight chased by their hero!

And now the last moth, *Hemaris fuciformis* L., caught on 1st August, 1977. This was possibly a second brood specimen. I took my two daughters with me over the border into Wiltshire. We were ambling at 11 o'clock along a footpath near Whiteparish, with a large clearing on our left and a plantation of spruce on our right, when I suddenly heard a frantic fluttering amongst the lower branches of a spruce tree. I thought it was a small bird trying to escape, and drew my daughters' attention to it, when suddenly it revealed itself as a Purple Emperor butterfly, *Apatura iris* L. It flew out as if fired by a catapult, circled around us twice and then climbed rapidly and flew out of sight over a nearby oak tree. This aroused me to be more aware of sudden insect appearances. We walked up a path through the clearing when one of the girls exclaimed "Look"! I saw a bumblebee-like insect buzzing at the face of one of the girls, and then to the other. "Bee-hawk" flashed through my brain, and as it swung around to look at me, I netted it in one sweep. Later that day I put down an exceptionally "high" meat bone to see if I could tempt *A. iris* down on to the path near where we saw it. The next morning being a beautiful summer's day, we went back to look. The bone had completely disappeared; a fox had left its trademark! Our efforts were not necessary, as at 11 o'clock one fluttered and hovered over a small white feather on the path, and we were able to have a closer look at it, but we saw no Bee-hawks.

I am glad I gave up philately and followed entomology, an interesting, healthy and adventurous pastime.

Lepidoptera of Aberdeenshire and Kincardineshire

By Dr. P. D. Hulme[1], R. M. Palmer[2] and Dr. M. R. Young[3]

Appendix to Part 3 (Micropterigoidea to Tortricoidea)

Records included in this appendix cover the years 1976-77. The main list contains records of 59 species not previously recorded in any of Vice-counties 91-93. 20 species recorded on old lists (*Ent. Rec.*, **88**: 121) have been rediscovered and these are also included with the old data. Some errors in the original list (*Ent. Rec.*, **88**: 121-6, 196-203, 286-93) have been corrected, including the removal of one species which had been mis-identified. Hence the total number of recently recorded species is increased to 371 and the number of unconfirmed old records reduced to 50. After the main list is a secondary list of new Vice-county records of species for which incomplete data were given previously. In order to distinguish between the two Aberdeenshire Vice-counties, localities in V.C.93 are marked with an asterisk.

All records are those of the authors, unless otherwise stated.

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1. Recently discovered and rediscovered species.

Eriocrania haworthi Bradley
Common among birch (Reid, 1893).
A. Skene.

Stigmella aucupariae Frey
Mines on *Sorbus aucuparia.*
A. Aberdeen, Bucksburn.
K. Br. of Bogendreep (E.C.P.-C., R.M.P.).

S. alnetella Staint.
K. Br. of Bogendreep (E.C.P.-C., R.M.P.).

S. crataegella Klimesch
Mines on *Crataegus.*
A. Aberdeen.
K. Banchory.

S. anomalella Goeze
A. Udny, Monymusk and *Fyvie, mines on wild rose.

S. obliquella Hein.
K. Banchory, mine on willow.

S. myrtillella Staint.
K. Trachan, mine on *Vaccinium myrtillus* (E.C.P.-C.).

S. tityrella Staint.
A. Echt, mines on *Fagus.*

S. plagicolella Staint.
A. *Gight woods, mines on *Prunus spinosa.*

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S. microtheriella Staint.
A. Aberdeen, mines on *Ostrya carpinifolia*; *Fyvie and Monymusk, mines on Hazel.
S. marginicolella Staint.
Not uncommon (Reid, 1893).
A. Udny, Aberdeen and *Pitmedden, mines on *Ulmus.*
Ectoedemia atricollis Staint.
A. Aberdeen, mines on *Crataegus.*
Lampronia rubiella Bjerk.
Among wild raspberry (Reid, 1893).
A. Fintray and Dyce.
Adela fibulella D. & S.
Abundant (Reid, 1893).
A. & K. Not uncommon at Veronica flowers.
Nemapogon cloacella Han.
A. & K. Quite common.
Tinea pellionella L.
Common in outhouses (Reid, 1893).
A. Udny, one.
Lyonetia clerkella L.
A. Aberdeen and *Ellon, bred from mines on *Betula pubescens, Sorbus aucuparia* and *Malus.*
Parornix loganella Staint.
A. Ballater and Drum Castle woods.
P. anglicella Staint.
A. Aberdeen, larva on *Crataegus.*
Phyllonorycter oxyacanthae Frey
A. Aberdeen, *Ellon and *Pitmedden, mines on *Crataegus.*
P. spinolella Dup.
Scarce (Reid, 1893).
A. Aberdeen and Drum Castle woods. Bred ex mines on *Salix,* Bucksburn and Monymusk.
K. Bred ex *S. caprea,* Banchory.
P. scopariella Zell.
A. Aberdeen, bred from Broom.
P. coryli Nicelli
A. nr. Monymusk, upperside mines on Hazel.
P. froelichiella Zeller
A. nr. Monymusk, mines on *Alnus.*
P. nicellii Staint.
A. *Fyvie and nr. Monymusk, bred from underside mines on Hazel.
P. kleemannella F.
A. *Gight woods, mines on *Alnus.*
P. trifasciella Haw.
A. Kingswells.
Glyphipterix haworthana Steph.
A. Bred from cotton grass head, Morrone Hill N.N.R. (D.E.).
Argyresthia sorbiella Treits.
A. Kemnay, one, 1975.

A. mendica Haw.
A. *Fyvie.
A. semifusca Haw.
A. *Fyvie.
Swammerdamia pyrella Vill.
K. Bred ex *Prunus padus,* Br. of Bogendreep.
[Delete *Paraswammerdamia spiniella* Hb. — this species was recorded in error; referable to *S. compunctella* H.-S.]
Ocnerostoma friesei Svensson
A. Ballater.
Prays fraxinella Bjerk.
A. *New Deer, Rothamsted trap, one, 1977.
K. Stonehaven (Dalglish, 1894).
Rhigognostis annulatella Curt.
A. Not uncommon, Aberdeen (Reid, 1893); Bullers of Buchan (E.C.P.-C., K.B.); Nigg Bay.
K. Cove, Muchalls.
Coleophora frischella L.
A. *Ellon, bred from cases on *Centaurea nigra.*
C. laricella Hb.
A. & K. Widespread among larch (W.P.).
C. lixella Zell.
K. St. Cyrus N.N.R.
C. discordella Zell.
A. *Cruden Bay.
K. St. Cyrus N.N.R.
C. striatipennella Tengs.
K. St. Cyrus N.N.R.
C. murinipennella Dup.
A. Braemar (Cruttwell, 1907); Wartle Moss.
Elachista luticomella Zell.
A. Udny.
E. apicipunctella Staint.
A. Kingswells.
Cosmiotes freyerella Hb.
A. Udny.
Depressaria pulcherrimella Staint.
A. Inver.
Agonopterix alstroemeriana Cl.
A. Scarce, Aberdeen (Reid, 1893).
K. Cove.
A. angelicella Hb.
K. Banchory, Rothamsted trap, one, 1976.
Metzneria lappella L.
K. St. Cyrus N.N.R.
Eulamprotes wilkella L.
K. St. Cyrus N.N.R.
Teleiopsis diffinis Haw.
K. Muchalls, one.
Bryotropha desertella Dougl.
K. St. Cyrus N.N.R.

Scrobipalpa costella H. & W.
K. St. Cyrus N.N.R.
Caryocolum marmoreum Haw.
A. Near Aberdeen (Reid, 1893); Balmedie.
Syncopacma sangiella Staint.
A. Not uncommon, Derncleugh (Reid, 1893).
*Cruden Bay.
K. Muchalls (Reid, 1893).
Pancalia latreillella Curt.
A. Ballater.
Clepsis spectrana Treits.
K. St. Cyrus N.N.R.
[*C. cosimilana* Hb. Delete K. before Dyce.]
Ptycholoma lecheana L.
A. Bieldside (P.S.).
Philedone gerningana D. & S.
K. Banchory.
Ditula angustiorana Haw.
A. Aberdeen and *Pitmedden.
Pseudoargyrotoza conwagana F.
A. Inverurie and Murtle Den (Reid, 1893); Aberdeen, Bieldside, Monymusk and *Fyvie.
Olindia schumacherana F.
A. Cults (P.S.) and nr. *Fyvie.
K. Stonehaven (Dalglish, 1894).
[*Olethreutes obsoletana* Zett. Delete K. Banchory. There are no Kincardineshire records.]
O. metallicana Hb.
A. Glen Lui (M.J.M.).
O. cespitana Hb.
Widely distributed, not rare (Reid, 1893).
K. Muchalls (Reid, 1893); St. Cyrus N.N.R.
Epinotia trimaculana Don.
A. Udny and *Cruden Bay.
E. subocellana Don.
A. *Fyvie.
E. bilunana Haw.
Common, widely distributed (Reid, 1893).
A. Fintray.
E. nisella Cl.
A. *Bennachie.
E. rubiginosana H.-S.
A. Inverurie, scarce among pine (Reid, 1893); Kemnay.
E. pygmaeana Hb.
A. Tyrebagger Hill (E.C.P.-C., R.M.P.), Udny.
K. Durris (P.S.).
Epiblema rosaecolona Dbl.
A. Udny and Dyce.
Spilonota ocellana D. & S.
A. Dyce.
Blastesthia posticana Zett.
A. Braemar and Scotston moor (Reid, 1893); Peterculter.

Rhyacionia pinivorana L. & Z.
Common among Scots pine (Reid, 1893).
A. Kemnay and Fintray.
Pammene argyrana Hb.
A. Nr. Inverurie (Reid, 1893), nr. Monymusk.
P. regiana Zell.
A. & K. Widespread, larvae under sycamore bark.
P. rhediella Cl.
A. Inver and Drum Castle woods.
D. acuminatana L. & Z.
A. *Ellon.
Dichrorampha consortana Steph.
A. *Ellon, bred from *Chrysanthemum leucanthemum.*
D. aeratana P. & Metc.
A. *Ellon.

2. Records from Vice-counties not previously noted.
Species recorded recently from:

(a) V.C.91, Kincardineshire: *Micropterix calthella* L., *Eriocrania sangii* Wood, *Stigmella luteella* Staint., *S. hybnerella* Hb., *S. aurella* F., *Ochsenheimeria bisontella* L. & Z., *Phyllonorycter sorbi* Frey, *Schrekensteinia festaliella* Hb., *Coleophora alticolella* Zell., *Scrobipalpa acuminatella* Sirc., *Hypatima rhomboidella* L., *Exapate congelatella* Cl., *Apotomis sororculana* Zett., *Rhopobota unipunctana* Haw.

(b) V.C.92, S. Aberdeenshire: *Micropterix aureatella* Scop., *Aspilapterix tringipennella* Zell., *Coleophora albicosta* Haw., *Depressaria daucella* D. & S., *Hedya pruniana* Hb., *Eucosma campoliliana* D. & S., *Dichrorampha petiverella* L.

(c) V.C.93, N. Aberdeenshire: *Phylloporia bistrigella* Haw., *Caloptilia betulicola* Hering, *Phyllonorycter alnifoliella* Hb., *Argyresthia pruniella* Cl., *A. albistria* Haw., *Pseudoswammerdamia combinella* Hb., *Epermenia chaerophyllella* Goeze., *Coleophora sylvaticella* Wood, *Mompha raschkiella* Zell., *Aphelia viburnana* D. & S., *Acleris hyemana* Haw., *A. abietana* Hb., *Olethreutes schulziana* F., *Ancylis subarcuana* Dougl., *Epinotia tedella* Cl., *Dicrorampha plubana* Scop.

Species now recorded from all three Vice-counties: *Monopis rusticella* Hb., *M. weaverella* Scott, *Caloptilia elongella* L., *Yponomeuta evonymella* L., *Coleophora serratella* L., *Elachista argentella* Cl., *E. albifrontella* Hb., *Agonopterix arenella* D. & S., *A. liturella* D. & S., *A. scopariella* Hein., *A. nervosa* Haw., *Byrotropha politella* Staint., *Argyrotaenia pulchellana* Haw., *Aphelia paleana* Hb., *Croesia bergmanniana* L., *Acleris caledoniana* Steph., *A. hastiana* L., *A. emargana* F., *Endothenia quadrimaculana* Haw., *Bactra lancealana* Hb., *Ancylis badiana* D. & S., *Epinotia tenerana* D. & S., *Zeiraphera ratzeburgiana* Ratz., *Z. diniana* Guen., *Epiblema scutulana* D. & S., *Eucosma cana* Haw., *Cydia jungiella* Cl., *Cochylis nana* Haw.

Abundance and Diversity of Bumblebees and Cuckoo Bees in a Suburban Garden

By D. F. Owen*

For six consecutive years (1972-1977), I operated a Malaise trap in my garden in the suburbs of Leicester. The trap was set up to monitor the abundance and diversity of selected groups of insects, including hoverflies, ladybirds and moths, and is part of a wider study of the ecology of gardens. During the period of operation, 3,519 bumblebees and six cuckoo bees were trapped and in this paper I tabulate the species and discuss fluctuations in numbers.

The Malaise trap (named after its inventor) is an open-sided, tent-like construction of fine netting with an internal baffle of netting, supported by poles and strings. Flying insects that wander into the trap tend to fly upwards on encountering the central baffle and eventually fall into a plastic jar containing 70% alcohol attached at the apex. The trap's suitability for sampling flying insects depends on two features: no attractant is used, the only insects caught being those that fly into it of their own accord; and it can be operated continuously in all weather throughout the year. All insects that fall into the jar are of course killed, but the effect of the trap on the garden fauna is negligible because it samples an area of only 2.6 square metres to a height of 1.1. metres. A colour picture of a Malaise trap set in the Leicester garden is reproduced in Owen (1978).

The garden was laid out about fifty years ago and is therefore mature and well-established. It occupies an area of 658 square metres and is located at a corner of a busy road only 3.8 kilometres from the centre of the city. There are open fields about 800 metres away, a small stream flanked by tall trees within 125 metres, and two wooded parks within a radius of 450 metres. Like other gardens in the area it is a mosaic of open spaces and shade. There are well-trimmed lawns and herbaceous borders, patches set aside for growing vegetables, a compost heap, fruit bushes, an old apple tree, a rock-garden, and many shrubs of a variety of species. In 1975-77, 282 species of flowering plants belonging to 72 families were recorded in the garden, about half of them native and half introduced. Many of the flowers are extremely attractive to nectar-feeding insects and there is no doubt that the garden is good for bees: besides the species discussed in this paper a large variety of solitary species is present and a list is currently being compiled.

Table 1 shows the numbers of bumblebees and cuckoo bees taken in the Malaise trap in 1972-1977. Species were identified by Dr. Jennifer Owen using the keys in Alford (1973) and Free and Butler (1968), and in some instances by comparison with named specimens. As shown, the total number of bees trapped varied from year to year: 1977 was the best year with twice as many individuals as in 1972, the

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poorest year. Only six cuckoo bees, *Psithyrus,* were recorded, but four of the six British species are represented. Trapping thus confirms that these social parasites of bumblebees are relatively rare. Eight of the 20 British species of *Bombus* were recorded. Every year the commonest was *B. agrorum* (=*pascuorum*) which made up 46% of the total sample. Another three species, *B. terrestris, B. pratorum* and *B. hortorum,* could be described as common, while the remaining species, *B. ruderarius, B. lapidarius, B. ruderatus* and *B. lucorum,* could all be described as moderately common. No rare or unusual species were found in the 3,519 *Bombus* examined.

The Malaise trap also provided quantitative information on seasonality. In five of the six years, the peak of overall abundance occurred in June; 1973 was exceptional with a peak in August. In 1976, the year of severe summer drought, bumblebees became relatively scarce from August onwards, but as shown in Table 1 numbers were neither especially high nor low. The trap records confirmed that *B. terrestris* queens are the first to emerge from hibernation, and that *B. pratorum* produces males earlier in the season than the other species.

Trapping has thus provided a numerical estimate of abundance; moreover if had not used a trap I would not have recorded the four species of *Psithyrus,* because despite careful searching these have never been seen alive in the garden. Observations suggest that the flowers of sage, *Salvia officinalis,* are the most attractive to *Bombus,* and that the flowers of raspberry, *Rubus idaeus,* blackberry, *Rubus* ssp., spotted dead nettle, *Lamium maculatum,* buddleia, *Buddleia davidii,* hollyhock, *Althaea rosea,* and bellflower, *Campanula* spp., are also extremely attractive.

TABLE 1. Frequency of bumblebees and cuckoo bees caught in a Malaise trap in a Leicester garden during six consecutive seasons.

	1972	1973	1974	1975	1976	1977	Total
Bombus agrorum F.	171	512	360	163	196	208	1610
ruderarius Müller	15	11	17	28	13	8	92
lapidarius L.	13	5	9	9	41	24	101
terrestris L.	48	62	89	93	47	96	435
ruderatus F.	—	8	15	5	6	52	86
lucorum L.	69	19	38	28	24	69	247
pratorum L.	39	46	91	48	103	173	500
hortorum L.	34	56	81	90	44	143	448
Psithyrus rupestris F.	—	—	—	—	—	1	1
vestalis Geoffroy	—	—	1	—	1	—	2
sylvestris Lepeletier	—	—	—	1	1	—	2
campestris Panzer	—	—	1	—	—	—	1
Total	389	719	702	465	476	774	3525

Malaise traps have now been erected in other gardens and it should eventually be possible to make comparisons with the Leicester garden. It will also be possible to present

numerical information on the solitary bees once the appropriate taxonomic work has been completed.

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An Unusual Pupation Site. — Being in quest of tineid records from the county, I made arrangements last winter with some of the wardens of the Essex Naturalists' Trust reserves to receive the contents of their nesting boxes when they cleared them out for the new season. A nest from Birch Wood, Little Baddow produced, besides tineids, no fewer than 16 specimens of *Ectoedemia argentipedella* (Zeller) (Lep.: Nepticulidae), which emerged from the 13th of May to the 2nd of June. For one nepticulid to have found its way into the nesting box would be interesting: for 16 to have done so is quite extraordinary; moreover, these were probably the survivors of two or three times that number, when parasites and normal mortality are allowed for. The nesting box was attached to or adjacent to a birch (the larval foodplant), since plenty of birch seed had found its way in amongst the nesting material. The larvae must have been feeding high in the tree, since these boxes are generally sited ten or more feet from the ground and they would hardly have climbed the tree to reach the nest. They must have walked there, as it is unreasonable to suppose that so many larvae, each having mined a different leaf would have all chanced to descend upon the same spot on their silken threads. When you consider that the line you are reading would easily accommodate 50 such larvae placed head to tail, you will appreciate the immense journey they must have undertaken. For them to converge on the nest, they must have been attracted to it, presumably by scent. It is remarkable that a larva, which has spent its life between the cuticles of a birch-leaf, should have a sense of smell capable of detecting a bird's nest from afar; furthermore, that it should associate the smell with a good pupation site. A nest is, in fact, not dissimilar from the sphagnum I would have provided for them in captivity.

In MBGBI 1: 174-5 I wrote of the Nepticulidae, "Except for a few species, it is hard to know what site is selected for pupation in the wild. . . . The chances of these specks being detected by a collector are remote." The incident I have narrated is unprecedented in my experience. — A. M. Emmet, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 18.vi.1978.

CORRECTION

Reference "Winter Activity" by J. Cooter (*antea* **90**: 115), in line one insert "final" after "three", and in line four for "Capsie" read "Campsie".

Eucosma pauperana (Duponchel, 1843) (Lep.: Tortricidae) Recorded in Britain after nearly Fifty Years

By A. M. Emmet*

On the 5th May, 1978, a specimen of *Eucosma pauperana* came to the light-trap operated by Mr. J. L. Fenn at his home in Hockwold, near Thetford, Norfolk. This was not only a new county record but also, apparently, the first specimen to be taken in Britain for 47 years. It was all the more remarkable since the foodplant, dog-rose (*Rosa canina*), does not grow in the vicinity. Mr. Fenn reported his capture to the president of the British Entomological & Natural History Society, who passed the news on at the next meeting of the Society; however, by what turned out to be a fortunate misreading of Mr. Fenn's letter, he stated that the capture had been made at Fleam Dyke, Cambridgeshire.

Accordingly, on the 14th May my wife and I, accompanied by Messrs. E. S. Bradford and R. W. J. Uffen, visited Fleam Dyke at about 6.00 p.m., and my wife netted a specimen, the only one to be seen. Another visit was made on the 17th May and a third on the 18th, when we were accompanied by the Rev. D. J. L. Agassiz; on both occasions a single specimen was netted. All three moths were taken flying freely between 6.00 and 6.30 p.m. BST. April is the usual month for the insect and even in a late year such as 1978, these specimens must have been at the end of their season.

The first British record of *E. pauperana* appears to have been from Darenth Wood, Kent in 1854. This was still the only locality known to Stainton (1859).

In the 1860s it was found, not uncommonly, by W. R. Jeffrey at Saffron Walden, Essex; W. Warren, then at Cambridge, and other contemporary entomologists used to visit Jeffrey and collect it in his company. Specimens from Saffron Walden are in various collections, including that of L. T. Ford in the British Museum (Natural History).

Round about 1880 it was discovered at Box Hill, Surrey, and used to be taken there regularly, sometimes in numbers, until 1914 (the late H. C. Huggins, pers. comm.).

Also in the 1880s, it was taken freely at Bidston Hill, Cheshire by J. B. Hodgkinson and C. S. Gregson. The former also recorded it from Preston, Lancashire, and Joseph Chappell captured it on Chat Moss, another Lancashire locality.

Meyrick (1928) records it from Berkshire, but I have not been able to trace particulars; the capture was evidently made after the publication of the Victorian County History for that county (1906).

In 1930 and 1931, G. I. Crawford, then an undergraduate at Cambridge University, found it at Fleam Dyke. These proved to be the last specimens to be taken until 1978. The late W. S. Gilles and H. C. Huggins worked the Dyke for it in 1935, 1936 and 1937 without success. In about 1970, the British Entomological & Natural History Society held a field

meeting there expressly to look for it, but also drew a blank. The locality being quite near my home, I have been there in most recent years but never saw *E. pauperana* until 1978; nor have a I been able to rediscover it at Saffron Walden. It is probable that the insect has persisted at very low density in its old haunts and possibly the records for 1978 mark the start of an improvement in its numbers.

* Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

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Notes and Observations

EUPHYDRYAS AURINIA ROTT. — DISAPPEARANCE FROM MONMOUTHSHIRE. — Reading Dr. C. J. Luckens' recent interesting notes on *Euphydryas aurinia* Rott. in Britain (1978, *Ent. Rec.,* **90**: 108-112) prompts me to put on record the fate of this species in Monmouthshire where, over the years, I have known four separate colonies.

Fifty-two years ago the Marsh Fritillary was well-established at a spot only several hundred yards from the site of the new, recently-opened Gwent County Hall at Croesyceiliog, a village now absorbed into the new town of Cwmbran. This colony flourished in a boggy, lightly-wooded area but eventually succumbed to sporadic housing development prior to the 1939-45 war.

The other colonies known to me were all in the eastern part of the county. Near Wolvesnewton the butterfly flew in the moist open glades of a mixed deciduous wood and was fairly numerous in 1951. However, clearance of the woodland and replanting with conifers by the local landowner resulted in the disappearance of this colony shortly after that date.

At Pontysaeson in the Tintern area, in a small wooded valley where I had recorded 35 species of butterflies, including 6 fritillaries, there was a very strong and flourishing colony of *aurinia* which I had kept under observation for some 15 years until its destruction about 1969-70. In 1967 it was possible to see scores of these butterflies in flight at one time. It succumbed to forestry activities. This time it was spraying of the undergrowth with toxic herbicides which delivered the coup de grâce by destroying its foodplant *Scabiosa succisa* L. — and for that matter most other plants. Eyebright (*Euphrasia* sp.) grew along the nearby woodland track and here one could find the larvae of *Perizoma blandiata blandiata* (D. & S.),

a moth rare in Monmouthshire. This too was a casualty. Needless to say the site was replanted with the inevitable conifers.

Not very far away, in a small marshy meadow was another Marsh Fritillary colony known to a number of lepidopterists including, I believe, our Editor Mr. J. M. Chalmers-Hunt (1969, *Ent. Rec.*, **81**: 39-46) and Dr. C. G. M. de Worms. This colony, though small numerically, appeared to be in good shape in 1969 and its future seemed reasonably hopeful but soon afterwards this colony too was wiped out through overgrazing by ponies. Herbage that was not consumed was rolled-upon or completely trampled into the mud.

Flying in this same meadow with *aurinia* was the Burnet *Zygaena trifolii palustrella* Verity and this too has gone. As far as I am aware this species has not been recorded elsewhere in the county.

In recent years I have searched for the Marsh Fritillary both in its old haunts and in many new likely-looking localities but without success, and I have not heard reports of any sightings. It would appear therefore that the species has probably been lost to Monmouthshire through disturbance and destruction of its habitat due to building development, coniferisation of woodland, and in one instance through bad husbandry. — Dr. G. A. Neil Horton, Plas Newydd, Usk, Gwent.

Euphydryas aurinia Rott. (Marsh Fritillary). — In view of Dr. Luckens' paper (*Ent. Rec.*, **90**: 108-112), perhaps the following observations are of interest. In the spring of 1973 about 60 larvae were collected from numerous colonies on Bursdon Moor, Devon. 100% parasitoidism was found in the larvae, there being no way in which this could have occurred during captivity. During the early summer of 1976, several specimens were seen in the area of the Polytechnic, no more than one mile from the city centre of Leicester. — D. Hockin, Flexbury End, Poughill Road, Bude, Cornwall.

Cryptoblabes gnidiella (Milliere) (Lep.: Pyralidae) in Britain. — I have now bred this species in two consecutive years, and it seems probable that it is bivoltine, or even that it may breed in Britain. On 14.x.1976, I cut open a pomegranate containing a larva of this species, and found no evidence that the larva had entered the fruit proper, but it seemed to have confined itself to feeding on the remains of the flower. There was an exceedingly large amount of frass present for one larva, particularly since those which eat dry food usually produce little. Furthermore, I found two pupae — one in a cocoon of silk and frass, and which subsequently produced an imago, and one which had already emerged. This was presumably from an earlier generation, since I had had the fruit for some time, and had only observed one larva (before it pupated) and had bred no imagines. Another pomegranate from the same source was found to contain a larva which was only about two-thirds grown. It would seem

that there are two possible explanations: either *C. gnidiella* has a single long generation, with larvae of several generations all present at one time (these larvae in different stages would be imported thus with the fruits), or *C. gnidiella* manages to live in Britain. The latter would not be impossible in warehouses or supermarkets where pomegranates remain for some time. Certainly, early adults could emerge and mate in time to lay eggs in the fruits from which they emerged. Alternatively, or additionally, some larvae could reach maturity, pupate, and emerge before being sold (under good conditions, a generation could be quite rapid). If the imagines were to hibernate (or, in view of the pomegranate season, aestivate) in a warehouse, a small population may survive throughout the year. I am not trying to suggest that *C. gnidiella* could survive in Britain without periodic importations, but it is interesting to note the possibility of this species living in this country on the same basis as some of our butterflies. — P. J. JOHNSON, 7 Haverhill Road, Horseheath, Cambridge, CB1 6QR, 12.iv.1978.

ISSORIA LATHONIA ISSAEA DOHERTY, 1886. — I wish to draw attention to the authorship of this name, which has been recorded incorrectly by many authors during the last 140 years. The name *issaea* was invented by G. R. Gray in his little book: *Lepidopterous Insects of Nepal,* 1846, p. 11, as *Argynnis issaea* Doubleday, without description, but with reference to Doubleday's *List of Lepid. Insects Brit. Mus.* (1): 68: 1844, where the insect is referred to as *Argynnis* ———? a.b. Nepaul, i.e. it is not described or named. In the *Gen. Diurn. Lep.,* 1848, it is referred to by Doubleday as *Argynnis issaea* Gray, with reference to the booklet of 1846. In Horsefield & Moore, *Cat. Lep. E.I. Mus.,* 1857, Moore refers the name to Gray, with reference to Doubleday 1848 and to Kollar in Hügel's *Kashmir,* 1844; in neither reference is there any description or indication acceptable to validate the name. Kirby in his *Catalogue,* 1871, refers the name to Moore, with reference to his Catalogue of 1857. Doherty, in an interesting article in *J. As. Soc. Bengal,* 1886: p. 121, uses the name *Argynnis issaea* Gray, accompanied by an acceptable description. Since the taxon *Argynnis issaea* Doubleday is clearly a ghost, it seems that, under Article 50 of the present Code, Doherty should be accepted as the author of the name, as *Argynnis issaea* Doherty 1886, but today more commonly graded with subspecific rank as *Issoria lathonia issaea.* — Dr. L. G. HIGGINS, Focklesbrook Farm, Chobham, Woking, Surrey.

OCHROPLEURA FENNICA (TAUSCHER) (LEP.: NOCTUIDAE): EVERSMANN'S RUSTIC IN NOTTINGHAMSHIRE. — At the end of July 1972 I began to operate my home-made M.V. trap again for the first time in 12 years. I was living at Mapperley, Nottingham (SK 594435). The trap was operated in my garden — about 0.5 km. from the nearest "open" countryside.

As I was virtually "starting from scratch" again I had many "new" species to identify. On 9th August, 1972, I found

one specimen which I could not identify from my ancient copy of "South". The 1961 edition was subsequently studied and the nearest I could find, judging from the shape of the wings and some of the markings, was the illustration of the Eversmann's Rustic (now *Ochropleura fennica*). I dismissed this almost immediately, especially as a friend suggested that it could be a variety of the Turnip. I was not convinced by this and placed the specimen in a drawer with the other Noctuids.

In March 1978, I was able to show the above specimen to Mrs. Joan Nicklin from the Rothamsted Insect Survey. She took the specimen back to Rothamsted where she identified it as *Ochropleura fennica*. This was later confirmed by the Department of Entomology at the British Museum. Mrs. Nicklin has taken the trouble of finding the relevant references to *O. fennica* for me and it would appear that the above specimen was in fact either the *second* or the *third* to be caught in this country.

The other records are as follows: — 1850: Derbyshire (Doubleday — in South 1961). "Mid August", 1972: Shepperton, Middlesex (cf. Durden, *Ent. Gaz.*, **25**: 51). 20th August, 1977: Aberdeen (cf. Marsden & Young, *Ent. Rec.*, **90**: 84).

I would like to express my thanks to Mrs. Nicklin, who has obviously gone to a lot of trouble to confirm the identity of this specimen, and to the "experts" at the Natural History Museum in London. It will, of course, be donated to the National Collection in due course. — M. E. Marchant, 51 Boundary Road, West Bridgford, Nottingham.

Decorative Art in Butterflies. — It is I think generally assumed that the production of butterflies and their manufacture into decorative articles is a post-war phenomenon, largely centred in Taiwan. Although the manufacture of *Morpho* wings into jewellery came about in mid-Victorian days, this is a different class of business altogether. The present-day Taiwanese method of manufacture is to cut off the wings from the body of the butterfly and then to press them between plastic laminates with a printed paper body replacing the real one. Specimens with the wings glued to the paper body are also sold loose, as are the real bodies which are in demand for the extraction of hormones by chemists and professional entomologists for research purposes.

Contrary to general belief, however, this Taiwanese method of replacing the real body with a paper one is nothing new. In essentials the method was invented by George Edwards well over two centuries ago. I recently came across the method described by him in what is probably his rarest book, "Essays upon Natural History, and other Miscellaneous Subjects", London, printed for J. Robson, M,DCC,LXX. The essay in question is worth quoting in full and bears the title "A Receipt for taking the Figures of Butterflies on thin gummed paper".

"Take Butterflies, or field Moths, either those catched abroad, or such as are taken in Caterpillars, and nursed in

the house till they be Flies, clip off their wings very close to their bodies, and lay them on clean paper, in the form of a Butterfly when flying, then have ready prepared gum Arabic, that hath been some time dissolved in water, and is pretty thick; it you put a drop of Ox gall into a spoonful of this, it will be better for the use; temper them well with your finger, and spread a little of it on a piece of thin white paper, big enough to take both sides of your Fly; when it begins to be clammy under your finger the paper is in proper order to take the feathers from the wings of the Fly; then lay the gummed side on the wings, and it will take them up; then double your paper so as to have all the wings between the paper; then lay it on a table, pressing it close with your fingers; and you may rub it gently with some smooth hard thing; then open the paper, and take out the wings, which will come forth transparent. The down of the upper and under side of the wings, sticking to the gummed paper, form a just likeness of both sides of the wings in their natural shapes and colours.

"The nicety of taking off Flies depends on a just degree of moisture of the gummed paper; for if it be too wet, all will be blotted and confused; and if too dry, your paper will stick so fast together, that it will be torn in separation. When you have opened your gummed papers, and they are dry, you must draw the bodies from the natural ones, and paint them in water-colours. You must take a paper that will bear ink very well for this use; for a sinking paper will separate with the wet, and spoil all." — B. O. C. GARDINER, A.R.C. Unit of Invertebrate Chemistry and Physiology, Department of Zoology, Downing Street, Cambridge.

COLEOPHORA MURINIPENNELLA DUPONCHEL (LEP.: COLEOPHORIDAE) BRED. — I am not aware of any previous account of the breeding of this species, I have never met anyone who had experience of the larva, and it seems that few, if any, of the old British entomologists knew the larval case. The illustration of a seed-husk case in Stainton (*Natural History of the Tineina,* **5**, plt. 10, fig. 1c) stated to be that of *Coleophora murinipennella* is clearly erroneous, being apparently that of *C. taeniipennella* H.-S. The case of *C. murinipennella* is correctly figured in Toll (1962, *Materialien zur Kenntnis der palaarktischen Arten der Familie Coleophoridae,* plt. 3S, fig. 40).

On 12th May, 1973, I encountered the imagines of *C. murinipennella* in plenty on Mitcham Common (Surrey), but being misled by Stainton's figure, looked in vain for a seed-husk case among the *Luzula campestris* which grows there in abundance. I realised later that the cases I had passed over as being those of *C. alticolella* Z. (albeit on an unusual food-plant) were in fact those of *murinipennella,* which occur there numerously on the seed heads of *L. campestris* from about mid-June. On 27th July, 1975, some 35 cases I collected there from seed heads were placed outdoors in a cloth bag hung

up on a fence — a method I have found to work well with many seed feeding species of Coleophoridae whose larvae hibernate — but from these I failed to rear a single moth. Revisiting Mitcham Common on 17th July, 1977, I could find no cases at all on the seed heads, but a search around the base of the plants revealed a great many of them lying amongst the detritus. Some that I collected, were put into an earthenware pot containing a growing plant of *L. campestris,* covered over with nylon stocking, and placed outdoors. A day later, I noticed that some of the cases had fixed to the inside of the pot, to the nylon netting, and a few to the wooden supports. I also observed, that several appeared to be feeding on seeds still attached to some broken seed heads lying on the soil around the base of the plant. Early in May 1978, I brought the pot and its contents indoors, and on 22nd May the first *murinipennella* emerged to be followed by others over the next few days. — J. M. CHALMERS-HUNT.

A QUEEN HORNET (VESPA CRABRO L.) IN SHROPSHIRE IN 1978. — Further to my report in the March *Record* regarding the Hornet in Shropshire (*Ent. Rec.,* **90**: 66), I am pleased to say that it has turned up again. On 29th May, while I was on duty at the S.C.T. Conservation Centre at Earl's Hill, a queen hornet entered through the rafters. There was a scramble among the few visitors inside — not to get out I am happy to say, but to get the windows closed so that the evidence should not be lost! The specimen is now in my possession, and by comparison I can say that the individual taken last autumn, referred to above, was a worker.

Mr. Emanuel Ecclestone, a prominent local apiarist to whom I showed the specimen, said he was sure he also had seen one at Roden, Salop. There have also come to light fairly reliable reports of it in the south of the county at Tenbury Wells.

It seems therefore that our original sighting last year may not have been a "one off" situation, and that the hornet is perhaps on the increase here. Perhaps it is a legacy from the very hot year in 1976? I have noticed that certain forms of hymenoptera are very common this year, particularly the minor and solitary bees. 1977 was a heavy swarming year for our hive-bees. — DAVID J. SMITH, "Curlews", Rosemary Way, Pontesbury, Salop SY5 0RW.

