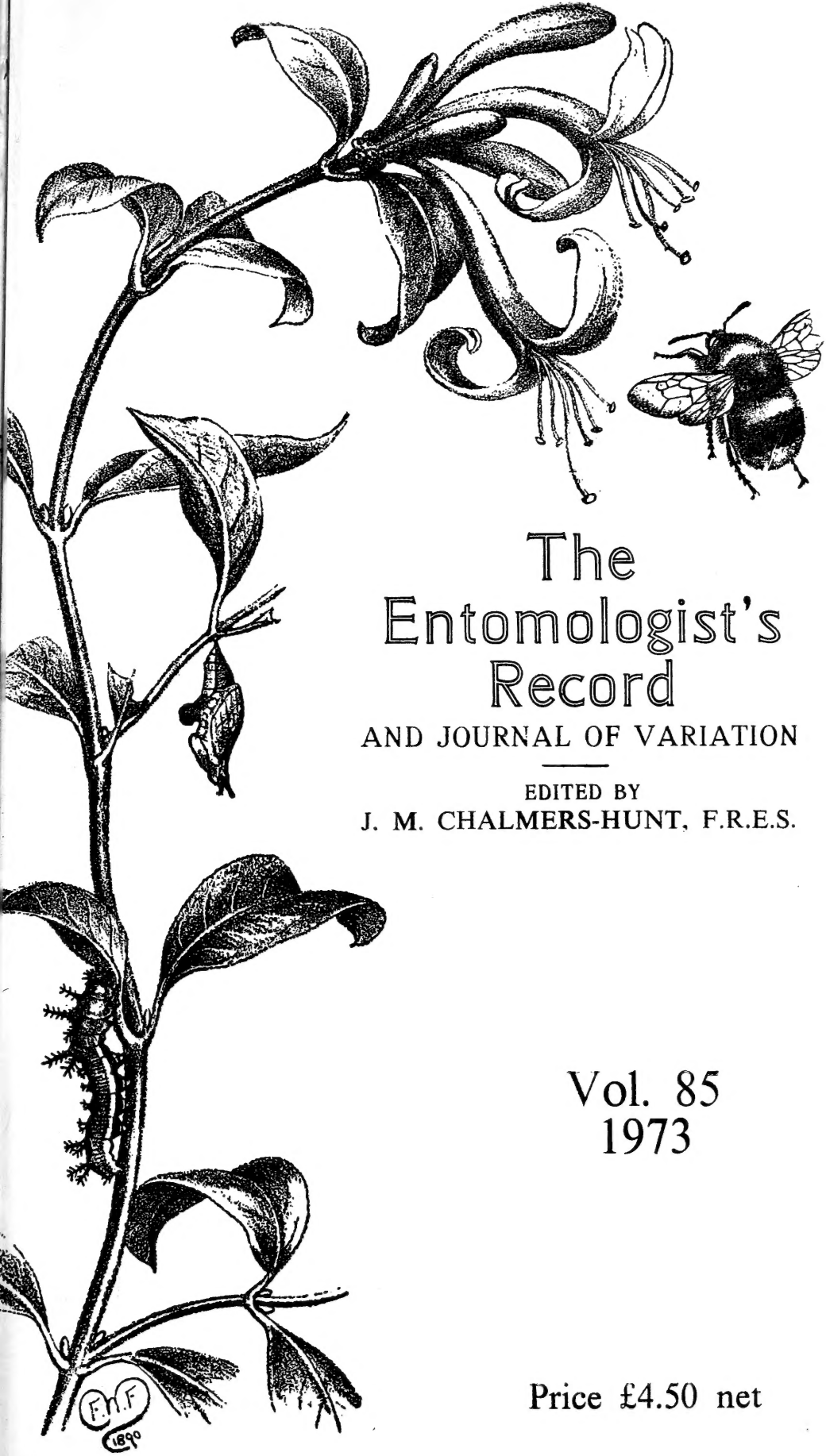

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AND JOURNAL OF VARIATION

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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.

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VOL. 85 No. 1 January 1973

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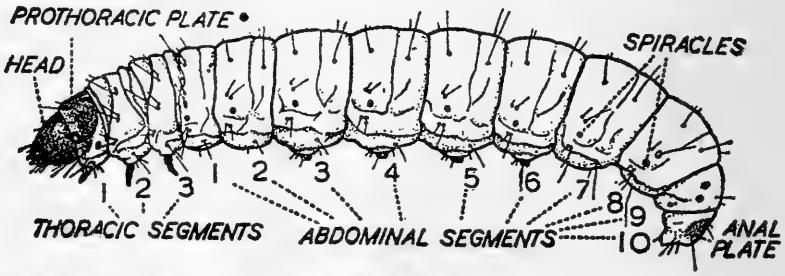

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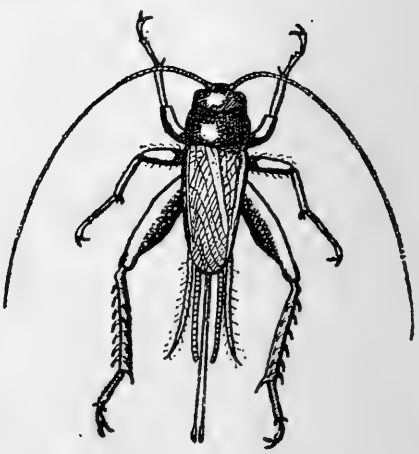

WARNE

40 Bedford Square London WC1B 3HE

Montenegro, July 1972

By R. F. Bretherton, C.B., M.A., F.R.E.S.

Mr Peter Cribb and I visited Montenegro from 8th to 22nd July 1972. We flew from London to the airport of Dubrovnik, picked up a hired car, and drove that evening to one of a complex of new hotels at Budua, on the Montenegrin coast of the Adriatic some 75 km. further south. We stayed at Budua that night and a further 3 nights at the end of our stay, but our main object was to sample the butterflies of the Durmitor massif—the highest in the western Balkans—in the remote north of the country.

Durmitor consists of a jumble of bare limestone peaks about 15 km. long by 10 km. wide, lying from north to south and rising to over 2,500 m. (8,300 ft.). These peaks are separated by gullies and screes, still holding much snow, and by heavily grazed pastures from about 1,700 m. upwards. Below this there are large forests of spruce and, surprisingly, *above* the spruce, of beech and scrub maple. There are no streams, but many small lakes, of which the largest, the Crna Jezera ("Black Lake") at 1,400 m. is very beautiful. The massif is bounded on three sides by the gorges of the Piva and the Tara: the latter is said to be the deepest, as well as the longest, canyon in Europe. To the south there is a sub-alpine plateau of downland—the Brda—at a general level of about 1,450 m., dotted with farms and small settlements with characteristic high-pitched wooden houses.

We made our base at the large village of Zabljak, which stands on the plateau immediately east of Durmitor and about 25 km. by road from the Tara gorge. Zabljak itself suffered much damage during the war, but it has been rebuilt and is now being expanded into an alpine holiday resort. There are two considerable hotels, in the newer of which we stayed, and simple shops which provide most of the essentials, but it is still in many ways primitive. The supply of mains electricity was more often off than on while we were there, so that we often went to bed by candle-light; and the access roads, though they are freely used by buses and heavy lorries, are appalling, both across the 60 km. of high downland from Nicsics or alternatively through and from the Tara gorge. The latter route should, however, be easier when the fine road which is being built in the gorge is complete. The food was plentiful, but hard for strangers like ourselves to identify.

We are much indebted to Mr Hans Epstein, of Ticino, Switzerland, who collected in Montenegro in early July 1971, for information and advice both about the coastal area and about Durmitor. The published literature is small. There are accounts by several British lepidopterists of collecting in Montenegro in the past; but most of these are concerned only with parts of the country near the coast, and the last of which I am aware dates from 1931. Of Durmitor the only account in English seems to be that by Mrs Mary Nicholl, who in late July 1901 penetrated adventurously to Zabljak across what were then the borders of

Austria-Hungary and Turkey. She camped for 4 nights on Durmitor before returning from its northern side to the Tara gorge by another route. She recorded 19 species of Rhopalocera taken above 5,000 ft., besides several others on the Brda plateau and in the Tara gorge. The mountain, and other parts of Montenegro, were also worked by several Austrian entomologists at about this time, and in 1913 Dr H. Rebel published in the third part of his studies of Balkan lepidoptera a list for Montenegro which included their records as well as those of British collectors. This remains, I believe, the only list for the country. But it must be noted that the area covered is smaller than that of the present Republic of Montenegro, now a federal part of Yugoslavia. Large tracts of mountain country beyond the Tara in the north and also in the south east were added to the old Kingdom by the Balkan War of 1913; and after this was merged in Yugoslavia in 1919 the boundary was extended to include the coastal strip

round the Gulf of Kotor, where we collected briefly on our way back to Dubrovnik airport. Rebel's list of 1913 mentions 107 species of Rhopalocera for Montenegro, including 50 for the Durmitor and Tara area. Our own records, given in the Annex to this article, total 101 species, adding to Rebel's list 23 species for (enlarged) Montenegro and 33 for the Durmitor and Tara. Rebel also listed 200 species of Heterocera; our own, very short, list adds over a dozen to these.

Our collecting started in brilliant weather on 9th July, when we left Budua early for the long (232 km.) drive to Zabljak. We spent about 2 hours at various spots beside the secondary road which climbs steeply from the coast on the way to Cettinje. At one of these a great Blue, unmistakably *Iolanaiolas* Ochs., flew across the road: the car was stopped dead and the insect was smartly caught by Peter Cribb. Others were seen but missed, as were a couple of Coppers which were almost certainly the much desired *Heodes ottomanus* Lefebvre. Near the top of the pass *Satyrus ferula* F., *Brintesia circe* F., *Chazara briseis* L., *Kirinia roxelana* Cramer, and a few worn *Melanargia larissa* Geyer were to be had. But time pressed, and we could only promise ourselves another visit to this promising stretch of country on our return. There was also tempting ground between Cettinje and Titograd, above the Lake of Scutari, but we did not attempt any more collecting until in the afternoon we reached some flowery downland between Nicsic and Zabljak. This, however, proved disappointing, despite its wonderful limestone flora, a few *Fabriciana niobe* L., and *Mesoacidalia aglaja* L., being almost the only species seen. We concluded that here, as elsewhere on the plateau in front of Durmitor, the shaving of the whole area for hay, which was just beginning, prevented the survival of most species of butterflies. We reached Zabljak at about 7 p.m., by that time very ready to take on trust the untranslatable menu for the hotel dinner.

On the next morning—as it turned out, the last of settled weather—we explored the beautiful, forest-clad Crna Jezera ("Black Lake") about 2 miles away on the approach to Durmitor. Operations started with a bang. While I was trying to decide whether an *Erebia* was *ligea* L. or *euryale* Esp. (the two often look much alike here), Peter Cribb netted a perfect specimen of *Nymphalis vau-album* Schiff. in a gully in the forest. We saw no more, but this capture extends the known range of this rare east European species by about 100 miles. Its condition, and the presence of sallow and alder in this gully, suggest that it was locally bred and not a vagrant. We then moved on to a spot where rocks fall to the lake too steeply for trees but are interspersed with patches of flowers and long, ungrazed, grass. This proved very rich in butterflies, though difficult to work. It yielded our first *Erebia melas* Herbst, the Coppers *Heodes virgaureae* L., *H. alciphron* Rott., *Maculinea arion* L., a nice small form of *Meleageria daphnis* Schiff., *Spialia orbifer* Hubn., *Parnassius apollo* L., in plenty, and many commoner species.

On the next day and again on the 16th we made our way by a devious path through the forest to the top of these slopes, far above the lake. We found this also very good ground, particularly for *E. melas* whenever a gap in the clouds allowed them to fly; males were just emerging, but we saw few females. Here I also took our only example of *E. pronoé* Esp., for which we were probably too early. In damp places here and elsewhere we were interested to find *Palaeochrysophanus hippothoé leonhardi* Frhst. (*candens* auctt.). It is a much larger and brighter insect than the *P. hippothoé* of the Alps, and has a less regular pattern of spotting on the underside, which makes the females hard to separate from those of *H. alciphron*, in some places flying with it. It is considered by Beuret and others to be a species distinct from *P. hippothoé*.

On both days we walked from the top of these slopes further into the heart of the massif but were beset by clouds. The whole area below the screes was excessively grazed by sheep, and a couple of *Erebia epiphron* Knoch and singles of *E. gorge* Hubn. and *E. medusa* Schiff. were almost all we saw there. Because of the cloud cover this was not a fair test of the higher levels, but Mrs Nicholl seems to have had the same impression of the poverty of lepidoptera there: "butterflies were not at all plentiful . . . I wasted one glorious day in the ascent of the second highest peak, which is moderately accessible and commands a fine view but yielded not one butterfly." She adds, however, that Durmitor is "a cold, late mountain". A visit to the high levels in early August might give better results.