A NOTE ON THREE SPECIES OF "PUG" SUPPOSEDLY DOUBLE-BROODED. — For several years I have studied the "Pugs" with the intention of publishing something on their early life and habits. In checking through the literature, however, one comes across many statements that do not accord with one's own experience and others for which no supporting evidence is given. For example, *Eupithecia virgaureata* Doubleday, *E. tripunctaria* H.-S. and *Chloroclystis V-ata* Haw. are all stated to be double-brooded, yet I have no knowledge that their larvae have ever been found in the wild in the Spring. I would therefore be interested to hear from any reader who has taken

the larvae of any of these three species in the Spring in a state of nature, and to know details of the foodplants upon which they were found, localities, etc. — G. PRIOR, 23 Manor Way, North Harrow, Middx.

CATERPILLARS FEEDING ON BUDDLEJA DAVIDII FRANCH. — Referring to Mr. Owen's note on this subject (*Entomologist's Rec. J. Var.*, **89**: 344, 1977), it may be of interest to state that the attraction of this plant for Lepidoptera to oviposit on is not restricted to the British Isles, but was also observed in the Netherlands. In June 1976 one of the friars of the St. Adalbert Abbey at Egmond (prov. of North Holland) discovered a number of caterpillars of *Cucullia verbasci* (Linnaeus) on the leaves of Buddleja in the garden of the abbey, although they were also present on the *Verbascum* plant in the same garden. All caterpillars were put together and exclusively fed with Buddleja. The *Verbascum* caterpillars also accepted the plant without any hesitation.

At the end of July 1976, the same friar, who is strongly interested in Lepidoptera, saw a female of *Celastrina argiolus* (Linnaeus) which was laying eggs between the flower buds of Buddleja. Searching among the buds yielded six eggs from which the caterpillars hatched after a few days. At first they thrived well on the buds, but gradually their numbers diminished until at last two remained, of which one duly pupated and delivered a female on 1st September. The others were probably eaten by their brethren.

I may point out that the spelling of the name of the plant is incorrect in practically all articles and in many books. It is not Buddleia, but Buddleja. Cf. Linnaeus, 1753, *Species Plantarum*, ed. 1: 112. — B. J. LEMPKE, Oude IJselstraat 12 III, 1078 CH Amsterdam, The Netherlands.

ACHERONTIA ATROPOS L. (THE DEATH'S HEAD HAWK MOTH). — With reference to Dr. H. B. D. Kettlewell's interesting note in the April issue, it may be worth recording that, on 6th June last year, a specimen of this moth was found by Mr. Derrick Robinson in his garden at Burnham-on-Crouch, trapped on an apple tree grease band; I feel sure this must constitute some sort of record, although one would hardly recommend it as a means of obtaining cabinet specimens!

There was, apparently, a beehive fairly near to Mr. Robinson's garden, which might have been the primary source of attraction. Mr. Robinson had kept bees in the past and mentioned that it was not all that unusual to see specimens of *atropos* endeavouring to enter the hives in the evening. He said that under these circumstances the moths were stridulating and that the bees appeared to be distinctly soothed by this, in marked contrast to their behaviour in the event of a mouse or wasp endeavouring to enter the hive. He also mentioned that the stridulation was exactly like the sound produced by a queen bee.

I think that the answer to the question as to why the tongue of *atropos* is so different from that of other sphingids is that it is designed for piercing honeycomb. Although it is

possible to get the moth to feed on honey or diluted sugar by drawing out the tongue with a pin, a moth placed on a section of honeycomb will immediately pierce the capped cells one after another, sucking out the contents at a surprising rate. It would therefore seem that the moth's occurrence in Southern Africa and elsewhere would be linked with the necessity for an adequate supply of wild bees.

It seems probable that the specimens of *atropos* found "stung to death" in bees nests had, in actual fact, died naturally, perhaps during the winter, and, as P. B. M. Allan suggests, the bees, finding the corpses too heavy to move, would have walled them up where they lay. — A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

NOTES ON THE LARVA OF EUPITHECIA TENUIATA HBN. (SLENDER PUG.) — On Thursday, 27th April, at a meeting of the British Entomological and Natural History Society I exhibited a number of larvae of *Eupithecia tenuiata* Hbn., feeding on the female catkins of *Salix caprea* (Goat or Pussy Willow). Almost all the literature records this larva as feeding inside the male catkins of this tree, and even Karl Deitze in his great work, *Biologie der Eupithecien,* states that over the many years that he had collected them, he had only found them in the male catkin. Various friends of mine who have bred this moth, all confirm that they collected a large quantity of the male catkins, kept them in a container and hoped for the best and sometimes if they were lucky the moths emerged. My own experience was similar, but I found it almost impossible to prevent the catkins degenerating into a rotting mass or just drying out.

Last year at the Annual Exhibition of the B.E. & N.H.S., Mr. John Fenn of Thetford, who has kindly assisted me in my study of the Eupithecinae during the past six years, told me that earlier that year he had beaten the female tree of *S. caprea* and had obtained a number of larvae of *E. tenuiata.* I asked him if in 1978 he would again beat the female trees and confirm this, and if possible, send me some of the larvae. Some fourteen or so beautifully marked larvae in various stages duly reached me on 26th April. They were all feeding on the long open female catkin, systematically eating out the small florets of which these catkins are composed, and reminiscent of the way *E. absinthiata* eat out the florets of *Artemesia vulgaris* (Mugwort). A week after the B.E. & H.S. meeting, I met Mr. R. Dyke, who was also present at that meeting, and he told me that inspired by what I had said, he journeyed to Broxbourne Wood to beat the female sallow trees and had been duly rewarded with a quantity of *tenuiata* larvae. May I therefore suggest that readers who have in the past collected the male catkins in their search for this larva, try beating the female trees. It may show this moth to be more widespread than previously believed; they may also see larvae that had previously been hidden during this stage of their life. —G. PRIOR, 23 Manor Way, North Harrow, Middx.

PARORNIX FAGIVORA (FREY) IN KENT. — While collecting larvae of *Strophedra weirana* (Douglas) in Spring Park, West Wickham during early October 1977, I noticed the occasional beech leaf characteristically folded in the manner of *Parornix*. After much searching I managed to find several of these folded leaves, which I then placed outdoors in an earthenware flower pot half-filled with soil and covered over with a piece of cloth. To my joy a fine ♂ *Parornix fagivora* emerged from among these on 21st May, 1978.

Meyrick (*Revised Handbook of Br. Lepidoptera*, 786) has: "Berks., Oxon, Gloucester, Cambridge, Sutherland, local and uncommon"; but I am not aware of any previously published record of *fagivora* for Kent. For a superb coloured illustration of the moth, larva and larval feeding place, see Stainton, *Natural History of the Tineina*, Volume VIII, *Ornix* Part I, plate III, figs. 3m, 3a and 3b. — J. M. CHALMERS-HUNT.

Current Literature

The Amateur Entomologists' Society guides are well-known for their usefulness, clear presentation and reasonable price, and the following two which we have received we can highly recommend. Both are obtainable from: The General Editor, Amateur Entomologists' Society, 355 Hounslow Road, Hanworth, Feltham, Middx.

Insect Photography for the Amateur by **Peter E. Lindsley.**

(8) + 52 pp., including 24 illustrations in the text. 8vo. Stiff wrapper. (1977). £2.

There are five chapters as under: (1) Choosing your equipment; (2) Accessories for close-up photography; (3) Further Accessories; (4) Lighting Considerations; (5) Taking the Pictures. A glossary (3 pp.) and bibliography (4 pp. arranged under titles) completes the work.

Collection and Studying Dragonflies (Odonata) by **David Keen.**

(8) + 24 pp., including 2 black and white plates and 12 text figures. 8vo. Stiff wrapper. A.E.S. Leaflet No. 12, revised edition. 1977. £1.60.

The first few pages deal with life history, followed by an account of collecting equipment and methods of collecting adults, nymphs and cast skins, details of rearing, killing, pinning, setting, arranging the collection and finally, a bibliography. Appendix I is a code for insect collecting. Appendix II (4 pp.) is a check-list of the British Odonata printed on one side only for use as a label list.

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Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted — Oberthur's Etudes de Lepidopterologie Comparee. — *M. J. Percival,* Holmsdale Cottage, Mid-Holmwood, Dorking, Surrey. Dorking (0306) 6104.

For Sale — Large selection of tropical and British butterflies and moths surplus to requirements. — Further details from: *T. W. Harman,* Little Oaks, Church Lane, Westbere, Canterbury, Kent, CT2 0HA.

Wanted — The Butterflies of Western Kenya, Parts 8-9, by H. F. Stoneham. — *L. McLeod,* Quartier des Ecoles, St. Pierre de Vassals, 84330, France.

Insects on Stamps — A cross-referenced checklist, providing classification and full names. 78 pp. £2 post free, from author, *F. Smit,* Park Street, Tring, Herts. HP23 6AW.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

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BLISHED MONTHLY **PRICE 60p**

Macrolepidoptera of Glengarry and District (West Inverness-shire) 1977-78

By Guy Howard*

In 1977 I was living in Glengarry from May to September and I revisited the Glen in late April 1978. I was able to do a considerable amount of collecting and in view of the fact that lepidopterists seem to visit East Inverness-shire and tend to neglect the West, I have thought it worthwhile listing all the species encountered. I was living at Tomdoun and Tornacarry, so most of the records come from that area, although observations from Invergarry to as far west as Loch Hourn are included.

Much of Glengarry consists of moorland with birch-woods. To the south between the Loch and the hills, which rise to nearly 3,000 feet, are sparse remnants of the Caledonian pine forest. These are surrounded by an extensive area of recently planted conifers. At the western end of this woodland are some pure stands of old scots pine with a luxuriant carpet of *Vaccinium*. Aspen is rare and mainly restricted to scattered trees in a small area by the Loch west of Invergarry, but there is a small aspen wood in a private garden near Inchlaggan. Juniper is scarce but is common locally on a north-facing hillside near Invergarry. Along the north shore of Loch Garry are the remains of old oak forest.

In the list which follows, nomenclature is taken from Kloet and Hincks (1972). Where no locality is stated, the region referred to is Glengarry. In some cases only one or a few specimens of a species were found, and any comment on abundance of a species is restricted to instances where reasonable numbers of the insect were seen.

Abbreviations: Tdn. = Tomdoun. Tcy. = Tornacarry. Inch. = Inchlaggan.

HEPIALIDAE

Hepialus humuli L., Tdn. *H. sylvina* L., Tcy. *H. hecta* L., common. *H. fusconebulosa* De Geer, common in Glengarry and at Loch Hourn; a sample taken at light (15.vi-27.vi.77) at Tdn. and Tcy. comprised 192 specimens, of which 45 (23.4%) were f. *gallicus,* the remainder being typical.

COSSIDAE

Cossus cossus L., one to light, Tcy., 4.vii.77; and another to light, Tdn., 5.vii.77.

PIERIDAE

Pieris brassicae L., larvae on *Brassica* in garden at Tcy.; only one adult seen there in July 1977. *P. rapae* L., occasional at Tcy.; larvae on garden *Brassica. P. napae* L., common where *Cardamine pratensis* grows.

LYCAENIDAE

Callophrys rubi L., widespread over moorland near woods; also at Kinloch Hourn. *Polyommatus icarus* Rott., Tdn. and Glen Barrisdale (Loch Hourn); nowhere in large numbers.

* 1 Brackenview, Mill Hill Road, Barnes, London, S.W.13.

NYMPHALIDAE

Aglais urticae L., common near habitation in May after hibernation. *Boloria selene* D. & S., widely distributed and common, as among young birch at Inch.; also common along the slopes on the north side of Loch Hourn, west of Torr a' Choit, where on 16.vi.77 it was flying with occasional worn *B. euphrosyne*. *B. euphrosyne* L., not found in Glengarry; on 30.v.77 flying over rough grassy hillsides among young bracken on the slopes west of Kinloch Hourn. *Argynnis aglaja* L., frequent locally at Tcy.; also at Glen Barrisdale.

SATYRIDAE

Pararge aegeria L., Kinloch Hourn, on 30.v.77 several were flying at the edge of mixed woodland and in a small clearing behind the Lodge; also a few in a birch wood near Torr a' Choit (1½ miles west of Kinloch Hourn); on later examining the only two specimens kept, at least one was subsp. *oblita* Heslop-Harrison; this form is known from N. Argyll and the Inner Hebrides (see Dennis, *The British Butterflies — their Origin and Establishment*, p. 169). *Erebia aethiops* Esp., in August became very common locally in the Tcy./Inch. area, usually in south-facing grassy localities at the edge of birch woods. *Maniola jurtina* L., common near the road at Tcy.; also at Glen Barrisdale. *Coenonympha pamphilus* L., one seen at 1,000 feet on the N.E. shoulder of Corrie Glas, and another on the summit ridge at 2,800 feet; occasional specimens at Loch Hourn. *C. tullia scotica* Staud., widely distributed in small numbers in the Tcy.-Corrie Glas area.

LASIOCAMPIDAE

Poecilocampa populi L., common at Tcy. *Trichiura crataegi* L., single specimens to light at Tcy. and Inch. *Lasiocampa quercus callunae* Palmer, widspread; it was not unusual to find larvae in 1977. *Macrothylacia rubi* L., widespread at Glengarry and Loch Hourn. *Philudoria potatoria* L., larvae at Loch Hourn (Eilean a' Mhuineil); to light at Tdn. and Tcy.

SATURNIDAE

Saturnia pavonia L., common.

DREPANDIDAE

Falcaria lacertinaria L., common. *Drepana falcataria scotica* Byt.-Salz., wdiespread in Glengarry.

THYATIRIDAE

Thyatira batis L., one to light at Inch., 23.vi.77. *Tethea or* D. & S., at Invergarry and Inch. where aspen grows; one taken at Inch. has yellow stigmata; all had a dark ground-colour with well-marked banding. *Tetheella fluctuosa* Hübn., males in fair numbers to light at Tcy. and Inch.; most had the silvery-white ground colour of the basal and outer portions of the forewing replaced by a dusky shade; some, however, retained the whitish colour to a fairly marked degree; many were worn and further samples are needed. *Ochropacha duplaris* L., common at Tcy.; also, at Achadh-Luachrach (Glengarry) and Glen Barrisdale. *Achyla flavicornis scotica* Tutt, Tdn. and Tcy.; considerable variation in intensity of the cross-banding.

GEOMETRIDAE

Archiearinae parthenias L., flying in birch woods from 4.iv.78 at Faichem and Loch Lundie (Nr. Invergarry); one example had the orange colour of the left hindwing replaced by a variable pale yellow; microscopically this was found to be due to deformation of the scales. *Geometra papilionaria* L., common. *Cyclophora albipunctata* Hufn., common. *Scopula floslactata* Haw., Torr a' Choit. *S. tenata* Schrank, Invergarry. *Idaea biselata* Hufn., Inch. *I. aversata* L., common. *I. straminata* Borkh., common. *Orthonama lignata* Hübn., Tdn.; Tcy. *Xanthorhoe designata* Hufn., common. *X. munitata* Hübn., common at Inch. and Tcy. *X. spadicearia* D. & S., Tcy.; Achadh-Luachrach. *X. montanata* D. & S., common. *X. fluctuata* L., common at Tcy. *Epirrhoe tristata* L., Tcy. and Kinloch Hourn. *E. alternata* Müller, common. *Camptogramma bilineata* L., Tcy.; Kinloch Hourn. *Entephria caesiata* D. & S., widespread on moorland. *Anticlea derivata* D. & S., one to light Achadh-Luachrach, 23.v.77. *Lampropteryx suffumata* D. & S., common at Tdn. and Tcy. *Cosmorhoe ocellata* L., Tdn.; Tcy.; Achadh-Luachrach. *Coenotephria salicata latentaria* Curtis, flying at 2,800 feet on the summit ridge of Corrie Glas, 6.vii.77. *Eulithis testata* L., Tcy. and Inch. *E. populata* L., common and widespread; also at Loch Hourn. *E. pyraliata* D. & S., Tcy.; Inch. *Chloroclysta siterata* Hufn., and *C. miata* L., Tdn.; Tcy.; Achadh-Luachrach. *C. citrata* L., Tcy.; Inch. *C. truncata* Hufn., common at Inch.; also at Kinloch Hourn. *Cidaria fulvata* Forster, Inch.; Tcy. *Thera firmata* Hübn., Inch. *T. obeliscata* Hübn., common at Tcy. and Inch.; also at Glen Barrisdale. *T. cognata* Thunb., Invergarry. *Electrophaes corylata* Thunb., common and widespread; at Torr a' Choit f. *albocrenata* Curtis are fairly frequent. *Colostygia olivata* D. & S., Tcy.; Inch. *C. multistrigaria* Haw., Tdn.; Tcy.; variable with some very pale forms. *C. pectinataria* Knoch, common; also at Torr a' Choit. *Hydriomena furcata* Thunb., common at Inch. *H. impluviata* D. & S., Ladiadh Burn (Loch Garry). *Coenocalpe lapidata* Hübn., Tcy. *Epirrita dilutata* D. & S., Tcy. *E. autumnata* Borkh., Tcy. *Operophtera brumata* L., common at Tcy. *Perizoma alchemillata* L., Invergarry. *P. blandiata* D. & S., Tdn.; Tcy. *P. didymata* L., common. *Eupithecia pulchellata* Steph., widespread; also at Glen Barrisdale. *E. satyrata* Hübn., Tcy. *E. goosensiata* Mabille, Tcy.; Spidean Mialach. *E. vulgata* Haw., Tcy. *E. subfuscata* Haw., Tdn.; Achadh-Luachrach. *E. icterata* Villers, Tcy.; Inch. *E. indigata* Hübn., Tdn. *E. nanata angusta* Prout, Tdn. *E. virgaureata* Doubl., Tdn.; Tcy. *E. abbreviata* Steph., Tdn.; Tcy.; Achadh-Luachrach. *E. pusillata* D. & S., Tcy.; Spidean Mialach; no juniper was found in either of these two localities. *E. lariciata* Freyer, Tdn. *Chesias legatella* D. & S., Inch.; Tcy. *C. rufata* Fab., Tcy. *Carsia sororiata anglica* Prout., Tcy. *Aplocera plagiata* L., Tcy.; Inch.; Glen Barrisdale. *Odezia atrata* L., one flying by Ladaidh Burn N.W. of Ben Tee. *Venusia cambrica* Curtis, Tcy.; Glen Barrisdale. *Lobophera halterata* Hufn., Invergarry. *Trichopteryx*

carpinata Borkh., Tdn.; Invergarry; considerable variation in the intensity of the dark cross-bands. *Acasis viretata* Hübn., Invergarry. *Abraxas grossulariata* L., Inch.; Kinloch Hourn; Skiary (Loch Hourn). *Lomaspilis marginata* L., common. *Semiothisa notata* L., common. *S. liturata* Clerck, common. *S. brunneata* Thunb., found in three localities in Glengarry; at Braigh Uaine on 10.vii.77 flying among old pines; on 21.vii.77 flying locally in abundance over *Vaccinium* by Ladaidh Burn; at this point the Burn has formed a spectacularly deep gorge and along this part of its course are numerous old pines with *Vaccinium*; in all other directions are alien conifers; single specimens came to light on two occasions at Tcy. *Petrophora chlorosata* Scop., very common wherever bracken grows; also at Torr a' Choit. *Plagodis pulveraria* L., Tcy.; Invergarry; Kinloch Hourn. *Opisthograptis luteolata* L., common; also at Kinloch Hourn. *Epione repandaria* Hufn., Inch. *Pseudopanthera macularia* L., Kinloch Hourn 29.v.77, flying over a sunny slope with *E. atomaria* and a few *E. euphrosyne*; one seen in a sunny pine-clearing at Tdn. *Ennomos alniaria* L., common at Inch. and Tcy. *E. erosaria* D. & S., single specimens at Inch. and Tcy.; one example has the two cross lines almost touching at the inner margin of the forewings. *Selenia dentaria* Fab., common. *S. lunularia* Hübn., single specimens at Tdn. and Tcy. *Gonodontis bidentata* Clerck, common; also at Torr a' Choit. *Crocallis elinguaria* L., Tcy.; Inch.; Glen Barrisdale. *Colotois pennaria* L., Tcy. *Apocheima pilosaria* D. & S., Tcy. *Lycia hirtaria* Clerck, common at Tdn. and Tcy.; all are large and well-marked with every gradation between grey and ochre. *Lycia lapponaria* Boisd., a colony exists at Tdn. at 500 feet by a stream where bog myrtle is growing; in 1978 the main emergence occurred in mid April and on 17.ix.78 about two dozen were seen resting on posts. *Biston betularia* L., among 110 *typica* taken at light (22.v-27.vi.77) at Tdn. and Tcy. was one f. *carbonaria*; whether this was a lucky catch or whether *carbonaria* occurs at above mutation frequency only further sampling will reveal. *Agriopis leucophaeria* D. & S., Tcy. *A. aurantiaria* Hübn., common at Tcy. *A. marginata* Fab., Tcy. *Erannis defoliaria* Clerck, common at Tcy. *Cleora cinctaria* D. & S., rests on pylons and posts at Tdn.; to light at Tcy.

Alcis repandata L., a sample taken at light in a fragment of the Caledonian pine forest at Braigh Uaine in Glengarry, on the night of 9.vii.77, comprised 71 specimens; of these six (8.4%) were banded (f. *conversaria* Hübn.) and the rest *typica*; another sample at light from an area including moorland, birch and other deciduous woodland at Tcy. and Inch. was taken from 10.vii-31.vii.77; 54 specimens included five (9.2%) *conversaria,* remainder *typica*; a third sample was taken at light on the night of 14.vii.77 at Glen Barrisdale — this area, near the south shore of Loch Hourn, is the most westerly situated Caledonian pine forest in Scotland — the weather was bad but 35 *repandata* were taken, of which all

were *typica.* Of the *conversaria* taken, none had a white ground colour and so were heterozygotes. (Discussed by Williams, *Entomologist's Gaz.,* **1**: 36-39, who quotes Cockayne's *repan*data at Kinlochewe taken in 1937 during the daytime. Of 576 specimens he took, 24.3% were judged to be heterozygous *conversaria* and 1% homozygotes.) It is unfortunate that a bigger sample could not be taken at Barrisdale, but it does suggest that if *conversaria* exists there, it is at a frequency nowhere approaching that at Kinlochewe. However, the gap of some 40 years, difference in ecology, and the possibility of differential survival and times of emergence of the forms, renders any comment speculative.

A. jubata Thunb., Inch. *Ectropis bistortata* Goeze, Tdn.; Tcy. *Ematurga atomaria* L., common. *Bupalus piniaria* L., Tdn.; Tcy.; Kinloch Hourn. *Carbera pusaria* L., common; also at Glen Barrisdale. *C. exanthemata* Scop., common. *Campaea margaritata* D. & S., common at Tcy. and Inch.; also at Glen Barrisdale. *Hylaea fasciaria* L., common; also at Glen Barrisdale. *Gnophos obfuscatus* D. & S., Tdn.; Tcy.; Inch.; Glen Barrisdale. *Psodos coracina* Esp., frequent on the N.E. shoulder and summit of Corrie Glas, 6.vii.77.

SPHINGIDAE

Laothoe populi L., common at Tdn.; Tcy.; Inch. *Deilephila elpenor* L., common at Tdn., Inch., Tcy., Invergarry; came to light and in the late evening to honeysuckle; this insect has clearly extended its range to the N.W. in Scotland.

NOTODONTIDAE

Phalera bucephala L., common at Tdn., Tcy., Inch. *Cerura vinula* L., common at Tdn., Tcy. *Harpyia furcula* Clerck, Tcy. *Notodonta dromedarius* L., common at Tdn., Tcy., Inch. *Eligomodonta ziczac* L., common at Tdn., Tcy. *Pheosia gnoma* Fab., common at Tdn., Tcy. *P. tremula* Clerck, two to light at Inch., 24/26.vii.77. *Ptilodon capucina* L., common at Tcy. *Odontosia carmelita* Esp., single specimens to light at Tcy. *Pterostoma palpina* Clerck, single specimens to light at Tcy. *Drymonia dodonoea* D. & S., one taken at Invergarry, 2.vi.77; several came to light in the oak-wood at Achadh-Luachrach, 14.vi.77. *D. ruficornis* Hufn., small numbers at Tdn. and Tcy.; common at light in the oakwood at Achadh-Luachrach.

ARCTIIDAE

Cybosia mesomella L., frequent and widespread in Tcy. area; one fresh specimen taken lacking the black dots on the forewings, was otherwise of normal colour. *Parastemia plantaginis* L., locally common at Tcy. flying over moorland in the daytime. *Arctia caja* L., one taken at Tdn. *Diacrisia sannio* L., widespread; also seen at Torr a' Choit; came to light, and seen in daytime flying over moorland. *Spilosoma lubricipeda* L., common; also at Torr a' Choit. *S. luteum* Hufn., widespread but not nearly so frequent as *lubricipeda. Phragmatobia fuliginosa* L., cocoon found S. of Garrygualach; two seen flying at Torr a'Choit on 16.vi.77 at 5.00 p.m.

NOCTUIDAE

Euxoa tritici L., one taken at Inch. *E. nigricans* L., one taken at Inch. *Agrotis exclamationis* L., one taken at Tcy. *Axylia*

putris L., Invergarry; single specimen at Tcy. *Ochropleura plecta* L., widespread and common; also at Loch Hourn. *Eugnorisma depuncta* L., Inch. *Standfussiana lucernea* L., one taken at Tcy. *Noctua pronuba* L., widespread and common. *N. comes* Hübn., Tcy.; Inch.; Glen Kingie; f. *curtisii* were frequent. *N. fimbriata* Schreber, Inch. *N. janthina* D. & S., Tcy.; Inch. *Graphiphora augur* Fab., Tcy. *Paradiarsia sobrina* Dup., Tcy. *P. glareosa* Esp., Tcy. *Lycophotia porphyria* D. & S., common as at Loch Hourn. *Diarsia mendica* Fab., Tcy. *D. dahlii* Hübn., Tcy.; Inch. *D. brunnea* D. & S., Tcy.; Inch. *D. florida* Schmidt, Tdn.; Tcy.; Inch. *Xestia c-nigrum* L., Tcy. *X ditrapezium* D. & S., Tcy.; Inch. *X. triangulum* Hufn., Tcy.; Inch.; Invergarry. *X. baja* D. & S., Tdn.; Tcy.; Inch.; Kinloch Hourn. *X. castanea* Esp., Inch.; Spidean Mialach. *X. sexstrigata* Haw., Inch.; Invergarry. *X. xanthographa* D. & S., Tcy.; Inch. *X. agathina* Dup., Tcy. *Eurois occulta* L., Tcy.; Inch.; no pale-coloured specimens were seen. *Anaplectoides prasina* D. & S., Tdn.; Tcy.; Inch. *Cerastis rubricosa* D. & S., Tdn.; Tcy. *Anarta myrtilli* L., Tcy.; Kinloch Hourn. *A. melanopa* Thunb., Corrie Glas at 2,800 feet and Spidean Mialach at 2,300 feet. *Discestra trifolii* Hufn., one at Tcy., 19.viii.77. *Hada nana* Hufn., Tdn.; Tcy.; Invergarry. *Polia hepatica* Clerck, Tdn.; Tcy.; Inch. *P. nebulosa* Hufn., Tcy.; Inch. *Lacanobia contigua* D. & S., Tdn.; Tcy.; Inch. *L. thalassina* Hufn., widespread. *L. oleracea* L., widespread. *L. Biren* Goeze, Tdn.; Tcy.; Invergarry. *Ceramica pisi* L., common. *Cerapteryx graminis* L., common; also at Kinloch Hourn. *Panolis flammea* D. & S., Tcy. *Orthosia cruda* D. & S., Tcy.; Invergarry. *O. gracilis* D. & S., Tdn., Tcy. *O. stabilis* D. & S., Tdn.; Tcy.; Achadh-Luachrach. *O. incerta* D. & S., Tdn.; Tcy. *O. gothica* L., common at Tdn., Tcy., Invergarry; f. *gothicina* constitutes about 10% or more of the population (of 125 specimens taken at light at Tdn., 30.iv-27.v.77, 12 were *gothicina*; again in 1978, 76 taken at light at Tcy. during the first half of April included 13 *gothicina*). *Mythimna conigera* D. & S., Inch. *M. ferrago* Fab., Inch. *M. impura* Hübn., Tcy.; Glen Kingie; Glen Barrisdale. *M. pallens* L., single specimen, Inch. *Cucullia umbratica* L., Tdn.; Tcy.; Inch. *Cleoceris viminalis* Fab., Tcy.; Inch. *Dasypolia templi* Thunb., Tcy. *Aporophyla lutulenta luneburgensis* Freyer, Tcy.; Inch. *A. nigra* Haw., Tcy.; Inch.; Achadh-Luachrach. *Lithomoia solidaginis* Hübn., Tcy.; Inch. *Xylena vetusta* Hübn., common at Tdn., Tcy., Inch. *X. exsoleta* L., a single specimen to light at Tcy. on 7.iv.78. *Allophyes oxyacanthae* L., Tcy.; Inch. *Dichonia aprilina* L., Inch. *Drybotodes eremita* Fab., Tcy.; Inch. *Blepharita adusta* Esp., Tdn.; Inch. *Antitype chi* L., Tcy.; Inch. *Eupsilia transversa* Hufn., Tcy. *Conistra vaccinii* L., Tdn.; Tcy.; Inch. *Agrochola lota* Clerck, Inch. *A. macilenta* Hübn., Inch. *A. helvola* L., Inch. *A. litura* L., Inch. *Parastichtis suspecta* Hübn., Inch. *Xanthia togata* Esp., Inch. *X. icteritia* Hufn., Tcy.; Inch. *Acronicta megacephala* D. & S., a single specimen at Inch., 23.vi.77, which had a pinkish tinge to the forewings. *A. leporina* L., Tcy. *A. pisi*

L., widespread. *A. menyanthidis* Esp., Tdn.; Tcy. *A. euphorbiae myricae* Gueneé, Tdn. *A. rumicis* L., Tdn.; Tcy.; Torr a' Choit. *Craniophora ligustri* D. & S., a single specimen at Tdn.; ash does not appear to grow elsewhere in the vicinity. *Amphipyra tragopoginis* Clerck, Inch. *Rusina ferruginea* Esp., common and widespread, including Loch Hourn. *Euplexia lucipara* L., Tdn.; Tcy.; Inch.; Torr a' Choit. *Phlogophora meticulosa* L., Tcy. *Enargia paleacea* Esp., Tcy.; Inch. *Cosmia trapezina* L., Tcy.; Inch. *Hyppa rectilinea* Esp., a few single specimens to light at Tcy. *Apamea monoglypha* Hufn., common as at Kinloch Hourn. *A. lithoxylea* D. & S., single specimens at Tdn. and Inch. *A. exulis assimilis* Doubl., taken frequently at light at Tdn., Tcy. and also 1,500 feet up Spidean Mialach. *A. crenata* Hufn., Tdn.; Inch.; Achadh-Luachrach. *A. remissa* Hübn., Tdn.; Tcy.; Inch. *Oligia fasciuncula* Haw., Invergarry. *Mesoligia literosa* Haw., Inch. *Mesapamea secalis* L., widespread; also at Kinloch Hourn. *Photedes minima* Haw., Inch. *P. pygmina* Haw., Tcy.; Inch. *Luperina testacea* D. & S., Tcy. *Amphipoea lucens* Freyer, Tcy.; Inch.; Spidean Mialach. *A. crinanensis* Burrows, Spidean Mialach. *Hydraecia micacea* Esp., Tcy.; Spidean Mialach. *Celaena haworthii* Curtis, Inch.; Spidean Mialach. *C. leucostigma scotica* Cockayne, Tcy.; Inch.; Spidean Mialach. *Stilbia anomala* Haw., Tcy.; Inch. *Eustrotia uncula* Clerck, widespread; particularly common locally at Tcy. where it flies over bog during the day. *Pseudoips fagana britannica* Warren, one to light at Achadh-Luachrach, 14.vi.77. *Nycteola revayana* Scop., one at Inch. *Colocasia coryli* L., Tdn.; Tcy.; Achadh-Luachrach. *Diachrysia chrysitis* L., widespread. *Plusia festucae* L., Tdn.; Inch.; Tcy.; Glen Barrisdale. *Autographa gamma* L., first specimen taken at Inch., 27.ix.77, but more appeared in October. *A. pulchrina* Haw., Tdn.; Inch.; Glen Barrisdale. *A. bractea* D. & S., Tdn.; Tcy.; Inch.; Kinloch Hourn. *Syngrapha interrogationis* L., Tcy.; Inch.; Braigh Uaine. *Abrostola triplasia* L., Tdn.; Tcy.; Inch. *Scoliopteryx libatrix* L., Tdn.; Tcy.; Inch.; Achadh-Luachrach. *Hypena proboscidalis* L., widespread and at Kinloch Hourn.

Of interest was the capture at light in October 1977 at Tcy. of *Palpita unionalis* Hübn. This must surely be a very northerly record for this immigrant Pyralid. I am told that *Autographa gamma* became frequent in October 1977 in Glengarry, so it appears likely that the dearth of migrants earlier in the year was to an extent balanced by a late influx.

Acknowledgements

Mr. Ray Brown, living at Tornacarry, has been helpful in a number of ways. He ran my m.v. trap intermittently through the winter of 1977-78 and took some of the autumnal and winter species listed.

I am grateful to Mr. E. C. Pelham-Clinton (Royal Scottish Museum) for help in identification, particularly of the *Eupitheciae*. I also thank Mr. D. S. Fletcher (British Museum, Natural History) who checked the *Epirrita* spp.

Gelechia scotinella Herrich-Schaffer, 1854 (Lep.: Gelechiidae) in Herts.

By E. S. BRADFORD*

Recently, on going through a small box of micros put by some time ago, I came across too slightly worn Gelechid moths, that on dissection proved to be referable to this species. They were taken in or near my previous residence in Borehamwood, Herts., on 9th July, 1966 (♀) and 16th August, 1969 (♂). The genitalia of these two are here figured. I also possess three other specimens of *G. scotinella* taken by me in the same locality, dated 11th August, 1969 (♂) and 18th August, 1971 (2).

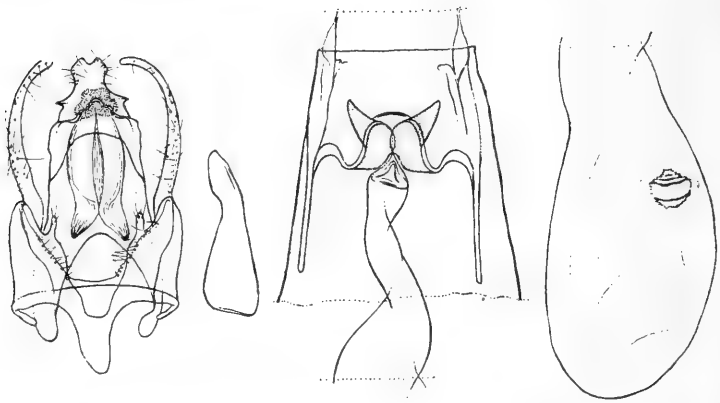

Fig. 1. *Gelechia scotinella.* From left: (a) and (b) male genitalia, (c) and (d), female genitalia.

According to Meyrick (1928, *Revised Handbook Br. Lep.*, 626), the larva of *scotinella* feeds in April in spun flowers of blackthorn, which information is repeated in Ford (1949, *Guide to Smaller British Lepidoptera,* 99). Blackthorn forms an unclipped hedge along the two gardens where the moths were taken, and it is also not an uncommon shrub in the neighbourhood.

Only the male genitalia are figured in Pierce and Metcalf (1935, *The Genitalia of the Tineid Families of the Lepidoptera of the British Islands,* plate vi), so it seems the moth was not easy to come by when that work was in preparation. Meyrick (*loc. cit.*) gives it as local and uncommon. I do not know of any recent captures of the species other than those which I have given.

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A Bibliographical Description of Thomas Martyn's *The English Entomologist* (1792)

By Dr. Ronald Sterne Wilkinson*

Thomas Martyn, not to be confused with the well-known botanist (1735-1825) of the same name, was an illustrator and naturalist best known for his *The Universal Conchologist* (London, 1784 [–92]), but he was also responsible for an edition of Albin's and Clerck's works on arachnids, *Aranei, or a Natural History of Spiders* (London, 1793), and was the author of *The English Entomologist* (London, 1792), as well as one of the rarest and most bibliographically interesting of entomological works, *Psyche: Figures of Non descript Lepidopterous Insects* (London, 1797). Martyn's varied and sometimes eccentric pamphlets ranged in subject from the new phenomenon of ballooning to patriotism in the face of the French threat.[1]

Despite its shortcomings, *The English Entomologist* was a pioneering work on the British Coleoptera. In it, Martyn attempted to portray a considerable number of species by means of coloured illustrations. Only the genera are actually described in his text, and these are referred to Linnaeus. Most of the species depicted on the plates are identified in a table following the text, showing that Martyn had also consulted the works of Fabricius, Scopoli, Olivier, Forster, De Geer and Schrank. Martyn was not able to assign names to some of the insects he illustrated; some of his identifications were surely incorrect; and a number of the figures are of little help to the reader. Because of these reasons Martyn has not received his due from coleopterists, but it must be remembered that relatively few authors before his ambitious work had dealt with British beetles. *The English Entomologist* seems an amateur effort indeed when compared to the grand surveys of the nineteenth century, but viewed from the proper direction, it was a brave attempt to reduce chaos into order.

The bibliography of Martyn's book has been confused for two reasons: its printing and its assembly. There was a dual printing of the text in English and French, each with a separate title, so that copies of three basic sorts are found, (1) English text with plates; (2) French text with plates; and (3) both texts, one after the other, with plates. I have examined or obtained bibliographical data about forty-two copies of *The English Entomologist,* and it is obvious that one could originally purchase the work in his choice of the three. Further confusion has resulted from the ways in which binders have assembled the components of each, and the order of an "ideal" copy of the third sort, including all components, has not been sufficiently established.

The acquisition by the Michigan State University Library (East Lansing) of a remarkably preserved copy provides the opportunity of describing what, from my survey, appears to be an "ideal" assemblage. The tan wove wrappers are not printed, and bear no present evidence of having had a label,

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although one may have become detached. The pages, untrimmed and thus in their original size, measure 35.4 by 28.2 cms. The copy includes, as originally stitched, the engraved title, preliminaries and text in English; all of the same in French; the [partial] table of contents of the plates; the coloured plates; and the uncoloured plates of medals. The pagination is [i-vi], 1-[34], [i-vi], 1-[42], [i-iv] pp., 42 numbered and 2 unnumbered plates, detailed as follows:

English: [i] engraved title; [ii] verso blank; [iii-v] dedication; [vi] blank; 1-8 Preface; 9-16 Introduction to Entomology; 17-33 Ordines Insectorum [followed by] Ordo I. Insecta Coleoptera; [34] blank. *French*: [i] engraved title; [ii] verso blank; [iii-vi] dedication; 1-7 Préface; [8] blank; 9-18 Introduction à l'entomologie; 19-41 Des differéns ordres d'insectes [followed by] Ordre premier. Insectes coléoptères; [42] blank. General Table [of plates]; 42 numbered hand-coloured plates of insects; two unnumbered and uncoloured plates of medals titled "Aurea Numismatica".[2]

All the leaves are unsigned, but due to the condition in wrappers an accurate description of the gatherings can be made according to the following collation: engraved title, $[A]^2$, $[B\text{-}E]^4$, $[F]^1$, engraved title, $[G]^2$, $[H\text{-}L]^4$, $[M]^1$, $[N]^2$, plates. (The signature letters are, of course, hypothetical.)

It should be emphasised that although this is a reasonable order of all components of *The English Entomologist,* "English editions" or "French editions" bound individually should not be rejected as incomplete, as they were issued for sale in that manner. However, a complete "English" or "French" copy should have the appropriate components of title, preliminaries and text for the language, with the General Table, the 42 coloured plates, and the two plates of medals.

NOTES

[1] A brief sketch about Martyn is in the *Dictionary of National Biography.* His birth and death dates are unknown, but apparently he was still alive in 1816. Martyn's most extensive work, *The Universal Conchologist,* has produced a number of commentaries, but his entomological books have attracted lesser notice. A full account of the published states of *Psyche,* the unpublished plates, and the interesting sources of the work has yet to be written; a census of copies was conducted by F J. Griffin and C. D. Sherborn (1931), *The Library Association Record,* 3 ser., 1: 192-194. A number of Martyn's curious pamphlets can be located, sometimes with difficulty, in the British Library.

[2] The plates of medals (awarded to Martyn for his work on shells) are wanting in many copies of *The English Entomologist,* apparently due to extraction for numismatic or decorative use; it may be that some copies did not originally contain these plates. Although the placement of the entomological plates is constant, after the printed matter, the numismatic plates are the most variable component in that respect, appearing at various positions.

[3] The edition was printed on a variety of thick wove paper. In the copy described, the English text is on paper watermarked J. Whatman; the watermark of the French text is capital WL. The plates and titles are unwatermarked. The only evidence of a printer's identity is at the end of the English text (p. 33): the Shakspeare Press, by W. Bulmer & Co. The English text, the French text and the table are all in differing type, which with the varying watermarks would suggest a complex printing history. At least one of the original drawings has survived (Plate 27), in the British Museum (Natural History).

Zizeeria knysna Trimen (*lysimon* Huebner) (Lep.: Lycaenidae): an Additional Species of Butterfly to the Maltese Islands

By Guido Bonett*

On the 12th March, 1978, while taking part in a bird ringing session with two other members of the Malta Ornithological Society at Ghadira Pool in the north-west of Malta, I happened to catch a glimpse of a small butterfly (Lycaenid) which I had unintentionally disturbed, fluttering flimsily close to the ground along the low scrub which is characteristic of the locality. Being a keen lepidopterist and an intimate friend of Mr. Anthony Valletta (who is in this respect my tutor), I could not miss the strange flight pattern and behaviour of the specimen, something which induced me to have a closer look. Fortunately the butterfly had alighted amidst a clump of Golden Samphire (*Inula crithmoides* L.) a few feet away from where I stood, and I had no difficulty in getting very close to it.

At first I was struck by the light pale fawn colour of the underside and had the impression that I was looking at an aberration of the Common Blue (*Polymatus icarus* Rott.). I suddenly realised that I did not have my net and other collecting equipment with me, so I had no alternative but to try and catch the specimen with nothing but my bare hands! Luckily this proved to be easy as the butterfly seemed unwilling to fly, probably due to the fact that it was still only 8.45 a.m. and the temperature was too low to induce much flying about. Soon afterwards, with my unidentified catch in a matchbox, I was on my way to Birkirkara. Since I live only a few minutes walk away from Mr. Anthony Valletta's residence, I went straight over to show him my catch. Moments later I was being told that one of my greatest ambitions had been fulfilled — the butterfly I had taken was a new species to the Maltese list, the African Grass Blue, known scientifically as *Zizeeria knysna* Trimen (*lysimon* Huebner). A female.

One of the interesting features of the specimen is its very good condition. It is not frayed at all and gives the impression of a newly emerged butterfly. Because of this observation the locality has since then been visited a number of times, always with the hope of encountering another specimen to support the theory of a brood of this butterfly breeding in the area. It should be noted that the habitat here (according to *The Field Guide to the Butterflies of Britain and Europe* by L. G. Higgins and N. D. Riley) is very suitable for the species, being damp and moist; it is at sea level and both *Medicago* and *Oxalis,* which are foodplants for the species, are abundant. Unfortunately no other specimens have been seen.

There could be three concluding factors for such a negative result: (a) Since the weather in February was very mild, sometimes hot, the specimen I had taken was one of the last to emerge from the first brood which had already

* 76 Valley Road, Birkirkara, Malta.

passed its prime. (b) So, if this butterfly is breeding on the island, it may appear again as a second brood later on — we have to wait and see. (c) Fantastic as it may seem for such a small species, the specimen taken is an immigrant from either North Africa, Morocco-Algeria, or from Southern Europe.

Acknowledgement

Mr. Anthony Valletta for his constant help.

References

Higgins, L. G. and Riley, N. D., 1970. *A Field Guide to the Butterflies of Britain and Europe.*
Kirby, W. F., 1889. *European Butterflies and Moths.*
Manley, W. B. L. and Allcard, H. G., 1970. *A Field Guide to the Butterflies and Burnets of Spain.*

DEILEPHILA ELPENOR L. IN ARGYLL. — While staying at Lochawe, Argyll, in June, I was shown a specimen of the Elephant Hawk, *D. elpenor* L. by the landlady of the local public house. The moth had apparently flown into the bar, together with another of the same species, on 17th June, 1978 and become entangled in a spider's web. As far as I can ascertain, this is the most northerly record of the species on the west coast of Scotland. — F. B. S. ANTRAM, Valley Farm, Wissett, Halesworth, Suffolk, IP19 0JJ.

CACOECIMORPHA PRONUBANA HUBNER (LEP., TORTRICIDAE): A GREENHOUSE PEST.—At the beginning of June I was delighted to see a profusion of flowers on the grape-vine which I had nursed from infancy in my little greenhouse. The flowers duly opened and I looked forward to seeing the plant's first grapes developing as the petals dropped. No grapes, however, appeared and on closer inspection of the dropped petals, I saw that they were not petals but frass from nearly full-fed larvae of the handsome little Tortricid moth *Cacoecimorpha pronubana* Hübner.

The entire inflorescence of the vine's two "rods" had been stripped, while little or no attention had been given to the foliage. I fear that this is the reward for kindly restraint in the use of insecticides in my greenhouse, and I do not propose to be so tolerant next season.

I think that *pronubana* is the world's champion "polyphag", having more than 100 foodplants recorded against its name. — S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE. 26.vi.1978.

CORRIGENDA

Vol. 89, No. 12 (Dec. 1977), back cover, line 26 up, for "British List" read "Irish List".
Vol. 90, No. 4 (April 1978), p. 113, last line of title, for "Kbm." read "H.-S.".
p. 125, line 13, for "uncommon" read "unknown".

The Preparation and Use of Artificial Diets for Rearing Insects

By Brian O. C. Gardiner*

(*Continued from page* 184)

Equipment

The primary requirement is a suitable machine for mixing the medium. The one usually recommended is the Waring blender. However, any machine that is capable of thoroughly mixing a stiff substance would be suitable. In particular, many of the domestic food mixers should do the job, as also an electric drill fitted with a paint-stirring attachment or other suitable form of blade. A reasonably accurate balance is also required. The great majority of cheap ones on the market today are hopeless since they are far too inaccurate. The best is a chemical balance or the old-fashioned letter balance with pans and weights. Either of these can still be had inexpensively from local auctions and antique shops, but require searching out.

A measuring cylinder, thermometer and one or two graduated pipettes complete the equipment. A soft polythene spatula to stir and prod the medium while it is being mixed is also essential. Never use metal implements when working with blenders.

Containers

As soon as the medium has been made it should be poured into suitable containers. These should either be those in which the larvae are to feed or storage containers. For storage the diet should be poured in large slabs using any suitable large plastic box or a tin as a mould. Such slabs of diet are subsequently cut into strips for feeding to the larvae.

However, many species are best reared by being kept singly or in groups in containers in which the diet has been poured and forms a coherent slab at the bottom of the container. For this purpose glass and plastic tubes and jars of from 5 x 2.5 cm. to 1 lb. and 2 lb. jam jars are best. The warm medium is poured into the container to a depth of 1-2 cm. and the jar then slightly tipped and rolled so that about 1 cm. of the sides of the jar above the medium are coated. As soon as the medium has set, the jars or tubes should be turned upside down to protect the medium from contamination as far as possible. For storage purposes tubes can be grouped into plastic bags and jars covered with suitable lids. All diet not in current use should be refrigerated or deep frozen, depending upon its make up and circumstances.

When filling a lot of small tubes for single larvae it will be necessary to reheat the medium. This is best done by pouring it back into the agar container and keeping it in a water bath at 70°C.

The reason for not keeping the diet above this temperature which, while it would make pouring easier, is that at higher

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temperatures the ascorbic acid in particular and perhaps the antibiotic are destroyed.

Techniques

The various formulations of diets for different species have been developed to a large extent on an *ad hoc* basis but using basic knowledge of nutritional requirements. Once a diet formulation has been proved successful in the rearing of a particular species, there is of course a tendency to continue to use it. Some diets are therefore fairly specific for individual species, whilst others are of general use for a number of different species. The keeping properties of the diets also varies. It is quite possible for a larva to develop from hatching to pupation on the one container of diet. In general, however, better results are obtained when — and it is certainly advisable to do this — the diet is changed every week. Some diets can be stored almost indefinitely at −25°C., whilst others have their gel structure destroyed at this temperature and can only be kept for a few weeks at 4°C.

Basically, all the artificial diets consist of some sort of plant protein, derived from either beans or wheatgerm together with casein and sugar. A comparatively high proportion of Vitamin C is also necessary. Most of the other ingredients used are for binding and keeping off the bacteria and fungi for which the diet is an ideal medium for growth. The methods of making up the diets also varies, but provided certain precautions are followed I have found from experience that it does not seem to matter. Essentially, ascorbic acid and antibiotics are unstable at high temperature and must therefore be added last, after the boiled agar (which should also be cooled a little before hand) is mixed in with the rest of the diet. The various ingredients are sometimes added separately; at other times they are premixed and an aliquot then taken. Various additives may be put in either as solids or as solutions. The actual method to use will depend partly on the resources of the individual and partly on the quantities of diet that it is required to make on a regular basis.

Before making up a diet, one must also consider the habits of the insect to be reared. Is it a surface feeder such as *Pieris brassicae,* or an edge feeder like *Manduca sexta*? Surface feeders are best reared in tubes and jars with the diet poured into them to a depth of 1-2 cm. Edge feeders are best in rectangular plastic boxes with the diet supplied in cut strips. These should not be thinner than 0.5 cm. in section or they may dry out and harden too quickly. The bottom of the boxes should be lined with Kleenex tissue and a piece of expanded aluminium mesh or other metal gauze cut to fit inside the box upon which the strips of diet rest. This allows the frass to fall clear of the diet. In this connexion also, all tubes and jars of diet should be kept on their sides in order to allow the frass to fall clear of the feeding surface. Containers containing newly hatched and small larvae should be closed with metal foil or polythene for the first few days.

After the larvae have grown a bit (which in fact means they can cope with a slightly drier surface), paper closures should be substituted. Large larvae require good ventilation and open mesh closures will then be needed.

It is a mistake to allow larvae to pupate in the artificial diet. Butterfly larvae will normally leave the diet and attach themselves to the side of the container, when all have done this any remaining diet should be removed. Species which normally pupate in the soil require to be removed when ready. Since all larvae change colour and become migratory at this time they are easy to pick out and several methods of pupation have been used. A simple one is to place them in a small container with a Kleenex tissue and well fitting lid. Always then keep them in the dark.

One a diet is made up, it will commence to dry up from the surface downwards. In spite of its compliment of fungicides and antibiotics, various fungal spores and bacteria will settle on it and try to multiply. Provided the surface is being browsed by sufficient larvae none of these events need give any trouble. One of the secrets of success, so to speak, in the use of artificial diets, is to get the balance right in having enough insects in a given size of container to eat the surface of the diet faster than it can dry out, or pathogens of the diet establish themselves. As a guide, some 20 *P. brassicae* in a 5 x 2.5 cm. tube or 100 in a 1 lb. jam jar, and 20 *M. sexta* larvae on a 15 cm. strip of diet. As the larvae grow of course these numbers should be reduced, and large larvae may even be reared singly. Naturally gregarious species, however, I would always recommend to keep in groups. Species such as *Cosmia trapezina,* which are normally cannabilistic, should naturally enough always be kept singly, but there is no doubt that they give more trouble and need greater care in looking after.

I have already stated that it has nearly always been found that changing the diet weekly gives the best results.

When the larvae are small, there is no need to give them any further attention at all. By the time they reach the final instar, those that are being kept in groups may need the frass produced removing, and may also need additional food. With larvae being kept singly, no attention is required until pupation time. Most species thrive best on the diets when they are kept at a fairly constant temperature of from 20-25°C. and a relative humidity of between 50-70.

Diet formulae

All the diet combinations now given are based on well tried formulae and have been in use for several years. To some extent they are interchangeable and little or no difference in size, longevity or fecundity can be found when species are reared on the different formulae. What would be of interest would be to investigate the full range of insects—not just lepidoptera—that can be reared on each. In general, polyphytophagous species are more accommodating as regards acceptance of diets than are host specific feeders. For the

sake of convenience, all quantities have been calculated to make up a batch of approximately 750 ml., which is the amount that can conveniently be made in the usual types of kitchen blender.

SHOREY'S MEDIUM

Developed by Dr. H. H. Shorey in California, U.S.A. A fairly simple medium requiring few ingredients and has been shown to be suitable for the following Noctuid larvae:— White speck (*Leucania unipuncta*); Pearly underwing (*Peridroma saucia*); Ni moth (*Plusia ni*); Bean leaf skeletonizer (*Autoplusia egena*) (but adults laid no viable eggs); Small mottled willow (*Laphygma exigua*); American brocade (*Prodenia ornithogalli*); Alfalfa looper (*Autographa californica*); Bollworm (*Heliothis zea*); Tobacco budworm (*H. virescens*); Cabbage moth (*Mamestra brassicae*). Larvae reared on this medium have been kept at 27°C. and under these conditions complete their development in 14-21 days and feed throughout on the same batch of medium and pupate in their jars. About 15 larvae per 1 lb. jar containing 2.5 cm. depth of medium. When kept at a lower temperature, the medium should be changed half-way through the life-cycle, and in any case at 14 days. The large *Heliothis* must also be separated for they are cannibals.

This medium, although simpler, takes longer to prepare and is not, in our opinion as versatile as the next one. Survival rate, egg to adult, rarely exceeds 50%, while Ignoffo's medium (see below) has given nearly 100%. It is not as acceptable to such a wide range of species, being of no use for Cabbage whites and poor for Arctiids. It does, however, seem to last longer and will, no doubt, prove to be acceptable to a larger range of Noctuids than those so far tried on it. The addition of about 1.5% of dried cabbage leaf powder improves its acceptability to Garden tiger larvae and improves the performance of Cabbage moth. It has the advantage of not requiring the vitamin solution needed by other diets.

The medium consists of the following ingredients:— 214 gms. of soaked Haricot beans; 32 gms. of dried Brewer's yeast; 3.2 gms. of Ascorbic acid; 2.0 gms. of Methyl para hydroxbenzoate; 1.0 gms. of Sorbic acid; 2.0 ml. of Formaldehyde (40%); 12.8 gms. of Agar; 640 ml. of Water.

To prepare the medium, dried Haricot beans are first soaked overnight at 20-25°C. They are then brought to the boil, drained and weighed out. They are then added to one half of the water and must be thoroughly pulped using a suitable blender, as already mentioned. The other ingredients are then mixed in, with the exception of the agar. This is boiled with the other half of the water, using a water bath as already described. It must now be allowed to cool to 70°C. when it should be mixed in to complete the preparation of the medium, which is now poured out into the required containers and in a few minutes has set and is ready for use. This diet does not apparently keep, even if deep frozen, and should therefore be made up fresh when needed.

(*To be concluded*)

Possible Overwintering as Pupae 1977/1978?

By A. Archer-Lock*

It is a well worn and almost invariably rejected proposition that some of those species of butterfly which normally hibernate do occasionally remain in the pupa stage until the following spring. The extinguishing argument is that some insects, on emerging, promptly go into hibernation. Bearing this in mind, I put forward the following "evidence" with some diffidence, but nevertheless feel virtually convinced by my own eyes! It does seem possible that the poor cold weather conditions of late summer 1977 may have had a special effect.

In each of the following records, the butterfly was found to be in immaculate mint condition, particularly with that bloom and fresh richness of colouring associated with the newly emerged insect. All dates refer to 1978.

February 27th. Small Tortoiseshell (*Aglais urticae*). No others appeared in the area for several days. Each showed some signs of wear.

March 24th. Peacock (*Nymphalis io*). Early afternoon on a warm sunny day and yet with a rather feeble flight between basking spots, as if gathering strength after emergence. Strikingly fresh.

April 2nd. Two immaculate Small Tortoisehells join a small group at a nettle bed where others of tarnished appearance had been present for over a fortnight.

April 2nd. One immaculate male Brimstone (*Gonopteryx rhamni*) where several others, showing blemishes, had been active for some days.

These observations came about mainly during research into the roosting habits of small tortoiseshells, when it was found that at first they left the nettle beds towards evening, but by mid March, remained on site, creeping into small hollows. In one interesting case, the butterflies which had hibernated on the barrelled brick ceiling of an ammunition chamber in an old fort, returned to almost identical pitches towards evening. The route involved flying out through an opening from the virtually pitch dark chamber, turning at right angles to fly across another large room, and thence out through a window.

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The White-barred Clearwing: Conopia spheciformis (D. & S.) in Breconshire. — On the 19th June, whilst looking for fritillaries, I found a single specimen of this moth resting on a coppiced alder on a common on the south bank of the Elan river, near its confluence with the Wye. A careful search yielded no more, but as there are many coppiced alders and larger trees there, I hope next year to be able to find larvae or pupae. This is the first record of any member of the Sesiidae for VC42. — Andrew Parker, Pont-ar-dulas, Llanafan Fawr, Builth Wells, Powys.

LETTERS TO THE EDITOR

CONSERVATION OF WILD CREATURES AND WILD PLANTS (AMENDMENT) BILL (H.L.)

Dear Sir,

It is a pity that Mr. Wild (*antea* **90**:186) should have to mar his cause by a petulant and personal attack on the Earl of Cranbrook. The Earl is held in some esteem by biologists and this esteem is manifested in a number of ways including his appointment as Treasurer of the Linnaean Society and as a Trustee of the British Museum (Natural History).

The Gathorne-Hardy family has a long and continuing tradition of service to natural history and to natural historians in Great Britain, in fields ranging from alpine flowers to bat ecology. A little more research might have suggested to Mr. Wild that the Earl of Cranbrook had more than a political interest in the amendments to the conservation Bill: Mr. Wild's dislike for the Earl's sponsorship of these amendments is no excuse for personal abuse. — GADEN S. ROBINSON, 21 Lakeside, Rainham, Essex.

Dear Sir,

Mr. Wild is to be congratulated on bringing this fatuous bill to the notice of readers, and thanked for setting out so clearly the falacies of such a bill.

For too long, entomologists, both amateur and professional, have been blamed for the results of the activities of the developers — building, roadmaking, mining, and so-called amenity operations such as unnecessary draining of marshland, not to mention extensive conifer planting — all of which destroy the habitats of insects, common and scarce alike, thus *killing them in millions against the entomologist's few*. I realise that some of these operations must have priority in this grossly over-crowded island, but they do not excuse bumptious interference with naturalists of all sorts.

Let us hope that the noble lord's bill will be thrown back to him with the request that he consult those with knowledge of the subject before proceeding further. — S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent, BR2 9EE.

Dear Sir,

In reference to the remarks of Mr. E. H. Wild on the matter of conservation, published in the June 1978 issue of this journal, there seems little doubt that most readers will agree with his views on this much discussed subject. We know to our sorrow that certain butterfly and moth species have dwindled markedly in the past few years, but I firmly believe this would have happened if there were no collectors. Unfortunately, misleading statements frequently appear in the press, and elsewhere, about the evils of butterfly collecting. Some of these letters are doubtless from well meaning people, but others are from misinformed fanatics who are ignorant of the facts. Only recently, a letter published on these lines ended with this

remark: "apart from being completely mindless this unpopular variety (butterfly collectors) is often heard to say, do come and see my rare collection of butterflies. Some are extinct now you know!" The truth is, that much of our present knowledge of entomology is a result of the efforts of collectors in the past, though no one would deny that some black sheep of the fraternity have over-collected certain species. However, I believe that today most collectors are much more modest in their demands, and do not allow greed to overrule their scruples.

Far more serious is the destruction of habitats, which goes on the whole time from all kinds of operations, including the growth of towns, modern forestry and the reclamation of so-called wasteland. For instance, until some twelve years ago there existed, a few miles from where I live in South Yorkshire, what was probably the best area for the Large Heath (*Coenonympha tullia* Müller) in all Britain. The site extended to at least 2,000 acres, and was also rich in other local species of Lepidopera, but regrettably owing to wholesale peat-cutting, the butterfly now no longer occurs there. *This is only one example of many, where a local lepidopteron has become extinct from the destruction of its habitat.* Thus, if we are to try to save our rare butterflies and other insects, it is their habitats above all that we must conserve. — GEORGE HYDE, 26 Warnington Drive, Bessacarr, Doncaster, South Yorkshire, DN4 6SS.

Dear Sir,

I was sadly disappointed to read Mr. E. H. Wild's item in the June 1978 issue of the *Record* (p. 186). Britain's indigenous butterflies despite wishful thinking from some people, are undoubtedly in a very serious position at this present time. It is extremely wishful thinking on Mr. Wild's part that species like *C. tullia, L. bellargus, M. cinxia* and *T. acteon* are "such common butterflies". I feel I know the present butterfly situation from first-hand experience, as an enthusiast of the subject who has for the past decade, travelled annually to observe and photograph (certainly not to take specimens) most of the rare and local species found in this country. These rare and local species are suffering from various sources of destruction, which I fear will, in future years lead to the extinction or severe reduction of several kinds unless steps are taken now to dispel some sources of present day threats. One of these threats is over-collecting, putting severe pressure on the too few localities of local or rare species.

I can sadly quote innumerable instances of unnecessary over-collecting, some of which were outrageous and little more than an act of sheer violence against Britain's butterflies, which are after all, a part of our country's heritage. Three plus instances which occurred this Summer were: thirty *L. sinapis* collected in a single day in a Sussex Forestry Commission wood, plus another two hundred taken by a commercial

dealer, this according to Forestry Commission sources. Seven *A. iris* taken in a single day by some individual who must have disposed of every one captured on that particular day, regardless. A very well-known Professor was also recently challenged in a Hampshire and Isle of Wight Naturalists Trust Nature Reserve for disposing of six *H. lucina* females plus six of anything else that had attractively coloured wings. These creatures are really not safe anywhere.

Why should anyone really need to take or kill more than two specimens per calendar year in any one ten kilometre square, as the Amendment to the Bill suggests, without informing the Nature Conservancy Council of the intention and reason?

In my view, this Amendment to the Bill is not enough for some species which surely need the full protection as afforded *M. arion,* if they are not to follow the same disastrous route. In particular, I refer to the Chequered Skipper (*C. palaemon*), whose populations are so small in each of its Scottish locations that collecting should be stopped immediately before it suffers the same fate in Scotland as it has done in the midland counties. The Conservation organisations seem to wait until situations deteriorate so drastically (as in the case of *M. arion*) before action and research is undertaken. If only fifteen or twenty years ago something had been done to help the plight of *arion,* could its position today have been better? Decimation of populations by collectors with pressure on well-known localities is seemingly forgotten as a non-contributory factor meaning little or nothing with the decline of *M. arion, C. palaemon* or the extinctions of *L. dispar, A. crataegi* and *C. semiargus.*

The facts are simple. Mr. Wild's such common butterflies are Britain's uncommon species of few and restricted localities, and very much in need of urgent conservation measures to preserve them as British species for future generations to enjoy, and people of my age to continue photographing and observing for years to come. As a young man, I wholeheartedly give my support to any Act of Parliament that helps in any way whatsoever the plight of British butterflies. — K. J. WILMOTT, 34 Daybrook Road, Merton Park, London, SW19 3DH.

Notes and Observations

CLOSTERA ANACHORETA D. & S. IN KENT IN 1978. — A fine male of the Scarce Chocolate-tip settled quietly on a corner of the sheet at 10.45 p.m., at Dungeness, on the 18th August. The night was warm with no wind, and the only other migrants were a small number of *Autographa gamma* L. which has been very scarce this year. Five minutes after I had boxed the *anachoreta,* a ♀ *Schoenobius gigantella* D. & S. arrived on the identical, but now hallowed spot. — E. H. WILD, 112 Foxearth Road, Selsdon, Surrey.

ETHMIA BIPUNCTELLA F. (LEP.: ETHMIIDAE) IN LINCOLNSHIRE. — My friend Gerald Haggett kindly sent me a number of full-grown larvae of this species that he took on the Lincolnshire coast on 17th August last. They were found feeding on Viper's Bugloss, which is not a common plant in Lincolnshire. Meyrick (1927) gives Bucks. and Kent, and I also have a specimen from Sussex (Peacehaven, 1951), but I am not aware that the species has been recorded from elsewhere in Britain. J. M. CHALMERS-HUNT, 24.viii.1978.

PHYLLONORYCTER DISTENTELLA (ZELLER) IN EAST KENT. — From mines on the underside of oak leaves collected at Ellenden Wood, Whitstable on 17th October, 1977, a series of this local moth emerged between 17th May, 1978 and 23rd May, 1978.

I have subsequently captured single specimens of *P. distentella* at Crockham Wood, Hernehill (some 2-3 miles from Ellenden as the crow flies), on 10th June, 1978 and 24th June, 1978. Identification has kindly been confirmed by Dr. Ian Watkinson. — N. F. HEAL, Fosters, Detling Hill, Maidstone, Kent. [This species has only once before been recorded from Kent, the moth having been taken by the late H. W. Daltry in Blean Woods in early June 1935 (cf. Daltry, *Entomologist*, **69**: 114). — Editor.]

A NEW ICHNEUMON PARASITE OF THE PURPLE HAIRSTREAK (QUERCUSIA QUERCUS L.). — During June 1977, 18 larvae of the Purple Hairstreak were obtained by beating in a Hampshire locality, and a further two from Sussex. These produced 16 adults during July, of which 12 were released in a Middlesex wood already containing a large colony of this butterfly. However, four pupae did not emerge, and since these were obviously still alive they were kept over winter on the assumption that they would emerge in July 1978.

During May 1978, each produced an ichneumon which was kindly identified by Mr. Ian Gauld of the Commonwealth Institute of Entomology as *Agropon anomelas* Grav., a rare species whose host(s) to date had escaped detection. Three of these specimens now add to the eleven in the national collection. — A. M. GEORGE, M.Sc., 67 Potter Street, Northwood, Middlesex.

HENRY NOEL HUMPHREYS AND HIS GENERA OF BRITISH MOTHS. — There appears to be some doubt about both the mode of, and the date of, publication of H. N. Humphrey's "The Genera of British Moths". The present high prices being commanded by books of this sort has drawn many copies out of the woodwork and there is scarcely a bookshop, or bookseller's catalogue, without a copy on offer this year. It would certainly appear to be one of Humphrey's commoner publications. Copies are offered bound either as one or two volumes and in/out of original publishers decorated embossed cloth binding. From internal statements the similar Butterfly Genera book can be dated to 1859. For the moths, 1858, 1859 and

c. 1860 are variously given. Mr. Eric Classey, in a recent catalogue states: "It is sometimes stated to have been published in two volumes but it apparently appeared in both forms."

I have now come across evidence that it was in fact published in monthly parts, but over what period of time is not yet known. This evidence is from a publisher's catalogue, "Baillière Brothers' catalogue of standard and recent books on all branches of Natural History". This extensive 48-page catalogue is bound up at the back of my copy of "The Complete writings of Thomas Say on the Entomology of North America". This is the 1859 edition, edited by John L. Le Conte. The catalogue entry for the Humphrey's book is as follows: —

Humphreys (H.N.) The Genera of British Moths popularly described and illustrated in a series of Picturesque Plates, exhibiting the Insects in their different stages, with the caterpillars on the plants on which they are generally found. Part 1, royal 8vo. (Published monthly) London 75. (The 75 stands for the price, 75 US cents, then worth 18p). It is perhaps also worth mentioning that on February 4th, 1860 Messrs. Baillière were advertising the Say book in "The Entomologist's Weekly Intelligencer".

Now it was very common practice in the nineteenth century to publish books in parts and then finally to issue a bound volume. (Sometimes "half" volumes were issued.) This then explains the doubt about whether it was published in one or two volumes. It is my opinion that it was published in parts and then issued as one volume in a publisher's binding. Persons who had bought the parts would, when completed, have them bound according to their individual preference. No second volume title page was apparently issued, and all two volume sets I have seen have been in differing (often sumptuous) bindings, while nearly all one volume issues have been in the publisher's decorated cloth binding, usually in very poor condition. There seems now no doubt that 1859 can be fixed as at any rate the commencement of publication. What we need now is for someone to produce a copy still "in parts as issued". — B. O. C. GARDINER, A.R.C. Unit of Invertebrate Chemistry and Physiology, Department of Zoology, Downing Street, Cambridge.

THE FLAME WAINSCOT (MELIANA FLAMMEA CURT.) NEAR EASTBOURNE. — On the 14th June, 1978, I took a specimen of this rare wainscot at rest on the top of a reed on Pevensey Levels, near Eastbourne. There are no previous records for Eastbourne, although I believe it has once or twice been taken before in the county. — M. PARSONS, 43 Kings Avenue, Eastbourne, East Sussex.

LEISTUS RUFOMARGINATUS DUFT. (COL.: CARABIDAE) IN S.E. LONDON, E. KENT AND SUSSEX. This interesting ground-beetle has been spreading steadily over eastern and parts of southern England since first taken here in 1942, but there

appears to be no record for the immediate environs of London — the nearest known to me being Banstead, Surrey (cf. Allen, 1968, *Ent. mon. Mag.*, **104**: 9). The long-sustained hope of turning it up on my home territory was at last realised this year when, on 9th June, a male specimen was found at the roots of a birch tree in Maryon Wilson Park, Charlton. (Occupying the same habitat where the Carabids *Pterostichus madidus* F., *Nebria brevicollis* F., and *Calathus piceus* Marsh. — all single specimens.) As far as I am aware, the only other finds of the *Leistus* in West Kent were at Sevenoaks: One Tree Hill (R. Crowson — the original British example) and Knole Park in 1967 (S. A. Williams).

L. rufomarginatus has not, I think, been hitherto noted from East Kent, but my friend the late G. Shephard twice took it in the early 1970s at St. Margaret's Bay. The situation where it occurred is remote in character from the "well-lit beech woods" the species is said to favour, being on the exposed sea cliffs in an area lacking vegetation and with only lumps of bare chalk for cover, where the ground-beetle *Laemostenus complanatus* Dej. predominates. Further, I can report the *Leistus* from Sussex, apparently a new county record — Mr. R. D. Dumbrell having met with in the Eastbourne district from 1968 onwards. — A. A. Allen.

The Emperor Moth in North-west Kent. — Mrs. Margaret Morris, of Bexley, asked me to identify a large caterpillar which she had observed on bramble, on a railway embankment near the centre of Bexley Village on 10th August, 1978. Her description fitted the larva of the Emperor Moth (*Saturnia pavonia* Linn.), and I was able to confirm my tentative identification on 11th August, when I found six larvae. Another one was found on 13th August. All were feeding on the leaves on the lower stems of the bramble, and none was higher than 2 feet above ground level. The larvae were obviously nearing the pupal stage, and two started to spin their cocoons on 13th August.

I find it interesting that the Emperor should exist in what has become a suburb of outer London. Its presence may not be unconnected with the fact that the Newman Butterfly Farm used to be located on the other side of the railway line, but as the farm moved some years ago the moth cannot now be regarded as an escapee, even if it did originally come from there.—I. L. Brydon, 128 The Drive, Bexley, Kent, DA5 3BX.

Acronicta alni (L.) at Ham Street, Kent. — On the night of 3rd June, 1978, I operated my m.v. trap at Ham Street, and amongst the 60 or so different species of macrolepidoptera to come to light was a fine specimen of *A. alni*. The night was warm and almost windless, and among other species of interest were *Pseudoips fagana* (F.), *Drymonia dodonaea* (D. & S.), *Peridea anceps* (Goeze), *Stauropus fagi* (L.). It was interesting to note seven species of "Prominent" amongst the 280 moths that came. — D. Dey, 9 Monmouth Close, Rainham, Gillingham, Kent, ME8 7BQ.