On 17th July we drove some 15 km. on a very rough road to the Stozina Pass (1,884 m.) on the western side of Durmitor. Here we were favoured with fair amounts of intermittent sunshine, though there was a cold wind. After disturbing no less than 9 Griffon Vultures from round a dead sheep we found some slopes near the top of the pass which, probably because of their steepness, had not been excessively grazed. Butterflies were numerous and interesting. We took good series of *E. ottomana durmitorensis* Warren, both sexes of which were fresh and very variable, flying along with many *E. epiphron* and *P. hippothoe leonhardi*, a very few *Boloria graeca* Stgr. and many of the curious *Coenonympha* which is discussed below., Under the rocks at the top of the slopes there were also a few *E melas* and an interesting very small form of *Agrodiaetus damon*. Schiff. There were also several very worn *Parnassius mnemosyne* L. This was a limited butterfly fauna, but certainly good as far as it went.

At lower levels, we had been recommended to investigate an unusual form of *Coenonympha tullia* Muller which Mr Epstein had found last year in some peat bogs in the forest a few kilometres north east of Zabljak. After two false starts due to taking wrong turnings on the unsigned tracks, we eventually found a few of this insect there, but they were in very poor condition and clearly nearly over. We did, however, find the same insect in ome numbers and rather better condition higher up, both on the

Stozina Pass and elsewhere, but on quite a different terrain of steep grass slopes rather than bog. We were much puzzled about its identity. It is much smaller than central European or British races, and has a very different appearance: the females much resemble those of *C. pamphilus* L. and the males those of *C. glycerion* Borkh. (*iphis* Schiff.). It is clearly related to *C. tullia rhodopensis* Elwes from Bulgaria and *C. tullia italica* Vty. from central Italy; but its colour is duller and it is much less well spotted. Indeed, all my males are totally devoid of spots on either side, and the females have only minute apical eye-spots on the forewings above and below and one or two small ones on the hindwings underside. Another curious feature is that in the males the central pale band on the underside hindwings is represented only by a rounded whitish blotch, as in *C. glycerion.* Mrs Nicholl recorded this insect both from the Herzegovina mountains and from Durmitor under the name *C. symphita* var. *tiphonides*, which Staudinger had (1901) erroneously applied to *C. tullia rhodopensis* Elwes (1900). Rebel (1903) pointed out that the association with *C. symphita*, an Asiatic species, was a mistake, and also that the Herzegovina insects differed greatly from *rhodopensis.* He named them var. *occupata*, and gave two excellent colour plates. This name should therefore be used for this very distinct sub-species of *C. tullia.* According to Rebel it is widespread in the mountains of Herzegovina and south Bosnia from 1,200 to 1,850 m., though a very different race of *C. tullia* occurs low down in north Bosnia. Gibbs (1913) reported a form transitional to *rhodopensis* from above Cettinje, but there seems to be no information on how far *occupata* extends in the mountains south-east of Durmitor. Unfortunately, we were rather too late for it, and few of our specimens are really fresh.

The butterfly fauna which was richest both in species and in numbers was found on the lower edge of the forest at about 1,200 m. where the road from Zabljak to Plevlje drops towards the new bridge across the Tara Gorge. We visited these slopes on 12th and 18th July, on the second occasion in fairly good weather. Most of the usual sub-alpine meadow species were there in numbers, including *Nymphalis antiopa* L., *Brenthis daphne* Schiff., *Clossiana titania* Esp., a very dark form of *Melanargia galatea* L., *Aricia allous* Geyer, a few *Maculinea alcon* Schiff., and newly emerged male *Lysandra coridon* Poda of a small race very heavily bordered with black. But, though the numbers of butterflies here were large, the quality was rather disappointing. Poor weather prevented any thorough test of the sheltered bottom of the gorge, but then and on our way back to the coast we noted there *Aphantopus hyperanthus* L., *Minois dryas* Scop., and *Fabriciana adippe* Schiff. of the typical silver spotted form—not *f. cleodoxa* Ochs. which usually replaces it in the Balkans.

We made no special search for Heterocera, but we collected some of those which we saw by day and also round the hotel lights—when there were any! We found 8 species of Burnets

and Foresters (*Zygaenidae*) on the slopes, including the black-and-white *Zygaena ephialtes* L., which was flying above the Tara along with great numbers of the similarly marked but much larger Syntomid *Amata marjana* Stdgr. The spruce forests, which were almost barren of butterflies other than *Erebia ligea* and *E. euryale*, contained many small Geometers; and interesting captures at the lights were the Bombycids *Dasychira fascelina* L. and *Phragmatobia maculosa* Gerning. The only Hawk moth was *Macroglossa stellatarum* L., of which full-fed larvae and adults were found at the same time in the centre of Zabljak. Two specimens of a Clearwing, *Aegeria tipuliformis* Clk. were caught on the flowers of Ground Elder (*Aegopodium* sp.).

The butterfly fauna of Durmitor seems to be wholly central European in character. The Mediterranean and Asiatic species which are found in the mountains of Bulgaria and Macedonia have not penetrated to it through the tangle of high country to the south, nor have many species which are characteristic of the Alps, far beyond the Bosnian mountains to the north. In this it differs sharply from the Montenegrin coast, which seems to be a meeting-place for several species which have spread from the south or the north along the steep and traditionally sun-baked shores of the Adriatic.

We shortened our stay at Zabljak in the hope of getting better weather on the coast; but in this we were disappointed: it was even worse! For the return journey we chose the longer but allegedly better route via the Tara Gorge. In the first half of the gorge reconstruction work in many places made the road almost impassable, but after that we suddenly came on to a fine tarmacadam surface which took us to a main road at Mojkovac and so through the Moraca Gorge to Titograd. The country looked eminently collectable, but ominous thunder and a lack of sun prevented us from taking much advantage of it. From Titograd we also took the longer road, which crosses an arm of the Lake of Scutari and then climbs over a steep pass to join the coast road a few kilometres south of Budua. But, as usual, a thunderstorm prevented any exploration of the marshes by the lake, though we saw from the road a number of hoopoes and unidentified water birds. At about 5 p.m., when we were just short of the top of the pass, the gearbox of our Bulgar Renault seized up almost completely—it had been making strange noises from the first day onwards, and this last climb proved to be the last straw. The hirers at Dubrovnik Airport efficiently provided rescue and a replacement car, but this naturally took some time, and it was 11 p.m. before we reached our hotel at Budua.

We spent 20th and 21st of July in the comfortable if crowded hotel complex at Budua, enjoying the bathing and in the evenings the exploration of the old town, untouched on its promontory, but largely frustrated in our collecting by rain or cloud. We went in all four times for short periods to the ground on the Cettinje road which had promised so well on our outward journey, but in these weather conditions its promise could not be fulfilled. We

saw, but could not catch, one more *Iolana iolas*; and we collected many seed-pods from its food plant, *Colutea arborescens*, in the hope of getting small larvae; but most of their inhabitants appear to be only those of *Lampides boeticus* L. The only other butterflies of interest were some brilliant second brood *Melitaea didyma* Esp., a very brilliant form of *Celastrina argiolus* L., *Coenonympha pamphilus lyllus* Esp. in abundance, and odd specimens of *Pyronia cecilia* Vall. and of *Hipparchia syriaca* Stdgr.

On 22nd July, our last day, after spending the early morning on this ground, we decided to return to Cilipi Airport by the beautiful coast road which circles the Gulf of Kotor, instead of using the ferry to cross it near its mouth. But by noon the customary thunderstorms were beginning, and several short stops on the way yielded nothing more notable than some more *M. trivia*, *Pyronia tithonus* L., and a black Skipper seen but not captured which was either *Gegenes pumilio* Hoffmsg. or *G. nostrodamus* F. However, we completed our list at 6 p.m., just outside the airport, with a single *Hipparchia statilinus* Hufngl. Our 'plane left Yugoslav soil at 8 p.m., and we reached our respective homes before mid-night. Despite the bad weather, Montenegro had given us some enjoyable and rewarding experience—with, as one of us put it, at times an emphasis on the experience!

Lepidoptera seen in Montenegro, 9th to 22nd July 1972

(Additions to Rebel's list (1913) for Montenegro marked *; additions for the Durmitor/Tara only marked †.)

Abbreviations: B.: Cettinje road above Budua, 300/600 m., 9 & 20/22.7. C.: Curovac, high pastures, c. 1,900 m. and forest peat bogs, c. 1,600 m., 14 & 15.7. D.: Durmitor, forest and slopes, 1,400/1,700 m. unless otherwise stated. K.: beside Gulf of Kotor, 22.7. S.: Stozina Pass, grass slopes, 1,850/2,000 m., 17.7. T.: forest and hay fields above the Tara bridge, c. 1,200 m., 12 & 18.7. TG.: Tara gorge, 12 & 19.7, c. 800 m. Z.: Zabljak village and surroundings, c. 1,450 m., 10/18.7.

Rhopalocera

Papilio machaon L. Cettinje, 9.7; K. Few.

Iphiclides podalirius L. Singly at low levels. B., near Titograd 9.7, K.

Parnassius apollo L. D., males abundant, females few. A brightly marked, medium-sized race which Rebel attaches to *bosniensis* Stichel.

P. mnemosyne L. D., S., a few very worn.

Pieris brassicae L. D., Z., few.

P. rapae L. D., Z., T., B., K., common and fresh.

P. mannii Mayer. D., a few of gen. I., worn; K., gen. II, flying with the next species.

P. ergane G-H. B., K., many fresh: females very heavily marked, possibly gen. III.

P. napi napi L. D., T., a few. *P. bryoniae* was *not* seen.

†*Aporia crataegi* L. T., common, but mostly worn.

†*Pontia daplidice* L. T., several.

Leptidea sinapis L. B., gen. II, common; D., T., common, apparently gen. I.

†*Colias crocea* Fourc. B., K., D., T., S., but not numerous; several f. *helice* Huebn. (nothing was seen of *C. balcanica* Rebel, which was reported by Mrs Nicholl).

Gonepteryx rhamni L. B., T., fresh.

Limenitis reducta Stdgr. Cettinje, 9.7; TG and Moraca gorge, 19.7; K.

**Nymphalis antiopa* L. D., T., a few.

**N. vau-album* Schiff. D., one fresh male in a forest gully by the Crna Jezera, 9.7. The nearest previous record is probably from Travnik, Bosnia, 180 km. distant.

**Inachis io* L. D., T., much the commonest Vanessid.

†*Vanessa atalanta* L. D., T., B., singly.

V. cardui L. D., T., a few worn; B., K., common and fresh.

Aglais urticae L. B., D., S., many fresh.

Polygonia egea Cramer. B., K., several on flowers of *Vitex agnus-castus* (Chaste Tree).

P. c-album L. D., T., fairly common.

Argynnis paphia L. T., many fresh; TG and Moraca gorge, 19.7.

Mesoacidalia aglaja L. D., T., S., common.

Fabriciana adippe Schiff. TG, Moraca gorge, in the typical form only.

**F. niobe* L. D., T., C., common; all *f. eris* Meigen.

Issoria lathonia L. D., T., singly.

**Brenthis daphne* Schiff. T., a few.

Boloria pales balcanica Rebel. D., S., several seen, two taken.

Clossiana euphrosyne L. D., few worn.

C. titania cypris Meigen. T., fairly common but many worn.

Melitaea phoebe Schiff. T., few worn.

M. didyma Esp. D., T., C., common.

M. trivia Schiff. B., K., fresh gen. II, 21/22.7.

†*Mellicta athalia* Rott. D., T., not common.

Libythea celtis Laich. B., one 9.7.

Melanargia galathea procida Herbst. D., T., just emerging: the blackest race I have seen anywhere.

M. larissa herta Geyer. B., a few worn, 9.7.

Hipparchia syriaca serula Frhst. B., several seen 9.7., one male caught 21.7; identity confirmed by dissection. But it differs somewhat, both in the Jullien organ and superficially, from the form of *Syriaca* found in Greece. Hemming (1943) introduced *syriaca* as a European species on the strength of specimens, one of which came from Montenegro. It may, however, be conspecific with *H. lacyone* Schiff.

(*H. statilinus* Hfl.) Dalmatia, outside Cilipi airport, one male, 22.7.

Chazara briseis L. B., at the top of the Cettinje road, many fresh 9.7.

Satyrus ferula F. B., in the same place, a few 9.7.

Minois dryas Scop. TG., a few by the roadside, 19.7.

**Brintesia circe* F. B., 9.7., several.

Erebia ligea herculeana Warren. D., C., T., abundant in and near the forest.

E. euryale syrmia Frhst. D., C., T., abundant; very variable, some females hard to separate from those of *E. ligea*.

E. epiphron ssp.? D., a few 1,700/2,000 m., S., plentiful on steep grass slopes. Large (males 39/42 mm.), and constant both in the reduction of size and number of spots and of the extent of the brown markings. Two specimens collected by Mrs Nicholl and Haig Thomas in Herzegovina, now in the B.M. coll., belong to the same race. It has opposite characters to *f. retyezetensis*, which Warren supposes to occur on Durmitor.

E. aethiops aethiops Esp. T., a few, flying with *E. ligea*.

E. medusa euphrasia Frhst. D., at 2,000 m., one worn female 11.7.

E. gorge gorge Hubn. D., at 2,000 m., one male, 11.7.

E. ottomana durmitorensis Warren. (Listed by Rebel as *E. tyndarus* var. *balcanica* Rbl.) S., males abundant, females emerging, 17.7. Very variable in both sexes in size (males 40/46 mm., females 43/49 mm.), in distinctness of the eye-spots, in the extent of the red markings, and in the ground colour of the hindwings underside. The characters used by Warren to distinguish *durmitorensis* from *balcanica* are not constant in my series.