AN UNUSUAL FOODPLANT OF THE EYED HAWKMOTH: SMERINTHUS OCELLATA (L.). — On the 12th August, 1977, my son and I found three half grown Eyed Hawkmoth larvae, feeding on the Dark Green Laurel (*Laurus nobile*) bordering a school playing field in the Croydon area. There must have been many more, as the adjacent bushes were stripped of their foliage, but no more were found, so I presumed they had pupated.

The three we took continued to feed on *L. nobile,* which I have as a hedge, and in due course pupated. On 4th June, 1978, the first Eyed Hawkmoth emerged, to be followed by a female on 18th June, and another female a few days later. The first to emerge was crippled, but the others are perfect though rather small, and with the markings rather darker than normal and having the pink of a more reddish shade. — W. LOCKYER, 74 Frant Road, Thornton Heath, Surrey, CR4 7JR.

AMPHIMALLON OCHRACEUM KNOCH (COL.: SCARABAEIDAE): AN ADDENDUM. — To supplement my recent note on this beetle (*antea*: 17), I now give two further records kindly furnished by Mr. David Atty, of Cheltenham. He caught an example on the Gower Peninsula, W. Glamorgan, "flying over a sandcliff at Rhossili on a hot sunny day about noon, 14.vi.63" and refers also to a Gloucestershire capture by E. G. Neal (? published) of one flying over hay in the sunshine in June 1938, near Coleford in the western vice-county; but adds that there is no specimen in Neal's collection. These two records are of interest in forming, in some measure, a link (or pair of links) between the previous ones for S. Wales (S.E. Pembs.) and the centre in the Berkshire Chilterns. — A. A. ALLEN.

GABRIUS KEYSIANUS SHP. (COL.: STAPHYLINIDAE) NEW TO KENT AND THE SOUTH-EAST. — This *Gabrius,* one of the several species separated by Sharp in 1910 from the old "*nigritulus*", remains one of our rarer species with, apparently, few recorded localities and those all western: on the coast in Devon, Cornwall, Lancs., and in Ireland, Co. Kerry.* To these may be added Dorset (Studland, by the late Mr. P. Harwood and myself, independently), and my friend Mr. S. A. Williams has taken it in recent years in the New Forest. When Mr. Williams and I were collecting at the now well-known flooded sandpits near Lydd, E. Kent, on 1st June of this year, we each found a few specimens of *Gabrius* among various beetles taken by working along the sandy shore of the lake, the males of which yielded the characteristic aedeagus of *G. keysianus.* This is a notable extension of the previously known range of the species in Britain, perhaps recent as is almost surely the case with some of the Coleoptera of the locality. Abroad, *keysianus* occurs rarely on the North Sea coasts of Belgium, Holland and Germany (and nowhere else) and may, therefore, in time be discovered on the east coast of England. — A. A. ALLEN.

* Captures on the Welsh coast would be expected, but I am not aware of any.

LEPTIDEA SINAPIS L. (WOOD WHITE), AB. BRUNNEOMACULATA STAUDER IN BUCKINGHAMSHIRE. — On 8th June, 1978, we recorded a male of this apparently albinistic mutant of the Wood White in Bernwood Forest, Buckinghamshire. The black markings are replaced by pale buffy ochre and when flying the butterfly looked quite unlike a normal Wood White. According to Howarth (*South's British Butterflies,* 1973), *brunneomaculata* has been recorded a number of times, chiefly in the Midland counties, most recently in 1956. — CAROLINE PEACHEY and D. F. OWEN, Department of Biology, Oxford Polytechnic, Headington, Oxford.

PIERIS RAPAE L. ON THE ISLE OF CANNA. — I took this here for the first time on 3rd August, 1978, two males. On 7th August I found a pupa on the underside of a cabbage leaf while removing larvae of *P. brassicae* from the cabbages. This emerged, a female, on 20th August. *P. rapae* must have bred here this summer. This raises the number of butterfly species in the Canna collection to 16. There has been no sign of any migrants here this summer at all. — J. L. CAMPBELL, Isle of Canna, Hebrides.

THE DOTTED CARPET (ALCIS JUBATA THUNBERG) IN WESTER ROSS. — In view of R. G. Chatelain's note concerning this species in the Black Isle (1978, *Ent. Rec.,* **90**: 172), I thought it worth recording that I found this species quite commonly at Plockton, Wester Ross, in 1975. — M. R. YOUNG, Dept. of Zoology, Aberdeen University, Aberdeen.

AN ELATERID AND A CHRYSOMELID (COL.) NEW TO THE SOUTH LONDON AREA AND PROBABLY TO WEST KENT. — While sweeping coarse grasses and mixed herbage on Woolwich Common near here on the evening of 12th July last, I found that I had netted a specimen of the very local click-beetle *Athous campyloides* Newm. (=*difformis* Lac.) — much to my surprise, since no record of it seems to exist for the South London area or indeed, as far as I know, for West Kent. As dusk fell, further specimens occurred; eventually they were coming up plurally at every few sweeps, and all males. They appeared to be confined to a strip of the eastern fringe of the common, adjacent to a busy road and to one side of a small spinney. The crepuscular and gregarious habit of the males, and the seeming lack of females, are normal for this species which I had previously taken just north of London, in Herts. (cf. *Ent. mon. Mag.,* 1945, **81**: 11). Oddly enough, its habitat there was likewise close to a busy road — in fact on each side of it. Records of the beetle are not numerous and appear to be concentrated mainly in East Kent.

On 15th July, 1977, I beat a solitary example of another very local species, the leaf-beetle *Plagiodera versicolora* Laich., from a willow (*Salix fragilis* L.) at Abbey Wood — one of the few trees of its kind left in an area now "improved" to make way for new roads, used-car dumps, and such like manifestations of what is euphemistically termed "progress", yet retaining a curiously rich insect fauna right up to last year. The beetle proved to be a female and laid many eggs, whence

a brood was raised in a jam-jar on willow from the garden. I have no West Kent record noted for *Plagiodera*; and in East Kent only Canterbury (V.C.H. list), though I once took a specimen at Ham Street on a willow by the roadside (*not* in the famous woods). As the species seems rather seldom found, it may be worth enumerating my other captures of it which were near Stratton-on-Fosse (N. Som.), Oxford (common), Windsor, Rickmansworth (Herts.), Sunbury Island (Middx.), Play Hatch, near Reading, Madingley (Cambs.), and Hereford in flood refuse; except for Oxford, these relate to single specimens or almost so, and in every case, apart from the last listed, the host tree was, I believe, that mentioned above. Fowler's datum "occasionally on birches" (1890, *Col. Brit. Isl.*, 4: 314) probably has its origin in casual strays from nearby willows. Last autumn I met with *P. versicolora* in plenty in a wooded ravine in S. Ontario, Canada, hibernating under bark and in rotten logs and fallen trunks at some distance from a large spreading willow; it is already known from North America. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

Current Literature

Henry Doubleday: the Epping Naturalist by **Robert Mays.** 8vo. (xii) + 118 pp., portrait, 3 plates (including 1 coloured). Edition limited to 1,000 copies. Precision Press, Marlow, Bucks., 1978. Price £4.20.

For years Robert Mays has been a devotee of Henry Doubleday, researching and studying every aspect of that remarkable man's life, and probably no one living is better qualified than he is to be his biographer. Written in a scholarly and pleasing style, this book is arranged in a series of 33 short chapters beginning with the Doubleday Quaker background, Henry's childhood, a description of "The Forest" that he and his brother Edward so loved, followed by ornithological accounts, botanical matters and details of his skill as a taxidermist. However, it is to the entomologist that this book will mainly appeal, and especially to those interested in lepidoptera, for it was as a student of that Order that Henry Doubleday excelled. Thus, we read about "Observations on some unusual species of moths", "Edward Newman and Henry Doubleday", "On hibernation and other problems", "On more rare moths", "*gueneei, ashworthii* and *barrettii*", "Attempts at naturalisation", "Some rare butterflies", "More butterfly anecdotes", "Sugaring" and "The Synonymic List of British Lepidoptera".

Though extaordinarily knowledgable as a naturalist, particularly in regard to his native Essex, Henry Doubleday published all too little. The limelight was abhorrent to him and even his most important published contribution to science, which was no more than a bare list, was only written at the special request of his close friend Edward Newman. Of far greater interest one suspects, would have been his unpublished mss., including what must have been a voluminous corres-

pondence to fellow naturalists, most of which no longer survive. Then there was his Diary, in which he is said to have recorded numerous observations, and which Miller Christy searched for in vain after his death in 1875. On the other hand, his collection of butterflies and moths described in the Foreword as "magnificent" and later in the book as "splendid", and which could have been so revealing but is not, is one of the most disappointing I know, with its row upon row of specimens all devoid of data.

Documentation at the back, in the form of a series of 204 numbered notes relating to the text, engages much of one's attention, though regrettable in a work of this kind is the lack of an index. Another important omission is the fact that no mention is made of the whereabouts of the various collections of Henry Doubleday correspondence such as still survive. Apart from these few strictures though, this is a decidedly attractive book, nicely printed on a good quality paper and the whole tastefully enclosed in strong dark green boards. — J.M.C.-H.

Imms' General Textbook of Entomology. 10th edition. **O. W. Richards** and **R. G. Davies.** Vol. I, Structure, Physiology and Development, 418 pp., 203 illustrations. Vol. II, Classification and Biology, 934 pp., 387 illustrations. London: Chapman & Hall, 1977. Vol. I: £15.00 boards, £5.95 paper; Vol. II: £30.00 boards, £15.00 paper.

The 9th edition of this standard textbook was published in 1957, and comprised 886 pages. Twenty-one years later, the 10th edition has grown to 1,354 pages, been split into two volumes, and made available in the sturdy "Science Paperback" series.

Volume I is divided into two sections, Antomy and Physiology (284 pp.) and Development and Metamorphosis (71 pp.). Numerous, clear line-diagrams illustrate the text and extensive bibliographies are included. The authors have maintained the "traditional" approach to entomology and their treatment of anatomy and embryology is both comprehensive and readable. Sections of the text dealing with aspects of physiology or biochemistry are set in smaller type, and give the impression that these aspects of entomology are somehow only incidental to the main theme. Topics of current interest such as pheromones and insect hormones receive scant treatment, and this volume cannot be recommended as an introduction to insect physiology, particularly in view of the excellent books already on the market. Some modern work on ultrastructure has been included, but perhaps this aspect is beyond the scope of a general textbook.

Volume II deals with the orders of insects, retaining the 29 orders of previous editions. Diagnostic keys to families have been omitted in this edition, although a key to the superfamilies of the Polyphaga (Coleoptera) seems to have escaped the purge. After a brief introduction on classification and phylogeny, each order is dealt with in detail. The general pattern is a brief diagnosis of the order, introduction, external

and internal anatomy, early stages and classification, which is taken down to family level. Each family is briefly described (for example, the Noctuidae receives 60 lines, and the Tortricidae 15 lines). An extensive bibliography concludes each chapter. Numerous illustrations accompany the text, most being line drawings of high quality. Many whole insects are figured, but often no indication is given of the size.

The nomenclature gives rise to some minor irritations. Authors's names are not used, presumably for space considerations. Revision of the nomenclature is evident, although by no means complete — for example, the Gold Tail Moth becomes "Euproctis similis (=chrysorrhoeae)", whilst the Brown Tail remains obstinately as "E. phaeorrhoe". One or two peculiar inversions occur, such as that on page 1089 where we find " . . . Sterrha virgularia (=Idaea seriata) . . . " The bibliographies have been revised, and a number of the older works omitted. Coverage is somewhat erratic, for example in the Coleoptera, the first two volumes of Balfour-Browne's work on British Water Beetles are cited, but Vol. 3 on the Hydrophilidae is not. Similar omissions were also noted in the Diptera and Lepidoptera. The bibliographies are best described as extensive, but not comprehensive.

One of the easier tasks in reviewing a book is the location of errors, omissions, etc. Far more difficult is to assess the value of the work to modern entomologists. The authors of "Imms" suggest that perhaps the day of the general textbook has passed, and that their function is better served by a series of special monographs. Whether or not this is so remains a matter of opinion. Considering the size of the task undertaken by the authors, the results can only be described as first class, and "Imms" should remain a standard text on general entomology. The new edition will be welcomed by all those who do not actually have to buy it, for at nearly £21 for the paperback and a staggering £45 for the hardback, our sympathy must lie with the student for whom these volumes will be an essential purchase. — PAUL SOKOLOFF.

L. W. SIGGS. — As we go to press we hear of the sad news of the death on the 31st July, of Mr. L. W. Siggs of Minstead, Hampshire, who besides being a regular contributor to *The Record,* for many years compiled until recently the Lepidoptera section of the Special Index. Born on the 5th of May, 1898, he was thus in his 81st year at the time of his death. By profession a civil servant in what was formerly the Ministry of Health, he resided for many years at Orpington, Kent, until his retirement, when he moved to the New Forest. Siggs was a man of quiet temperament, kindly, knowledgeable and a most careful observer. He had a marked sense of humour; of the capture of one of his best moths which flew into his car he remarked that he "must have the most expensive moth trap in the country". We understand his collection has been offered to and accepted by the British Museum (Nat. Hist.). — J.M.C.-H.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting shoud bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — A copy of the Butterflies and Moths of Kent Vol. 1 Rhopalocera (1960-61) and Vol. 2 Heterocera: Sphingidae-Plusiidae (1962-68) by J. M. Chalmers-Hunt, F.R.E.S. Either bound or as separates from the *Entomologist's Record.* — Please contact D. A. Chambers, c/o Ditton Laboratory, East Malling Research Station, Maidstone, Kent, ME19 6BJ.

Records Wanted. — I am currently up-dating my card-index list of lepidoptera records for Cumbria with a view to early publication of a modern list. Any records from any part of Cumbria would be gratefully received and duly acknowledged. Particularly desirable are records of microlepidoptera and any from remote and relatively unknown parts of the district. — *Dr. N. L. Birkett,* Kendal Wood, New Hutton, Kendal, Cumbria, LA8 0AQ.

Wanted — Oberthur's Etudes de Lepidopterologie Comparee. — *M. J. Percival,* Holmsdale Cottage, Mid-Holmwood, Dorking, Surrey. Dorking (0306) 6104.

For Sale — Large selection of tropical and British butterflies and moths surplus to requirements. — Further details from: *T. W. Harman,* Little Oaks, Church Lane, Westbere, Canterbury, Kent, CT2 0HA.

Wanted — The Butterflies of Western Kenya, Parts 8-9, by H. F. Stoneham. — *L. McLeod,* Quartier des Ecoles, St. Pierre de Vassals, 84330, France.

Insects on Stamps — A cross-referenced checklist, providing classification and full names. 78 pp. £2 post free, from author, *F. Smit,* Park Street, Tring, Herts. HP23 6AW.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L.Inst.Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr. Wild on payment of 60p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber, plus 10p postage.

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ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

TREASURER'S NOTICE

I am pleased to advise all subscribers that the subscription rate for 1979 remains as before at £6.50 for UK and £7.50 for Overseas. May I therefore remind all those who do not pay by standing order, that the 1979 subscription is due and should be remitted as soon as possible.

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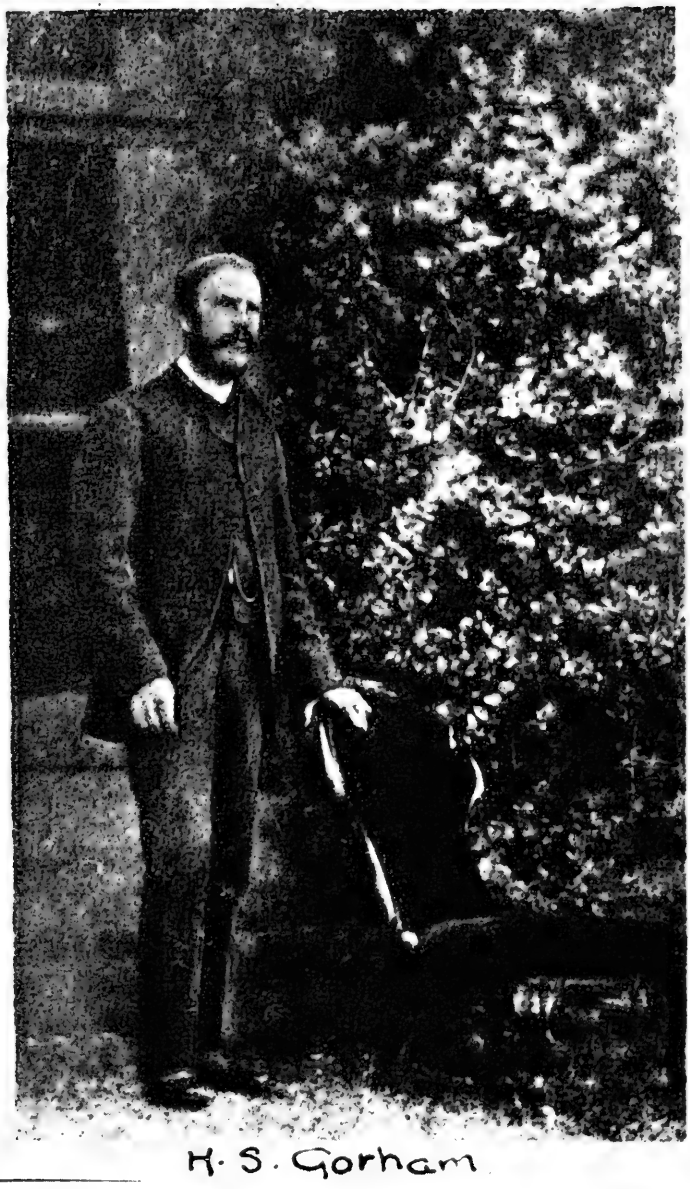

H. S. GORHAM

An undated photograph of Gorham from the archive of the Royal Entomological Society. Unfortunately not very clear, but apparently the only photograph of Gorham in "entomological hands".

Rev. H. S. Gorham and some 19th Century Records

By J. Cooter*

Although the Rev. Henry Stephen Gorham was one of this country's leading entomologists, it is probably true to say that his name is better known to Coleopterists working abroad than those studying theBritish fauna. Gorham died on March 22nd, 1920 aged 81, at Great Malvern, after building up what must have been one of the finest collections of Coleoptera in private hands.[1] He was an authority on many Families, particularly the Erotylidae, Endomychidae, Languridae, and Cleridae, which doubtless plays some part in his being little known to many modern British Coleopterists. He was however an expert on our native fauna, and we owe the addition of many species to him.

His obituary in the *Entomologist's Monthly Magazine* (Tomlin, 1920) is most informative, and I make no apologies for quoting one paragraph in full. "The extensive collections of beetles made by him, including that of the well-known artist Armitage (which was bequeathed to Gorham by its owner, who died on May 20th 1896), have mostly passed into the hands of Continental or American workers. The Endomychids, which included the Guerin and Deyrolle collections and contained many types, were acquired by the British Museum in 1891; the Lycidae were purchased by Bourgeois and the Lampyridae by Olivier, these collections, on the death of their respective owners, passing into the Paris Museum; the Telephoridae, Melyridae etc., were sold to M. Pic, the Coccinellidae to M. Sicard, and the Erotylidae, we believe, to the Deutschen Entomologischen Museum in Berlin."

A more detailed entry appears in Horn and Kahle (1935), "Gorham, Henry Stephen (1839-1920), Brit. Coleopt. via J. A. D. Perrins als Leihgabe 1932 an Stadt. Mus., Birmingham — Clerid., Bostrychid. u. Cisid. 1911 an Mus. Nation. Hist. Nat., Paris. — Lycid., Telephorid. Melyrid., Malachiid., Dasytid., Anobiid., Ptinid. u. Heterom. 1899 an M. Pic (Digoin). — Lampyrid. u. Drilid. via E. Olivier an Mus. Nation. Hist. Nat., Paris. — Endomychid. via G. Lewis[2] 1891 an Brit. Mus. N.H., London. — Typen von Erotylid. u. Languriid. on Brit. Mus. N.H., London. — Coccinellid. an A. Sicard. — Rest 1920 via J. C. Stevens (London) verauktioniert."

It is plain to see that at the time of his death, the material still held by Gorham was only a fraction of the actual collec-

1. Apart from Coleoptera, Gorham had collections of several other Orders of insects, fossils, minerals, birds' eggs and land shells. He was also a well known numismatist and stamp collector.
2. The British Museum (Natural History) acquired Gorham's Endomychids, along with additions by G. Lewis, by purchase from Janson. The collection was of 790 examples of 360 species including 149 types. However, these figures include all Bates' types of *Amphix* as well as other material. (R. D. Pope, *pers. comm.*).

* 45 Lochiel Drive, Milton of Campsie, Stirlingshire, G65 8ET.

tion he built up. The remainder, auctioned at J. C. Stevens' Covent Garden sale-rooms on October 12th, 1920 included a few non-entomological lots, including coins — Gorham was a well known numismatist — as well as books and papers.

Mr. D. B. Janson kindly supplied a photocopy of the annotated sale catalogue in his possession. The Gorham material was sold in 111 lots (catalogue numbers 451-561). Some of the more interesting lots include:

No. 454 EROTYLIDAE, *including types and cotypes of species described by him,* five boxes. (Annotation — 29 types. £18.0.0d.)
No. 455 DITTO: Ischyrus, Mycotretus, Triplax, Paratritoma, Tritoma, Triplax, Triplacidea, Amblyscelis, Lybus, Pseudobybass, Cyrtomorphus, etc., *including types and cotypes,* in three superior large cartons. (Annotation — 15 types — £9.0.0d; 455a: 9 *types* — £2.0.0d; 455b: 3 *types* — £5.0.0d.)
No. 456 LANGURIIDES and *Helota, including types and cotypes,* in three book-boxes. (Annotation — 24 types — £16.0.0d.)
No. 457 Pheropsophus, about 55 species, named and arranged in three polished boxes. (Annotation — boxes — £1.0.0d.)
No. 458 *Heteromera:* Morica — Hopatrum, Phrenapates — Eupezus, Spheniscus, about 350 species in fifteen polished boxes. (Annotation — boxes 30/-, £4.0.0d.)
No. 461 ENDOMYCHIDAE, *about* 350 *species,* 1,025 *specimens, ...including many types and cotypes described by him,* in three book-boxes. (Annotation — 19 types, £22.0.0d.)
No. 476 *Cassidinae,* named and arranged collection, *in four book-boxes.* (Annotation — £0.18.0d.)
No. 491 Coleoptera, Emu Bay, Tasmania and Chili; Scolytidae and others, six boxes. (Annotation — £0.10.0d.)
No. 507 *Dytiscidae,* Gyrinidae and Hydrophilidae, about 500 species named and arranged in two large book-boxes. (Annotation — £1.0.0d.)
No. 510 *Coccinellidae,* etc., about 240 species in large book-boxes. (Annotation — £1.0.0d.)
No. 511 *Lycidae,* Lampyridae, about 240 species in large book-boxes. (Annotation — £0.8.0d.)
No. 519 *Cassididae,* about 450 species, named and arranged in three large book-boxes. (Annotation — £2.2.0d.)
No. 454 Various Coleoptera, 34 pocket boxes. (Annotation — £0.12.0d.)
No. 549 Ten silver coins, (Edward Confessor) two Maltese grains 1693 and 1757, and sixteen bronze coins. (Annotation — £1.10.0d.)

By today's standards these prices seem ridiculously low, but were probably average for their time. It may be noted that the lot preceding the Gorham material ,lot 448 the Bryant Collection of British Coleoptera ". . . named and arranged in fifteen large double store-boxes, about 1,460 species, 7,900 specimens, all well carded and with full data;..." was purchased by Ellis for £21.0.0d. Further, from the numbers and diversity of the material sold at the sale, bearing in mind that the bulk of the most important had been disposed of before his death, the collection Gorham built up must have been truly vast.

Gorham's fine collection of British Coleoptera was acquired by Capt. J. A. Dysson Perrins of Malvern (see notes on the wrappers of the *Entomologist's Monthly Magazine,* volume 56, and Horn & Kahle 1935, quoted above), who in turn donated it to the City of Birmingham Museum and Art Gallery. For many years the collection, housed in two twenty-drawer cabinets, has been on loan to the Geology Department

of the University of Birmingham, Edgbaston. It still contains type material, series of the species Gorham added to our List, and a host of extremely rare species. Unfortunately, with the passage of time it is now in urgent need of curation. Although the majority of specimens are carded, most lack data labels, but carry a hand written code, which up to the time when I finished working at the University could not be interpreted. As good luck would have it, Mr. M. D. Bryan, a Ph.D. student while I was at Birmingham, moved from the University to take up the post of Assistant Keeper, Natural History at the City Museum, within months of my moving to Glasgow. Within weeks Mr. Bryan had found an exchange list and collecting diary that belonged to Gorham, and were donated with the collection in 1932.

Mr. Bryan kindly sent these books to me, and has allowed me to make full use of the diary in this paper. Much valuable information is hidden in the diary, and with its help the code written on the specimen cards can be deciphered. Thus, armed with this invaluable book, it is now possible to put data to the majority of the Gorham material, and so increase still further the value of this most important historic collection.

The diary covered the period 1868 to 1897, the fly-page is inscribed "Henry S. Gorham, Entomological Diary Recommenced Nov. 1868, Needlewood Parsonage, Burton-on-Trent." It should be noted that there are several entries before November 1868. The first page has two entries from 1867, followed by one for 1859 which reads "34 is West Wickham Wood near Addington". This is followed by one for 1860 which reads "72 is Westerham 75". Two pages further on are three entries for 1868 (numbers 1-3, not dated), overleaf are three more (numbers 11-13), then on the next page the diary proper begins. It would seem another book was kept at some time, the entries for 1859 and 1860 in the known diary seem to be notes of correction for previously recorded data. Certainly Gorham was an entomologist before this date, his name appears in the Second Supplemental List of British Entomologists as published in the *Entomologist's Annual* for 1858, viz. "Gorham, H. S. 10 Alfred Street, Montpelier Square, Brompton. *British Lepidoptera."* The note of specific interest being changed in the Annual for 1860 (the last one to have the list) to *"British Coleoptera"*. Whether a post-1897 diary was kept is a matter for conjecture. Certainly Gorham was collecting after this date (see for example Fowler & Donisthorpe, 1913: 295 — *"Platydema dytiscoides* Rossi.[3] Rediscovered in the New Forest in 1901 by Messrs. Donisthorpe and Gorham, who took seven specimens under bark of felled oak." His last published notes appeared in the *Entomologist's Monthly Magazine,* volume 43 (Gorham, 1907)).

A brief history of Gorham's life is given by Tomlin (1920), again I quote ". . . ordained in 1865 to a curacy at Ilam. After successive curacies at Needlewood, Bearstead,

3. *Platydema violaceum* (Fabricius)=*dytiscoides* sensu Fowler, *nec* Rossi.

Enfield and Rusper, he became vicar of Shipley, Sussex, in 1873, and held the living for eleven years. On retiring therefrom in 1884 he went to live at Shirley Warren, near Southampton, and in 1905 moved to Great Malvern, . . . At Shirley he was for some years a near neighbour of Dr. Sharp, . . ." [Sharp eventually moving from Shirley Warren to Brockenhurst.]

Among Gorham's publications ". . . His most important contributions to exotic entomology are 'Endomycici Recitati' (1873), and the 'Malacodermata' (1880-86), and 'Erotylidae, Endomychidae, and Coccinellidae' (1887-89), for the *Biologia Centrali-Americana.*"

NOTES CONCERNING THE FORMAT OF THE DIARY.

The "code" on the mounting cards is quite simple, consisting of two sets of figures separated by an oblique stroke, for example 19/69. This refers to entry number 19 for the year 1869, that is, May 13th, 1869 — collecting in Bagot Park.

Not all entries have their own dates, but from November 1868 each can at least be traced to the month. Some entries, especially those separated at the most by a few days, and referring to the same collecting locality, may share the same entry number. As well as collecting excursions, Gorham includes, in sequence, specimens received from friends and correspondents. Not all the diary entries show names underlined, generally only those rare species, or ones captured for the first time have been so treated. Thus, the names underlined by Gorham only will appear in italics in the text.

Needless to say, the names of many species have been changed with the passage of time, although only a very few of these "old names" cannot be interpreted with accuracy. In most cases I have left these unaltered as generally it is not too difficult to work out what beetle Gorham was referring to. In a few instances it is difficult, and I felt for me to give my opinion of the species "*sensu* Gorham diary" would only add to confusion.

In all instances square brackets are my own additions, and usually used to clarify points.

(*To be continued*)

REQUEST FOR INFORMATION ON IMMIGRANT LEPIDOPTERA IN 1978

R. F. Betherton and I intend producing a paper in *The Record* early in the New Year on immigrant lepidoptera noted in the British Isles in 1978, but especially during October and November. Please send for inclusion, any records of interest to: R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Guildford, Surrey, GU5 OLE; or, to me. — J. M. Chalmers-Hunt, 1 Hardcourts Close, West Wickham, Kent, BR4 9LG.

The Preparation and Use of Artificial Diets for Rearing Insects

(Concluded from p. 270)

IGNOFFO'S MEDIUM

Developed by Dr. Carlo M. Ignoffo in Texas, U.S.A., this medium is a development of an earlier medium devised for feeding the Pink bollworm by Erma S. Vanderzant and Raymond Reiser. It is more sophisticated in many ways than Shorey's medium and lends itself to various modifications, in particular the varying of the "dried leaf powder" to suit different species. So far the following have been reared: — Pink bollworm (*Pectinophora gossypiellae*); Ni moth (*Plusia ni*); Cabbage moth (*Mamestra brassicae*); Large yellow underwing (*Triphaena pronuba*); Bufftip (*Phalera bucephala*); Garden tiger (*Artia caja*); Scarlet tiger (*Panaxia dominula*); Eri silkmoth (*Philosamia ricini*); Large, Small and Green-veined whites (*Pieris brassicae, P. rapae* and *P. napi*); Brazillian bullseye (*Automeris aurantiaca*); Blowfly (*Calliphora erythrocephala*); Housefly (*Musca domestica*); Fruitfly (*Drosophila melanogaster*) and Desert Locust (*Schistocerca gregaria*).

Partial success has also been obtained with *Automeris pyrrhomelas* and *Copaxa multifenestrata,* whose natural foodplant is unknown. Both species reached the 3rd or 4th instar but then expired of a virus disease. But that they feed at all is interesting and encouraging.

At 29°C. Ni moth larvae feed up in eight days on this medium. At lower temperatures and for longer life-cycles, the jars of medium must be changed at weekly intervals for fresh. At 20°C. Cabbage butterfly larvae take three weeks and require two changes of diet. This medium can be stored indefinitely in a deep-freeze. It should not be used after more than 7-10 days storage at 0°C., and then only for larger larvae.

The diet consists of the following ingredients: — Water, 220 ml.; Casein (light white soluble), 25.2 g.; Bemax, 21.6 g.; Sugar, 25.2 g.; Dried Leaf powder (may be omitted), 10.8 g.; Wessons salts, 7.2 g.; Cellulose powder CF11 (Whatman "Chromedia"), 3.6 g.; Choline chloride (10% Aqueous soln.), 7.2 ml.; Methy 4-hydroxy benzoate (15% Alcoholic soln.), 7.2 ml.; Vitamin soln., 1.2 ml.; Formalin (10%), 3 ml.; Mazola corn oil, 2 ml.

To prepare the diet mix all the above together using a good mixer, preferably a blender. The solid ingredients first to the water and then adding the liquid ingredients one at a time. A point to note is that if dried leaf powder is being used it is not then necessary to use the Mazola corn oil as well (see below). For *Pieris* species, 3.0 ml. of a 1% aqueous solution of sinigrin (Potassium myronate) may be substituted for dried cabbage leaf powder.

While the above is being mixed, boil the following

* A.R.C. Unit of Invertebrate Chemistry and Physiology, Department of Zoology, Downing Street, Cambridge.

together: — Water, 400 ml.; Agar, 18 g.

When boiled, allow to cool to 70°C. then mix into the other ingredients. Finally add: — Vitamin C (Ascorbic acid), 3.0 g.; Aureomycin (Veterinary grade), 1.6 g. Mix well in and pour immediately into the desired containers.

I have already mentioned that the dried leaf powder may be varied according to species. It may also be omitted altogether. Nevertheless, it does contain some vital ingredient and when, omitted, 2.0 ml. of "Mazola" corn oil *must be added in lieu.* Medium without dried leaf powder, but with oil, is entirely satisfactory, provided the larvae will start to feed. With normally polyphytophagous species such as Cabbage moth or Garden tiger, little difficulty is experienced, but with more specific feeders, such as the Crucifer feeding Large cabbage white, the initial "take" of newly-hatched larvae falls from 100% to 60%. It can be restored to 100% by adding to the medium a feeding stimulant, normally present in Crucifers, such as the mustard oil glucoside Sinigrin, to the extent of one part in 100,000. There remains great scope for individual experimentation in this field.

The jars of medium should be covered with filter paper or a "Kleenex" tissue, held on with a rubber band. They should be kept on their sides. This ensures that frass falls clear of the medium. It is best to keep the medium at 20°-25°C., and it should not be kept below 60% R.H. If too dry, the medium will rapidly dry out; a sure sign of this is an obvious shrinkage of the medium away from the sides of the jars. Should this occur the larvae must be transferred to a fresh batch.

At weekly intervals they should in any case be transferred. (Do not do this when they are sitting moulting! —wait until they have finished.) When the larvae reach the final instar, the tops should be replaced with terylene gauze to allow more ventilation. It now also becomes necessary to clean out the frass at least every other day if possible.

YAMAMOTO DIET

This diet was specifically designed for the rearing of Tobacco hornworm (*Manduca sexta*). It is usually stored at 0°C. when it keeps for 2-3 weeks. At −25°C. there is a tendency for the physical structure of the gel to break down, but the factors involved are complex and could appear to depend on the particular batch of agar used and also the final temperature of the completed mix.

This diet can be used without changing, for species with a larval life-cycle not exceeding three weeks. Again, this facility must be used with circumspection, as it depends on the number of larvae present and the rate of drying out. Unlike Ignoffo's mix, dried leaf powder is not to be added to this diet. It seems likely that yeast, which contains many things, may act as a general stimulant for a number of species (eg. *P. brassicae*) which will feed 100% on this diet without requiring the specific addition of any feeding stimulants. It has also

been suggested that the addition of the vitamin mixture may be unnecessary. I have not myself tested this hypothesis, but in view of the results obtained with Bot's diet (see below), this may well be so.

The ingredients are as follows: — Agar, 15 g.; Distilled water, 375 ml.; Casein, 26.25 g.; Bemax, 56.25 g.; Sugar, 22.50 g.; Dried yeast, 11.25 g.; Wessons salts, 7.50 g.; Sorbic acid, 1.12 g.; Cholesterol, 0.75g.; Methyl-4-benzoate, 0.75 g.; Choline chloride, 0.75 g.; Distilled water, 262.5 ml.; 10% Formaldehyde, 3.37 ml.; Corn oil, 1.50 ml.; Vitamin mixture, 1.8 ml.; Ascorbic acid, 3.00 g.; Aureomycin, 1.50 g.

This diet should be made as Ignoffo's, but the boiled agar ony requires to be cooled to 90°C. prior to mixing in.

BOT'S DIET

This diet is a variation on the above, omitting some of the ingredients. It has been used successfully for several species of armyworm, some of which are difficult to rear on their normal foodplants. It has the advantage of not using the vitamin mixture. As originally described by Bot, the preparation is tedious and all the ingredients were finally heated to 90°C. (which could largely destroy the Vitamin C), and I would recommend the diet in fact to be made up in the same manner as Ignoffo's diet.

The ingredients are: — Casein, 8.0 g.; Bemax, 52.0 g.; Yeast, 50.0 g.; Choline chloride, 0.4 g.; Cholesterol, 0.2 g.; Inositol, 0.2 g.; Methyl-4-benzoate, 2.6 g.; Ascorbic acid, 5.0 g.; Agar, 12.0 g.; Water, 630 ml.