E. melas schawardae Frhst. D., S., fresh males numerous, few females seen; among rocks above steep grass slopes. Variable in the number of white-pupilled spots on the hindwings upperside; most of mine have three, but some none and one four.

E. pronoe frühstörferi Warren. D., at 1,700 m., one male 1.7.

†*Maniola jurtina* L. B., T., common; D., few. Very variable in size.

†*Hyponephele lycaon* Kuehn. TC., T., males abundant; D., less common.

**Aphantopus hyperanthus* L. TG., Moraca Gorge, locally common.

**Pyronia tithonus* L. K., 22.7., worn.

**P. cecilia* Vall. B., 22.7., a few fresh males.

Coenonympha tullia occupata Rebel. C., in forest bogs, a few worn; on high pastures in better condition. D., S., on steep grass slopes and among rocks, 1,700/1,900 m., in fair condition (for description see text).

C. pamphilus lyllus Esp. B., abundant, 20/22.7.

C. arcania L. T., mostly worn.

†*Pararge aegeria* L. T., B., many.

†*Lasiommata megera* L. T., B., frequent.

L. maera L. B., D., T., common. A large, brightly coloured form.

**L. petropolitana* F. D., several very worn.

Kirinia roxelana Cramer. B., at the top of the Cettinje road, one seen 9.7.

Libythea celtis Laich. B., one fresh, 9.7.

Nordmannia ilicis Esp. B., some very worn 21.7.

Strymonidia spini Schiff. T., D., fairly common and fresh.

†*Lycaena phloeas* L. D., one only; B., two only.

Heodes virgaureae L. D., T., Moraca Gorge, common. Males large and very brilliant.

H. ottomanus Lefebvre. B., two 9.7, one 20.7, males seen which were almost certainly this species.

**H. alciphron alciphron* Rott. D., T., fairly common but elusive. Males intermediate in amount of purple suffusion upperside; females very large (up to 47 mm.) and black except for the hindwing marginal lunules.

Palaeochrysophanus hippothoe leonhardi Frhst. (*candens* auctt.). D., C., S., fairly common in damp places, but mostly worn. Some females have copper suffusion upperside, others are black except for the marginal lunules and very difficult to separate from those of the last species; the more regular spotting underside, which is characteristic of other races of *P. hippothoe*, is less clear in *leonhardi*.

Lampides boeticus L. B., 20/22.7, common among *Colutea arborescens*; later bred from larvae obtained in the pods.

Cupido minimus Fuessly. D., a few fresh at 1,700 m.

**Celastrina argiolus* L. B., many fresh gen. II.

**Maculinea alcon alcon* Schiff. D., T., few and going over. Certainly of the *alcon* group, although eggs were found of *Gentiana cruciata*.

**M. arion* L. D., T., fairly common; large, tending towards *obscura* Christ.

**Iolana iolas* Ochs. B., one male taken, others seen, 9.7; one seen 20.7.

**Philotes baton* ? *schiffermuelleri* Hemming. B., 21.7, one.

†*Plebejus argus cleomenes* Frhst. D., T., C., locally abundant.

**Lycaeides idas* L. D., T., scarce, flying with the last species.

Aricia agestis calida Vty. B., K., Cilipi, a few fresh 22.7.

**A. allous* ? *montensis* Vty. D., T., not common; a large form, male uppersides almost immaculate black, females with strong pale organge marginal lunules.

Cyaniris semiargus Rott. D., T., a few worn.

Agrodiaetus damon Schiff. S., 2,000 m., a few very small males.

†*Meleageria daphnis* Schiff. D., T., a few fresh males.

Lysandra coridon Poda. T., D., just emerging; males pale silvery blue with broad black margins.

**L. bellargus* Rott. K., 22.7, one.

**Plebicula dorylas* Schiff. D., two males, T., one male.

†*Polyommatus icarus* Rott. B., D., T., fairly common.

Pyrgus alveus alveus Hubn. D., C., S., fairly common (identity checked by dissection).

†*Spialia orbifer* Hubn. D., several fresh 10.7.

**Carcharodus alceae* Esp. B., several fresh 21.7.
†*C. lavatherae* Esp. D., 1,400 m., one 10.7.
†*Erynnis tages* L. B., 9.7; T., several.
**Thymelicus actaeon* Rott. B., common 9.7.
**T. sylvestris Poda.* B., T., common.
T. lineola Ochs. T., common.
†*Ochlodes venatus* Br. & Grey. T., several.
Gegenes pumilio Hffsg. or *nostrodamus* F. K., near Risan, one seen 22.7. (Rebel records *G. nostrodamus* as "certainly seen" at Medun in east Montenegro, but the two species were not then clearly distinguished.)

Heterocera

Macroglossa stellatarum L. B., D., T., Z., adults and full fed-larvae simultaneously.
**Dasychira fascelina* L. Z.
†*Lymantria dispar* L. B., D., T., abundant.
Phragmatobia maculosa Schiff. Z.
Euplagia quadripunctaria Poda. D., T.
Coscinia striata L. D., T., common.
Lithosia lurideola Zinck. Z.
†*Arctia villica* L. D.
Apamea lateritia Hufn. D., flying by day.
Bombycia viminalis F. Z.
Scotogramma marmarosa Borkh. D., by day.
**Heliothis viriplaca* Hufn. T., one, very large.
**Taraca lucida* Hufn. T.
Plusia gamma L. D., B., very few.
**Anaitis praeformata* Hubn. Z.
**Thera variata* Schiff. D.
T. cognata Schiff. Z.
†*Siona decussata* Schiff. T., one.
Ellopia fasciaria f. *prasinaria* Schiff. D.
**Ematurga atomaria* L. B., common.
Amata marjana Stdgr. TG, abundant.
**Procris budensis* Spey. D., C., common.
Zygaena carniolica jadrana Holik. B.; *herzegovinica* Burgeff, D.
**Z. loti balcanica* Reiss. D.
**Z. osterodensis* (*scabiosae* auctt.) *koricnensis* Reiss.
**Z. angelicae herzegowinensis* Reiss. D.
**Z. lonicerae* ? *thurneri* Holik. T.
Z. filipendulae illyrica Holik. D., T.
**Z. ephialtes* ? ssp. TG.
**Aegeria tipuliformis* Clk. ssp. *spuleri* Fuchs. T., two on flowers of *Aegopodium* sp. The larvae here probably feed in *Juniperus*.
†*Pachythelia villosella* Ochs. T., several empty cases.
**Pyrausta flavalis* Schiff. D.

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I am much indebted to Mr T. G. Howarth, Mr W. G. Tremewan and Mr M. Shaffer for help in the identification of some of the above species.

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September 1972.

Agrilus biguttatus F. (Col., Buprestidae) at Windsor; with some account of its history in Britain

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

As a postscript to my paper on the rarer Sternoxia (Col.) of Windsor Forest (1966, *Ent. Rec.*, **78**: 14-23), I am pleased to be able to report that my friend Mr G. Shephard had the good fortune to capture a specimen of this handsome and now very rare Buprestid (the largest of the many European *Agrilus*) on 30th July last, in Windsor Great Park, Berks. (It is the *A. pannonicus* Pill. & Mitt. of Kloet & Hincks, 1945, but that name has not found favour on the Continent and the Fabrician name is in almost universal use.) The present find makes a highly notable addition to the long list of rarities from Windsor Forest, for which there appears to be not even an old record; and indeed it was a question whether the species still existed in our country,

since its continued survival in a restricted part of Sherwood Forest, Notts., is somewhat dubious—or at best precarious until the habitat is conserved. Other British stations for it are now, alas, a matter of ancient history—see further below.

Mr Shephard's example, a female which later laid many eggs, and in very fresh condition but for a damaged leg, was beaten from the foliage of a fairly old oak. Despite much search, no other could be found, which was hardly surprising in view of the late date. The insect could have bred out of that or some other old oak near at hand, but perhaps a likelier source was either some boughs lying under an oak not far off, or else a long row of logs (many of them oak) at a greater distance, brought from another part of the park and placed end to end to mark out a new roadway. In all three cases, examination failed to disclose likely-looking workings or exit-holes, but these might well have been hard to detect, and we hope to resume investigations next year.

It may be of interest to summarize what little is known of this as an indigenous British species. Apart from two old records (Hampstead and Cuckfield) by Stephens, of which nothing further is now known, the sole locality for very many years—which furnished all the specimens in our older collections—was the celebrated Darenth Wood in West Kent, also mentioned by Stephens, who says "on felled timber" (1839, *Man. Brit. Col.*: 173). Fowler (1890, *Col. Brit. Isl.*, **4**: 70) writes on the adult habits "Found flying about old oak stumps, and settling on them". The following account is given by Rye & Fowler(1890, *Brit. Beetles*: 165): "*Agrilus biguttatus* . . . may be taken in all its stages in Darenth Wood at the end of June; its larvae work sinuous galleries in the damp bark of large oak stumps in open cuttings, that have been left for about two years in the ground, and turn to pupae in cells between the outer and inner layers; the perfect insects remaining quiescent therein for some time. This species . . . flies during the hot sunshine; and, on the least alarm, packs its limbs tight to its body, simulates death, and rolls to the ground." The species seems to have survived at Darenth up to somewhere about the turn of the century—perhaps rather later. I have heard that two or three collectors (notably Dr G. W. Nicholson) made a thorough but fruitless search for it there during the 1910's or 20's; and nothing more seems to have been heard of the beetle in its old haunt. Yet conceivably, it *may* still linger on; the locality is far less worked than formerly, and on some of my visits there I have noticed what looked like ideal sites. We are only just beginning to realize that certain insects apparently manage to survive at an extraordinarily low density for very long periods in a given locality, provided that suitable habitats remain.

An interesting new record appeared in Fowler & Donisthorpe, 1913, *Col. Brit. Isl.*, **6**: 273, under *Agrilus biguttatus* F.: "Discovered in Sherwood Forest in numbers in July 1908 by Mr Donisthorpe, in a large living oak, in the thick bark." The

captor must have published a full account elsewhere, but I have no note of it. He told me (if memory serves) that he was being "shown round" by the forester when his eye chanced to light upon a specimen settled on a large limb fallen from an oak, and that on returning to the spot at the first opportunity he was able to locate the breeding site. I have, however, since been informed that the insect had previously been taken there by the late J. Kidson Taylor—a fact doubtless unknown to Donisthorpe. The subsequent history of *A. biguttatus* at Sherwood is sketchy, and I have seen nothing published; but Mr D. Tozer, who worked the Forest at a later period, obtained it sparingly in the Ollerton area. The examples he kindly gave me were taken in 1939; and he told me that they had to be dug (with much difficulty) out of the tree or trees in which they bred. This does not altogether square with the recorded habits of the beetle at Darenth. A fair inference, perhaps, is that while infesting living or at any rate standing trees its numbers are low and it is seldom seen; but that when oaks in its habitat are felled, conditions are created which favour its multiplication for a time at least, the stumps affording a breeding centre and focus of activity. One would also expect that like its congeners it should be procurable by beating the foliage of its host-trees, and possibly by sweeping near them.

I would here draw attention to a little-known New Forest record of *A. biguttatus*, which does not appear in Fowler & Donisthorpe (1913). The species is included in a list of captures in that locality by the late J. R. le B. Tomlin (1902, *Ent. mon. Mag.*, **37**: 291), without any special remark or prominent notice, and is thus liable to be overlooked. Some years ago Mr Lionel Cowley kindly verified for me that a single specimen from the New Forest is extant in Tomlin's collection in the Cardiff Museum. I know of no other such capture and it is evident that, in view of all the collecting done there, this Buprestid must be, or have been, excessively rare or local in the Forest.

Finally, a specimen was taken by Mr B. L. J. Byerley in Bishop's Wood, Batchworth, Herts. (near Northwood, Middx.), by general sweeping, on 27.vi.53; see Allen, 1958, *Ent. mon. Mag.*, **94**: 52. As there related, I joined the captor in a search for the species on 29.vi.57 (a very hot day)—without result. Nor has anything further been seen of it in the wood, despite frequent visits in season by Mr Byerley. It seems that the beetle is occasionally introduced into this country in timber from the Continent; it is possible, therefore, that the specimen in question was of adventive origin.

63 Blackheath Park, London, S.E.3. 3.xi.72.

Mainly South Essex, 1971

By R. TOMLINSON

Ray Cook and I had planned to visit Crabb Wood, near Winchester, to try for *Trichopteryx polycommata* D. & Schiff., for some time, so the afternoon of 28th March saw me riding the

Honda to his home at Hookend. We set off in his car at 4.15 p.m., arrived at Crabb Wood about 7.45 p.m. with still a little light left. Ray noted that the Local Council had "tidied up" the area since he had last called there. Logs had been placed to prevent vehicle access into the grassy parts, shingle had been laid, and some undergrowth had been chopped down. We were pleased to see that plenty of privet thickets prevailed however, and after fortifying ourselves with coffee we began our rounds at the privet with torches at 8.10 p.m. A strange wet mist insinuated itself upon our operations, presumably a common occurrence in this area of the Downs. Against this eerie atmosphere of dead quiet, mist and dripping trees we diligently searched for our quarry. Ray was the first to find *polycommata* about 6 feet up in a privet thicket and at rest. This was easily boxed and he found 2 more, while I also managed to box 2 specimens. I also boxed a *Eupsilia transversa* Hufn. which I found at rest. We left for home at 10 p.m. and the wet mist persisted for several miles along the road.