Bot's original instructions for this diet are as follows: — To prepare the medium, the wheat germ, caesin, and yeast were thoroughly mixed. Methyl p-hydroxbenzoate and cholesterol were dissolved in 20 ml. of 95% ethanol and stirred into the above mixture, taking care to moisten the total contents evenly. The alcohol was then evaporated, either by constant stirring of the mixture in a steam bath, or by heating to 60°C. under vacuum, or simply by spreading out the mixture in a thin layer in a warm place and allowing it to dry. The dry mixture was allowed to return to room temperature, and then the agar was thoroughly mixed into it. Inositol, choline and ascorbic acid were dissolved in the water, and then stirred into the mixture. The resulting thin gruel was poured into 4 x 1 in. specimen tubes, to a depth of about $\frac{3}{4}$ in. These were then stoppered with cottonwool, and placed in a slanting position in an oven at 90°C. for half an hour until a soft, light brown crust, has formed on the medium. The tubes were allowed to cool in an upright position. When water condensed in the tubes, they were set aside for 24 hours to allow the moisture to return to the medium.

Discussion

These artificial diets have all been developed to supply a need. Nearly all the work has been done in the U.S.A., and apart from some Research Institutes, they are as yet little

known in England. They deserve to be far better known. They can be of great benefit not only to the professional, but also to the Amateur Entomologist. Their preparation is comparatively easy. It has been shown in at least one instance, that mortality is invariably less than when on a natural or substitute foodplant. The number of diet formulations now published must run into several hundreds. Many of these are variations on the same theme, with but slight variation and perhaps designed for different species. It does indeed seem that quite large liberties can be taken with varying, omitting, and adding to the ingredients; the field is in fact wide open. Table III gives a summary of various species which have been reared on the various diets, either by the original author of the diet formulation, or by the present author. Apart from the original references to the diets, attention should be given to two recipe books by House (1967), and House, Singh and Balsch (1971), which are a mine of information on the various diets which have been formulated for use with various insect species.

TABLE III

Species which have been successfully reared on the four diets described.

SHOREY'S

Trichoplusia ni; Autoplusia egena; Autographa californica; Heliothis phloxiphaga; Spodoptera exigua; Pseudaletia unipuncta; Prodenia ornithogalli; Peridroma saucia; Heliothis zea; Mamestra brassicae.

IGNOFFO'S

Trichoplusia ni; Philosamia ricini; Pieris brassicae; Mamestra brassicae; Pieris rapae; Manduca sexta; Pieris napi; Carausius morosus; Arctia caja; Schistocerca gregaria; Lymantra dispar; Calliphora ethrocephala; Triphoena pronuba; Drosophila melanogaster; Papilio machaon; Musca domestica.

YAMAMOTO'S

Manduca sexta; Trichoplusia ni; Manduca quinquemaculata; Schistocerca gregaria; Pieris brassicae; Calliphora erthrocephala; Arctia caja; Drosophila melanogaster; Lymantra dispar, Musca domestica; Phlogophora meticulosa; Spodoptera exempta; Danaus plexippus.

BOT'S

Spodoptera exempta; Heliothis armigera; Spodoptera exigua; Prodenia litura; Spodoptera cilium; Plusia acuta.

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ADDENDUM

Since this paper was written the basic diet ingredients have become available in England through ICN Pharmaceuticals Inc., Riverdale Estate, Molesay Road, Hersham, Surrey, and Plenum Publishing Corporation have published a very comprehensive, but expensive, receipt book by Pritam Singh entitled "Artificial diets for Insects, Mites and Spiders", price £47.50.

TRICHIUS FASCIATUS (L.) (COL.: SCARABAEIDAE) IN NORTH WALES. — While walking in the Coed y Brenin Forest, north of Dolgellau, on the 16th July, 1978, a strange looking Bumblebee was seen to enter a Foxglove flower. On capture it proved to be the Bee-beetle, *Trichius fasciatus* (Linn.), a well-known 'mimic' of the Bumblebee. The only other record for Merionethshire I can find for this insect, described as rare in Wales, is in the Llanbedr Valley, no date, quoted in Britton's R.E.S. Handbook (Volume 5, part 11) on the Scarabeoidea (1956).— E. G. HANCOCK, Bolton Museum, Le Mans Crescent, Bolton, Greater Manchester.

ATOMARIA FIMETARII F. (COL.: CRYPTOPHAGIDAE) NEW TO KENT. — I was very agreeably surprised to find an example of this fine and rare *Atomaria* in my net after sweeping part of a patch of lawn and under and about some shrubs, etc., in my small back garden — in fact just behind the house — on the evening of 28th June last, shortly before dusk. It was at that time rather cool and breezy, but much of the afternoon had been warm. To date no further specimen has appeared, and as the beetle's special pabulum (*Coprinus comatus,* the "Ink-cap" fungus) was nowhere in evidence in the immediate vicinity, this individual was perhaps a straggler from some undiscovered breeding-source further afield. There would seem to be no previous Kent record of *A. fimetarii,* other than a possible ancient one given by Fowler (1889, *Col. Brit. Isl.*, **3**: 332) for Dulwich — "partly in Kent" as my gazetteer informs me — which, from its antiquity, its borderline character, and the want of exact details, can in this context I think legitimately be ignored. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

With *Arion* in Silver Jubilee Year, 1977

By ANTHONY ARCHER-LOCK

A glorious day of early summer dawned, the grass laden with dew under a blemishless blue sky. The fresh still atmosphere was filled with the chatter of Jackdaws, contrasting with the soothing coos of a distant Ring Dove, against the murmur of the brook trickling seawards. It was just after 9.00 a.m., as the rapidly warming sun's rays evaporated the dew, leaving only the countless spider's webs spangled in diamond droplets, that the first male Large Blue (*Maculinea arion*), on lethargic wings, settled low down on the gnarled bent stem of a gorse bush, and tilting over after the manner of a grayling or brimstone, indulged in the direct warmth. Here he basked for several minutes in the company of flesh flies, drone flies, and many other insects, before continuing his loose winged flight to vanish beyond a thicket of gorse.

Mid morning brought the occasional music of far distant church bells, scarcely audible in contrast to the cries of herring gulls, several circling overhead on translucent wings against the perfect blue sky. Green Hairstreaks (*Callophrys rubi*) fluttered around the gorse, or sat rotating their hindwings like clutch plates. A Large Blue, iron blue in appearance against the light, travelled fast weaving amongst the thickets, and another raced across the slopes to alight, silvery brilliant, on a prominent patch of delicate pink Wild Thyme (*Thymus drucei*), where later a bee fly methodically probed the same source of nectar on vibrating wings which yielded a high pitched whine.

The heat of high noon became intense, relieved occasionally by a spell of breeze which rustled through the leaves of the stunted tree. Everywhere, the air was filled with the hum of countless insects. Seemingly huge Golden-ringed Dragonflies on wings of glittering gauze, patrolled menacingly at high speed, alert of eye, and one wondered whether the occasional *arion* hastening over the scrub, would fall a victim. A Buzzard mewed, and a Yellowhammer "chigged" repeatedly nearby.

At the time when most of the world was thinking of tea, and a farmer turned his hay on an inland field, a male Large Blue came into view, to settle unusually on a clump of Bell Heather (*Erica cinerea*), where he diligently probed each purple red flower, gently rotating and tilting as he did so. Then he was off, swaying from side to side on a long circling flight, in the hope of scenting a prospective mate, but he had no success.

So the evening gathered, the farmer continued his work, the tiny number of Large Blues went to roost, and only the Meadow Browns (*Maniola jurtina*) remained to enjoy the weakening rays, while a migrating Red Admiral (*Vanessa atlanta*), carrying the colours of the Union Jack, passed through on some distant journey, unaware of the fading drama around.

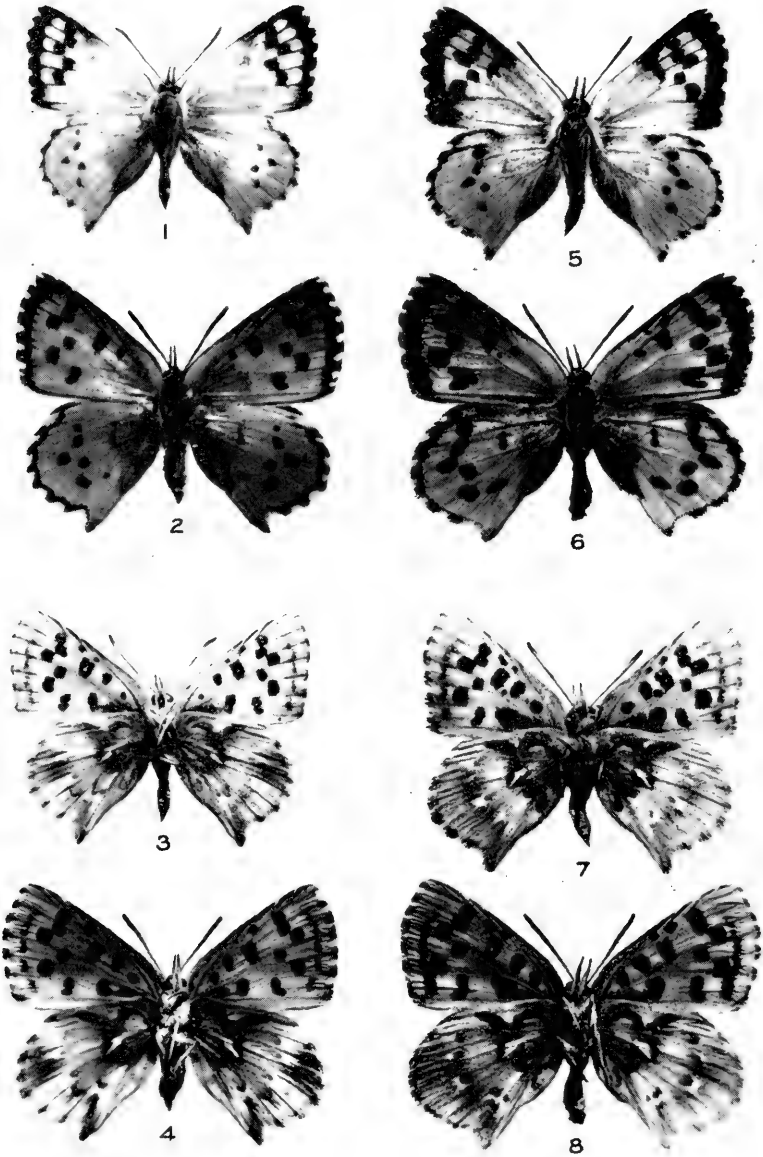

Photo: H. N. Wykeham

Poecilmitis lysander hantamsbergae subsp. nov.
Fig. 1. ♂ Holotype (upperside). Fig. 2. ♀ Allotype (upperside).
Fig. 3. ♂ Holotype (underside). Fig. 4. ♀ Allotype (underside).

Poecilmitis stepheni spec. nov.
Fig. 5. ♂ Holotype (upperside). Fig. 6. ♀ Allotype (upperside).
Fig. 7. ♂ Holotpe (underside). Fig. 8. ♀ Allotype (underside).

Figures 1·5 natural size.

Two new *Poecilmitis* Butler (Lepidoptera: Lycaenidae) from the Hantam's Berg, Western Cape Province

By C. G. C. Dickson, M.Sc.*

(No. 43-44)

These two taxa differ markedly in themselves from one another, but quite close affinity is apparent to another subspecies and species, respectively, in each case. The habitats of these Lycaenid butterflies overlap to some extent, although from observations to date each is decidedly more prevalent in a general area of its own. Their distinguishing characters are covered fairly concisely in this paper, under the names concerned.

Poecilmitis lysander **hantamsbergae** subsp. nov.

Comparisons are made with topotypical *P. lysander* Pennington (1962, *J. ent. Soc. sth. Afr.*, **25** (2): 275), to which insect the present race is most closely related. The margin of the forewing in the male, below vein 4, is less slightly incurved than in nominate *lysander,* or more often not so at all.

Male (*Upperside*)

The silvery-blue of the forewing is, as a whole, more extensive and merges more gradually into the orange-red area of the wing. The pink to violaceous iridescence which continues from the main blue field always reaches fully and covers, or at least partly covers, strongly, the black spots in areas 2 and 3, and sometimes those in 4 and 5; and in 1 and 1b reaches, fully, the black distal border. The iridescence always spreads into the orange area beyond the discocellular marking and thus at least partly reaches the black spot in area 4, frequently that in area 5 and occasionally even that in 6. In extreme cases, the iridescence extends in areas 2 and 3 (as well as in 1 and 1b), as far as the distal border.

Underside

On the hindwing underside there is a rather general tendency (certainly in more than 50% of the males examined) for the finer darker basal or sub-basal markings to be more definitely defined and darker in relation to the lighter background; sometimes in conjunction with corresponding prominence of the outwardly-placed marking in areas 4 and 5.

Length of forewing: 13.0-14.25 mm. (13.75 mm. in holotype). Two abnormally small males have forewing measurements of only 10.5 and 11.0 mm. respectively.

Female

Very similar to that of nominate *lyander,* on both surfaces, as would be expected in such a case — the females of closely allied taxa of the *P. thysbe* group generally differing, if any difference is in fact apparent, far less than in the opposite sex. The allotype, which is in very fresh condition, has the basal bluish colouring of about the same tone as in the female of

* "Blencathra", Cambridge Avenue, St. Michael's Estate, Cape Town.

P. thysbe (L.) and the main orange-red colouring of the wings is of as rich a tone as in fresh females of this species.

In the allotype, the submarginal darker marking of the forewing underside and the marking of the hindwing underside as a whole is more pronounced, and contrasts more strongly with the lighter parts of the wings, than in the two female paratypes. In this specimen the main darker markings of the hindwing are more brown than reddish-brown and the median area is lightish fawn-coloured.

Length of forewing: 15.25-16.25 mm. (15.5 mm. in allotype). Judging by the material that has been available for examination, both sexes of *P.l. hantamsbergae* have been of about the same average size as topotypical *P. lysander.*

♂ Holotype, WESTERN CAPE PROVINCE: Hantam's Berg, Calvinia, 14.x.1976 (C. W. Wykeham); British Museum Reg. No. Rh.18676.

♀ Allotype, W. CAPE PROVINCE: data as for holotype, 13.x.1976; British Museum Reg. No. Rh.18677.

Paratypes at present in Coll. C. W. Wykeham: as holotype, 13.x.1976, one ♂; 14.x.1976, one ♂; 25.x.1976, four ♂♂; 24.x.1977, four ♂♂, two ♀♀; 4.iii.78, seven ♂♂.

Some variation occurs in the shape of the forewing in the male of this butterfly, this being more elongated in some specimens than in others, and the opposite extreme being of a somewhat "square" shape; and the upperside of the hindwing of the male may bear the full complement of black spots (as in the holotype), have these partially developed or, in occasional specimens, lack the spots altogether. Three male paratypes have the dark forewing border much broadened, and in two of them coalescing or partially coalescing with the black spotting — itself very heavy in one case.

This very pleasing member of its group was found, in the first instance, by Mr. C. W. Wykeham, on 13th October, 1976, when accompanied by the writer — who did not, however, ascend the Hantam's Berg to the same height as the peak actually frequented by the butterfly, at an altitude of nearly 5,000 ft. above sea level. An adequate number of further specimens were only obtained after two more trips to the Hantam's Berg were made, from Cape Town, by the discoverer of this insect. It is felt that the differences mentioned do warrant this insect being treated as a local race of *P. lysander*; and even if, on this basis, it would not be the only other race within the species' extensive accepted range.

Poecilmitis **stepheni** spec. nov.

This butterfly is, on the whole, most closely related to *P. beaufortia,* and especially its subspecies *charlesi* Dickson (1970, *Entomologist's Rec. J. Var.,* **82** (4): 93), and the following comparisons are all made with the latter taxon.

Male (*Upperside*)

In the forewing, the silvery-blue is noticeably less extensive than in the other insect, and often more consistently so as regards its lower portion in areas 1a and 1b, and in areas 2 and 3. The development of the black borders and marking

is never as great as in the most heavily marked specimens of *charlesi,* though varying individually and, in lighter marked ones, leaving definite orange spaces even in area 1b, basad of the black distal border.

In the hindwing, the blue is often if not always slightly less extensive than in *charlesi,* darker, generally more clear-cut and has virtually no iridescent extension over the adjoining orange-red area; and the inner-marginal concavity is darker than nearly always is the case with *charlesi.* (The male holotype does not have the most extreme form of dark marking for this sex.)

Underside

On the hindwing, the more basal marking is more often darker and more definitely defined than in the other insect, as well as, not infrequently, in relation to the more outwardly-placed portions of darker marking of the wing. In certain specimens this is very apparent — as in the holotype.

Length of forewing: 13.5-15.5 mm. (15.25 mm. in holotype). Some later males have shown a rather greater range in size than that just given.

Female (*Upperside*)

The restricted basal, rather bluish, area in all wings, is very decidedly darker than in *charlesi* and the inner-marginal concavity of the hindwing is also darker. Forewing black borders broad and spotting, either in forewings or all wings, heavy; but the general degree of development of the dark marking varies within the same limits as in the females of *charlesi.*

Underside

The remarks pertaining to the hindwing of the male apply in general also to the female of the present taxon.

Length of forewing: 15.25-16.25 mm. (the latter measurement, that of allotype). In both sexes the average size of specimens is decidedly below that of *charlesi* — but possibly more noticeable in the males.

♂ Holotype, WESTERN CAPE PROVINCE: Hantam's Berg, Calvinia, 14.x.1976 (C. W. Wykeham); British Museum Reg. No. Rh.18678.

♀ Allotype, W. CAPE PROVINCE: data as for holotype, 13.x.1976; British Museum Reg. No. Rh.18679.

Paratypes at present in Coll. C. W. Wykeham: as holotype, 13.x.1976, one ♂; 25.x.1976, five ♂♂; 24.x.1977, six ♂♂; 25.x.1976, one ♀; 24.x.1977, one ♀.

Paratypes in Coll. Dr. C. B. Cottrell: as holotype, 18-20.xi.1976, ten ♂♂, two ♀♀ (C.B.C.).

When searching for butterflies on the Hantam's Berg on 20th September, 1970, Mr. R. D. Stephen saw specimens which, from the particulars he has furnished, evidently represented the presently-described *P. stepheni*; but through shortage of time he was not able to secure any of these specimens. Bearing these circumstances in mind, Mr. Wykeham has consented, in a spirit of friendly co-operation, to the name suggested by the writer for this very beautiful

Poecilmitis. After taking into account all relevant factors, the impression has been that this insect could best be accorded specific status.

It is necessary to state that the light, silvery-blue areas are not clearly demarked in the males figured in the plate, as a result of "flash" photographs.

Thanks are due, finally, to Mr. W. H. Henning for kindly furnishing topotypical males of *P. lysander* (found by Messrs. G. A. and S. F. Henning, and I Bampton) for the present study.

FIRST (?) KENT RECORDS OF TWO SPECIES OF GALERUCINAE (COL.: CHRYSOMELIDAE). — *Lochmaea suturalis* Thoms.: there seems, strangely, to be no published record of this widespread species for Kent — at least, I have no note of any. Its scarcity in the county is doubtless due to the fact that its foodplant, heather, is not a common Kentish plant. I should, therefore, remark that I have taken odd specimens of the beetle on two or three occasions at Petts Wood, Chislehurst, a little south-east of the London county boundary: the first as long ago as April 1929, on a young hawthorn just coming into leaf, and others in later years by sweeping or grubbing in heathery spots. *L. suturalis,* as might be expected, is far more common in Surrey, and the same applies to the very similar but much paler sallow-feeding *L. capreae* L. (for which the V.C.H. list for Kent gives "Rochester district" only).

Galerucella pusilla Duft.: I took this insect in the marshes of the river Stour at Fordwich, near Canterbury, 9.ix.68, which again would appear to be the first Kent record; though it must almost surely have been taken before in the county, but perhaps confused with allied species — the genus being a rather difficult one. *G. pusilla* most resembles a small, short, and pale *G. calmariensis* L. I have met with it also at Bookham Common (Surrey), Amberley (Sussex), Wicken Fen, and in the New Forest. Joy (1932, *Pract. Handb. Brit. Beetles,* **1**: 404) marks it as rare, but I have found it in more localities than several of its congeners. — A. A. ALLEN.

CERCYON LAMINATUS SHP. (COL.: HYDROPHILIDAE) AT CHARLTON, S.E. (N.W. KENT.) — As this colonist from Japan is so far known in Britain only from Blackheath, S.E., and single localities in Bucks. and Hants. (cf. Allen, 1969, *Ent. Rec.,* **81**: 211-2; Appleton, 1972, *Ent. mon Mag.,* **108**: 45), it seems desirable to report the finding of a dead example in a bowl full of specimen tubes in my study, several weeks ago, here at Charlton 2½ miles from Blackheath. Its presence in this odd situation is easily explained. The rather few British captures hitherto have all been made at m.v. lamps, and I had been running mine not many days before the insect was found — the bowl of tubes being always taken up to the lamp room on these occasions. The *Cercyon* must have dropped into it unseen, where, unable to escape, it had ultimately perished. — A. A. ALLEN.

Fly-killing Aerosol Sprays: a Useful Aid for the Freshwater Entomologist

J. P. O'Connor*

O'Connor (in press) describes the uses of fly-killing aerosol sprays in collecting caddisflies. However, the technique has wider applications and these will now be enumerated. During the course of several years collecting freshwater insects, adults of stoneflies, mayflies, dragonflies, water bugs, alderflies, water beetles and various Diptera were easily captured with the aid of aerosol fly sprays.

For the entomologist, freshwater research poses many difficulties. Aquatic habitats are frequently surrounded by an impenetrable growth of brambles, nettles, reeds, alders, etc. This vegetation makes the traditional methods of sweeping with a net, extremely tedious and ineffectual. Areas of soft mud, swamp and bog compound the difficulties. Perversely, the more interesting insects normally occur on the opposite bank, unattainable because of an intervening unwadable stretch of water. In addition, many insects upon observing approaching humans, either take flight or dart for cover. It is extremely difficult to pursue such individuals effectively when wading in a river or lake or clambering over rocks. Unexpected pot-holes and unstable substrates add to the hazards. It is particularly exacerbating to watch an unusual specimen moving just ahead of an outstretched net.

By accurately aiming a short spurt of spray at inaccessible adults, they may be easily knocked down either into the water or into vegetation. In the former instance, specimens are usually swept downstream by the current and they may be readily taken in a suitably positioned net. Alternatively, they may remain in an eddy or dead water and can be poked out with a net-handle. Sometimes, affected insects will fly some distance before attempting to conceal themselves under stones or in vegetation. By this time, however, their movements will have become unco-ordinated and clumsy and it is not difficult to follow them. Should they find cover, another burst of spray will usually force them to re-emerge. Specimens which do not reappear, may be found *in situ* by looking amongst the roots and stems of the relevant plants.

Fly sprays are also useful for collecting adults, either resting on walls and trees or hiding under bridges. The aerosol will normally dislodge such individuals, knocking them to the ground where they may be then collected. On windy days, the spray should be directed upwind of the required specimen to ensure that the chemical will be blown past it. It is important to avert one's face during this operation, thus preventing the spray from entering the eyes. Before the insecticide takes full effect, insects usually become uneasy and agitated. While in this condition, they will frequently emerge from unexpected hiding places. In this context, if dense vegetation, crevices, pipes, cracks, etc. are lightly sprayed, specimens will often be forced out of their hiding places.

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Agile species which are liable to evade a net while in flight, may be knocked down with an aerosol. With practice, particular specimens may be singled out of a swarm and captured without affecting nearby ones. Adults already netted but struggling, should be sprayed to prevent self-afflicted damage. Sprayed newspaper placed in the bottom of a light-trap will kill a night's catch of aquatic insects, but the author has noted that some moths were barely affected.

The use of aerosols may be criticised on several grounds. For example, they could have a devastating effect on a particular habitat or a rare species could be eliminated through over zealous collecting. In practice however, once the possible dangers are recognised, they make a valuable addition to the more traditional trapping techniques. Aerosols are relatively expensive and are quickly depleted. They can only be used therefore in small amounts and over limited areas. They should always be used with restraint, however, and should never be employed in places such as national parks and nature reserves without first obtaining official permission. Most important of all, no insects should be killed needlessly.

Pyrethrum is the normal constituent of commercial fly-killing aerosol sprays. This substance is obtained from the flowers of the grey-leaved pyrethrum *Chrysanthemum cinerariaefolium* (Munro, 1966). Pyrethrins and cinerins are the toxic principles in it. The author has found "Cooper's" fly spray to be the most useful "knockdown" aerosol. It contains pyrethrins synergised by piperonyl butoxide, the Wellcome trade-mark name being Pybuthrin (Byrne, pers. comm.). This particular fly spray is not intended as a crawling insect killer and has not been formulated for that purpose.

Pyrethrins have exceedingly low toxicity to humans and warm blooded animals (Munro, 1966; Mellanby, 1969; Reay, 1969). They degrade rapidly in sunlight and have only transient residual properties even in dark situations (Byrne, pers. comm.). Indeed, since they are unlikely to produce any permanent damage to a habitat and because they are relatively innocuous to animals, pyrethrins are utilised by water authorities to eradicate nuisance swarms of chironomids and other midges (Ridley, 1975).

Some final points must be mentioned. Towards the end of a can, spluttering can occur and large droplets may be released on to the water. These will often spread out to form a film due to the oil in which the insecticide is dissolved. Although pyrethrins is a fish poison of ancient lineage, a small patch of oil solution on the surface of a large pond or a stream will have no visible effects and the pyrethrins will be degraded rapidly (Byrne, pers. comm.). If an allergy develops, discontinue use. Make sure to direct the spray away from the face and eyes (Hickin, 1974). In the excitement of chasing a specimen, accidents can happen. Many modern aerosols have indented arrows on the valves or specially designed nozzles and these reduce the possible dangers.

Acknowledgement

The author is indebted to Mr. Chris Byrne, B.Sc. (Pharm.), M.P.S.I., Technical Information Executive, Wellcome Ireland Limited, for making available technical data concerning "Cooper's" fly spray.

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STRANGE BEHAVIOUR OF THE LARVAE OF MALACOSOMA NEUSTRIA L. (THE LACKEY). — On the night of 26th June 1978, I noticed a larva crawling around the rim of a street light near my house. With the aid of a net fixed to an eight-foot garden cane, I managed to retrieve it, when I found it to be a nearly full grown larva of *M. neustria.* At the time I thought little of it, but on 6th July I found another *neustria* larva purposely crawling up the column of light (the height of which is at least 16 feet). I found another larva there the following night, and one on each of the nights of the 12th and 13th July, all at approximately 2230 hours. Incidentally, the species breeds on hawthorn bushes in my area, and there is such a bush less than eight feet from the street light. Could it be that besides the moth, the larva of *neustria* is also attracted to light? — D. DEY, 9 Monmouth Close, Rainham, Gillingham, Kent, ME8 7BQ.

A NOTE FROM THE ISLE OF CANNA. — Butterflies have been flourishing here since 1975; 1976 and 1977, and the six weeks up to June 21st 1978 having provided a great deal of sunshine. *Polyommatus icarus* Rott. has been abundant; *Vanessa urticae* L. has become very common. *Argynnis aglaja* L. and *Boloria selene* D. & S. have increased, and *Pararge aegeria* L. has really taken root and for the first time produced a spring brood here in 1977. *Zygaena filipendulae* L. has been abundant, and *Z. purpuralis* Brünnich appeared in large numbers in a new locality on our southern cliffs last month after several years of extreme scarcity in its former localities.

Moths have not been so numerous, though there was a great influx of *Cerapteryx graminis* L. in August 1977. *Noctua pronuba* L. has been going through an unlamented period of recession. Need to economise on gasoil has limited the operation of the m.v. trap considerably. — J. L. CAMPBELL, Isle of Canna, Hebrides, 20.vii.1978.

Spring butterflies on the Greek island of Sifnos

By JOHN G. COUTSIS*

The island of Sifnos belongs to the Cyclades, a group of islands in the western Aegean Sea. It has an area of about 83 square kilometres and bears a latitude of approximately 37 degrees north. Its highest peak, Profitis Ilias, has an altitude of 695 metres above sea level. The western and northern part of the island is generally rocky and dry and supports a poor vegetation consisting mostly of shrub and dwarf juniper trees. An exception to this is the gorge running east-west from the village of Apollonia to the village of Kamares, which has a stream and therefore is capable of supporting a lusher and more varied vegetation. The eastern side of the island is more level and retains much of its soil, due also in part to extensive terracing. These conditions have enhanced the cultivation of vegetable gardens, cereal fields, orchards and olive groves. In Spring there is also a profusion of wild flowers, that reach their peak by end April and die out almost completely by mid-June.

Collecting took place on two separate occasions, end April and end May. The butterflies recorded were few both in species and specimens and were found to inhabit mostly wind-protected areas. Another aspect worth noting is the apparent lack of definable subspecies, all species examined being referable to Greek Mainland forms.

PAPILIONIDAE

1. *Iphiclides podalirius* Linnaeus. End April and end May. A few in orchards and gardens. Exambela; Firoya; Kamares gorge.

PIERIDAE

2. *Pieris brassicae* Linnaeus. End April. In fair numbers, mostly in gardens and fields. Katavati; Firoya; Exambela. Some specimens very small.
3. *Artogeia rapae* Linnaeus. End April. Rare, as a rule in fiields. Apollonia; Katavati; near Kastro; Kamares gorge.
4. *Pontia daplidice* Linnaeus. End April. Only two recorded in fields. Near Kastro; Firoya.
5. *Euchloe ausonia* Hübner. End April. Scarce in fields and waste places with yellow-flowered cruciferae. Individuals of the so-called first brood going over, while those of the so-called second brood just emerging; often the two forms flying together. Katavati; Firoya; Skafi; Plati Yalos.
6. *Colias crocea* Fourcroy. End April. A few over rough terrain and in fields. Near Kastro; Kamares gorge; Skafi.
7. *Gonepteryx cleopatra* Linnaeus. End April in tatters, presumably from hibernation; end May freshly emerged; on both occasions in fair numbers. Hillsides overlooking Kamares gorge; Skafi; Gourna. Seen laying eggs on underside of young leaves of a small, creeping *Rhamnus* species, also characterised by small size of leaves.

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NYMPHALIDAE

8. *Vanessa atalanta* Linnaeus. End April. A few recorded, mostly in gardens. Katavati; Firoya; Kamares gorge.
9. *Vanessa cardui* Linnaeus. End April. In fair numbers in fields, gardens and waste places. Firoya; near Kalambelas.
10. *Polygonia egea* Cramer. End April. A single specimen on a rocky hillside at Vasalou.

SATYRIDAE

11. *Maniola jurtina* Linnaeus. Confirmed by male genitalia. A single male end April; in fair numbers end May. In fields and gorges. Firoya; near Skafi; Kamares gorge.
12. *Lasiommata megera* Linnaeus. End April. Two females in tatters, one in a rock strewn area of Kamares gorge, the other on a rocky hillside by Vasalou.

LYCAENIDAE

13. *Callophrys rubi* Linnaeus. End April, in fair numbers. Exclusively at bottom of dry gorges between Firoya and Skafi. Seen most often resting on end leaves of pistacio bushes and juniper trees.
14. *Lycaena phlaeas* Linnaeus. End April, in fair numbers. Found on roadsides, in fields and gorges. Skafi; Gourna; Katavati; Artemona; Kamares gorge.
15. *Syntarucus pirithous* Linnaeus. End April. A couple recorded at Kamares gorge.
16. *Glaucopsyche alexis* Poda. End April. Rather scarce and localised in places where a yellow-flowered, thorny, woody leguminous bush grows in numbers and which probably represents its larval foodplant. Males indistinguishable from form flying in Attica, on the mainland. Females dark brown upperside, occasionally with faint blue dusting at base of wings. Found along bottom and sides of dry gorges and on rough hillsides. Gourna; Vasalou; between Firoya and Skafi.
17. *Pseudophilotes vicrama schiffermuelleri* Hemming. End April. A few on rough hillsides and in the vicinity of thyme bushes. Skafi; Gourna; Vasalou; Kouni; Aghia Maria.
18. *Polyommatus icarus* Rottemburg. End April. A couple of males at bottom of Kamares gorge, associated with a pink-flowered, thorny, low leguminous bush.

HESPERIIDAE

19. *Carcharodus alceae* Esper. End April. Recorded only occasionally along roadsides and in waste places. Firoya; Kamares gorge; Ormos Kastrou.

The obvious paucity of butterflies on Sifnos island is probably due to the dryness of the island, its poor flora, its geographic isolation, its small land mass and the adverse effect of the strong winds, known as meltemia, which prevail during the months of July, August and September.

The Blue-Eyed Brimstone and the Brimstones' Ball

By CHARLES F. COWAN*

Our Editor's intriguing note (Vol. 87, p.231) on the "Papilio ecclipsis" hoax, when that name was given to a specimen of *Gonepteryx rhamni* (L.) which had been decorated with blue markings, gives food for thought. Who was pulling whose leg?

The insect was described and validly named in a thesis (1763 : 406) prepared by Linnaeus for his pupil Boag Johansson to publish and expound. Remarkably, it was not the only rogue butterfly described here, for only three species before it came "*P. strilidore,* from Pennsylvania", an insect never since identified. With its outlandish name and peculiar descrition, was that another hoax, and were these two hoaxes devised one by the Master and one by the pupil? Two points of possible significance are that the "type specimens" of *P. ecclipsis* still exist in Linnaeus's collection, but none of *P. strilidore;* and the fact that in his next and final work four years later, Linnaeus (1767 : 765) retained *P. ecclipsis* as valid but dropped all mention of *P. strilidore.* These views were followed by his reviser Gmelin (1790 : 2273) and by Fabricius (1775 : 478, 1781 **2**:50, 1787 **2**:24), but then came the denouement. Having examined the "types" in London, Fabricius (1793 **3**:211-212) firmly placed *P. ecclipsis* as a synonym of *P. rhamni,* adding "appears identical, artificially spotted".

But this was not the only blue-marked Brimstone. Within a month of our Editor's note came an extraordinary twist to the tale. There appeared in the local bookshop, on the dust-cover of a new book, a coloured reproduction of an old French print. A life-sized and realistic Blue-Eyed Brimstone perches on an old-fashioned double blue Hyacinth, alongside a blue Love-in-a-Mist (*Nigella*) with its yellow anthers, while an acrobatic caterpillar spans the tips of two Hyacinth leaves, nonchalantly nibbling one. Many expensive reproductions of the larger works of early botanists have lately appeared, but this more modest book (Coats, 1975: plate 37 and jacket) gives exquisite examples from the smaller publications. The Blue-Eyed Brimstone was originally depicted by Nicolas Robert (1614-1685, of Burgundy and Paris) in *circa* 1660!

So was there really a Blue-Eyed Brimstone in early times, and was *P. ecclipsis* a sound name after all, not based on the substitute artefacts in Coll. Linn.? Alas, no! I sent a photograph of the print to our Editor, who found it did not agree with the Linnaean specimens. The explanation must be more prosaic. Robert's book was of "Various Flowers", and the insects (although excellent) were mere incidentals. The flowers in the engraving needed shades of just blue, green and yellow, perfect for the larva and the easily-recognised Brimstone except for its two red spots; those were given the ready-to-

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hand blue by the colourist, and *ecclipsis* must remain under a cloud.

But what a perfect pet the Brimstone is! No "cannibalism", none of this wandering; no trouble at all. On 16th June 1972 I was just going out shopping in Tring when I met a female at my front door. Doffing my hat, I hustled her in and unceremoniously bundled her under a goldfish bowl (inverted), then fetched her a twig of *Rhamnus catharticus* from a bush about a mile away. Shopping completed, I returned to find twenty eggs, so set her on a flower in the garden and wished her well.

Despite a very cold spell at this time, the eggs all "hatched" on 29th June and I was ready for this with three (later increased to five) jam-jars each with a twig of *Rhamnus* and some charcoal to keep the water sweet for up to a fortnight. I soon found that I had some "characters". First, there were the "twins", who invariably fed off the same leaf whereas all the other 18 were solitary. Then there was "Lonely", who looked very sick each time the others shed their skins, and only followed suit two or three days later. A half-grown intruder arrived on the new foodplant one day but promptly died and shrivelled, leaving a skin with a large "lump". This proved to be the beautiful black and white ringed pupa of an "ichneumon" identified for me as *Hyposoter ebeninus* (Gravenhorst), said to affect *Pieris brassicae* (L.) on the continent but *G. rhamni* here; "Frank in Paris and Ernest in London" as O. Wilde has it.

Pupation took place on 25th-27th July, the "twins" simultaneously, suspended nose-to-tail under the midrib of the same leaf. Poor Lonely remained, looking sadder than ever, but I had to laugh when I saw him on 29th. He was now a pupa alright, but dangled head-down on a single, inch-long, thread. In nature, out-of-doors, he would have had a very rough time, but indoors he was fairly safe.

Emergence, and release on my *Buddleia* (two at a time lest the ubiquitous, iniquitous sparrows be alerted) took place on 15th-17th August for all except one. Knowing a neighbour was interested, I "lent" her a twig with a maturing pupa, but she absent-mindedly "sprayed" her kitchen, with fatal results. The "twins", both males, emerged and were released together. Lonely came last as usual, also a male, on 18th August. He looked entirely normal. I found him clinging to the leaf above the empty pupa-case, and regretted not having seen his trapeze act. In all, there were 10 males, 9 females.

A similar case of "twinning" larvae and pupae was recorded of a *Charaxes* species by Margaret Fountaine (see Cheesman, 1932 : 127). Both, again, were males.

The phenomenon of the football-sized swarm of about fifteen *G. rhamni* reported by Mr. A. G. M. Batten (vol. 84, p.206) from near Guildford, about 2nd April 1972 (so perhaps a month before the start of the mating season) seems to be another peculiarity of this species. I saw a probable instance of it on 7th October, about seven weeks after releasing my

brood. There were almost certainly five males in my "ball", about 80 yards from my front door, drifting slowly across a meadow at a height of about 8 feet, and disappearing into a wood. This suggests that immature males may be prone to gambol in this fashion, and that they come from the same brood. In my case that implies that 50% of the males had so assembled after seven weeks in the wild. Would as many as fifteen brethren still be able to gather like this after the winter — in sunnier Surrey?

One thing is certain; although not blue-eyed, the Brimstone is quite a character.

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The well-known works of Linnaeus (*Amoenitates Academicae* vol. 6; *Syst. Nat.*, edn. 12 and (by Gmelin) edn. 13), and by Fabricius (*Syst. Ent., Spec. Ins., Mant. Ins.*, and *Ent. Syst.*) need no detailing here. Nor does the *Journal* cited in the first and the penultimate paragraphs. The three general works cited are:

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Practical Hints—December

The Mottled Umber, *Erannis defoliaria* (Clerck) in infinite variety with many *melanic* forms, occurs abundantly in Epping Forest. Both sexes sit about on twigs and are best collected with a hand lamp on a mild night in December after a frost (Chalmers-Hunt).

Beat *Cupressus macrocarpa* in localities along the coast from Sussex to Cornwell any time during the winter for larvae *Eupithecia phoeniciata* (Rambur). Although stated to feed on other species, it is best to keep the larvae on this pabulum in captivity (Skinner).

Search one year shoots of *Salix caprea* in December (later and the birds will have taken their toll) for the gall-like swellings formed by the larva of the Tortricoid *Cydia servillana* (Duponchel). Then stand the cut tenanted twigs in damp sand, and the moths will emerge from the middle of May. Found locally in Kent, Sussex, Hants and elsewhere in the south, but apparently becoming scarcer northwards (Chalmers-Hunt). There are many galls and swellings in sallow twigs, but the tenanted mine of *C. servillana* when the larva is about to pupate, is quite easily distinguished by the exit hole which is covered by silk mixed with reddish frass and is situated usually about 4mm. above the bud (Fassnidge).

The larvae of *Stigmella aurella* (F.) overwinter half-fed in their mines in leaves of *Rubls fruticosus.* If collected and kept in a warm room, they will feed up quickly and produce adults in a few weeks. Found commonly throughout England and wales; also in the milder parts of Scotland, but intemittently as severe winters kill the populations (Emmet).

When full-fed in November or December, the larvae of *Fomoria septembrella* (Stainton) pupate within their mines in leaves of *Hypericum,* especially *H. perforatum,* inflating the leaves conspicuously. Once the pupae have been exposed to frost, they will respond readily to forcing. Widespread in Britain northwards to Argyll (Emmet).

Notes and Observations

CYDIA LEGUMINANA [L. & Z.] IN EPPING FOREST. — I can add some detail to Mr. P. J. Johnson's most interesting paper (antea, 199-202). Meek was not the first, but the second, collector to take this species in Epping Forest: T. Eedle had forestalled him by five years (see *Entomologist's Weekly Intelligencer* **1861**(10):107). As far as I know, the latest captures were made by A. Thurnall (see *Entomologist* **35**:191 (1902) and the data labels under Thurnall's specimens in the Passmore Edwards Museum). He took single specimens in Debden Lane, Loughton on 28.vi.1885 and 5.vi.1886, and a third near Monkwood, Loughton on 21.vi.1890. Elm is a tree not normally found in Epping Forest, and it may well have been absent from Thurnall's collecting areas; he beat two of his moths from hornbeam and the third from beech. It is at least possible that larvae of *C. leguminana* feed in burrs on trunks of other trees besides elm. The assertion by Wilkinson, repeated from continental authors, that it is to be found amongst old fir-trees may be correct, after all.

Doubleday did not use data labels and it is possible that the specimen he said had come from Devonshire was in fact one he had taken himself near his home in Epping. Perhaps a thought such as this prompted Meyrick to drop Devonshire from the distribution pattern.

Before reading Mr. Johnson's paper, I had already reported on *Cydia leguminana* to the Red Data Book Committee with suggestions for its conservation along the lines he proposes; but unless any rediscovery is reported, nothing can be done to protect its host trees. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF.

BRADYCELLUS DISTINCTUS DEJEAN (COLEOPTERA: CARABIDAE) IN KENT AND SUSSEX. — I have taken this very local species on two occasions during the past year, two specimens being found on the sand dunes at Camber and two more in flood rubbish left by the high tides at Deal, in September 1977 and February 1978 respectively. Neither of the other *Bradycellus* species which I associate with sandy places, namely *B. harpalinus* Serville and *B. verbasci* Duftschmid were in the immediate vicinity on either occasion.

Bradycellus distinctus is well named, because the specimens taken looked sufficiently 'different' to the naked eye to

be worth picking up. They are of a clearer red than most and certainly more convex, so that the absence of pores on the third interstice is only needed as a confirming feature. The Camber specimens fell into pitfall traps containing baits of animal fat.

This species has been recorded from a number of counties, including Kent, but I cannot trace a previous report from Sussex, and I think it probable that the Camber specimens constitute a new record for the county. Mr. Allen to whom I mentioned the Camber locality is of the same opinion. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent, 6.ix.78.

AUTOGRAPHA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN SOUTH DEVON IN 1978. — *A. gamma* numbers in the m.v. trap from 4th May to 13th September were: May (23 nights), nil; June (27 nights), 16; July (21 nights), 16; August (22 nights), 13; September (7 nights), 6. Total 51. *N. noctuella* — nil for the whole period. These are the lowest totals in about 12 years of recording. — H. L. O'HEFFERNAN, 15 Green Park Way, Chillington, Kingsbridge, S. Devon.

UNUSUALLY LARGE NUMBERS OF NYMPHALIS IO L. AND AGLAIS URTICAE L. IN SOUTH DEVON IN 1978. — *N. io* numbered 28 on 19th August, and *A. urticae* was counted at 47 on 12th September, 68 on 13th September and 85 on 14th September. — H. L. O'HEFFERNAN, 15 Green Park Way, Chillington, Kingsbridge, S. Devon.

APOMYELOIS BISTRIATELLA NEOPHANES (DURRANT) IN KENT. — Following a humid night, with heavy rain, on 29th July, 1978, I was surprised to find a fresh specimen of *neophanes* in my garden light trap. There appear to be only two other specimens of this very local Phycitid moth recorded from Kent, both from Blackheath. The dates are 21.vi.1959 and 7.vii.1970 (A. A. Allen, *Ent. Rec.* **87**:27). The origin of the specimen is problematic — the literature suggests an association with gorse (*Ulex* sp.), especially burnt gorse supporting growths of the fungus *Daldinia concentrica,* the larval pabulum. Gorse, burnt or otherwise, is notably absent from Orpington, although it does occur within conceivable flying range. *Daldinia,* however, occurs sporadically throughout the area, mainly associated with ash (*Fraxinus*).

The night in question produced 64 species of moth, all typical of the area except for a single *Euproctis chrysorrhoea* L., which turns up very occasionally in the trap. — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

A PREVIOUSLY UNRECORDED FOODPLANT OF COLEPHORA GLAUCICOLELLA (WOOD). — In May and early June 1978 I collected about 30 or so Colephorid cases from *Luzula multiflora* (Retz.) in Botley Wood and Havant Thicket, Hampshire. The first moth emerged on 13th June, others continued feeding and the last emerged on 20th July. Examination of the male genitalia revealed the species to be *Coleophora glaicicolella* (Wood).

More cases were found on *Luzula multiflora* at Taynish and Lock Tromlee, Argyll, in June, though unfortunately no moth emerged. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hans. PO4 0NH.

A PREVIOUSLY UNRECORDED FOODPLANT OF TELEIODES PROXIMELLA (HUBNER). — On 21st September, 1977 I joined Messrs. Bradley, Emmet, Pelham-Clinton and Uffen for a day's collecting in the Isle of Wight. When examining a plantation of *Alnus cordata* near Ryde, several larvae were found between spun leaves of this tree. Moths emerged between 2nd and 5th April, 1978, and examination of the male genitalia confirmed the identification as *Teleiodes proximella* (Hübner). — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants. PO4 0NH.

AN ABNORMAL OAK EGGAR. — I would like to report the emergence of an unusual *Lasiocampa quercus* L., mostly female but with male antennae and a fairly large part of the left hindwing male. It originated from ova laid by a female taken at Faversham, Kent, in 1977, the larvae of which were reared firstly on bramble and then taken through the winter on ivy. — D. A. SAUNDERS, Flat 4, 1 Lower Fant Road, Maidstone Kent. [We have seen Mr. Saunders's insect, which is very striking and clearly gynandromorphous. — Editor.]

SUMMER MIGRANTS AT PEACEHAVEN, SUSSEX, IN 1978. — Whilst most migrant species of lepidoptera are either in low numbers or altogether absent this summer, a single male of *Agrius convolvuli* L. made an appearance in the trap on the night of 12th July. The only other notable species of possible migratory origin, has been a male *Rhodometra sacraria* L. on 25th August. — COLIN PRATT, "Oleander", 5 View Road, Peacehaven, Newhaven, Sussex.

NOTES ON THE LIFE HISTORY OF HYPENODES TURFOSALIS WOCKE. — It seems strange that no information on the life history of this moth has been published in spite of the fact that various correspondents of the *Entomologist's Record* in past years have suggested that such work could be done on this insect (in particular see "Notes on Life Histories", p.114, Vol. 63, 1951). I was therefore pleased to find in the collection of the late Mr. H. L. Burrows of Plumley, Cheshire, which I inherited from his sister in 1970, proof that he had not only bred the insect from the egg to adult, but had also photographed the early stages. This consists of a small glass-topped box in my possession, which contains small photographs of the eggs and caterpillars, together with microscopical slide mounts of the caterpillars, eggs on the foodplant, and adult moths.

It may be wondered why I did not record this earlier, in view of the fact that I received the collection in 1970, but the reason is that Mr. Burrows, although making records of many of his activities over a period of 50 years, did not make a day to day record of all his rearing successes, which were extensive. However, during the course of the last few days, I came across

some scribbled notes which indicate that he did make some observations on the progress of the life history of *turfosalis.* He mentioned that pairing took place on July 21st, and ova appeared in July 23rd onwards, whilst the larvae appeared on July 30th. These would be from some *turfosalis* taken at Whixall Moss, Shropshire, on July 17th, 1953, when I was with him. Whixall Moss is one of the various peat mosses in the North-west where *turfosalis* is abundant in July and August. The foodplant, incidentally, is the Cross-leaved Heath, or Bog Heath, *Erica tetralix,* a specimen of which is included in the glass-topped box referred to above. I hope this information will be of use to readers who may like to try to find the caterpillars and to rear *turfosalis* for themselves. — E. H. FIELDING (President, Manchester Entomological Society), 83b Hale Road, Hale, Altrincham, Cheshire, 5.ix.1978.

SOME NEW FOREST LEPIDOPTERA AND ODONATA IN 1978. — I visited the New Forest from 21st June to 5th July, 1978 staying at Brockenhurst and concentrating on the southern half of he forest. It was slightly early, especially in this generally late season, for certain of the butterflies and this, together with the rather mixed weather, resulted in the absence of some species which may normally have been expected.

The only butterflies recorded in reasonable numbers and widespread localities were Speckled Wood (*Pararge aegeria* L.), Meadow Brown (*Maniola jurtina* L.), Small Heath (*Coenonympha pamphilus* L.) and Large Skipper (*Ochlodes venata* B. & G.). A few "whites" and Small Tortoiseshells (*Aglais urticae* L.) were seen, mainly in village gardens, and a single male Brimstone (*Gonepteryx rhamni* L.) was noted at Rowbarrow. A lone Small Pearl-bordered (*Boloria selene* D. & S.) in New Copse Inclosure was the sole representative of the fritillaries. Silver-studded Blues (*Plebejus argus* L.) did not putin an appearance until 3rd July, when a male was seen at Hincheslea Bog, but a favourite locality at Bishop's Dyke produced a few on the following day. This site has suffered from the ravages of fire but the species was still present though in reduced numbers.

Day-flying moths were equally elusive with the exception of the Bordered White (*Bupalus piniaria* L.), which was common in the pine woods even flying in the rain. Heathland species encountered, were the Grass Wave (*Perconia strigillaria* Hb.), Common Heath (*Ematurga atomaria* L.) and Clouded Buff (*Diacrisia sannio* L.); the last-named only on Black Down (east of the railway) and at Bishop's Dyke, whilst some reddish brown moths dashing madly around at the latter locality were surely male Fox Moths (*Macrothylacia rubi* L.). These were also in evidence at Trenley Lawn. The Hollands Wood toilet blocks produced a Sharp-angled Peacock (*Semiothisa alternaria* Hb.) and one of the hotel bathrooms at Brockenhurst contributed a Lilac Beauty (*Apeira syringaria* L.). An evening stroll around a bushy area in the village added several Brimstone (*Opisthograptis luteolata* L.) and a

Yellow Shell (*Camptogramma bilineata* L.), the latter also being recorded at Pig Bush. A search of the wild rose bushes on the outskirts of Brockenhurst revealed some Gold-tail larvae (*Euproctis similis* Fuessly) and the only Cinnabar (*Tyria jacobaeae* L.) was flying in the village. To complete the moths, an individual glimpsed briefly in Pignal Inclosure was almost certainly a White Ermine (*Spilosoma lubricipeda* L.) although the Muslin (*Diaphora mendica* Clerk) was a possibility.

I also noted any dragonflies seen and the following list was much reduced by weather conditions and by the fact that no ponds were visited. The species seen, in order of abundance, were: *Orthetrum coerulescens* F., *Pyrrhosoma nymphula* Sulzer, *Agrion virgo* L., *Enallagma cyathigerum* Charpentier, *Cordulegaster boltonii* Donovan, *Sympetrum striolatum* Charpentier, *Platycnemis pennipes* Pallas and *Ceriagrion tenellum* de Villiers with only one sighting of each of the last two. *C. tenellum,* which is a protected species in the forest, was on bog myrtle near an overgrow stream and the delicate *P. pennipes* in a wood east of Brockenhurst well away from water.On one occasion a specimen of the spectacular *C. boltonii* settled on a piece of wood in a forest ride, and was watched at close range for several minutes. *O. coerulescens* was easily the most numerous species, often alighting on the heather after making short flights. Nearly all were females. It is highly probable that *Coenagrion puella* L. occurs in the same area at Bishop's Dyke as *E. cyathigerum,* but I saw only the latter for certain. As already mentioned, excellent localities for dragonflies like Sowley Pond and Eyeworth Pond were not visited on this occasion and, undoubtedly, several species would have been added from these different habitats. — G. Summers, 23 West Close, Stafford ST16 3TG.

Hummingbird Hawkmoth (Macroglossum stellatarum L.) ovipositing on the Dorset Coast, August 1978. — On 10th August, a female was observed at 6 p.m. ovipositing whilst hovering over its selected foodplant, grasping the foliage with its legs, before quickly and accurately bending its abdomen to deposit a single green, typical Sphingid ovum. The female was observed for several minutes and five ova were located, three being laid on Wild Madder (*Rubia peregrina*), one on Heath Bedstraw (*Galium saxatile*) and the fifth on Sphagnum moss, close to its food source. The captive larvae are feeding well on Common Cleavers (*Galium aparine*). — K. J. Willmott, 34 Daybrook Road, Merton Park, London, SW19 3DH.

Mortality of Pieris brassicae L. race cheiranthi Hubn. when reared on Brassicae. — I was interested to read Anthony Valletta's note on *cheiranthi* in the March *Record.* I would not however agree with his conclusion that *"P. cheiranthi* may also do well on *Cruciferae".* From his own data, it clearly did *not* do well, having a high larval and pupal mortality. What is so interesting, however, is that some 15 years after my own experiences with *cheiranthi,* the larvae still show the same high mortality when fed *Brassicae* species

as opposed to *Tropaeolum*. This result was published by David, Gardiner and Clothier, in 1968. As an example, when, over a period of three years the larvae from *cheiranthi* egg-batches were reared half on Nasturtium and half on Cabbage, then, of the 1,157 total larvae reared on Nasturium, only 2.51% died of virus disease whereas 19.68% of the 1,306 reared on Cabbage (*Brassicae oleracea*) died. On many occasions also when Nasturtium only was being used as food the mortality was nil. It needs to be emphasised, however, that the larvae were being reared at the very low density of not more than 10-12 per cubic foot. Any attempt to use the high density rearing technique in use for typical Cambridge *brassicae,* usually several hundred larvae per cubic foot, would result in very high mortality. Although *cheiranthi* also lays its eggs in batches of similar size to typical *brassicae,* the use of Nasturtium with the growth characteristics which it has, must inevitably lead to a far greater scattering of the larvae than would occur on a compact cabbage plant, and, indeed the *cheiranthi* feeding pattern observed on potted (but small) plants lends credence to this.

It would be interesting to hear of any field observations on the natural larval feeding densities of *cheiranthi* in the Canary Islands. From scattered reports I have had, the larvae are few and far between.

It is well worth reporting too, that not only can *cheiranthi* be reared on the same artificial diet on which so many species of Lepidoptera can now be successfully raised (Gardiner, 1974, 1978), but that even when this is cabbage flavoured by the addition of 1.8% dried cabbage leaf powder, the mortality from disease among some 2,000 larvae raised remained at zero. The dried cabbage leaf powder used in the diet was, it should be remembered, from the same kind of cabbages on which nearly 20% disease mortality occurred. The reason for this is not obvious, but it could well be that feeding on artificial diet is less of a stress — which is known to induce latent viruses to outbreak proportions — than is the stress produced by cabbage as opposed to the normal food Nasturtium. It may well be due to differences in the nitrate and water content of the respective leaves.

Incidentally, while Nasturtium (*Tropaeolum majus*) may have affinities with the Geraniaciae, it is *not,* as stated by Mr. Valletta, a member of that family, but of the Tropaeolacaea (Willis, 1976). References: David, W. A. L., Gardiner, B. O. C. & Clothier, S. E. (1968). Laboratory breeding of *Pieris brassicae* transmitting a granulosis virus. *J. Invert. Pathol.,* **12**: 238-244. Gardiner, B. O. C. (1974). Food for Caterpillars. *Nat. Sci. in Schools,* **12**: 8-10. Gardiner, B. O. C. (1978). The preparation and use of artificial diets for rearing insects. *Ent. Rec. and J. Var.,* **90**: 181 *et seq.* Willis, J. C. (1976). *A dictionary of the flowering Plants and Ferns.* Cambridge. U.P. — B. O. C. GARDINER, A.R.C. Unit of Invertebrate Chemistry and Physiology, Dept. of Zoology, Downing Street, Cambridge.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting shoud bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

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Wanted — Information on experience in breeding Brown Hairstreaks in captivity, as to (a) whether males emerge well before females; (b) time of mating after emerging; time of egg laying after mating. — Replies to A. Archer-Lock, 4 Glenwood Road, Maunamead, Plymouth, Devon, PL3 5NH.

Wanted — The Entomologists Record, Vol. 71 1959, entire. Bound or unbound. — Offers to Paul Stirling. Tel. 01-660 4766.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

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Is *Ypsolopha asperella* (Linn., 1761) (Lep.: Plutellinae) extinct in Britain?

By S. C. S. Brown*

C. W. Dale (1873) claimed that his father, J. C. Dale, was the first to take *asperella* in Britain. This was at Glanvilles Wootton, Dorset, where he took the first of a series on the 8th September 1815. However, it had already been described and figured by Donovan (1801), who gave it the name *falcatella,* but the only remark he made on its natural history was: "Very scarce and undescribed".

Stephens (1834) writes under *Hypsolopha asperella*: "I possess a fine pair of this insect, which I obtained many years since from Mr. Dale, who captured them, with others, I believe, at Glanvilles Wootton, in August"; Curtis (1835) says: "This beautiful little moth has been taken by Mr. Dale and myself amongst the lichen on Apple-trees in his Orchard at Glanvilles Wootton, the 8th September and the 1st and 17th October"; and Wood (1839), who figures the imago in colour, writes: "Taken by Mr. Dale at Glanvilles Wootton in August".

Humphreys and Westwood (1845) state: "The caterpillar feeds on apple and other fruit trees, and the moth appears in the autumn. Taken by Mr. Dale in Dorsetshire etc." They figure the insect and add that the specimen shown was from the cabinet of Mr. Bentley. Bentley was a long-standing friend of Dale, and it is quite possible that the *asperella* came from Glanvilles Wootton as a gift from him.

The next mention in the literature refers to its occurrence in Herefordshire. In this Mrs. Hutchinson (1866) wrote that she had taken one specimen at Leominster.

In 1878, C. W. Dale published his *History of Glanvilles Wootton,* in which he gives the dates of the captures there. They are: 8th September 1815; 1st October 1819; 8th and 9th September 1821; 17th October 1827, one by Mr. Curtis; and the last on 17th September 1831. A total of six specimens in 16 years. Although assiduously searched for over a long period, it was never found there again.

Mrs. Hutchinson (1882) reported that she had taken it again in September 1881, at her residence, Grantfield, Leominster, adding that it had last been seen there in 1868 though searched for annually. C. W. Dale (1881) records that on 30th August 1881, he captured a pair of *asperella in* Herefordshire.

Wood (1902) summarising its occurrence in Herefordshire says: "Of this very rare and beautiful insect, eighteen examples have been taken at different times by Mrs. Hutchinson and her family, usually in the autumn, but more than once in the spring after hibernation"; and adds that the first one was taken at Leominster in 1865 and that "it continued to be taken at intervals . . . up to 1886". He goes on to say that a "large empty cocoon of a Cerostoma, almost certainly

* 158 Harwood Avenue, Bournemouth.

belonging to this species, was once found at *Tarrington* by the present writer, attached to an apple leaf, so that the insect has probably a wider footing in the country".

In the Dale Collection, now at the Hope Department, University Museum, Oxford, are six specimens. Two of these are labelled "J. C. Dale 1821 Glanvilles Wootton", and four "C. W. Dale 1881 Leominster". There is a further specimen there in the reference collection from the Spilsbury Collection, but without data.

In the British collection at the British Museum (Nat. Hist.), are 12 specimens, unfortunately all without adequate data. Two in the J. F. Stephens Collection are most probably the two given to him by Dale from Glanvilles Wootton.

From the available records it would thus appear that some two dozen specimens only of *asperella* have ever been taken, and then only in two very restricted localities, one in Dorset and the other in Herefordshire, and that no captures have been made anywhere in the British Isles since 1886. However, I think it might yet be rediscovered in the western counties if looked for in old and neglected apple orchards in the autumn.

I wish to express my thanks to the Rev. David Agassiz and to Dr. M. W. R. de V. Graham of the Hope Department, Oxford, for their assistance in preparing this paper.

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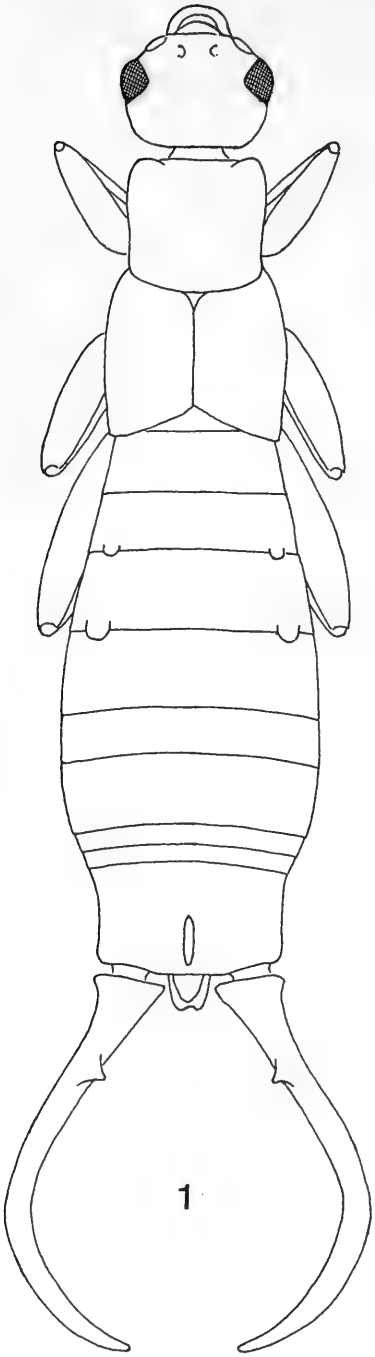
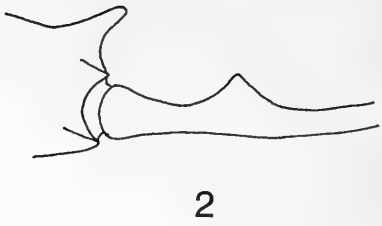
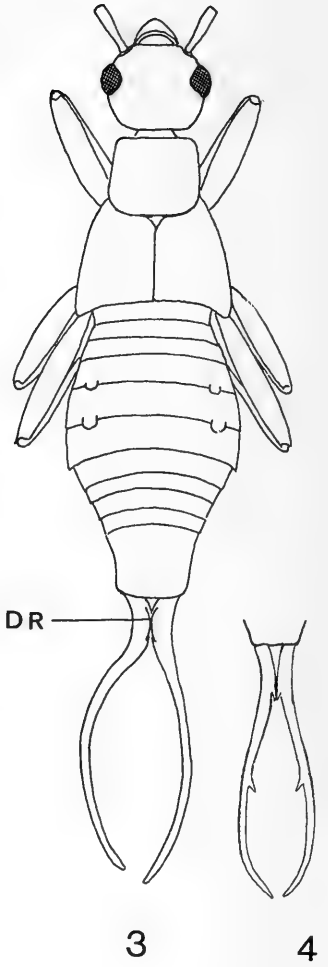
THE MUSLIN MOTH: DIAPHORA MENDICA CLERCK IN SEPTEMBER. — An interesting find in the m.v. trap here on the morning of the 8th September — the same morning I took the first Kent *Rhyacia simulans* — was a fresh specimen of the Muslin Moth, *Diaphora mendica.* Being several months after its normal emergence period it must surely have been an example of a second brood.—Dr. I. A. WATKINSON, 148 The Street, Boughton-under-Blean, Faversham, Kent.







FIGS. 1-2: *Neolobophora ensifer,* male holotype, dorsal, and last tergite and baseof forceps, lateral. FIG. 3: *Obelura neolobophoroides*, male holotype, dorsal. FIG. 4: *O. asiatica,* male forceps, dorsal and lateral from Bormans, 1894) (DR=dorsal ridge).

The Genera *Syntonus* Burr and *Obelura* Burr (Dermaptera : Forficulidae)

By A. Brindle*

The genera *Syntonus* Burr and *Obelura* Burr were each based on a single species, each with a holotype male. During a recent examination of these closely related types in the British Museum (Natural History) it was noted that neither of thes types, *Syntonus neolobophoroides* (Burr) nor *Obelura tamul* (Burr), have lateral longitudinal ridges, or keels, along their elytra. This is notable since the keys in Burr (1910, 1911) use this character to separate these genera, as below (omitting most other genera and modified):

1. Entirely apterous ..... *Sondax* Burr
– Elytra present 2
2. Elytra without a keel on the costal margin *Syntonus* Burr
– Elytra with a keel on the costal margin 3
3. Elytra perfect, free, wings abortive ..... *Emboros* Burr
– Elytra rudimentary 4
4. Last dorsal segment of male very wide at base, strongly narrowed at apex ..... *Liparura* Burr
– Last dorsal segment of male narrow at base itself slightly angustate, almost square ..... *Obelura* Burr

It is not surprising, considering the dates of publication, that some of these couplets are now incorrect, both *Emboros* and *Liparura* for example, can have rudimentary or free elytra, and *Emboros* can have fully developed elytra and wings, but the significant feature is the placing of *Obelura.* A comparison of the types of *Syntonus* and *Obelura* with types of *Emboros* or *Liparura,* which have lateral longitudinal ridges on the elytra, make it quite clear that neither *Syntonus* nor *Obelura* possess such ridges. The only external differences between these latter two types noted are that *Obelura* has a slender body whilst that of *Syntonus* is broadened (fig. 3; the elytra of the latter are free, whereas in *Obelura* they are adherent to the cuticle, and since this type seems somewhat tenereal the dorsal surface of the elytra is somewhat depressed, so making the dorso-lateral fold of the elytra more conspicuous. The forceps of both types are remarkably similar, each branch being slender and with small denticulations on the inner margin; each branch has a short longitudinal slender ridge near the bast (fig. 3, DR), a feature which also occurs in the Neotropical species *Skalistes lugubris* (Dohrn). No significant differences seem to exist between *Syntonus* and *Obelura,* so it is proposed that these genera be synonymized.

The character of the lateral longitudinal ridges on the elytra is considered of variable value at present, and may be only specific, as in *Vostox berlandi* Hebard (Labiidae); of generic value, as in *Kleter* Burr (Forficulidae); or of subfamily rank, as in Vandicinae (Labiidae). The interpretation of what exactly constitutes a lateral longitudinal ridge tends to vary with authors due to the gradation from a lateral longi-

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tudinal fold to a distinct ridge. A true ridge, however, is distinctive (Brindle, 1978).

Another feature of *Syntonus neolobophoroides* is that although the figure of the holotype in Burr (1910, Pl.VII, fig. 12) shows visible wings, the actual type has no wings visible (fig. 3). That the figure in Burr (1910) is based on the typeis shown by the asymmetry of the forceps, the left branch being much more strongly curved than the right, and this feature, evidently a malformation, is present in the type (fig. 3). The original description of the species does mention "wings absent", so the wings in the figure in Burr (1910) must have been added in error by the artist.

Both of these genera are Oriental, and the inclusion of a South American species, *ensifer* Burr, is in error; the type of *Syntonus ensifer* Burr has been examined and it clearly belongs to the Neotropical genus *Neolobophora* Scudder. A short description of this type is given later.

Obelura Burr

Obelura Burr, 1907, *Trans. ent. Soc. Lond.* 1907 : 119 (type species: *Neolobophora tamul* Burr, 1901).

Syntonus Burr, 1910, *Fauna Brit. India* : 199 (type species: *Opisthocosmia neolobophoroides* Burr, 1901) syn. nov.

The five species now listed in this genus are similar in general structure to fig. 3; they are noted below, with comments.

Obelura tamul (Burr)

Neolobophora tamul Burr, 1901, *J. Bombay nat. His. Soc.* 14 : 67 (♂ holotype, British Museum (Natural History)).

Obelura tamul (Burr): Burr, 1907, *Trans. ent. Soc. Lond.* 1907 : 120.

Obelura tamul (Burr): Burr, 1910, *Fauna Brit. India* : 184.

Obelura tamul (Burr) L. Burr, 1911, *Genera Insectorum* 122 : 90.

The holotype has data: Ceylon, Thwaites, ex.coll.Westwood, and is labelled *"Neolobophora tamul* ♂Burr type, M. Burr". The length of the body is 8 mm., and the forceps 5 mm. The figure of the type in Burr (1910, Pl. VII, fig. 65) is excellent. An error seems to have been made in Burr (1910, p.184) is that the locality is given as "Nuwara Eliya, ♂, in Burr collection"; apart from the type there is a specimen from Nuwara Eliya in the British Museum (Natural History) but this lacks forceps.

Obelura neolobophoroides (Burr) comb. nov.

Opisthocosmia neolobophoroides Burr, 1901, *J. Bombay not. Hist. Soc.* 14 : 335 (♂ holotype, ♀ allotype, British Museum (Natural History).

Syntonus neolobophoroides (Burr): Burr, 1910, *Fauna Brit. India* : 200.

Syntonus neolobophoroides (Burr): Burr, 1911, *Genera Insectorum* 122 : 96.

In the original description Burr gives "Habitat: Ceylon, Hatton, VII.97 (O.S.W.). I received a male and female of this species from Mr. Green." Burr (1910) however gives two

localities: "Ceylon: Kudaga, Hatton, vii (coll. Burr), Hakgala (Willey, coll. Burr). Type in author's collection." He also remarks "Superficially like *Obelura tamul* and *Sondax repens* but easily recognized by the short but complete free elytra." The female type has a locality label (Kudaga, Hatton) and it is labelled as the female type; the male type has lost the locality label, but the malformation of the forceps leave no doubt that this is the holotype from Hakgala, and it has now been so labelled.

Obelura montana (Hincks) comb. nov.

Syntonus montanus Hincks, 1947. *Ark. zool.* 39 A: 38 (♂ holotype, Stockholm Museum).

This species, from Kambaiti, North Burma, measures 7 mm. in body length with forceps 3.5 mm. The forceps are separated at the base, then contiguous for a short distance at the level of an internal flange, after which the branches gently and regularly curve to apices.

Obelura asiatica (Bormans)

Neolobophora asiatica Bormans in Bolivar, 1897. *Ann. soc. ent. Fr.* 66 : 285 (♂, ♀, syntypes, ?).

Obelura asiatica (Bormans): Burr, 1910, *Fauna Brit. India*: 183.

Obelura asiatica (Bormans): Burr, 1911, *Genera Insectorum* 122 : 90.

The types, from Kodiakanal, South India, measure 7-10.5 mm., with forceps 3.5-7.5 mm. The forceps (fig. 4) are very similar to those of *Cosmicula flavicornis* Hincks from Burma, which has lateral longitudinal ridges along the elytra. Whether *asiatica* has such ridges, and therefore is not in *Obelura,* can only be settled with an examination of the types.

Obelura dubia (Bormans) comb. nov.

Opisthocosmia dubia Bormans, 1894, *Annali Mus. civ. Stor. nat. Giacoma Doria* 34 : 399 (♀ holotype, Genoa Museum).

This species is only yet known from the holotype from Burma, the measurements which were given as body 7.5 mm., forceps 3.5 mm. and is the species later recorded as *Emboros dubia* (but only the Burma record) by Burr (see Brindle, 1978). A blackish species with long simple forceps, the male being unknown.

Syntonus ensifer Burr (Burr, 1912, Annln naturh. Mus. Wien 26 : 107) is based on a holotype from Peru, and this has been examined through the kindness of Dr. A. Kaltenbach of the Vienna Museum. The species is of a fairly uniform dark yellowish-brown(possibly slightly tenereal), almost entirely glabrous and impunctate, and there are no lateral longitudinal ridges on the elytra; each branch of the forceps has an almost dorsal tooth towards the base, and medially on the last tergite near the posterior margin is a large erect tooth-like projection (figs. 1, 2); the antennae are missing. The labels read Callanga, Peru, Staudinger/collection Br.v.W./THPE/*Syntonus ensifer* ♂, det. Burr/Derm. Inv. No. 299.