On 20th April a melanic *Lycia hirtaria* Clerck turned up in my Robinson m.v. trap. This, I understand has been described by the late Dr E. A. Cockayne as being ab. *nigra* in the E.M.M. for 1948.

On 2nd May, 3 female and 2 male *Saturnia pavonia* L. emerged in my breeding cage—the remaining 5 from the 29 cocoons of 2 years ago. On 6th May I had a female *Bapta distinctata* H.-S. in the garden trap and kept it in the hope of eggs, but she did not lay. A trip to the local Coombe Wood with the generator on 8th May with two friends brought several moths to the sheet, the most notable being *Menophra abruptaria* ab *fuscata* Tutt. A daylight visit to Coombe Wood on 18th May with John Chainey resulted in our seeing dozens and dozens of *Adela viridella* Scop. flying round trees of oak and wych elm, a very remarkable sight.

By the gracious consent of Col. and Mrs P. V. Upton of the Essex Birdwatching and Preservation Society, I was allowed to run my generator and light and Heath trap upon their very large estate at Margaretting on 21st May. An area of rolling arable land surrounded by mixed woods, it had never known the net or light of a collector. It was a clear, somewhat cold night with no real surprises moth-wise. I did keep an example of *Colocasia coryli* L. and a *Notodonta trepida* Esper from the sheet. The Heath trap held only two *Lithina chlorosata* Scop. but I feel that the area has great potential. It has been jealously keepered for many, many years and may yet turn up a breeding established rarity or two.

On 31st May I again ran the generator with two friends in Coombe Wood from 10 p.m. until 11.30 p.m. Of all that came in, I kept a *Lobophora halterata* Hufn. and a *Deilephila elpenor* L.

Ray Cook and I drove to Ham Street on the evening of 12th June and ran two M.V. lights and the Heath trap along one of the woodland rides for $3\frac{1}{2}$ hours. We saw another collector's

light right at the end of "our" ride and upon investigating found young Chris Renshaw, who explained that his father had dropped him off here and had gone on to Dungeness. In fact, much later, Mr Renshaw came up and introduced himself. Only 29 species of macros came to light and I kept *Bena fagana* Fab., *Tethea or*, D. & Schiff., *Hadena thalassina* Hufn. and a *Chilodes maritima* Tausch. From 1,000+ moths in the garden trap on 1st July, I was pleased to receive a *Hadena compta* D. & Schiff.

I had been invited to run my light in one of the Essex Naturalists' Trust reserves, so on the evening of 2nd July, Albert Cox and I drove to the "Backwarden", a somewhat wild 35-acre portion of Danbury Common managed by the Trust. Upon our arrival we were met by the resident warden, who led us to a cleared area where I set up the main light, after which I set up the Heath trap along an adjoining woodland path. Conditions were almost ideal, for it had been a sultry day. We ran the lights for 3½ hours, and during this time several other interested people came, including Geoff. Pyman and his son. A really great night's collecting ensued, no less than 79 recognisable species of moths showed up at the sheet, the best of which were *Tethea or* D. & Schiff., *Mysticoptera sexalisata* Retz., *Laspeyria flexula* D. & Schiff., *Polia nebulosa* Hufn., *Dipterygia scabriuscula* L., *Euphyia unangulata* Haw. *Miltochrysta miniata* Forst., *Thumatha senex* Hübn. and *Cybosia mesomella* L. The Heath trap held 120+ moths, including three species which had not turned up at the sheet, so our night's total was 82 species, a very fine night's work indeed.

The next day, 3rd July was the occasion of the field meeting here at Stanford-le-Hope of the *British Entomological and Natural History Society* which I led. This was in conjunction with the *South Essex Natural History Society* whose members included Miss N. G. B. Scarthe and Mrs N. Mansbridge, both really excellent amateur botanists, 12 of us in all. We drove to Mucking and worked the reed-beds. We had lunch and good conversation in the Linford "George and Dragon", then off to Coombe Wood. Afterwards George Prior and Eric Bradford came home with me and spent some time rummaging through my Robinson trap which contained more than 1,000 moths. Bradford was delighted to find 5 specimens of *Blastobasis decolorella* Wollaston in it. This same night Ray Cook called and we drove in his car to Creeksea in this county where he set up his generator on the saltings whilst my Heath trap was set up about 125 yards away behind a low ridge. Unfortunately Cook's ljght went wrong, and in the end we had to rely on my Heath trap. Our quarry was *Leucania favicolor* Barr., and I kept 8 of these, also a *Scopula emutaria* Hübn. and 5 larvae of *Malacosoma castrensis* L. found on the saltmarsh grasses with a torch. One or two examples of *Spilosoma urticae* Esp. also came to the Heath trap.

I paid another visit to Coptfold Hall on the night of 10th July with Mr Grimsell and his son. We ran the M.V. light and the Heath trap for 3 hours on this clear but mild night. This time the pro-

ceedings were presided over by the powerful figure of Morgan White, the head keeper. Forty-one species of moths came to the sheet, the most notable of which were *Colostygia pectinateria* Knoch., *Sterrha straminata* Borkh. and *Pseudoterpna pruinata* ssp. *atropunctaria* Walker. The Heath trap held much the same species as the M.V. light with the addition of *Diarsia brunnea* D. & Schiff.

The Robinson trap in my garden that night held 1,000 moths, including one *Apamea monoglypha* Hufn. referable to ab. *infuscata* White, 2 *Hadena compta* D. & Schiff., and 7 of the *gammina* form of *Plusia gamma* L.

11th July was a very warm day, so I was not surprised when Ray Cook drove over in the evening and suggested a trip through the Dartford tunnel to Trottiscliffe. Almost 40 minutes later we nudged the car through the Pilgrims' Way and managed to park just off the road, scrambled up the slope with our gear and ran the main light over a sheet and the Heath trap 100 yards away and half-way up a grassy hill. We ran them for just over 2 hours and had 60 species of macros. We found that *Ortholitha bipunctaria* ssp. *cretata* Prout were very fresh, just emerged, in fact. Other prizes were *Philereme transversata* Hufn., *Aspitates gilvaria* D. & Schiff., *Sterrha emarginata* L., *Leydia adnotata* D. & Schiff., *Apamea sublustris* Esp., and I kept an example of the very attractive Phycitid *Nephopteryx semirubella* Scop. The Heath trap held over 100 moths, mainly a reflection of what we got at the sheet with 5 different species. Unfortunately, the 2 examples of *Scopula ornata* Scop. which turned up were past their best; we were obviously too late for this handsome moth.

Two friends and I ran the trap over a sheet in Grays chalk quarry on the night of 23rd July for just over 2 hours, and I was elated upon receiving the first visitor, which was *Lophopteryx cucullina* D. & Schiff. Others of note were three *Xanthorrhoe quadrifasciaria* Clerck, *Crambus pinellus* L. and *Evergestis pallidata* Hufn.

On 29th July, from 2 pupae from the Creeksea *castrensis* larvae, there hatched in the breeding cage a male and a female. I had brought them through on plum leaves. This same night, the garden M.V. trap held almost 1,000 moths, among them a *Cucullia asteris* D. & Schiff. and an *Apamea ophiogramma* Esp.

On 9th August I captured a *Spaelotis ravida* D. & Schiff. in the garden trap. I ran the M.V. light by the reed-beds with three friends at the end of Wharf Road here on 13th August for 3½ hours, but only 32 species of macros came in, the most notable of which was a *Nonagria sparganii* Esp.

Ray Cook and I ran a light in Weald Park near Brentwood on the night of 11th September for 1½ hours, in the hope of *Dryobote eremita* Fab., but the temperature dropped sharply after dark and not one did we see. Only 9 species came in and I kept 2 of them, *Deuteronomos alniaria* L. and a *Paradiarsia glareosa* Esp. It was a different story when Cook and I went to Ham Street Woods on 22nd September. It was a clear night but mild

and we ran a regular battery of lights and 12 sugar patches for 2 hours or so along one of the rides. Our main quarry was *Asphalia diluta* D. & Schiff. and 86 of them came in to our lights. We were each able to take a fine series of the moth. Nothing much came to our sugar.

On 24th September the trap in my garden took about 100 moths, among them a single example of *D. eremita*, which I kept. Cook and I had another try for it in Weald Park on the night of 2nd October, but to no avail.

On 9th October I drove to Little Baddow with Alan Hardy and his 2 sons, mainly to try for *Gryposia aprilina* L. We set up our main light over the sheet in the hollow square formed by Pheasanthouse Wood, Poors Piece Wood and Woodham Walter Common, and ran the light for 2½ hours. It turned fairly cold after dark; the cloud cover cleared. We had 22 species into the sheet, and of these I had a perfect example of *E. transversa*, a *Lithophane ornithopus* ssp. *lactipennis* Dadd, and a *Theras obliscata* Hübn.

About this time I had 14 *Episema caeruleocephala* L. emerge in a breeding cage, all that came through from eggs laid by a female taken on 24th October 1970 at One Tree Hill Woods.

On 2nd November I rode to Martinhole Wood in the Langden Hills, and searched along the woodland paths for an hour with my torch. I kept one female *Colotois pennaria* L. and a male *Operophtera brumata* L.

I made the last field trip of the year to Grays chalk quarry on 14th November with 2 friends. Our quarry was *Ptilophora plumigera* D. & Schiff., as on other visits I had noticed several maple trees and our hopes were high: had I not obtained *C. cucullina* from the same area earlier this season? We ran the light over the sheet for 2½ hours but it was almost frosty and only one moth came and went again, which appeared to be only *Phlogophora meticulosa* L. Somewhat disillusioned we packed up and went home, and neither time nor circumstance has permitted me to try there again, but after all, one lives in hope. . . .

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Observations on British Butterflies in 1971

By Dr C. J. Luckens

Our first entomological excursion of the year really occurred in mid-February while my family and I were on holiday at Fordingbridge. En route to Dorchester on a wondrously warm and sunny day we stopped off at Hod Hill, and wandered up to the Dorset Naturalists' Trust Reserve which maintains a famous colony of *Euphydryas aurinia* Rott. Though there had been a sharp frost during the night little groups of *E. aurinia* larvae were taking the sun all along the vallum—a sight to dispel the 'winter blues' of any lepidopterist.

We had to wait until April 10th however for the first free-flying butterfly. This was a tattered *Aglais urticae* L. pounced upon by the family cat in my parents' garden in Sussex, and rescued only in the nick of time.

Back in Kent the following day we saw the first Swallow, and *Gonepteryx rhamni* L. was flying in fair numbers along the road through Orlestone Forest.

The weather remained generally fine and warm thereafter for several weeks, and on April 21st we walked in Orlestone Forest again, seeing *G. rhamni, A. urticae, Nymphalis io* L. and *Polygonia c-album* L. The pupae of *Celastrina argiolus* L. that I collected as ova and larvae the previous August, started to emerge in my cages three days later. Out of nine pupae all but one were females, and the solitary male was the last out on May 6th.

A warm sunny day on May 8th saw that delightful butterfly *Antocharis cardamines* L.-L'aurore flying in the lanes and woods around Ashford. In the afternoon we went over to the Wye Downs and saw *Pararge aegeria* L. of the bright spring form, and the first *Erynnis tages* L. Along a shady part of the road three *C. argiolus* danced together in dappled sunlight among the trees. In company with Colonel C. A. W. Duffield, we returned to the Wye Downs three days later, and saw several butterfly species including freshly emerged *Coenonympha pamphilus* L., *Lycaena phlaeas* L., *Callophrys rubi* L. and *Pyrgus malvae* L. In the local woods *Clossiana euphrosyne* L. was already flitting among the violets.

Colonel Duffield 'phoned me on the 18th to say that *Hamearis lucina* L. was about on the downs, so the following day we went up to look for it. The weather was not of the best however and soon after our arrival it clouded over. Though no *H. lucina* were seen, we noted fresh *Pararge megera* L., *Polyommatus icarus* Rott and an early *Aricia agestis* Schiff. *C. rubi, E. tages* and *C. pamphilus* were also flying in spite of cold conditions. That evening I walked along the Royal Military Canal and beat several larvae of *Strymonidia W-album* Knoch—they were nearly fully grown already. A few *H. lucina* were seen in the late afternoon sun during a quick visit to the Wye Downs on May 21st just before we travelled to Sussex for the weekend. That same evening near Haywards Heath we inspected two small Alder Buckthorns that I had planted the previous autumn along a woodland hedge in my parents' garden—a notable 'flight-line' for Brimstones. To my mingled delight and dismay I found that each bush held over a dozen larvae in varying stages and as many ova still unhatched—far too big a population for either bush to support. On foliage cut from Buckthorns in the neighbourhood my parents reared the majority of these larvae, and subsequently had the pleasure of releasing over thirty imagines.

The next day on May 22nd, my wife and son accompanied me to our favourite West Sussex wood. It was a perfect

spring morning and when we arrived we were delighted to find numbers of *Leptidia sinapis* L. fluttering along the rides. In addition to this local butterfly, there were plenty of *C. euphrosyne* of both sexes, a few early *Clossiania selene* Schiff. literally scores of *G. rhamni,* and the occasional *P. icarus* and *C. rubi;* the two Skippers *E. tages* and *P. malvae,* buzzed among the Trefoil and wild Strawberry.

I netted a lovely *Hemaris tityus* L. which was hovering at a bugle spike and released it after it had been admired by all. Later in the morning we saw a few more Bee Hawks, also presumably *H. tityus,* though we did not identify them positively.

In the afternoon we drove up to the Chiddingfold area where in spite of cloudier weather there were even more small fritillaries on the wing, but to our surprise no *L. sinapis* were seen where they had been flying in fair numbers the previous July. Perhaps it emerges later in this wood.

Our next outing was on Whit Monday when I was pleased to get away to the Wye Downs after a busy week-end on duty. *A. cardamines* was still flying in the lanes, and a few *C. argiolus* on the fringe of the downs, but on the chalk itself *P. icarus* was at the height of its emergence and we saw several pairs *in cop. P. megera* was also very common.

That same evening I returned to the Royal Military Canal and wandered along the banks tapping the lower branches of the Wych Elms. Two or three more *S. W.-album* larvae were secured, one of which already had the plum colour of pre-pupation.

On June 2nd in rather dull conditions I went over to the Folkestone Downs. On arrival the weather improved outstandingly and many butterfly species were seen—*P. aegeria, P. megara, C. pamphilus, L. phlaeas, P. icarus, A. agestis, C. rubi, P. napi, P. rapae, P. brassicae, E. tages* and *P. malvae* were all present, and scores of *Lysandra bellargus* Rott. gladdened the eye all along one stretch of the steep hillside.

In the late afternoon I returned to the Wye area and found a site where *H. lucina* was abundant in a sunny corner of the downs. Unfortunately *L. bellargus* has long been absent from this locality, though Horseshoe Vetch is still fairly plentiful.

After this date weather conditions took a turn for the worse. Whereas early June over the last three years has been conspicuous for its hot and sunny weather, this year it was abnormally cold and wet—at least whenever I was free!

On June 8th., when I had to go over to Hassocks in Sussex, there were spells of watery sunshine and I took advantage of them to visit the local downs. While we were at Hurstpierpoint College about fourteen years ago, a friend and myself had found flourishing colonies of *L. bellargus* and *Cupido minimus* Fuessl. on these hills, and I was keen to find out if these colonies still survived. In the infrequent periods when the sun shone wanly I saw plenty of *P. icarus* and one male

L. bellargus. No *C. minimus* showed up, though weather conditions may well have been the reason for its non-appearance.

S. W-album imagines started to emerge in my breeding cages on June 14th, and continued to the end of the month; and on the 16th, after beating blackthorns in one of the woods around Ashford, I was delighted to obtain two half-grown larvae of another Hairstreak—*Thecla betulae* L. These were from bushes about five feet tall; up till then I had searched and beaten much smaller blackthorns in accordance with the popular belief concerning the egg-laying habits of this butterfly.

On the afternoon of the same day my wife and son came with me to Folkestone, and when the sun came out for a moment we watched the whole hillside come alive with the bright spread wings of *L. bellargus. P. icarus* and *C. pamphilus* were about in lesser numbers.

Again there was a spell of wet weather, but in spite of a very gloomy forecast from the Meteorological Office, my wife and I left early on June 19th, to make the long trek to Norfolk.

The clouds broke up at intervals all afternoon confounding the dark prognostications of the weather-men and in one of these sunny spells we saw a single male *Papilio machaon* L. at Hickling. However no ova or larvae of this butterfly were seen, either there or at other Broads in the vicinity and at one of these latter sites which used to be a marvellous place for *P. machaon* the reeds had been burned over a wide area.

The Hickling Nature Reserve had changed in many aspects since our last visit in 1968. We sadly missed the former Warden, Mr Bishop; and the reserve seemed to have become in general more densely overgrown with reeds, while the verges of the paths had been severely cropped, resulting in fewer sizable specimens of Milk Parsley. In relation to former visits Hicking was a disappointment, and in view of the above changes we personally found it hard to justify the recently imposed entrance fee.

Another *T. betulae* larva was obtained in the Ashford woods on June 22nd—again on a bush about six feet high.

At Folkestone on the same day a few *C. minimus* were about in very circumscribed areas on the downs. A pair *in cop* was spotted among the grasses. *L. bellargus* was still reasonably abundant but starting to get worn, and the first *Ochlodes venata* Br. and Grey. were flying whenever the sun broke through.

Our holiday commenced on June 28th, and we made an early start on the long journey to Cornwall. At first the weather was dull and sultry, but on the last day of June, when we travelled south from Bude to escape persistent mist, the weather cleared in the afternoon and thereafter we had a fortnight of almost continuous sun. Driving through some narrow lanes that day, we passed a wood bounded by drystone

(To Be Continued)

Callicera spinolae Rondani — Extended Range

By C. O. HAMMOND, F.R.E.S.

Of the 3 species of Hoverfly in the Genus *Callicera* recorded for Britain, *C. spinolae* is undoubtedly the loveliest and well worthy of the name Golden Hoverer-fly given to it by C. Morley when he recorded his first specimen for Suffolk at Brandiston Marshes in September 1942 and again at Monks Soham in October 1947. Previous to this the only specimen recorded for Britain was also taken in Suffolk at Southwold by J. W. Bowhill on 1st October 1928.

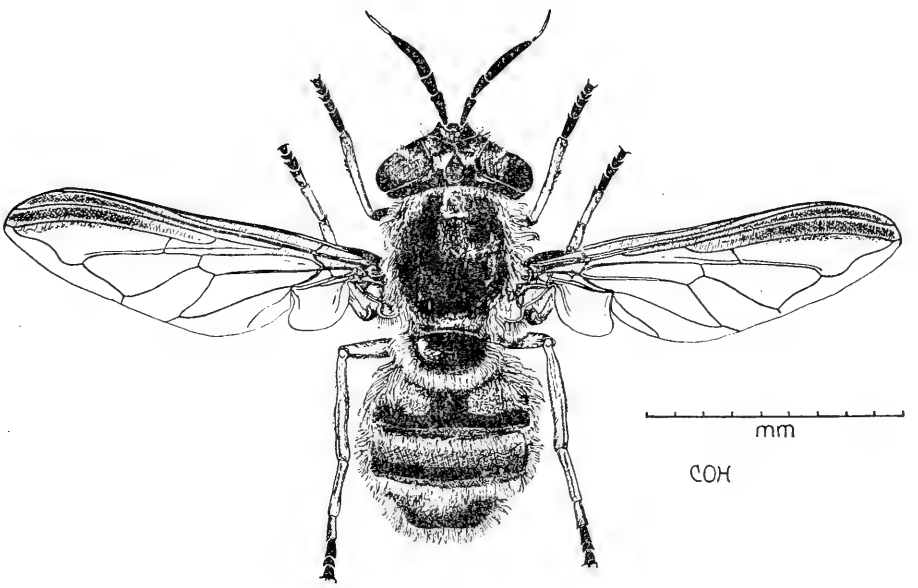
On 19th September 1972 I was standing in the woodland garden at Houghton Hall near East Rudham in West Norfolk observing various Diptera and Homoptera when I saw what appeared to be a bee of the *Andrena* species flying near the ground in erratic flight common to the Hymenoptera; but when the insect made closer approach the brilliant bands of golden hairs on the abdomen and the brassy green-black of the rest of the body confirmed it must be a hover-fly and one new to me. Having no net I made a desperate grab at it and caught it in my hand! Though I kept the specimen, a female, alive in a large jar it died a few days later without depositing eggs. This is the first record for Norfolk.

While attending the A.E.S. Exhibition at Holland Park School on 30th September 1972, I showed my specimen to Mr I. Perry who informed me that he had taken a female at Lode, near Cambridge on 19th September 1971, the first record for Cambridgeshire. Subsequent correspondence from Mr Perry stated that the identification of his specimen had been confirmed by Dr J. Smart of the Department of Zoology, Cambridge University. The specimen had a wing span of 28 mm.; mine was 32 mm. Males have not yet been taken in Britain; this may well be because they prefer to stay by the breeding sites waiting for the females to emerge, a habit I have frequently noticed with *Calliprobola speciosa*, Rossi, another lovely Syrphid. However, some females must wander in search for new breeding sites and visit flowers for feeding, angelica and ivy-blossom being favoured. Like most very rare Syrphids the flight period seems limited to 3 weeks or less. Whereas *C. spinolae* occurs from mid-September to early October. *C. rufa* occurs mainly in August; while *C. aenea*, the commonest and most widely distributed species, has been taken from mid-June to mid-August.

A very detailed account of the breeding habits of *C. rufa*, the brassy-black species with rufous or black hairs, has been given by R. L. Coe who found the larvae in a decayed cavity partly filled with resinous water in an ancient Scots Pine near Braemar, Aberdeenshire. Some larvae, subsequently bred by him, took as long as five years to pupate. The early stages of *C. spinolae* and *C. aenea* are apparently unknown, though it is most likely that they too breed in rotten wood.

C. aenea, metallic green with no conspicuous bands on the abdomen, was recorded from Windsor Forest, a female, by A. M. Low, 23.vi.57 on rhododendron; from Bromley, Kent, a female on goutweed, August 1959 by P. J. Chandler and the most recent record is of a male taken flying over a narrow drainage ditch with slow, almost hovering flight at a marsh near Sourton, North Devon on 16.vii.72 by Mr G. M. Spooner.

It was thought worth while to illustrate the specimen taken in Norfolk this year so that collectors, other than Dipterists, might be conversant with the general appearance. Outstanding points in identification are the very long black antennae with a white arista, the copious golden hairs along the sides of the thorax and abdomen, the two wide bands of golden hairs on the



abdomen, the saffron colour of the anterior portion of the fore-wings with a darkened tip, and the brassy green-black body. In the illustration the golden hairs have of necessity been indicated in black but the general make-up is remarkably like that of *Calliprobola speciosa* Rossi, shown as a colour plate in *Flies of the British Isles*, but *C. speciosa* has 3 bands of golden hairs on the abdomen in place of the 2 in *Callicera spinolae*.

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The Middle Atlas: A Further Visit, May-June 1972

By C. G. M. DE WORMS, M.A., Ph.D., F.R.E.S.

The region which embraces Azrou and Ifran is indeed the most attractive part of the Middle Atlas and probably the richest for butterflies in the whole of Morocco. I had already sampled its species on two occasions in April and May, 1965 and again in May and June, 1969 (vide *Ent. Rec.*, **77**: 177 and **81**: 286) so that I considered yet a further visit would be profitable rather later in the season to obtain some of the early summer species. I therefore flew to Gibraltar on 28th May, arriving in the evening to find that the car I had arranged to be at the airport was not forthcoming. However, after negotiation from the Rock Hotel, one was produced after 10 p.m., which was fortunate, as I was able to transport it the following morning to Tangier. Had this not been possible, I should have had to wait three days in Gibraltar as the car ferry was to be laid up in dry dock for this period. I set out from Tangier by the coastal route via Larache where I halted in some promising ground and saw the first spring butterflies which included *Gonepteryx cleopatra* L. and *Anthocharis eupheno* L. as well as *Euchloé ausonia* Hübn., *Colias croceus* Fourc. and *Aricia cramera* Eschesch. I travelled on via Meknes, completing the 250 miles to Ifran by dusk. There I joined Major-General Sir George and Lady Ida Johnson at the large and rather old fashioned Grand Hotel where they had already been for a week and had been able to form a good idea of the season and the prevalence of the various species. It soon became evident on the following day, the 30th, that not only was it a very late year, but not nearly such a prolific one as I had experienced in the same area in 1969 at this time of the year. Most of the early May insects were still well on the wing at this altitude of nearly 6,000 ft. The chief species flying in the immediate vicinity of Ifran were *Zegris eupheme meridionalis* Lederer, *Gonepteryx rhamni* L., *Euphydryas desfontainii* Godart, *Melitaea aetherie* Hübn., *M. didyma* Esp., *Callophrys rubi* L., and *Plebicula thersites*. Cantener with its very bright females; while that beautiful little Blue, *Philotes bavius fatma* Oberthur was exceptionally numerous together with a few of its smaller relative *P. aben-*

cerragus Pierret. *Cupido lorquinii* H.-S. was also quite plentiful in one or two restricted localities.

The last day of May was another very fine and warm occasion when I went on a voyage of discovery southwards to Boulmaine on the road to Midelt where there is a lot of rocky ground with *chênes verts* at a fairly high elevation, but little was flying there except *A. eupheno*, giving further evidence of the lateness of the season. At lower levels *Lysandra punctifera* Oberthür was only just getting on the wing.