From the examination of this specimen it seems clearly

to belong to the Neotropical genus *Neolobophora* Scudder, so *ensifer* is hereby transferred to this genus. There appear to be no clear similarities between *ensifer* and any of the species now included in *Obelura.*

I am indebted to Mrs. J. A. Marshall and Dr. D. R. Ragge of the British Museum (Natural History) for permission to examine the types of *O. tamul* and *O. neolobophoroides,* and for facilities in their department, and to Dr. A. Kaltenbach of the Vienna Museum for the loan of the type of *N. ensifer* (Burr).

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Butterflies on my Mind by **Dulcie Gray.** Illustrated by **Brian Hargreaves.** pp. 125. Published by Angus & Robertson at £5.75. ISBN 0 207 95804 1.

Yet another book on butterflies which adds nothing to our knowledge. Why, when there is not a single work since Meyrick which deals with all our Lepidoptera, must publishers print endless books on this one small group of the Order, rehashing all the old material. Exceptions of course are E. B. Ford's "Butterflies" with its emphasis on Genetics and T. G. Howarth's revision of South's definitive work.

This book is pleasantly written and no exception can be taken to those parts to which the author is indebted for expert advice, but when she expresses her own views on conservation, she falls into the common error of misunderstanding the true meaning of the word and of obscuring reason by sentiment. It is useless to try to conserve species which are on the way to extinction because of changes in climate and habitat. Take care of the habitat and the species will take care of themselves, if possible. The cases of The Large Copper at Wood Walton and of the Swallowtail at Wicken are examples of useless endeavour. The Large Blue has declined rapidly in its "last" habitat since it has been managed. We have been informed of marked specimens in pill boxes left in the sun to be weakened by desiccation while waiting to be released.

Miss Gray would do better to insist on encouraging the rabbit in Devon, persuading the Forestry Commission to widen rides, plant an oak and a sallow for every conifer, let bramble, thistle and honey-suckle line the rides as they did in Tilgate and the New Forest before the war, and to pray for a few more summers like 1976, which showed how quickly species can build up their populations and spread.

The book is well printed with a good bibliography, but the illustrations lack the quality of Mr. Hargreave's work in the Ray Society's publication though they are not as bad as some of his recent work. As for the picture of the small boy with his net, how else did the author's advisors start? He is likely to become a better and wiser man than his mugging and football hooligan contemporaries. — E.H.W.

Collecting Butterflies in France and North-East Spain in August 1977

By N. J. and A. C. Derry*

Our holiday was based at Los Olivos, Aigua Blava, on the Costa Brava. We (the family) crossed the channel by hovercraft and motored down through France, collecting on the way, reaching N.E. Spain on the afternoon of August 13th. Los Olivos served as the headquarters for entomological forays in Spain, collecting being confined to the province of Catalonia. During our stay in Spain the weather was generally sunny, with temperatures somewhat below average, but we met with heavy downpours on our return journey through France. Below is a rough diary of places visited and butterfly species seen:

11th August. Nr. Senlis, N.E. of Paris, France: Deciduous woodland.

1 *Vanessa atalanta* L. 1 ♂ *Argynnis paphia* L.

Sev. *Pyronia tithonus* L.

12th August. (1) West of Murat, W.N.W. of St. Flour, France: Flowery meadows adjoining woodland and grassy clearings.

Sev. *Erebia epiphron aetheria* Esper. Many*Erebia ligea* L.

1 *Erebia aethiops* Esper.

4 *Clossiana titania* Esper (worn) — surprisingly still on the wing.

Many *Erebia sudetica liorana* De Lesse — comparatively fresh and in good numbers.

Sev. *Mellicta parthenoides* Keferstein.

1 *Heodes alciphron* Rottemburg — near the limit of its western range in France.

2 *Aglais urticae* L. Sev. *Heodes virgaureae* L.

Sev. *Coenonympha pamphilus* L. 1 *Thymelicus sylvestris* Poda.

(2) North of Florac, France: Rough grassy area with scrub.

1 *Brenthis daphne* S.

Gorges du Tarn, N.E. of Millau, France.

1 ♀ *Gonepteryx rhamni* L. I *Papilio machaon* L.

13th August. (3) Col de Puymorens, W.N.W. of Font-Romeu, France: Varied habitats.

Few *Clossiana selene* S. 1 *Erebia oeme* H.

Few *Erebia epiphron* (*fauveaui*?) De Lesse.

1 *Erebia cassiodes arvernensis* Oberthur.

Few *Lycaeides idas* L. Few *Palaeochrysophanus hippothoe* L.

1 *Carcharodus flocciferus* Zeller.

Puerto de Tosas, Nr. La Molina, Spain.

Few *Parnassius apollo* L.

14th August (4) Near Aigua Blava, E. of Gerona, Spain: Rough hillside near the sea.

1*Pieris mannii* Mayer

* Limeburners, Lincoln Hill, Ironbridge, Telford, Salop, TF8 7NL.

BUTTERFLIES OBSERVED IN FRANCE AND N.E. SPAIN

(11th AUGUST 1977 — 26th AUGUST 1977)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Papilio machaon L.				S			C			F
Iphiclides podalirius feisthamelii Duponchel				1	1	1	F	1		1
Pieris brassicae L.				S		1	S			F
P. rapae L.			S	C	S		C	1		F
Colias crocea Geoffroy			1	S			S	1		F
Gonepteryx cleopatra europaea Verity				F			F	1		
Leptidea sinapis L.				2	2		F	F		F
Charaxes jasius L.				2			1	2		
Apatura ilia barcina Verity					2		F			
Limenitis reducta Staudinger				1		1	F	1		1
L. camilla L.					S		S	1		F
Inachis io L.				S			S	1		S
Vanessa atalanta L.				F			F	1		F
V. cardui L.				3	1		C	1		
Polygonia c-album L.					1		2			1
Argynnis paphia L.						1	1		2	S
Mesoacidalia aglaja L.	1		1							
Issoria lathonia L.				2			S	F		F
Brenthis ino Rottemburg	S		1							
Clossiana dia L.							F			F
Melitaea didyma occidentalis Staudinger				2			C			
Melanargia galathea L.	F	S								
M. garathea lachesis H.						1	F			1
Hipparchia statilinus Hufnagel				S	1		1			
Pseudotergumia fidia L.				S			1	F		
Erebia manto/constans Eiffinger	S		C							
Maniola jurtina L.	F	1								
M. jurtina hispulla Esper				F	F	F	F	F		
Pyronia tithonus L.		1			S	F	S	F	F	F
P. cecilia Vallantin				S	F		F			
Parage aegeria L.				C	F	F	C	F		F
Lasiommata megera L.				S			F			1
Quercusia quercus L.							2			1
Nordmannia esculi H.					2					S
Lycaena phlaeas L.					1		F			F
Lampides boeticus L.				S			F	F		F
Syntaracus pirithous L.						1	2			
Everes argiades Pallas					S	F	F			F
E. alcetas Hoffmannsegg							S	1		
Celastrina argiolus L.				F			S	S		F
Polyommatus icarus Rottemburg				F	1	1	C	1	F	F
Spialia sertorius Hoffmannsegg					1		3			
Carcharodus alceae Esper							2			
Thymelicus lineola Ochsenheimer	S	F	1							
Ochlodes venata Turati							2			2

15th August. Near Aigua Blava: See (4).

1 *Melitaea phoebe occitanica* Staudinger.

1 *G. rhamni* L. 3 *P. mannii* Mayer.

1 *Melitaea didyma* Staudinger larva found on rough ground.

16th August. Near Aigua Blava: See (4).

17th August. (5) Near Angles, W. of Gerona, Spain: Varied habitats.

5 *Mellicta athalia celadussa* Fruhstorfer — rough ground near a stream.

2 fresh ♂ *Apatura ilia barcina* Verity — glided round and settled on the dry gravel of a stream bed.

(6) Near San Hilario, Spain: Some open ground, on bushy hillside.

S.E. of Arbucias, Spain: Near Riera de Arbucias.

Few *Pieris rapae* L. Sev. *Everes argiades* Pallas.

2+ *Everes alcetas* Hoffmannsegg.

17th August. Also seen (by roadside):

Few *Colias crocea* Geoffroy. Few *Gonepteryx cleopatra europaea* Verity (1 ♀).

1 *V. atalanta.* Sev. *Inachis io* L 1 *Lasiommata megera* L.

1 *M. didyma* larva — at Los Olivos (ready to pupate).

18th August. (7) Near La Bisbal, E. of Gerona, Spain: Varied habitats.

4+ *A. ilia barcina* — 1-3 ♀'s, 2+ ♂'s, fresh.

1 *Nymphalis polychloros* L.

Searching fennel by the roadside revealed several *P. machaon* ova and a few newly-hatched larvae.

19th August. Near La Bisbal: See (7).

3+ *A. ilia barcina* (1 ♀). 1 *Pyrgus armoricanus* Oberthur.

2 *Pyrgus malvae malvoides* Elwes & Edwards.

A search of a group of fairly small *P. nigra* produced 5 *A. ilia barcina* ova and 1 full grown larva — All except one of the ova were about 10 feet up on the trees.

Several *Iphiclides podalirius feisthamelii* Duponchel ova were also found, on very small blackthorn plants.

20th August. (8) Near Calonge, S.E. of Gerona, Spain: Dry hillside with holly oaks and Arbutus bushes.

1 *Charaxes jasius* L. (newly hatched).

22nd August. Near Calonge: See (8).

Found several nearly full grown *C. jasius* larvae.

1 fresh imago *C. jasius* also seen.

23rd August. (9) N.E. of Grandloos, Spain: Varied habitats.

2 *Polygonia c-album f. hutchinsoni.*

23rd August. (10) S.E. of Montseny, Spain: By the side of a stream.

1 ♀ *Thecla betulae* L. (chipped).

2 newly-hatched larvae and a few *I. podalirius feisthamelii* found on blackthorn.

24th August. Near La Bisbal: See (7).

2 *A. ilia barcin* — including 1 ♂ *f. clytie.*

In the Massif Central butterflies were still on the wing that we had expected to be over, such as *C. titania* and *E. sudetica liorana,* the latter being fairly fresh and reasonably common. *E. manto constans* was also still flying, together with several *B. ino.* Likewise in Catalonia the season appeared to be a little behind 'normal' with *I. podalirius feisthamelii* particularly fresh (and not fully out) and *C. jasius* appeared to be in between broods, borne out by the prescence of nearly full grown larvae. *A. ilia barcina* seemed to be local and we were fortunate in coming across areas where it could be readily observed. One disappointment was the lack of *Hesperiide,* but this was 'made up for' by the presence of the other species and overall the trip proved to be very enjoyable.

KEY TO TABLE

F=Few : 0-10 Specimens seen
S & Sev.=Several : 10-20 Specimens seen
C=Common : over 20 Specimens seen

Where known, exact number of specimens seen are given. Total number of species=69.

N.B. Figures used in the text correspond to those used in the table and serve as abreviations for the localities.

Butterflies and Moths of Breconshire by **J. P. Sankey-Barker, J. M. Chalmers-Hunt** and **H. G. Parker.** 88 pp. 1 plate. 1 map. 8vo, stiff wrappers. Brecknock Naturalists' Trust (1978) £3.00.

This volume is the first published County List of lepidoptera for Breconshire (V.C. 42), a County which was extinguished by the bureaucrats in 1974 and replaced by portions of Powys, Mid Glamorgan and Gwent. It is pleasing to note that all groups of lepidoptera are included, and that the nomenclature is up to date. Numeration of families is in accordance with Kloet and Hincks (1972), although the order in which the families are presented is a little odd. A reasonably comprehensive listing of the macrolepidoptera is evident, but the smaller moths are obviously under-recorded, and the area would benefit from more visits by microlepidopterists — for example 23 of the 30 recorded species of Nepticulidae reflect the passage of Col. Emmet through the County in 1974!

A useful feature is a "gazetteer" giving the tetrad references for the often unfamiliar place names mentioned in the text. The book concludes with a brief bibliography and separate indices for the scientific and trivial names.

County Lists are important not only for their intrinsic value, but because they become reference works for future generations of entomologists. This well-produced volume should provide a foundation for much useful work in years to come, and it is a pity that only 200 copies have been produced. The work is available from E. Bartlett, Chapel House, Llechfaen, Brecon, Powys for an inclusive price of £3.15. — Paul Sokoloff.

Great Collectors of the 1930s

By Canon Peter Hawker*

Not being of exactly test match standard I was not keen on cricket. In summer at my prep. school, I rushed wildly after butterflies in nearby fields, and if caught, the poor creatures were made to endure crushed laurel leaves. I think they more often died of starvation . . . but then little boys are no paragons of mercy.

In June 1931 I sat an entrance exam for Winchester. I remember that the headmaster of my prep. school, himself an Old Wykehamist, took me up to Long Wood just past St. Catherine's Hill, during a break between papers. There, to my delight, I found specimens of *Mellicta athalia* which must have been 'released' by some enthusiast. For in my five years in the school I never saw them again there, or indeed anywhere else.

Here is a place to say something about nomenclature. It was in the mid thirties that the Entomological Society . . . I don't think it was Royal then . . . brought out a FINAL list of names for English butterflies. But as far as I can remember, before three months had passed *Syrichtus malvae* had become *Pyrgus malvae*. So if I do use wrong names, I'm only using those that will be used in 1990!

Incidentally, I think it was in 1974 that I was privileged to visit the great strong room of the Linnaean Society, and see the actual butterflies the great man had first named. The very first *Papilio machaon*. It was a wonderful visit.

All I can remember of 1932's summer is seeing the newly emerged male of *Euchloe cardamines* on the way to Crab Wood and Farley Mount. For in mid June of that year, I ran into a van at the Sparsholt crossing and was unconscious for some days, and did not return to school till the following January.

One advantage of this accident was that my housemaster was worried that I would be hit on the head by that dangerous cricket ball. Consequently, I only sometimes had to play in 'Jun. game', where the real no-hopers dismally laboured. So, very often on fine days(and how they seemed to abound then!), I went off on my bicycle to my beloved Crab Wood and Farley Mount.

On whole school days there was only a short break after lunch, and then I went to the railway track of the G.W.R. at the bottom of St. Catherine's Hill . . . where the by-pass now runs. There blues abounded: *coridon, bellargus, minima, medon,* and of course *icarus*. Many of these I had never seen in my native Devon. And there it was that I met William Fassnidge, that great expert and collector of European butterflies. Later, I visited him at his home, and listened spellbound to his account of his collecting days at Digne, and in particular how great rarities here were to be found in numbers there. He

* St. Botolph's Vicarage, South Park, Lincoln.

told me too, of the difference between *Plebejus argyrognomon* and *P. argus,* and how the former *might* have been overlooked in England; of the spring and summer forms of *Araschnia levana,* and how he hoped that one day the summer form might appear in England. But I still look in vain.

It was through William Fassnidge that I got an introduction to Mr. S. G. Castle Russell, and was invited to his home at Crawley for tea. That ideal garden full of all the weeds that larvae ate! And that HUGE tea cup he used himself. He was for ever getting his moustache wet in the tea. His collection of varieties was most fascinating. He used to tell me of the hundred he caught each day, and how he released all but one or two of interest at the end of the day. And from those he took home he bred from their ova, thus encouraging variety.

Through him I met Mr. Parkinson Curtis of Bournemouth and the great Mr. Bright who also collected, and named, with S.G.C.R., so many varieties with such long long names.

In my last years, I was permitted to join the Society for British Entomology, and attend its meeting at a Temperance Hall in Southampton on certain Saturdays. I even read them a rather bad paper on a summer holiday's collecting in Normandy. I mentioned some Diptera I had caught there, for Mr. Rivenhall-Goffe of Kings Somborne had begun to interest me and Robert D. M. I. K. Harkness(now a Professor at London University) in flies, and to widen our entomological interest.

I am pretty sure now, as I reflect on the past, that it was Mr. Castle Russell who released that rare fritillary near Long Wood in 1931. My housemaster did not always appreciate my entomological friends and called them Mr. Casternets and Mr. Parcel-Bussell. How I hated him for that joke! But he was very nice to Mr. Fassnidge when he came to lecture to the Natural History society one Sunday morning, and so the hate was washed away, thank goodness.

My Aunt came from Yarmouth in the Isle of Wight and gave me an introduction to the Rev. J. E. Tarbat, who had retired from the Parish of Calbourne in the Isle to No. 1, Romsey Road. He had been ordained in 1886 and was not actively collecting. But his collection was wonderful and I especially remember a gynandromorph *Euchloe cardamines.* His collection is now in the Natural Science Department of Cambridge University. Until I gave them away to a young enthusiast, I always used some forceps he had given me.

I had quite early given up using the rounded setting boards that my Father had used. But I was never converted to the Continental method of setting that William Fassnidge advocated, mainly, I think, because the cabinets that had been my Father's would not take specimens set in this way.

One summer I got friendly with a young French collector, who was over here for a month and staying in the town. He always went out at first light and managed to find butterflies as they slumbered. As school rules did not permit my being out at that time, I never found out how he did it. He had one

other unusual custom, and that was to put his set specimens in an oven for a short time, and so hasten their drying. I tried once, but the specimens all burnt up, so I never tried it again.

We often went over from my old home near Tavistock, to Downderry not far from Looe. And there up Shutta Hill lived J. P. Symington, who had a remarkable collection of butterflies sent to him from all over the world. I often wonder what happened to that collection. I remember his giving to me three specimens of *Caprona adelica kordofani* from Bahr-el-Ghazal in the Sudan, which I, in turn, gave to the Natural History Museum.

It was about that time that I purchased from Watkins and Doncaster of 36, Strand (I never like passing the site even today), a copy of the big Frohawk two volumes, for the immense sum of £2. I had a curious agreement to sell it back for 30/-, if after a year I did not feel I could retain it. How I wish I had it now! To look on those varieties I knew from the collections I had seen, let alone its value! But then, £2 seemed an awful lot of money for a book.

School summer holidays took us to France, where I tried to improve my French at a Chateau near Ry in Normandy, some 30 km. east of Rouen. As far north as this Fassnidge would not have been satisfied with the insects, but when I escaped from French classes, the clover fields yielded wonders: *Issoria lathonia, Nymphalis antiopa,* just to name two. And I caught (near the hamlet of S. Denis) a specimen of *Melitaea parthenie* almost totally brown with no black markings, for which I still have the formal thanks of Mr. C. Tate Regan of the Natural History Museum. I suspect this is now classified as *M. parthenoides,* but *parthenie* was good enough for C.T.R.

A year or two before the war we moved to the Cromwell Road area of London — an easy walk to the Museum. When younger, and staying at an hotel in the area, my Mother always insisted I go by Tube. One day I got on a train going in the wrong direction, and so got out at Brompton Road Station, only to find that trains that stopped there were always listed as 'not stopping at Gloucester Road' which was my destination.

At the Department in the Museum I met Brigadier W. H. Evans. He once told me he always cut his own hair, a thing he had had to learn on the N.W. Frontier where barbers always had a sharp razor and sometimes used it for other purposes than shaving. He was naming a new Skipper he had found in the collection, a nice brown one, I remember, and he called it *'tosta'* for it looked toasted.

Mr. W. H. T. Tams dined with us one night, and I remember my Mother was a little surprised when he took eight lumps of sugar in a small coffee cup . . . so many that for a few moments the sugar rose above the rim of the cup! I used to watch them setting in the setting room and a Mr. Vredenburg showed me a better way of setting. Mr. A. G. Gabriel helped me identify, from Seitz, foreign butterflies that

Mr. Symington had given me. And once Capt. N. D. Riley very kindly, but with some misgivings, wrote a letter to my anti-entomological housemaster, asking that I might come to London by an earlier train than the official school train.

The Brigadier once took me to a meeting of the Entomological Society in Queens Gate. I don't think I understood the lecture, which was on Hemiptera. But I met there Prof. Hale Carpenter of Oxford, who later on showed me a fine exhibition of mimicry that he had arranged in the Hope Department. And I think I just met Prof. Poulton there, who knew my housemaster.

Later, I got interested in *Cimex lectularius,* and once went down to Eltham to see fumigation with Cyanic gas of household goods. It was the first time I ever wore a gas mask, and perhaps the only time, for I was in Australia all through the war. I managed to get a live specimen which I kept at home and fed on my arm. Mother was terrified lest IT escaped and the house got infected. What *would* the neighbours say? Indeed I shudder to think what any of us would have done. But it never did get free, dying a natural death.

What a great body of men those Entomologists were, and how kind to a somewhat tiresome youth. But then Entomologists are like that, and so we pray may they ever be!

THE DOTTED RUSTIC: RHYACIA SIMULANS HUFNAGEL IN KENT. — On the warm and cloudy night of 7th/8th September 1978, a male specimen of this noctuid moth was taken in my garden m.v. trap. This constituted the first confirmed record of this species in Kent. — Dr. I. A. WATKINSON, "Shangarry", 148 The Street, Boughton-under-Blean, Faversham, Kent, ME13 9AL.

[In Britain, *R. simulans* is mainly a species of western and northern distribution, which until this year had never before been known to occur in Kent. Also in 1978, nine *simulans* were taken in Essex, for which county there was apparently only one confirmed record. The 1978 Essex specimens occurred (all in m.v. traps unless otherwise stated) as follows: Bradwell-on-Sea, July 30 (1) (A. J. Dewick); Ingrave near Brentwood, July 30 (1), 31 (1), August 3 (1) (A. P. McClenaghan); July 31 (1), September 6 (1) (K. Grimwood *per* I. McClenaghan); Little Baddow, Chelmsford, August 17 (one at buddleja), 19 (1) (G. A. Pyman); Thunderslea, September 10 (one in a water butt) (D. G. Down). I had the opportunity of seeing the Watkinson and McClenaghan specimens and noticed that they were rather more dark than some from Gloucestershire (taken by A. Richardson) with which I was able to compare them, so one wonders if they were of a different — perhaps Continental — origin. — J. M. C.-H.]

Some Diptera Collected by Water Traps in Norfolk Cereal Fields 1976-1977

By Ian F. G. McLean*

During a field sampling programme for cereal aphids and their natural enemies undertaken near Easton, Norfolk, several interesting Diptera were recorded when sorting catches from water traps. These traps were yellow horticultural bowls 8 inches in diameter and 3½ inches deep, filled wth water to which a little formalin and detergent were added. The bowls were then placed on tin trays nailed to the top of 2 x 2 inch wooden stakes approximately three feet above ground level, and therefore above the maximum height of the crop. The insects caught were removed weekly during the trapping period, and preserved in alcohol for subsequent examination. The field studied (with 20 traps operated in each field) were as follows:

1976 two winter wheat and one spring barley (grid reference TG 1210).

1977 two winter wheat (grid reference TG 1410).

Phthiria pulicaria Mikan (Bombyliidae) 2 ♀, 23-30.vi.1976. As far as I can determine until now this species has only been found in Britain on coastal dunes (Oldroyd, 1969). The nearest known locality for this species is 24 miles to the east at Winterton National Nature Reserve, Norfolk. The occurrence of this attractive little fly so far inland is therefore of some interest, possibly small colonies may be found inland on sandy areas, or alternatively the individuals recorded here may have flown inland. Formerly this area west of Norwich was partly sandy heath, though it is now cultivated for arable crops. The Breckland heaths of Norfolk and Suffolk are known to support a number of otherwise coastal insects, so collecting from flowers in these localities may yet show this fly to have been previously overlooked inland.

Stilpon nubilus Mg. (Empididae) 1 ♀, 30.vi.-7.vii.1976. This species is seldom recorded, probably because of its small size and retiring habits among low vegetation, like other members of this genus. It has subsequently been found commonly in a greenhouse at the University of East Anglia, Norwich, where I first discovered it in March 1978 running over gravel covered benches and amongst pots containing grass.

Chrysotoxum verralli Collin (Syrphidae) 1 ♀, 30.vi.-7.vii.1976 and 1♂, 14-21.vii.1976. I have only infrequently taken species of this genus in Norfolk, and so I was pleased to take this pair in an unexpected habitat.

Myopa testacea L. 1 ♂, 12-19.v.1977 and *Thecophora atra* Fab. (Conopidae) 1 ♀, 23-30.vi.1977. These two uncommon species, like the others listed above, were not otherwise observed in the area. This demonstrates the value of traps for detecting species which would not otherwise be collected. The use of such traps in more species rich habitats than cereal

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fields would doubtless be rewarded by a longer list of interesting species.

Coe, R. L. 1953. Diptera: Syrphidae. *R.E.S. Handbooks for the identification of British insects.* **X** (1).
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Oldroyd, H. 1969. Diptera: Tabanoidea and Asiloidea. *R.E.S. Handbooks for the identification of British insects.* **IX** (4).
Smith, K. G. V. 1969. Diptera: Conopidae. *R.E.S. Handbooks for the identification of British insects.* **X** (3a)

The Observer's Book of Insects of the British Isles by **E. F. Linssen, F.R.E.S.** Published by Frederick Warne, London. pp. 191, 150 colour illustrations and 96 line drawings by **Gordon Riley** with 30 photographs. ISBN 0 7232 1574x. £1.25.

This latest publication in the Observer series, which maintains the expected high standard, was Linssen's last work before he died.

The earlier chapters, which deal with structure, behaviour, and classification, are concise and well informed and serve as a useful introduction to the general reader. There follows a key to Insect Orders and an illustrated account of some examples most likely to be noted in the field. The selection from such a vast number of species has been prompted by this aim. This means that many major families are unrepresented. In Lepidoptera, for example, theNoctuidae and almost all Micro families are ignored. The illustrations are clear and photographs well chosen. There is a final section on spiders, included because of their importance as insect predators.

An excellent little book for its purpose, which should lead the beginner onto more specialised literature. — E.H.W.

BEMBECIA SCOPIGERA SCOPOLI: ICHNEUMONIFORMIS D. & S. AT EASTBOURNE. — I was pleased to take two specimens of the Six-belted Clearwing in excellent condition, by sweeping grassy slopes at Pinnacle Point, Eastbourne on the 31st July, 1977. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent.

AGRIUS CONVOLVULI L. FLYING IN DAYTIME. — On Sunday September 19th, 1976, two bird-watchers at Porthgwarra, near Land's End watched *A. convolvuli* fly in, in front of a cold(?) front, and settle in a field at 2.30 p.m. — AUSTIN RICHARDSON, Orchard Cottage, Box, Stroud, Glos.

CORRECTION. — In my article "The Moths of Wimbledon: Further Records 1971-77" (*Ent. Rec.* 90: 231), the printers have omitted one line, line 3 under Noctuidae, and replaced it with a duplicated line 3 under Geometridae. The line which was omitted should read:
only, 19.8.76. *Lithophane leautieri hesperica* Boursin, 1 only, — J. V. DACIE.

Some Records and Observations of Microlepidoptera in Southern Scotland

By K. P. Bland*

Stigmella basiguttella (Heinemann, 1862). A single vacated mine of this primarily southern species was found on oak just south of the Devil's Beef Tub (O.S.36/0608), near Moffat, Dumfriesshire (V.c.72) on 27.ix.1977.

Stigmella spinosissimae (Waters, 1928). Vacated and occupied mines in Burnet Rose, ascribable to this species occurred at Seton Bents (O.S.36/4376), Longniddry, E. Lothian (V.c.82) on 31.ix.1976 but no adults were bred. Further occupied mines were collected at the same place on 1.x.1977 and these produced imagines of *S. spinosissimae* between 23.iv and 4.v.1978. Occupied mines from a small patch of Burnet Rose growing in the Pentland Hills (O.S.36/1861), near Edinburgh, Midlothian (V.c.83) yielded only *S. anomalella* (Goeze, 1783). In both situations the eggs were on the underside of the leaf, next to the midrib and the early mine was filled with frass, but the mines of *S. anomalella* were longer and the frass was more dispersed in the second half.

Nepticula ulmariae Wocke, 1897. Although not confirmed by breeding the imagines, the mines of *N. ulmariae* (confirmed by A. M. Emmet) have been found in three different localities in South-east Scotland:

(1) Two empty mines on 22.viii.1976 at Gordon Moss Nature Reserve (O.S.36/6342), Berwickshire (V.c. 81).

(2) Several empty mines on 5.ix.1976 at Aberlady Nature Reserve (O.S.36/4680), E. Lothian (V.c.82).

(3) Two empty mines on 4.x.1976 near Gladhouse Reservoir (O.S.36/2757), Midlothian (V.c.83).

All the mines were in Common Meadowsweet, *Filipendula ulmaria* (L.) Maxim, growing in long-established marshy areas. No mines were found in 1977.

Nepticula fragariella Heyden, 1862 and *Nepticula dulcella* Heinemann, 1862. Both these species are associated with Wild Strawberry and are recorded as having primarily southern distributions in Britain (Emmet, 1976) but are probably more widespread. Vacated mines ascribable to *N. dulcella* were found at Crichton (O.S.36/3761), Midlothian (V.c.83) on 12.xi.1977 and again on 18.ix.1978. Vacated mines ascribable to *N. fragariella* were found at Craigieburn Plantation (O.S.36/1206), near Moffat, Dumfriesshire (V.c.72) on 20.xi.1977.

Fomoria septembrella (Stainton, 1849). This species has in the last two years been found to be widely distributed in southern Scotland. It has now been recorded from V.c.72, 78, 80, 83, 85 and 86. It will probably be found wherever wild *Hypericum* sp. grow but usually requires a little searching to find the mines.

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Lampronia fuscatella (Tengström, 1848). Prior to 1976 (Heath & Pelham-Clinton, 1976) the only record of this species north of Westmorland (V.c.69) was from V.c.95 (Moray). On 12.iii.1977 a gall on birch containing a white lepidopterous larva with a small black-grey prothoracic plate was found at Red Moss Nature Reserve (O.S.36/1663), Balerno, Midlothian (V.c.83). The following day an emergence hole, roughly covered with reddish brown frass appeared in the side of the gall, thus confirming that it was the work of a *fuscatella* larva. The 15th of April brought the emergence of a hymenopteran parasite, instead of the expected lepidopteron; however the parasite, a male *Panteles schutzeana* (Roman) (identified by M. R. Shaw) is itself very rare.

Adela cuprella (Denis & Schiffermuller, 1775). This rather local species was recorded from Rowardennan, Stirlingshire (V.c.86) by K. J. Morton between 1900 and 1908. A search of leat litter under female Sallows in the Rowardennan area in April and May 1978 yielded adelid-like cases, almost certainly belonging to this species, from two localities:

(1) Cluan, near Rowardennan (O.S.27/3697) yielded two cases both only half grown.

(2) Craigroyston, north of Rowardennan (O.S.26/3402) yielded two larvae again only partly grown.

Unfortunately all four had died by the beginning of September 1978. On 14.v.1978, by courtesy of Mr. Iain Christie, I visited another locality Gallangad Glen, near Gartocharn, Dumbartonshire (V.c.99) where *A. cuprella* was flying in abundance around *Salix aurita* L. A search of the leaf litter under one of the bushes yielded two small cases containing larvae obviously from the previous year. Both grew rapidly and ceased adding leaf fragments to their cases by early June. At the narrower end of one of the cases, there was a small patch of white hairy material, presumably the original larval case of willow-down (Chrétien, 1894) thus confirming that it did in fact contain a larva of *A. cuprella.* It thus appears from the above data that *A. cuprella* takes at least two years to complete its development.

Heliozela betulae (Stainton, 1890). This species is widely distributed in southern Scotland and has now been recorded from V.c.72, 75, 78, 80, 81, 82, 83, 84. It is nowhere common, usually only a single larva per bush and is restricted to low bushes of *Betula pubescens,* Ehrh.

Schiffermuelleria similella (Hübner, 1796). Some old *Piptoporus betulinus* Fries collected off dying birches at Crichton Castle (O.S.36/3860), Midlothian (V.c.83) on 27.xii.1976 produced some eight imagines of *Nemapogon cloacella* (Haworth, 1828) and a single *Schiffermuelleria similella.* Although the pupal case of *S. similella* was found it was detached from the substrate and impossible

to associate it with any of the many larval workings. On 13.v.1978 I collected some old *Daedalea quercina* Pers. off a dead oak stump at Craigroyston (O.S.27/3403), by Loch Lomond, Stirlingshire (V.c.86). About a month later a single imago of *S. similella* emerged from the fungus. No other species were bred from these fungi although there was abundant evidence of larval feeding. Once again the pupal case had become detached from the substrate during emergence and so evidence of the larva having fed on the fungus was not found. The above data strongly suggests that the larva of this species feeds on fungus. There were no coniferous trees in the immediate vicinity in either case.

Blastobasis decolorella (Wollaston, 1858). This rapidly spreading species has reached Scotland. In 1974 it was bred by Dr. G. Foster from "cauliflower galls" on Ash from Pollock, Glasgow (record via E.C.P-C.). This year two specimens, kindly identified by E. C. Pelham-Clinton, have been taken at light in the Edinburgh area. During the night of 31.v to 1.vi.1978 one came to light at Blackford (O.S.36/2571), Edinburgh (V.c.83) and another was taken in a MV trap at Musselburgh (O.S.36/3372), E. Lothian (V.c.82) on 9/10.vii.1978.

Eana incanana (Stephens, 1852). Although previously known from Argylshire, Perthshire, Inverness-shire and Aberdeenshire, I would like to record that this species occurs fairly commonly in the oak/birch woods on the east shore of Loch Lomond at Craigroyston (O.S.27/3302), Stirlingshire (V.c.86). Two fresh males came to light on 16/17.vii.1978 and several rather worn specimens were obtained at the next visit (11/12.viii.1978). In spring these woods are carpeted in parts with wild hyacinths, *Endymion non-scriptus* (L.) Garcke, which is its usual foodplant.

Acleris abietana (Hübner, 1819-22). A single specimen of this species occurred at light in the old birch and oak wood at Craigroyston (O.S.27/3309), on the shores of Loch Lomond, Stirlingshire (V.c.86) on the night of 16/17.iv.-1978. Several stands of conifers grow nearby. Since its original discovery in Perthshire, it has been recorded from Inverness-shire and Aberdeenshire. This species is currently extending its range having now also been taken at light by E. C. Pelham-Clinton at Winchburgh (O.S.36/1076), West Lothian (V.c.84) on 27 May 1978.

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Pieris brassicae (L.) in South America

By JOHN FELTWELL*

It is generally regarded that *Pieris brassicae* was accidentally introduced into Chile (Valparaiso) in 1971 with imported goods from Eastern Europe; its presence in Chile was first noted by González (1972) and later expanded upon by Gardiner (1974). The actual route by which *P. brassicae* entered Chile has, however, not been ascertained, and probably never will be. However, a short paper published by the Ministry of Agriculture in Uruguay described *P. brassicae* as a pest (Anonymous, 1920). The existence of this paper gave substance to the possibility, although somewhat remote, that the Chilean population had originated from Uruguay.

The short paper named *Pieris brassicae* specifically and included a photograph of skeletonisation of cabbage caused by the larvae and photographs of both sexes of the imago. A description of the species was given and several methods of control recommended.

The matter was therefore taken up with the Ministry of Agriculture, Fisheries and Food in Montevideo, who were able to sort out the validity of this publication. Apparently, it was a common error at that time to nominate native Uruguayan species with names of similar-looking European species. Furthermore, the Ministry stated that *P. brassicae* had not figured in any species lists in Uruguay. The species which Anonymous (1920) had referred to as *P. brassicae* is therefore most certainly *Tatochila autodice* (Hübner) which also feeds off cabbages and is a member of the Pierinae. Thus any possibility that *P. brassicae* had crossed the Andes or had been introduced from Uruguay to Chile via trade routes is rejected and adds support to Gardiner's theory of outside origin. Meanwhile *P. brassicae* is thriving well in Chile and has spread 60-70 km. east of the original site (González, pers. comm. in Ripa 1978) and has now spread southwards to Santiago and Concepcion where it is currently threatening the rape seed cash crop (Campos 1978, pers. comm.).

I would like to thank Mr. Geoff. Burton for kindly communicating with the Ministry of Agriculture in Uruguay; Ing. Ag. Mario Boroukhovitch of the Ministry of Agriculture, Fisheries and Food in Montevideo for supplying details; and Dr. Luciano Campos of the University of Chile for providing recent information on *Pieris brassicae*.