June greeted us with another roaster when I accompanied Sir George and Lady Ida south on the road to the 7,200 ft. Col du Zad, turning off it easterly 14 miles short of the pass on the very rough track leading to the Taghzeft Pass which figures in so many accounts of collecting in this part of Morocco. After covering some 10 miles along this very bumpy track and bleak country, we turned off left before ascending to the Pass itself, since my companions had found a most fruitful small valley the previous week in this region. It was not long before we saw the first males of that superb Blue *Plebicula atlantica* Elwes, much more silvery than its common relative, *P. dorylas* Schiff. Shortly afterwards, I took several of another Lycaenid with purplish upperwings and a dull brown underside which mystified us. In fact, it was only when back in England that they were expertly identified as *Plebeius martini* Allard, another species confined to North Africa which is normally over by the middle of May. We took one Grayling which proved to be *Hipparchia aristaeus* Bonelli, while the little Copper *Cigaritis zohra* Donzel was abundant on part of the rocky ground. The only Nymphaline was *Melitaea phoebe* Schiff. The following day saw me in that region towards Fez which had proved so rich in 1969 for that grand insect *Berberia abdelkader* Pierret. On arrival I ascended a small knoll where I did a sort of sentry-go round the summit making occasional successful sweeps at the little Satyrid *Coenonympha vaucheri* Blachier as they flitted by always hugging the stony ground at the tops of these small hills. Soon the big black butterfly, *B. abdelkader* appeared, but I only saw two males on this occasion. *Iphiclides feithsameli* Dup. and *Issoria lathonia* L. were also present with the first *Aporia crataegi* L. The next day, 3rd June, saw us once more on the Taghzeft Pass area where males of *P. atlantica* and *P. martini* were more numerous as also was *L. punctifera*. We also took some *C. vaucheri* on the higher ground. On the 4th the Forêt de Jaba produced the first *Melanargia galatea lucasi* Rambur at least a fortnight later in appearance than in 1969. The Johnsons left on 5th June, en route for England. That morning I revisited the locality for *B. abdelkader* which was distinctly scarce compared with 3 years previously, though the males were well on the wing. On the 6th I moved to lower ground at the Panorama Hotel at Azrou which had been my haven on the two earlier visits, but I missed the presence and help of M. Gallet who had returned to France, as he had unrivalled knowledge of Moroccan lepidoptera in general.

Another day in the Taghzeft Pass region on 7th June found males of *P. atlantica* really plentiful, but no sign of the striking female of this species. *L. punctifera* and *C. vaucheri* were also much more in evidence. The next morning of the 8th in very warm conditions as usual I explored the country round Aïn Leuh which lies in the hills just off the road leading towards Marrakech. A good mountain road had been completed leading several miles into the forest beyond this small resort. On a limestone slope *Maniola jurtina* L. was flying in considerable numbers and I soon spotted several of that magnificent fritillary *Argynnis pandora* Schiff. sailing swiftly over the short herbage and settling occasionally on a low thistle from which they were not difficult to net. They were in a particularly large and bright form. Many small Skippers were flitting about too. These proved to be *Pyrgus onopordi* Rambur with an occasional *Spialia ali* Oberthür. At this altitude a few worn *Zerynthia rumina* L. were still flying. Later I was about to choose a picnic site in the cedar forest when a large troupe of some forty barbary apes appeared, some carrying their young so that I hastily beat a retreat. 9th June was spent in the forest area above Azrou where *P. pandora* was to the fore with lots of *L. punctifera*; several *Papilio machaon* L. were also on the wing in this region. Another visit to Aïn Leuh on 10th June provided further *A. pandora* which was becoming increasingly numerous, but there was no sign of the other two large fritillaries *Argynnis auresiana* Frühstorfer, and of *A. lyauteyi*, either in this area or round Ifran. Both these fine butterflies had also eluded me in 1969.

I paid a final visit to the Taghzeft Pass on 11th June, another scorching day, when Blues were abundant, especially *P. atlantica* and I was also lucky enough to get some females of *P. martini*, but still none of *atlantica*. *Melanargia occitanica* Esp. (*psyche* Hübn.) was the only new butterfly seen and in this late season there was no sign of *Pseudochazara atlantis* Austaut for which this locality is noted. My last active day on the 12th was spent in the Azrou Forest, seeing all the species already described from there with the addition of *Polygonia c-album* L. On 13th June I was rendered fairly inactive owing to a breakdown with my car, though *M. galatea* was numerous in the vicinity of the Panorama Hotel. I managed to get under way northwards early on 14th June and following the same coastal route as before reached Tangier that evening crossing to Gibraltar at an early hour on 15th June which afforded me the whole day to see what was on the wing, but it was very lean compared with 1969 and there was none of the Burnet *Zygaean gibraltaica* in the Almeida Gardens. I flew back to London late that afternoon after yet another very profitable sojourn in this northern part of Africa.

Among the few moths seen at Ifran by day the commonest were *Heamaris tityus* L. and *Heliothis dipsacea* L.

Further notes on the African Lunar Moth *Argema kuhnei* Pinhey (Lepidoptera: Saturniidae)

K. W. KÜHNE

A male of this spectacular moth was first described in 1969 by Dr E. Pinhey, Curator of the National Museum, Bulawayo, who also in 1972 described the female. The larvae are now described from observations made immediately prior to pupation.

Four caterpillars were found at Mbala (formerly Abercorn, Zambia) on the previously described (Little, 1972) food plant. It is of interest to note that these were found not only on *Monotes katangensis*, but also on *M. angolensis* and on another as yet undetermined *Monotes* sp. tree. All these *Monotes* types have provided cocoons from which 10 moth specimens were obtained in August 1972.

These adult larvae were plump lime-green smooth-skinned caterpillars between $6\frac{1}{2}$ and 7 cm. long, with 9 pairs of well-formed scoli side by side on the crescent of each segment except the 8th body segment which had a single centrally positioned scolus. These scoli were armed at the tips with short black bristles and some long sparse hairs (Figs. 1 & 2). Between each segment when extended there are pale to dark yellow bands shaded darker from above towards the underside. The tips of the four pairs of prolegs and of the claspers were dark yellow edged with brown. The upper and lower edges of the spiracles on the sides are marked by tiny silver spots.

These caterpillars, although well camouflaged against detection by their close resemblance in outline and colouring to the fresh leaves of the *Monotes* trees against predators, were found during the period 5th to 19th October 1972. They were each placed in separate cages and provided daily with fresh food until it was noticed that the caterpillar had ceased to eat and had started wandering around on the ground under the foliage in a quite restless manner. This stage was reached shortly after collection by two of the larvae (one of which had incidentally been found on the ground at the base of a *Monotes* sp. tree) but for the other two after 13 and 14 days respectively after observation of a moult. The caterpillars then moved back on to the food plant and started making a shelter of leaves bound together with rough strands of silk before actually spinning their dense, firm pale straw-coloured cocoon. The colour of this cocoon weathers within a few days to silvery grey.

Once spinning commenced the cocoons were completed in 24 hours and the four caterpillars were all in their cocoons by 25th October 1972. A pale straw-coloured cocoon was, however, also found on a *Monotes* sp. tree on 12th October and another on 18th October thus indicating an earlier final moult and earlier entry into the pupal stage in the cocoon in which approximately 10 months of life cycle is spent. By analysis of the present

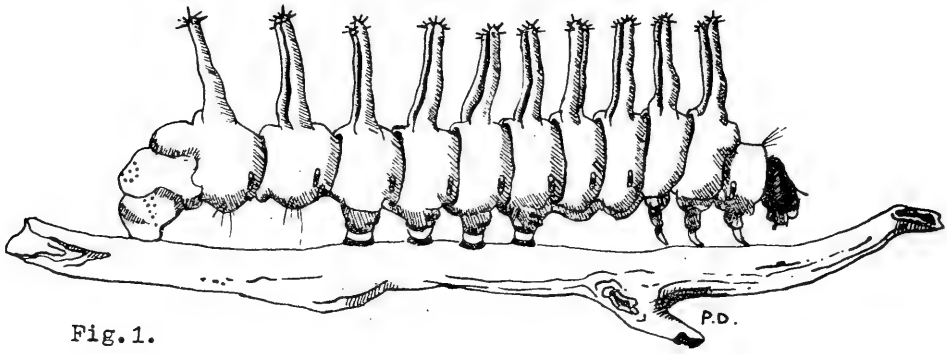

Fig.1.

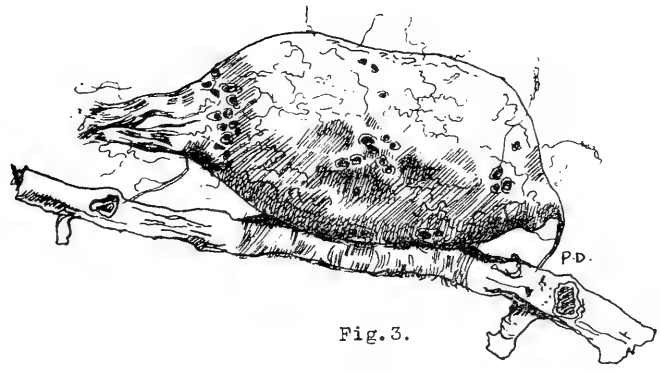

Fig.3.

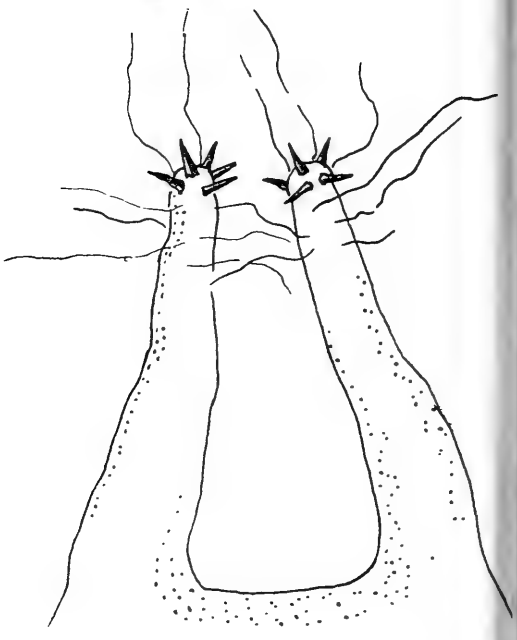

Fig.2.

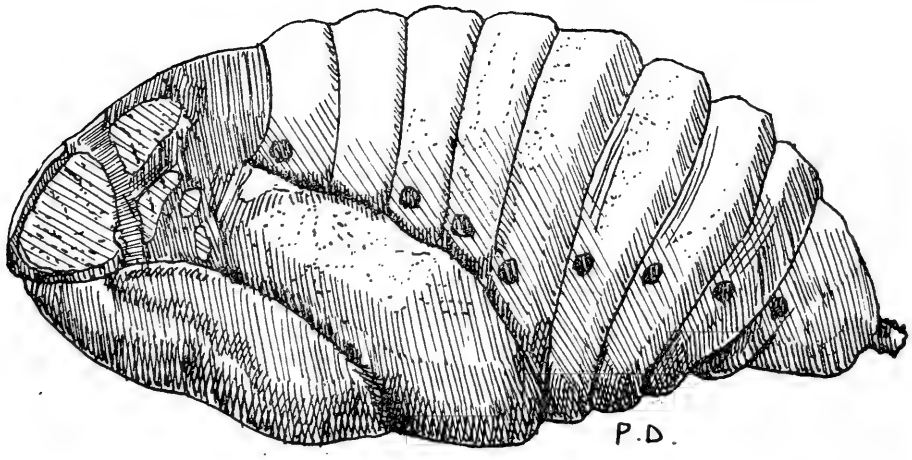

Fig.4.

available data it would appear that there is approximately 2 months from the emergence of the moth from the cocoon to the return of the caterpillar to the pupal stage in the life cycle of this insect. The typical *Argema*-type cocoon and the dark brown obtect pupa are illustrated (Figs. 3 & 4).

J. C. Little (1972) lists the emergence from cocoons in 1971 and refers to the 1968 and 1970 dates when specimens of this beautiful moth were first noticed. In 1972 the emergences from cocoons were earlier than usual although collections at a mercury vapour light trap gave virtually identical dates for the appearance of this moth. Emergence from cocoons in 1972: 10th August (1 ♂); 11th (1 ♂); 21st (1 ♀); 22nd (1 ♀); 23rd (1 ♀); 24th (1 ♂); 28th (2 ♀, 1 ♂) and taken at light trap 1st September (1 ♀); 10th (1 ♂).

Additional Notes

30th January 1972—first new season cocoon found on food plant.

10th August 1972—first moth emerged from cocoon—male.

11th August 1972—second moth emerged, also male.

The timing of the eclusion from pupa follows:

(*a*) fluffy funnel end of cocoon noticed to be moist—13.40 hrs.
(*b*) funnel of cocoon noticeably swollen and slightly open and yellow spot showing—13.50 hrs.
(*c*) gradual emergence of body—pulsing movement at irregular intervals of 5 to 15 seconds for next 10 minutes.
(*d*) front leg and both antennae shot out—14.00 hrs.
(*e*) followed a few seconds later by whole insect in compact bundle hanging on to twig by both front legs.
(*f*) front wings extended—14.30 hrs.
(*g*) hind wings extended—15.05 hrs.
(*h*) at this stage front and hind wings held close together.

A number of questions remain, the chief of these arising from paucity of numbers in specimens that have actually been caught. At what stage in the life cycle is any influence exerted to maintain the evidently very low population?