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PRACTICAL HINTS — JANUARY AND FEBRUARY

The larvae of the White Admiral (*Ladoga camilla* L.) can be found quite easily in mid winter. If the area of a wood in which this butterfly occurs is known, look for honeysuckle growing in a shady and somewhat gloomy situation adjacent to but not overlooking a pathway. It is a waste of time looking on plants which receive full sunshine during the period of egg-laying. The larvae hibernate in little *withered triangular 'purses'* formed by fastening together with silk the two sides of the base of a leaf after the larva has eaten away the rest of the leaf. Look at a height between three and six feet. Most of the leaves of honeysuckle fall in winter and, as the larva fixes the leaf in which it is hibernating to the stem with silk, the little hibernaculum is reasonably conspicuous. The larva, quite brown and the same colour as the dried leaf, sits on the mid-rib in the 'purse' with only just the anal tip of its body showing. After diligent searching, I have found as many as twelve larvae in one morning in January (TUBBS).

In favoured localities it is easier to find the larvae of the Scarlet Tiger (*Calimorpha dominula* L.) in leaf litter during the winter months than among the lush vegetation of river banks in early spring. The larvae occur on the soil surface among the comfrey and nettle leaves. (B. R. BAKER).

The Rosy Rustic (*Hydraecia micacea* Esp.) one rarely catches in mint condition, but the pupae are not difficult to find at the roots of dock. On the shingle at Dunwich I found all I wanted, although I must admit the terrain was ideal for the job. All one had to do was to grasp each dock and give it a tug. If it came away easily in ones hand, there was almost a certain chance of finding one or more pupae amongst the litter at the base (BANNER).

Pupa digging in apple orchards can yield a variety of pupae, mainly common noctuid species, i.e. *Orthosia gothica* L., *O. incerta* Hufn., *Mamestra brassicae* L., *Axylia putris* L., but sometimes *O. munda* D. & S. Orchards with smallish trees and ground vegetation around the bases, i.e. grasses and chickweed seem to be most profitable. Larvae utilising low plants often pupate close to the base of a suitable tree. Pupae are often under dead grass tufts, and mostly just under the soil. This can be an interesting winter pastime, though rather hard on the legs and requires constant bending under the lower branches of some trees (PLATTS).

The fully grown larvae of the Scarce Wainscot (*Mythimna obsoleta* Hbn.) rest during the winter months within hollow *Phragmites* stems, but splitting complete stems can be a tedious business. Examine the short broken-off pieces sticking up from ground level, either the result of mechanical damage or a reed bed fire, pieces as short as 6 inches have been found productive (B. R. BAKER).

Having taken *Eutromula pariana* Clerck in Surrey on 17th September, we returned later to try to find a sustitute for thatch whence this hibernating moth was beaten freely early this century. On 2nd December, a very cold day with light drizzle, we set to work with a strong beating tray specially made for the job. We worked bracken, gorse and finally thick accumulations of dead twigs and leaves at the bases of hawthorns. We failed to find *pariana* but recorded the following species: *Caloptilia betulicola* Hering, *C. alchemiella* Scop., *Ypsolopha ustella* Clerck, *Digitivalva pulicariae* Klimesch, *Epermenia chaerophyllella* Goeze, *Agonopterix ocellana* F., *A. ulicitella* Staint., *Acleris tripunctana* D. & S., *A. cristana* D. & S., *Emmelina monodactyla* L., *Nycteola revayana* Scop., *Inachis io* L. (FAIRCLOUGH).

Seedheads of Teazel (*Dipsacus* sp.) can be collected any time during the winter months. Split open one or two heads — small holes in the seeds indicate the presence of *Cochylis roseana* Haw. larvae. Accumulations of black frass in the pith of the seedhead, together with grey silk spinnings and often a heap of whitish, chewed pith at the base most probably indicate that *Endothenia gentianaeana* Hb. is present — the larva hides at the base of the seedhead. Occasionally *E. marginana* Haw. will also be found. *Ostrinia nubilalis* Hbn., normally a stem feeder in *Artemisia,* etc., has also been found in the pith. Collect a number of intact heads from the locality, leaving a few inches of stem. Bundle the stems together, and hang the bunches of seedheads outside (no protection needed). Bring indoors late April, and emergences occur May-June (SOKOLOFF).

Mined needles of Pine can be collected as early as the New Year for larvae of *Ocnerostoma friesei* Svennson, the affected leaves being mined from the tip where they become yellowish coloured. Unlike *O. piniariella* Zeller, this species is double brooded, but larvae from early in the year are certain to yield *friesei.* There is the possibility that *Cedestis subfasciella* Steph. will also be bred, but this species spins a cocoon on the ground or suitable litter, whereas *Ocnerostoma* species spin a slender cocoon between 3 or 4 needles and they are confined to *Pinus sylvestris* (AGASSIZ).

From mid February, larvae of *Lozotaenia forsterana* F. can be found spinning two leaves of ivy together. At the same time collect spun shoots of stitchwort (*Stellaria holostea*) for the larvae of *Caryocolum tricolerella* Haw. In January and February collect seedheads of burdock for *Metzneria lappella* L. (Heal).

Reuttia subocellea Steph. is our only case-bearing Gelechiid. The case is made of dead florets of marjoram (*Origanum vulgare*), and can be found from November to February. The case protrudes from the withered seedheads, and is often common. Cases have also been found on seedheads of *Mentha aquatica,* where it is even more conspicuous during the early months of the year. Note that the larva is active from around August until April (both Ford and Meyrick give 8-11 as larval dates). Leave seedheads in cloth bags outside, exposed to the elements, until April (SOKOLOFF).

Notes and Observations

TERPNOMICTA TRIMACULATA (VILL.) (LEP.: GEOMETRIDAE): A SPECIES NEW TO THE BRITISH LIST, AND OTHER IMMIGRANT MOTHS IN PURBECK, DORSET IN 1978. — In a year which could boast little else of interest, it is worthwhile to note the following immigrant species to m.v. light in the neighbourhood of Stoborough near Wareham.

The morning of 14th June produced the greatest surprise in the form of a new species to the British list, the Geometer *Terpnomicta trimaculata* (Vill.), a male of which appeared in a Robinson trap run on the heath at the bottom of my garden. It was accompanied by several examples of *Agrotis ipsilon* (Hufn.) which had previously been seen only as scattered singletons, thus indicating an immigration. *T. trimaculata* is a native of Southern Europe where it is bivoltine, and the larva feeds on White Poplar.

Mid-October produced a considerable influx of immigrants, due to the arrival of a warm airflow from the Mediterranean area. The following more noteworthy species were taken in my trap at Stoborough: 10th October: *Mythimna vitellina* (Hübn.) (2), *Rhodometra sacraria* (L.) (1); 11th October: *Helicoverpa armigera* (Hübn.) (1), *R. sacraria* (4), *Uresiphita limbalis* (D. & S.) (1); 12th October: *M. vitellina* (1), *R. sacraria* (2); 13th October: *Orthonama obstipata* (F.) (1); 14th October: *Spodoptera littoralis* (Boisd.) (1), *Mythimna unipuncta* (Haw.) (1), *R. sacraria* (2), *O. obstipata* (1); 15th October: *R. sacraria* (1). In addition to these, there appeared numbers of the more usual immigrants, notably *Peridroma saucia* (Hübn.), *Nomophila noctuella* (D. & S.), and *Udea ferrugalis* (Hübn.).

Operation of a portable m.v. lamp with a sheet at nearby Furzebrook on the evening of the 11th produced a fine example of *Palpita unionalis* (Hübn.).

Since 15th October, stragglers of *sacraria, obstipata* and *vitellina* have occurred up to the date of writing (2nd November). Weather conditions are continuing mild, keeping hopes of further arrivals high. — B. G. WITHERS, 64 Furzebrook Road, Stoborough, Wareham, Dorset.

A NOTE ON EREBIA EPIPHRON KNOCH (MOUNTAIN RINGLET). — I had always assumed that this species did not occur below about 1,800ft. in the Lake District and 1,500ft. in the Scottish Highlands. At least that is what the text books say, and that tallies with my own experience. So I repeated the usual account in an Article which I wrote for this year's issue (Spring, 1978) of the Cumbria Natural History Report (which deals mainly — about 90% — with birds) concerning some problems of distribution. I subsequently had a letter from the Reverend G. Moule of St. Bees saying that he had known for 20 years of a colony in the Lake District at an altitude of only about 700ft. and that this colony was still flourishing. He

added that he hoped few lepidopterists knew of its location — I certainly do not — though he had originally reported it in the *Entomologist*. This must be most exceptional, and I should be glad to hear from any reader who knows of an established colony below the generally accepted lower altitudinal limit. It may turn out that we have too glibly gone on repeating the usual account of the matter. I say "established colony" because Mr. Moule goes on to say that he has seen specimens as low as 200ft., which he admits were almost certainly blown down from higher up the Fells. I have personally never encountered any specimens, blown or otherwise, below the normally accepted height, and I was very intrigued by this report.

I have now just had a letter from Mr. Chris Howarth of Whitehaven to say that he was climbing from Wastwater onto the Scafell range in mid-July this year (during the only really fine spell we have had in Cumbria apart from a few days at the end of May during the whole of this season) and was astonished to see specimens of *E. epiphron* flying at 200ft. by the shores of Wastwater. As he climbed up to the ridge he realised why, for specimens were spilling over from the plateau above where they were in such profusion that it was almost impossible not to tread on them. How I wish I had been there! I have never come across an outbreak of this species, and indeed had never heard anybody tell of one. I have always found its numbers quite constant. Wanderers are not infrequent in my experience but the specimens I have come across in this way have always managed to remain at a respectable altitude! It would be interesting to know whether other lepidopterists have had the same experience as I have, or whether they have come across specimens low down the Fells, or any similar outbreak. — THE REVEREND J. H. VINE-HALL, 3 The Green, Malmerby, Penrith, Cumbria.

EVIDENCE OF A LATE MIGRATION OF LEPIDOPTERA TO EASTBOURNE ON 2ND NOVEMBER 1978. — Noticing the warmth and closeness of the evening of the 2nd, I drove home to switch on my m.v. lamp at about 2000 hours. The prevailing wind was south-westerly and steady drizzle dampened my hopes. Next morning, inspection of the trap contents revealed: *Agrotis ipsilon* Hufn. (2), *Mythimna unipuncta* Haw. (2), *Peridroma porphyrea* D. & S. (1), and *Plusia gamma* L. (4), of which two had wingspans of 36mm. compared to 40-46mm. of normal specimens as cited by Meyrick (1927).

Among suspected immigrants at my garden light earlier in September and October, I had only singletons of *Leucania albipuncta* D. & S., *Peridroma porphyrea* and *Agrotis ipsilon*, with *Autographa gamma* L. and *Agrotis segetum* D. & S. in poor numbers compared with the previous three years. — MARK HADLEY, 7 Beverington Close, Eastbourne, Sussex.

MID OCTOBER MIGRANTS INTO CENTRAL GLOUCESTERSHIRE. — After a very lean year at the m.v. trap in my garden, I wish to record a *Heliothis armigera* (Hbn.) on the night of 12/13 October and a *Mythimna unipuncta* (Haw.) on the night of 13/14 October. Both were females and neither had

occurred before during the 20 years I have run a trap here. I think the *unipuncta* is the first Gloucestershire record. Other rare (or in the case of *Plusia orichalcea* F.) very rare migrants occurred during the same few nights at other traps in the county. — R. P. DEMUTH, Watercombe House, Oakridge, Gloucestershire.

RHODOMETRA SACRARIA (L.) IN SHEFFIELD. — On the 11th October during the mild period I took a single specimen of The Vestal in my m.v. trap at Broomhill in Sheffield. It was in fresh condition, male and had brown markings.— S. P. GARLAND, 8 Roslin Road, Sheffield S10 1FA, Yorks.

HELICOVERPA ARMIGERA (HBN.) AND OTHER MIGRANTS IN OXFORDSHIRE IN 1978. — 1978, until recently, has been an uninteresting year for recording migrants. However, starting in the second week of October large numbers of individuals appeared in my trap at Steeple Barton, Oxfordshire. On the night of the 14th, I had over 100 specimens of *Phlogophora meticulosa* (L.), with 50 on the 13th and since that date until today (November 1st) averaging a dozen per night. On the 13th October I found a ♂ *Helicoverpa armigera* (Hbn.) which was somewhat "dusky". Again on 15th I found a similar specimen in my trap along with *Agrotis ipsilon* (Hufn.) and *Peridroma saucia* (Hbn.). *Vanessa atalanta* (L.) occurred here in small numbers at the beginning of October but we have seen none since. The normal local indigenes have occurred in very small numbers this year, and in particular elm feeding species are down in numbers although a few *Agrochola circellaris* (Hufn.) have occurred. — BERNARD KETTLEWELL, Genetics Unit, Dept. of Zoology, University of Oxford.

HELICOVERPA ARMIGERA (HBN.): SCARCE BORDERED STRAW. — At about 22.30 on 14th October 1978, I took a specimen of this moth off a street light at the back of my house. It was identified for me by Paul Sokoloff and Ian Watkinson. The night of its capture was very foggy. — D. DEY, 9 Monmouth Close, Rainham, Gillingham, Kent.

THE FEATHERED RANUNCULUS: EUMICHTIS LICHENEA HBN. AND BLAIR'S SHOULDER-KNOT: LITHOPHANE LEAUTIERI BOIS. IN NORTH-EAST KENT. — *Eumichtis lichenea* was for the period mid-September to early October one of the most common moths to light and on ivy bloom here. The species is of course of coastal distribution, but it is more normally associated with these localities in the South and West, and it was therefore of interest to see it in such numbers two or three miles inland from the North Kent coast. Other records of note were of *Lithophane leautieri* Bois., taken in the garden trap on the night of 2nd/3rd October (male), and again on opening the trap on the morning of 12th October (female). There are several large *Cupressus* trees in the village and it is likely, knowing the rapid eastward movement of this species through southern England over the last few years, that it is breeding this far east in Kent. — Dr. I. A. WATKINSON, 148 The Street, Boughton-under-Blean, Faversham, Kent.

A NOTE FROM GUERNSEY. — Mid-summer weather here was as poor as in England. It is pleasing to report that our cliff colonies of *M. cinxia* (L.) continue, though the butterfly is not common. It is the only fritillary here.

A colleague, Dr. R. LePelley, bred through the rare Pyrale *Epischnia banksiella* Rich. in 1977 and I have also bred it this year from Golden Samphire, a local plant on the Island.

A surprising migrant visitor in August was *Lozotaeniodes formosanus* (Geyer), the first Guernsey record. In early September, in the company of Dr. de Worms, we took at light several *Scotopteryx peribolata* (Hübn.). Both sexes appeared in a cliff locality and also in my garden away from the coast. At the end of September I took a fresh *Hypena obsitalis* (Hübn.) fluttering in a garden shed. This was well before the October wave of migrants and I wonder if the moth breeds here. When the anticyclone arrived the Mediterranean insects came with it, including*Mythimna unipuncta* (Haw.), one *Helicoverpa armigera* (Hübn.), one worn *Agrius convolvuli* (L.) and one *Heliothis peltigera* (D. & S.). Several *Palpita unionalis* (Hübn.) and one *Rhodometra sacraria* (L.) arrived during this spell which lasted from 9th to 20th October. I saw no accompanying butterflies however, and it has been a poor autumn for Vanessids. — Dr. T. N. D. PEET, Le Chene, Foret, Guernsey, C.I.

SOME RECORDS OF AUTUMN MIGRANTS IN EAST KENT. — The following species were taken in a 125wt m.v. trap at my home address. All were singletons unless otherwise stated, the dates referring to the morning on which the trap was opened. 13th October: *Agrotis ipsilon* (Hüfn.), 14th October: *Mythimna unipuncta* (Haw.), *Mythimna albipuncta* (D. & S.), *Peridroma saucia* (Hübn.), *Plutella xylostella* (Linn.) — a few. 15th October: *Helicoverpa armigera* (Hübn.), *Rhodometra sacraria* (Linn.), *Mythimna albipuncta* (D. & S.), *Nomophila noctuella* (D. & S.) — a few. 22nd October: *Helicoverpa armigera* (Hübn.). 3rd, 5th and 6th November: *Udea ferrugalis* (Hübn.). 9th November: ♀ *Mythimna unipuncta* (Haw.). Throughout all this period, *Autographa gamma* (Linn.) was taken every night. — Dr. I. A. WATKINSON, "Shangarry", 148 The Street, Boughton-under-Blean, Faversham, Kent, ME13 9AL.

RHODOMETRA SACRARIA (L.) IN S.W. IRELAND. — After an indifferent summer with few migratory species recorded, the surprise "invasion" of Southern England by *R. sacraria* came as a welcome boost. This "invasion" has also extended to S.W. Ireland. The writer ran an m.v. trap in his garden at Killarney, Co. Kerry on three successive nights 11th, 12th and 13th October and a total of six *R. sacraria* were obtained, 5 ♀ and a single male. All specimens were of the ochreous brown variety.

Although the 1961 edition of R. South's *Moths of the British Isles* (Vol. 2) states that during the great Vestal year of 1947, the moth was recorded from Killarney, intensive

research by Mr. B. Skinner failed to produce any confirmation of this. It was certainly recorded from Cork during that remarkable year.

The only previous confirmed record for Killarney appears to have been over a century ago, when it was captured there by Edwin Birchall in 1864. Doubtless this little geometrid moth must visit Ireland on occasions, but is passed by unnoticed due to lack of resident collectors in that country. — R. F. Haynes, Little Dorking, Mill Road, Killarney, Co. Kerry, Ireland.

Amathes agathina Duponchel (Heath Rustic) at Woking, Surrey. — It was indeed a welcome surprise to find in my m.v. trap here on the morning of 7th September, 1978 an undoubted example of the Heath Rustic, of which, though this area is surrounded by heathland, no authentic specimen has been recorded for more than 60 years. In fact, it was right back in 1913 that the last Heath Rustics were reported from Woking by R. J. Champion. It appears he obtained the species in the larval form feeding on *Erica tetralix* and bred out seven examples in August of that year. These are now in the collection of the Hope Museum at Oxford, and Prof. G. Varley has kindly supplied me with details about them and others of this insect in their series of it there. It occurs usually where there is deep heather, virtually all over the British Isles even in Orkney and in many parts of Ireland, as well as on other heaths in Surrey such as Frensham, Thursley and Hankley. One wonders, therefore, why it has not appeared at my light trap before, since it has been working here regularly since 1951. A lot of the heathland in the immediate vicinity was severely damaged by fire in the drought of 1976 so that it is very gratifying to know that this noctuid may be staging a return to this district, as I much doubt it can have always been in it and could have been overlooked. — C. G. M. de Worms, Three Oaks, Woking.

Pieris brassicae L. f. cataleuca Rober at Light.— At 11 p.m. on 11th October I found sitting on the outside of my light trap a very large female *P. brassicae*. I kept and set it as a curiosity, and examination shows that, with a wing span of 71mm., very heavy black markings, and yellow underside, it clearly belongs to f.*cataleuca* Rober. This is the constant form of the second and third broods in warm Mediterranean areas from south France east to Cyprus; some years ago I reared (out of doors in Surrey) a long series of it from a batch of eggs collected in April on the French Riviera. It seems probable that my light trap capture was a primary immigrant which was attracted to the light while on nocturnal migration, though I cannot exclude the possibility that it was the daughter of an earlier migrant which had molested my wife's adjacent cabbage patch. I have several times had single specimens of *Vanessa atalanta* L. and *Cynthia cardui* L. at light in the trap or in the field; but I have never before seen *P. brassicae* thus, nor do I know of any report of it as a nocturnal migrant. — R. F. Bretherton, Folly Mill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE.

PALPITA UNIONALIS (HUBN.) IN KENT. — With the mild weather continuing, I motored down to Dungeness on the evening of the 14th October and operated the m.v. trap near the old lighthouse, and amongst a host of common moths found a single specimen of the Scarce Olive-tree Pearl. Also of interest, I think, was that I saw at this late date a larva of *Calophasia lunula* (Hufn.), Toadflax Brocade. — P. M. STIRLING, 83 Grasmere Road, Purley, Surrey.

RHODOMETRA SACRARIA (LINN.) AND HELICOVERPA ARMIGERA (HUBN.) IN SURREY. — After the night of 11th/12th October, I found a fresh male specimen of the Vestal on the grass just outside my garden m.v. trap here at Purley. The moth has a typical ground colour on the wings although the stripe is quite brown, and I would therefore assume the insect to be referable to ab. *labda* Cramer. This was followed on the night of 13th/14th, by a Scarce Bordered Straw which was found in a similar position outside the trap. The arrival of these insects coincided with a meteorological report of unusually warm weather accompanied by an air stream from North Africa. — P. M. STIRLING, 83 Grasmere Road, Purley, Surrey.

MYTHIMNA LOREYI (DUP.), TRIGONOPHORA FLAMMEA (ESPER.) AND OTHER LEPIDOPTERA AT LIGHT AT SWANAGE. — On the night of 14th/15th October, 1978 at Swanage, we had the following species at m.v. light: *Trigonophora flammea* Esper (Flame Brocade), two females; *Mythimna loreyi* (The Cosmopolitan), one female; *Cyclophora pupillaria* (Hbn.) (Blair's Mocha), one female, one male; *M. unipuncta* (Haw.) (The White-speck), two; *M. vitellina* (Hbn.) (The Delicate), nine; *Orthonama obstipata* (F.) (The Gem), seven. — B. SKINNER, 5 Rawlins Close, Addington, Surrey; M. GREY, Dairy Cotts., Ranmore Common, Dorking, Surrey.

A SECOND RECORD OF APAMEA EXULIS ASSIMILIS (DOUBLEDAY) FROM EDINBURGH. — *Apamea exulis assimilis* (Doubeday, 1847), a northern isles and highland species (Crewdson, 1962, *Entomologist,* 95: 33-44), has again turned up in Edinburgh. A single female kindly identified by E. C. Pelham-Clinton, was taken at light at Blackford, Edinburgh (O.S.36/2571) during the night 19/20.viii.1978. Some 24 years ago a specimen (not 10 as quoted by Crewdson!) was taken at light at Newington, Edinburgh (O.S.36/2771) by E. C. Pelham-Clinton (Pelham-Clinton (1955), *Entomologist,* 88: 40). Is there really a colony of this species close to Edinburgh? — K. P. BLAND, 35 Charterhall Road, Edinburgh, EH9 3HS.

LEPIDOPTERA IN OCTOBER 1978. — The main wave of the huge recent migration reached Selsdon on the night of the 14th October. I recorded 184 moths of which 61 were *Phlogophora meticulosa* L., 20 *Autographa gamma* L., four *Agrotis ipsilon* Hufn., one *Peridroma saucia* Hbn. and one *Mythimna unipuncta* Haw. I am inclined to think that the three *Dichonia aprilina* L. were also migrants as I never get it locally and I have had it in numbers on the beach in Dorset with other

migrants in the past. The best of the local insects was a fine *Lithophane semibrunnea* Haw..

On the 15th I joined Mr. Bernard Skinner, fresh from his Swanage triumphs, in a trip to Birling Gap, Sussex. The wind had veered to the West and was blowing hard and very few insects came to light. B.S. had *M. unipuncta* to sugar and also *M. vitellina* Hbn., but the most interesting moth came to my sheet. It puzzled us both, but on returning home it turned out to be the very rare form of *Dilobia caeruleocephala* L. with no 8 marks at all on either wing. On 21st October, a *Rhodometra sacraria* L. came to my light at Selsdon. —E. H. WILD, 112 Foxearth Road, Selsdon, Croydon, Surrey.

LITHOPHANE LEAUTIERI BOISD. IN GLOUCESTERSHIRE. — On the morning of Friday, 13th October, John Newton of Tetbury and I took the third and fourth specimen of *L. leautieri* in the county. Also, the next night Eric Classey of Eastleach took two more, having taken the first Glos. specimen two years ago. Eric believes his to be breeding locally as he has a good line of macrocarpas nearby. Mine appeared in company with *P. gamma* and I believe all four to be migrants, especially as I have heard of other exciting migrants in the neighbourhood on these two nights.— AUSTIN RICHARDSON, F.R.E.S., Orchard Cottage, Box, Stroud, Glos.

A LATE SPECIMEN OF THE LIGHT EMERALD CAMPAEA MARGARITATA LINN. — The normal flight period for this species is said to be June-July. I was suprised to see a male at my light trap on the 14th October, 1978. This prompted me to look further, and from my records over the last few years I have met with this species on several occasions in September. Whether this is a species which has a remarkable affinity for survival, or perhaps a staggered emergence is an interesting point, a second generation seems unlikely as the larvae overwinter on deciduous trees. — MARK HADLEY, 7 Beverington Close, Eastbourne, East Sussex.

PAMMENE LUEDERSIANA SORHAGEN (LEP.: TORTRICOIDEA): A FOURTH RECORD FROM SCOTLAND. — On 18th August, 1977, I visited an area of moorland near Loch Garten, Aviemore, Inverness-shire in order to search *Myrica gale* in the remote chance of finding this species. After a very unproductive day searching this foodplant, I found only two tenanted spinnings, each containing a larva belonging to a different species. One contained a parasitited larva of *Hedya atropunctana* Zett., while the other harboured a very small larva which later fed up and pupated. I was so convinced that this meagre catch would not produce this species, that I failed to describe this larva. However, on 14th May, 1978 a male *P. luedersiana* emerged. This would appear to confirm Col. A. M. Emmet's report that this newly discovered Brtish species does in fact feed on *Myrica gale*.

On the night of 24th/25th October, 1978 a single male *Rhodometra sacraria* L. appeared at m.v. light in Ledbury, Herefordshire. This was the only definite migrant seen here during the recent migratory wave of lepidoptera. — Dr. M. W. HARPER, Cherry Orchard, Bullen, Ledbury, Herefordshire.

THE WOOD WHITE: LEPTIDEA SINAPIS L. AB.BRUNNEOMACULATA IN NORTHAMPTONSHIRE, 1978. — It was late afternoon on 20th June, 1978 when I visited a favourite ride in Salcey, where the previous year I had been fortunate enough to see a number of *Strymonidia pruni* L. darting about the tops of old blackthorn bushes. I walked down the ride searching the flowers of privet in the hope of seeing *pruni* again, but without success. So, on my return, I decided to search the grass and flowerheads for resting butterflies. My first find was a male *Leptidea sinapis* resting below the flower of ragged robin, reminding me of the time two years ago on a cloudy day in Devon finding them on pink campion, ragged robin and tuberous pea, from which I concluded that the insect showed a preference for resting below pinkish flowers.

Further down the ride I found a second *sinapis,* another male resting in the grass. However, this one was obviously something special as the normal blackish markings were replaced by a buffy-ochre, and turned out to be an ab.*brunneomaculata* Stauder in good condition. — LES T. COLLEY, 1 Taldrwst Estate, Dwyran, Llanfair P.G., Anglesea, N. Wales.

THE DEATH'S-HEAD HAWKMOTH (ACHERONTIA ATROPOS (L.)) IN KENT. — A fine fresh specimen of this insect was brought into this Museum on the 5th July this year having been found, attracted to light, at Preston Hall Hospital (just north of Maidstone). It is interesting to speculate if this insect had over-wintered as a pupa in this country, when one considers the dearth of other migrant moths this season. — E. G. PHILP, Natural History Department, The Museum, Maidstone, Kent, ME14 1LH. 1.x.1978.

HESPERIA COMMA LINN. IN THE EASTBOURNE DISTRICT.— On the 21st of August, 1978, whilst walking over the Downs with Mr. S. W. P. Pooles, I came across three unusual Skippers all resting on Ragwort. These were quickly identified as *Hesperia comma* by Mr. Pooles.— MARK PARSONS, 43 King's Avenue, Eastbourne, East Sussex.

AESHNA CYANEA (MULLER) (ODONATA: AESCHNIDAE) IN ELGIN, MORAYSHIRE (VC95). — While in Culbin Forest, near Forres, on the 3rd September, 1978, I found a colony of the Southern Hawker (*Aeshna cyanea* (Müll.)), and with them was a number of the Emerald Dragonfly (*Lestes sponsa* (Hansemann)). According to Hammond (1977, *The Dragonflies of Great Britain and Ireland,* 32), *A. cyanea* has not previously been recorded north of N. Northumberland (VC68). — H. C. EVE, 173 Court Road, Orpington, Kent, BR6 0PX.

MYTHIMNA UNIPUNCTA (HAW.) ON THE ISLE OF CANNA. — I took a specimen of this moth inside the house on 12th November, having seen it indoors the preceding evening. The night of the 10th/11th was calm in the middle of prolonged spells of atrocious weather. — J. L. CAMPBELL, Isle of Canna.

THE MERVEILLE DU JOUR (GRIPOSIA APRILINA L.): COURTSHIP OBSERVATIONS IN THE WILD. — I was privileged to witness the courtship display of this species whilst sugaring in a Surrey wood on 3rd October this year. Adjacent to a sugared oak

bole was a pair of moths engaged in what can only be described as a tug of war match. I have been told the reason for the extremely powerful forelegs of this moth is for this purpose. Both moths were tugging at each other, with the flapping of wings adding to the momentum. It seems the gripping of the forelegs in head on fashion, and the pulling and pushing preceeds pairing. Unfortunately my light disturbed them and they separated before dropping to the ground where I left them. It would be interesting to hear from any other readers on the aspect of this curious behaviour.— J. PLATTS, 11 Maydowns Road, Chestfield, Whitstable, Kent.

THE CONVOLVULUS HAWK (AGRIUS CONVOLVULI (L). ON MERSEYSIDE. — A specimen of this moth was captured resting among garden mint at Speke, Merseyside, by Master Roland Kelly on 28th August, 1978. The specimen was brought to the Museum for identification and kindly donated to the collections. — I. D. WALLACE, Merseyside County Museums, William Brown Street, Liverpool.

DISSEMINATION IN THE PSYCHIDAE. — I refer to Mr. Johnson's Note under this heading (1978, *Ent. Rec.*, **90**: 187), and would suggest that by far the most likely method of dissemination is through the carriage of newly hatched larvae by wind. This seems much more feasible than the transfer of ova or pupae by wind or by the passage of ova through animal's intestines.

The newly hatched larvae of *Orgyia* seem well designed for such flights, having a very large surface area to weight ratio, and, being fairly general feeders on trees and shrubs, have a more than reasonable chance of survival where they finish up.

I have bred a number of Psychids from chance found female cases and have found that the newly hatched larvae are extremely active, climbing about and dropping, suspended by a silken thread, at the slightest touch. Such larvae would be easily transported by wind and, like *Orgyia,* are usually extremely polyphagous.

Whilst the apterous females of some of the winter moths are said to be transported by the males during copulation, I think the size ratio of males to females rules this out in the case of *Orgyia* or the Psychidae. — D. G. SEVASTOPULO, F.R.E.S., P.O. Box 95026, Mombasa, Kenya.

The Butterflies and Moths of Kent

I propose to conclude Volume 3 in 1979 with a Supplement, in which it is intended to give up-to-date information on many species treated since the start of the work in 1960. I would therefore much appreciate receiving additional interesting records with a view to publishing these in the Supplement. — J. M. CHALMERS-HUNT, 1 Hardcourts Close, West Wickham, Kent BR4 9LG.

Current Literature

Aberrations of British Butterflies by **A. D. A. Russwurm.** 151 pp. (including 40 coloured plates of 338 figures). Roy. 8vo. (262 mm high and 190 mm wide). Classey, 1978. £12.50.

This book is reminiscent of F. W. Frohawk's *Varieties of British Butterflies* (1938), in that Mr. Russwurm's style as an artist bears a marked resemblance to that of F. W. F., the format is somewhat similar, and the illustrations are by far the most essential part of the work.

Reproduction of the plates seems if anything superior to, and the figures are certainly better arranged than, those in Frohawk, where there is much wasted space. How accurate the paintings in this book are, however, can only be judged when compared with the original specimens, nearly all of which are in private hands. About one-third of the aberrations shown are in the collection of Robert W. Watson of Boldre near Lymington, Hampshire, and stated throughout the book as being in the British Museum (Natural History). Yet, anyone visiting the B.M.N.H. to see these specimens would be disappointed, for though generously donated to the Nation, the whole of Mr. Watson's fine collection is housed at his residence and will remain there so long as he is prepared to curate it.

Many extraordinary abberations are depicted for the first time in this book. *Gonepteryx rhamni* L. ab. *nigrescens* Hechler, heavily suffused with black to give the effect of olive-green colouring, is a most curious insect; as is *G. rhamni* ab. *rubescens* Gillmer, in which almost half the butterfly is red. Some of the remarkable *Argynnis paphia* L. aberrations taken in Wiltshire during the hot summer of 1976, about two dozen extreme forms of *Maniola jurtina* L. and the 70 or so splendid varieties of 'blues', are among the most eye-catching examples in this fascinating book. Another attractive feature, is the simulation of a butterfly at rest to exhibit the underside of an upper and lower wing. This method of illustration is particularly effective with some of the more striking underside abs., and was often employed by the late F. W. Frohawk. Notable examples in this book comprise *Hipparchia semele* L. ab. *holanops* Brower (not *holonops* as printed), *Argynnis aglaja* L. ab. *wimani* Holmgren and *A. adippe* L. ab. *margareta* Stephan.

No scale is given for the figures, but in a letter to us, Mr. Russwurm writes that all have been reproduced natural size, and for that reason at least they are an improvement on the reproductions of his illustrations in Howarth's *South's British Butterflies* (1973) which suffered from excessive enlargement.

Like Frohawk's *Varieties,* this is another selection of rare and interesting forms. One would much have prefered complete coverage of the subject, genus by genus, with a detailed, comprehensive and specialised text to match, rather than a pot-pourri in which some of the aberrations have been figured before anyway. However, we believe these illustrations are the best that have yet appeared from this talented artist, and therefore have little doubt the book will be well received.—J.M.C.-H.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomoligical and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particulars emphasis on:

(a) Leaf miners,
(b) Diptera, particularly Trypetidae and Agromyzidae,
(c) Lepidoptera, particularly Microlepidoptera,
(d) General entomology,

in the above order of preference, having regard to the suitability of candidates and the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary to field work, for the study of collections, for the attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £300 in 1979/1980.

Applicants should send a statement, if possible in sextuplicate, of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to A. M. Emmet, M.B.E., T.D., M.A., F.L.S., F.R.E.S., Hon. Secretary, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, as soon as possible, and in any case not later than 30th September, 1979.

THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting shoud bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. Emmet, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — "The Moths of the British Isles" by Richard South. Vols. I &II. Old editions (not revised copies). — Please contact Dennis Day, 9 Monmouth Close, Rainham, Gillingham, Kent, ME8 7BQ or phone (0634) 364547 evenings.

Wanted — Information on experience in breeding Brown Hairstreaks in captivity, as to (a) whether males emerge well before females; (b) time of mating after emerging; time of egg laying after mating. — Replies to A. Archer-Lock, 4 Glenwood Road, Maunamead, Plymouth, Devon, PL3 5NH.

Wanted — The Entomologists Record, Vol. 71 1959, entire. Bound or unbound. — Offers to Paul Stirling. Tel. 01-660 4766.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — Records of daily totals in traps of Agrotis segetum for as many past years as available. — Rosemary Kay, Ent. Section, National Vegetable Research Station, Wellsbourne, Warwick.

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: Orthoptera: D. K. Mc E. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine as well as books for review must be sent to the EDITOR at St. Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L.Inst.Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr. Wild on payment of 60p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber, plus 10p postage.

Enquiries regarding Back Numbers, Volumes and Sets to: P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent, BR6 6DS.

Changes of address to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent BR2 9EE.

Subscriptions should be sent to the Treasurer, **P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN, England.**

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

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The Entomologist's Record and Journal of Variation

SPECIAL INDEX

For British Lepidoptera this Index follows the nomenclature of "A Check List of British Insects", Part 2, 1972 by Kloet & Hincks. Where the contributor has used a synonym, a cross reference is given. Any newly described taxa (species, genera, etc.) are distinguished by bold (Clarendon) type, and taxa new to the British fauna by an asterisk. Moreover, (1) A *bracketed* asterisk denotes the reinstatement of a species long omitted from the British list, or the confirmation of one previously doubtful; (2) A formerly subspecific taxon raised to specific rank is treated as an addition to the fauna, but a correction of identity is not; and, finally (3) The "equals" sign indicates a *new* synonym, i.e. published for the first time; italics without this sign, recent synonym that may be unfamiliar to many.

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