From personal observation, when the moth emerges, it is very well disguised to fit in with the end-of-dry season foliage and fruits of the *Monotes* sp. food plant. Particularly during the day and before the moth is able to fly it is not readily visible to predators. The golden yellow long-tailed moth is illustrated in colour by Pinhey (1972) in his recent book on the Emperor Moths. In the larva stage its lime-green colourings combined with the projecting scoli match very closely the green foliage of the food plant. It is possible that in its immediate pre-pupal state of agitated "wanderlust", described by Pinhey (1968) that some larvae are damaged in falling to the ground, they would certainly also be readily visible to birds and lizard predators when moving up the brown tree trunk to commence building their cocoons. It would seem that the most vulnerable stage is after the larva has spun its cocoon and towards the end of the dry season when

bushfires could take their toll of these cocoons which are usually found in the lower branches rather than in the upper third of the *Monotes* trees. The shape of the cocoon itself, with its holes for water drainage (ventilation?) lends itself to parasitization, possibly by some wasp. The writer has noted that in some cocoons from which there had evidently been no eclusion, that the pupa remaining within the case is purely skeletal. In a number of these instances ants have been found inside the cocoon, and in one instance a cricket was found. The fact that most, if not all specimens taken at light traps, are found to have been badly damaged can, it is believed, be put down to attack by bats and possibly nightjars, although there is no direct proof of this.

Acknowledgments

I am indebted to Dr Elliot Pinhey in the first place for describing and naming of the moth; to Field Assistants M. Sanane and A. Majembe of the International Red Locust Control Organisation, Mbala, for their diligence in searching for and the care of the caterpillars; to Jim Little for continued encouragement and finally to my wife for her sustaining interest in the investigations into the life cycle of this insect.

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Sympetrum tandicola Singh, 1955, a synonym of *Pantala flavescens* (Fabr.) (Odonata, Libellulidae)

By Tridib Ranjan Mitra, Zoological Survey of India, Calcutta

Among the unidentified odonata material preserved in the National Zoological collections of the Zoological Survey of India I came across a specimen from Calcutta, which was completely identical with *Sympetrum tandicola* Singh. This species was described by Singh (1955) from a single male specimen from the Upper chenab valley, Western Himalaya. The holo-type of *S. tandicola,* deposited in the Zoological Survey of India, was examined by me and, while agreeing perfectly with the specimen at my disposal, did not have the hairs on the posterior lobe of prothorax, a key character for determination of the genus *Sympetrum* Newman, 1833, according to Fraser (1936).

A more detailed examination revealed that *Sympetrum tandicola* Singh does in no way differ from *Pantala flavescens* (Fabricius, 1798); the characters of head and wing which form the basis of Singh's species, and also those of prothorax, thorax, abdomen, genital organ and anal appendages are identical in the two species. I have, therefore, no hesitation in relating *Sympetrum tandicola* Singh, 1955 as a synonym of *Pantala flavescens* (Fabricius, 1798).

Pantala flavescens is a circumtropical dragonfly known from tropical and subtropical parts of the Old and New Worlds.

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Notes and Observations

CALOPTILIA STIGMATELLA FABR. (LEP. GRACILLARIIDAE).—L. T. Ford, in his *Guide to the Smaller British Lepidoptera*, gives only one generation per year for this species, showing the larval, pupal and emergence times as August to September. But I was surprised in mid-May 1972 to discover a typically rolled tip of a sallow leaf, at Bodelva, and it contained a larva, which I reared to produce a moth on 29th June.

Although the species is common in Cornwall and conforms more or less to Ford's timetable, it would appear that there is a tendency for an occasional (or freak) generation to occur earlier in the year.—JOHN L. GREGORY, Lepidoptera House, Bodelva, Par, Cornwall. 18.xii.1972.

SPAELOTIS RAVIDA D. & SCHIFF IN NORTH LANCASHIRE.—On the night of August 19th 1972, I caught a male of this species in my mercury vapour light trap in my garden. Dr N. L. Birkett has informed me that the only other Lake District record known to him is Ford's record near Carlisle in 1921, so this may be a new record for vice county 69 (Westmorland and North Lancashire).—D. W. KYDD, 6 Yewbarrow Rd., Ulverston, Lancashire. 27.ix.1972.

ARGYNNIS SELENE (D. & SCHIFF): SECOND BROOD. Further to Mr Rutherford's note (*Ent. Record*, **84**: 114), I can also report the occurrence of a partial second brood of the Small Pearl-bordered Fritillary in the wild—but in 1972. I took a single male specimen here in Sussex on 20th August, this differing little in either appearance or size from normal specimens of the same sex and locality.—COLIN PRATT, Oleander, 5 View Road, Peacehaven, Sussex. 29.xi.1972.

LATE SUMMER BUTTERFLIES.—Dr DE WORMS in the June number of *The Record* (*antea*: 170) lists the unusually early appearance of certain spring butterflies—this year has also been remarkable for some very late appearances.

I noted the first Meadow Brown on 28th June, when a single male was seen on the Westbury Downs; 2 more appeared 3 days later.

The Purple Emperor was first seen at Blackmoor Copse on 24th July, when I watched 2 males flying round an oak tree in the late afternoon sunshine. A fresh female was sighted on 14th August.

On 1st November, a warm day with hazy sunshine, I took my net out for a last walk over an extensive sweep of south-faeing downland. My optimism was not misplaced, and I netted 2 very fresh Chalk Hill Blues amongst a small number of both sexes that had obviously been out for some time. Meadow Browns, making up for their late start, were still about in some numbers with a high proportion of both sexes of recent emergence. For some reason they were very wild and difficult to net on the steep slope.

Finally, I got back from the British Entomological and Natural History Society Centenary Exhibition to be telephoned by my sister, who lives on the outskirts of Bath, with the news that a few nights previously, she had seen a Painted Lady fluttering round the outside light over her front door—it had gbne by morning.—C. G. LIPSCOMB, Warminster. 17.xi.1972.

SOME LATE DATES FOR 1972.—The especially late season which seems to have been the feature of 1972 has produced some quite late dates for a number of species. In particular, at Portland I was surprised to take *Cryphia muralis* Forst. on 7th October. In my m.v. trap at Woking, I noted the following species during the autumn months: 29th September, *Cryphia perla* D. & Schiff.; 1st October, *Apamea monoglypha* Hufn.; 12th October, *Rivula sericealis* Scop.; 18th October, *Catocala nupta* L.; 28th October, *Deuteronomos erosaria* D. & Schiff.—C. G. M. DE WORMS, Three Oaks, Woking. 21.xi.1972.

OCHROPLEURA PLECTA L. AB. RUBRICOSTA FUCHS IN DEVON.—On 25th August 1972, I took a moth in my m.v. trap in my garden on the outskirts of Brixham, Devon. In shape it resembled *Ochropleura plecta* L., but the forewings were deep brown, and the bright costal stripe and all the stigmata were obscured. The lower half of the forewings showed a whitish patch near the base.

I submitted it recently to Mr Fletcher at the British Museum (Natural History), and he very kindly wrote to me informing me that the moth was undoubtedly *O. plecta*, and matched 2 specimens in the R.C.K. collection under ab. *rubricosta* Fuchs: 1 specimen being from Scarborough and dated 1886 and the other (♀) from Abersoch, dated 1949.—J. W. PHILLIPS, 7 Beverley Rise, New Road, Brixham, Devon. 19.xi.1972.

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AND JOURNAL OF VARIATION
(Founded by J. W. TUTT on 15th April 1890)

TO OUR CONTRIBUTORS

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An Entomologist in Radnorshire, 1971

By L. K. Evans

From 17th to 23rd July last year I was fortunate to be able to explore entomologically the little-known county of Radnorshire. My collecting having been previously confined almost entirely to the southern part of England, I considered this a venture into the unknown, and I found the experience both exciting and enjoyable.

In view of the short time at my disposal I chose for working what I considered the most extreme habitats ecologically and the most widely separated geographically. As many of the national survey's 10 km. squares were covered as possible. As a lepidopterist I concentrated on the moths, but also took for identification examples of other orders: these were collected more or less casually.

Entomologically, Radnorshire must be among the most neglected counties in Britain, hence I have thought it worthwhile to detail the insects observed in full, as far as it has been possible to have them determined. In this I follow the format of Chalmers-Hunt (1969), who reported on an expedition to neighbouring Breconshire. Even for the macrolepidoptera, the only published account of the Radnorshire fauna of which I am aware is that of Gordon Smith (1953), and the records contained therein are almost entirely the work of the Reverend F. M. B. Carr between 1911 and 1913. Of the 166 "macros" observed by me in 1971, no less than 88 do not appear on that list, which gives some idea of the extent of our knowledge on this subject!

Despite its very beautiful scenery, Radnorshire is ecologically a rather uniform county. There is a marked lack of all kinds of deciduous woodland, and the sheep-grazing practised on almost all areas of upland reduces the diversity of habitats available to insects. It is perhaps not surprising to record, therefore, that nothing really startling was observed. Nevertheless, some moths did turn up unexpectedly: *Leucania straminea* Treits., abundantly at Newbridge; *Apatele alni* L., a melanic at an exceptionally late date; *Apamea scolopacina* Esp., and *Lygephila pastinum* Treits. One *Hemistola immaculata* Thunb. was taken in the marsh at Rhosgoch—a most unexpected capture for this type of locality. As a southern collector, I was also delighted to see such species as *Plusia bractea* D. & S., *P. interrogationis* L., and *Apamea furva* D. & S.

Of the localities visited, 4 sites were sampled with mercury-vapour apparatus:

Hundred House (10 km. square, 32/15). Sheep-grazed hillside with bracken, few trees, some boggy spots. 17th to 22nd July. Traps sited variously at 700 ft., 950 ft., and 1,050 ft., but not all on the same nights, so no direct comparisons possible.

Newbridge-on-Wye (32/05). Marshy area and mixed woodland adjacent to the River Wye, altitude 450 ft. 19th and 21st July.

LLANDEILO GRABAN (32/04). Open *Calluna/Vaccinium* moor, with bracken and stunted hawthorn. Altitude 1,200 ft. 20th July.

RHOSGOCH (32/14). Swampy area with *Typha*, *Alnus* and adjacent pasture. Altitude 800 ft. 23rd July.

More casual recording was also carried out at Aberedw (roadside verges); Felindre, Ddôl (1,300 ft.), Moelfre, New Radnor, and Littlehill Common near Llanbister (1,200 ft.).

Acknowledgments

The following gentlemen have been most helpful in undertaking a number of determinations and I would like here to gratefully acknowledge their expert assistance: P. J. Chandler, J. M. Chalmers-Hunt, P. N. Crow, L. H. Evans, E. Lewis, and P. E. S. Whalley. I would also like to record my appreciation of the hospitality shown to me by Mr and Mrs Ivor Davies of Hundred House whose home was used as a base for many nocturnal comings and goings. I am also in receipt of a most generous benefaction from Magdalene College, Cambridge, towards the cost of the trip.

MACROLEPIDOPTERA

Papilionoidea

Pieris brassicae L., Hundred House, 17.7. *P. rapae* L., Hundred House. *P. napi* L., Hundred House; Aberedw; Newbridge; Rhosgoch. *Maniola jurtina* L., Hundred House; Aberedw; Newbridge; Littlehill Common; Moelfre; Rhosgoch. *Coenonympha pamphilus* L., Hundred House; Littlehill Common —rather pale specimens. *Aglais urticae* L., Hundred House; Newbridge. *Vanessa atalanta* L., Felindre, 21.7, one. *Nymphalis io* L., New Radnor, larvae on *Urtica dioica*. *Argynnis aglaja* L., Hundred House, 17.7, one. *Clossiana euphrosyne* L., Rhosgoch, 23.7, many, very worn. *Ochlodes venata* Brem. & Grey, Hundred House; Aberedw; Newbridge; Rhosgoch. *Thymelicus sylvestris* Poda, Hundred House; Aberedw; Newbridge.

Sphingoidea

Laothöe populi L., Hundred House; Newbridge; Rhosgoch. *Deilephila elpenor* L., Hundred House; Newbridge; Llandeilo. *D. porcellus* L., Rhosgoch, one.

Notodontoidea

Pheosia tremula Clerck, Rhosgoch, two. *P. gnoma* Fab., Hundred House; Newbridge; Llandeilo; Rhosgoch, very common. *Notodonta ziczac* L., Hundred House; Newbridge; Rhosgoch, abundant. *N. dromedarius* L., Newbridge; Rhosgoch. *Lophopteryx capucina* L., Rhosgoch, abundant; Hundred House; Newbridge; Llandeilo. *Phalera bucephala* L., Hundred House; Newbridge. *Stauropus fagi* L., Newbridge, 21.7, one.

Drepanoidea

Drepana falcataria L., Newbridge, one. *D. lacertinaria* L., Rhosgoch, one.

Bombycoidea

Macrothylacia rubi L., Hundred House, larvae. *Philudoria potatoria* L., Hundred House, Newbridge. *Euproctis similis* Fuessly, Newbridge. *Nola cucullatella* L., Llandeilo, one at m.v.l. *Nudaria mundana* L., Hundred House, frequent flying along stone walls at dusk. *Thumatha senex* Hubn., Rhosgoch, two. *Lithosia lurideola* Zinck., Rhosgoch, one. *Cybosia mesomella* L., Newbridge, two. *Spilosoma lubricipeda* L., Hundred House; Newbridge. *S. lutea* Hufn., Hundred House; Llandeilo; Rhosgoch. *Arctia caja* L., Hundred House; Newbridge; Rhosgoch.

Noctuoidea

Thyatira batis L., Newbridge. *Agrotis puta* Hubn., Hundred House. *A. exclamationis* L., Hundred House; Newbridge; Llandeilo; Rhosgoch. *Lycophotia varia* de Vill., Hundred House, 2; Llandeilo, ca. 350, including many brightly-marked forms; Newbridge; Rhosgoch. *Graphiphora augur* Fab., Hundred House, 6; Newbridge, 4; Rhosgoch, 8; almost all taken at a 6W actinic tube. *Diarsia brunnea* D. & S., Hundred House; Newbridge; Rhosgoch. *D. mendica* Fab., Llandeilo, abundant, including many very small examples; Hundred House; Newbridge; Rhosgoch. ?*D. rubi* View., Newbridge, 19.7, 2; Rhosgoch, 23.7, 5, all worn: probably referable to f. (?sp.) *florida* Schmidt. *Ochropleura plecta* L., Hundred House; Newbridge; Llandeilo; Rhosgoch. *Amathes baja* D. & S., Hundred House; Newbridge; Llandeilo; Rhosgoch—common and extremely variable in ground colour. *A. c-nigrum* L., Hundred House; Rhosgoch. *A. ditrapezium* D. & S., Hundred House, 14; Newbridge, 13; Llandeilo, 4; Rhosgoch, 3—apparently a common insect. *A. triangulum* Hufn., Hundred House; Newbridge; Rhosgoch. *Axylia putris* L., Hundred House; Newbridge; Rhosgoch. *Anaplectoides prasina* D. & S., Hundred House; Newbridge; Rhosgoch. *Euschesis janthina* D. & S., Hundred House. *Noctua pronuba* L., Hundred House; Newbridge; Llandeilo; Rhosgoch. *Lampra fimbriata* Schreber, Newbridge; Rhosgoch. *Anarta myrtilli* L., Llandeilo, larva on *Calluna*. *Melanchra persicariae* L., Newbridge; Rhosgoch. *Polia nebulosa* Hufn., Hundred House; Newbridge, including one very pale specimen. *Diataraxia oleracea* L., Hundred House; Newbridge; Rhosgoch. *Ceramica pisi* L., Hundred House, including almost obsolete forms; Newbridge; Llandeilo; Rhosgoch. *Hada nana* Hufn., Llandeilo, 1. *Hadena thalassina* D. & S., Hundred House, 1; Newbridge, 1. *H. rivularis* Fab., Newbridge. *Cerapteryx graminis* L., Hundred House, plentiful at 700 ft., scarce at higher, sheep-grazed levels; Newbridge. *Leucania pallens* L., Hundred House; Newbridge; Llandeilo; Rhosgoch. *L. impura* Hubn.,

Hundred House; Newbridge; Rhosgoch. *L. straminea* Treits., Newbridge, very plentiful amongst *Phragmites*. *L. lithargyria* Esp., Hundred House; Newbridge. *Cucullia umbratica* L., Newbridge, 3; Rhosgoch, 2. *C. verbasci* L., Aberedw, roadside *Verbascum* plants mostly destroyed by larvae. *Xylena vetusta* Hubn., Rhosgoch, a larva. *Bombycia viminalis* D. & S., Hundred House; Newbridge; Rhosgoch. *Apatele leporina* L., Moelfre, 2 larvae on *Alnus glutinosa*. *A. megacephala* D. & S., Hundred House; Newbridge. *A. alni* L., 21.7, Newbridge, 1 melanic ab. *steinerti* Caspari. *A. psi* L., Llandeilo, ♂; Newbridge, ♂; both gen. det. LKE. *A. rumicis* L., Hundred House; Newbridge. *Craniophora ligustri* D. & S., Hundred House, 18.7, ♀. *Rusina ferruginea* Esp., Hundred House, 20.7, 1. *Apamea lithoxylea* D. & S., Hundred House; Newbridge; Rhosgoch. *A. monoglypha* Hufn., Hundred House; Newbridge; Llandeilo; Rhosgoch. *A. epomidion* Haw., Hundred House, 1. *A. crenata* Hufn., Hundred House, common and variable; Newbridge; Rhosgoch. *A. remissa* Hubn., Hundred House, 2 at 950 ft., 2 at 700 ft.; Newbridge, 6; Rhosgoch, 5. *A. furva britannica* Cockayne, Hundred House, 7 at 1,050 ft., 1 at 950 ft.; Llandeilo, 1 at 1,200 ft. *A. scolopacina* Esp., Newbridge, 4; Hundred House, 3. *A. secalis* L., Hundred House; Newbridge; Rhosgoch. *Procus strigilis* Clerck, Hundred House, ♂; Newbridge, 2 ♂♂, gen. det. LKE. *P. latruncula* D. & S., Newbridge, 3 ♂♂; Llandeilo, ♂; Hundred House, ♂; all gen. det. LKE. *P. versicolor* Borkh., Newbridge, 3 ♂♂, ♀; Llandeilo, ♂; Hundred House, ♂; all gen. det. LKE. *P. fasciuncula* Haw., Newbridge. *Euplexia lucipara* L., Hundred House; Newbridge. *Phlogophora meticulosa* L., Hundred House; Rhosgoch. *Petilampa minima* Haw., Hundred House; Newbridge; Rhosgoch. *Caradrina morpheus* Hufn., Rhosgoch. *C. alsines* Brahm., Newbridge; Hundred House, uncommon. *C. blanda* D. & S., Hundred House; Newbridge, plentiful, including 1 heavily suffused specimen. *C. clavipalpis* Scop., Hundred House, 1. *Nonagria typhae* Thunb., Newbridge, larvae in *Typha latifolia*. *Cosmia trapezina* L., Rhosgoch. *Euclidimera mi* L., Hundred House, a larva amongst grasses. *Polychrisia moneta* Fab., Newbridge, 19.7, 1. *Plusia chrysitis* L., Hundred House; Newbridge; Llandeilo. *P. bractea* D. & S., Newbridge, 3; Hundred House, 2. *P. festucae* L., Hundred House, 1; Newbridge, 6; Rhosgoch, 7. *P. jota* L., Hundred House; Newbridge; Llandeilo; Rhosgoch—generally abundant, with much variation in ground colour and the development of the Y-mark. *P. pulchrina* Hubn., Hundred House; Newbridge; Llandeilo, especially common; Rhosgoch—much variation in the development of the Y-mark. *P. gamma* Hubn., Hundred House, 18.7, 1, 22.7, 1; Newbridge, 19.7, 2; Rhosgoch, 23.7, 5. *P. interrogationis* L., Llandeilo, 1; Rhosgoch, 1. *Unca triplasia* L., Hundred House; Newbridge; Rhosgoch. *Lygephila pastinum* Treits., Hundred House, 1; Newbridge, 3. *Rivula sericealis* Scop., Hundred House; Newbridge; Llandeilo; Rhosgoch, abundant. *Hypena proboscidalis* L., Hundred House; Newbridge. *Zan-*

clognatha tarsipennalis Treits., Newbridge. *Z. nemoralis* Fab., Hundred House; Newbridge.

Geometroidea

Hemistola immaculata Thunb., Rhosgoch, 1. *Geometra papilionaria* L., Hundred House; Newbridge; Rhosgoch. *Pseudopterpna pruinata atropunctaria* Walker, Hundred House; Newbridge; Littlehill Common; Rhosgoch; Llandeilo. *Calothysanis amata* L., Hundred House. *Sterrha dimidiata* Hufn., Hundred House; Newbridge. *S. straminata* Borkh., Hundred House, 18.7, 1. *S. aversata* L., Hundred House; Newbridge; Llandeilo. *S. biselata* Hufn., Hundred House; Newbridge. *Xanthorhoë montanata* D. & S., Rhosgoch, 23.7, abundant and in very fresh condition. *X. ferrugata* Clerck, Hundred House; Newbridge. *X. spadicearia* D. & S., Hundred House. *X. designata* Hufn., Newbridge, 2. *Orthonama lignata* Hubn., Rhosgoch, 5. *Orthonama plumbaria* Fab., Llandeilo; Littlehill Common, abundant. *Colostygia pectinataria* Knoch., Hundred House; Newbridge; Llandeilo; Littlehill Common; Moelfre; Rhosgoch. *Perizoma alchemillata* L., Newbridge, 2. *Lyncometra ocellata* L., Hundred House; Newbridge. *Lygris pyraliata* D. & S., Hundred House; Newbridge; Llandeilo; Littlehill Common; Rhosgoch, very abundant. *L. populata* L., Newbridge, 3; Rhosgoch, 1; Llandeilo, swarming at dusk over *Vaccinium myrtillus*. *L. testata* L., Llandeilo, reared from larvae found on *Vaccinium* and *Calluna*. *Cidaria fulvata* Forst., Newbridge. *Thera obeliscata* Hubn., Newbridge, 1. *Hydriomena furcata* Thunb., Hundred House; Newbridge; Rhosgoch. *Odezia atrata* L., Hundred House, 21.7, by day, ♀. *Epirrhoë alternata* Mull., Hundred House; Newbridge; Littlehill Common; Rhosgoch. *Eupithecia pulchellata* Steph., Hundred House. *E. nanata angusta* Prout, Llandeilo, 20.7, 1. *E. castigata* Hubn., Llandeilo. *E. lariciata* Freyer, Newbridge, 19.7, 1, and two "probables". *Chloroclystis rectangulata* L., Hundred House, 1, melanic. *C. coronata* Hubn., Newbridge. *Gymnoscelis pumilata* Hubn., Hundred House; Rhosgoch. *Abraxas grossulariata* L., Hundred House; Newbridge. *Lomaspilis marginata* L., Hundred House; Newbridge; Llandeilo; Rhosgoch. *Deilinia pusaria* L., Hundred House; Newbridge; Rhosgoch. *D. exanthemata* Scop., Newbridge, 3. *Ellopia fasciaria* L., Hundred House, 1; Llandeilo, 1; Newbridge, commonly. *Campaea margaritata* L., Hundred House; Newbridge, plentiful; Rhosgoch. *Selenia bilunaria* Esp., Hundred House; Rhosgoch. *Apeira syringaria* L., Newbridge, 21.7, 1. *Crocallis elinguaria* L., Hundred House; Newbridge. *Ourapteryx sambucaria* L., Hundred House; Newbridge; Rhosgoch. *Opisthograptis luteolata* L., Newbridge; Llandeilo. *Semiothisa liturata* Clerck, Hundred House; Newbridge, abundantly; Llandeilo. *Biston betularia* L., Hundred House; Newbridge; Llandeilo; Rhosgoch—a total of 8 type specimens, and 1 f. *insularia*. *Alcis repandata* L., Hundred House; Newbridge; Rhosgoch. *Bupalus piniaria* L., Newbridge, 2. *Itame wauaria* L., Newbridge, 1;

Rhosgoch, 1.

Zygaenoidea

Zygaena trifolii Esp. (ssp. *decreta* Vty.), Newbridge, 1, very large specimen. *Z. lonicerae transferens* Vty., Rhosgoch, 1.

Hepialoidea

Hepialus humuli L., Hundred House, commonly, including empty pupa case projecting from anthill; Aberedw; Newbridge, ♂♂ at dusk. *H. fusconebulosa* de Geer., Llandeilo, 4 at dusk; Hundred House, 1; New Radnor—2 pupa cases projecting from a mossy bank. *H. hecta* L., Hundred House, 17.7, ♂ at dusk.

MICROLEPIDOPTERA

(det. J. M. Chalmers-Hunt unless otherwise indicated)

Crambus perlellus Scop. (det. LKE), Newbridge. *C. tristellus* Fab., Hundred House; Rhosgoch. *C. culmellus* L., Newbridge; Llandeilo; Hundred House; New Radnor; Ddôl; Littlehill Common—occurring in swarms wherever the grass escaped grazing. *C. inquinatellus* D. & S., Hundred House, abundant; Newbridge; Llandeilo; Littlehill Common; New Radnor. *C. hortuellus* Hubn., Newbridge; Llandeilo; Rhosgoch. *C. pascuellus* L., Hundred House; Littlehill Common; Newbridge. *C. margaritellus* Hubn., Rhosgoch, 1. *Aphomia sociella* L. (det. LKE), Hundred House; Newbridge; Llandeilo. *Sylepta ruralis* Scop. (det. LKE), Hundred House; Newbridge; Rhosgoch. *Harpalis olivalis* D. & S. (det. LKE), Hundred House; Rhosgoch. *H. lutealis* Hubn., Hundred House; Llandeilo; Aberedw. *H. prunalis* D. & S., Newbridge. *Rhodaria purpuralis* L., Hundred House, 22.7, 1. *R. cespitalis* D. & S., Newbridge, 1. *Pyralis costalis* Fab., Hundred House. *Nomophila noctuella* D. & S., Newbridge, 21.7, several. *Dioryctria abietella* Fab., Newbridge, 1. *D. fusca* Haw., Newbridge, 1. *Platyptilia pallidactyla* Haw., Rhosgoch, 23.7, 2. *Stenoptilia bipunctidactyla* Scop. (det LKE), Rhosgoch, 3. *Alucita pentadactyla* L., Newbridge.

Tortrix unifasciana Dup., Hundred House, ♀. *T. loeflingiana* L., Llandeilo; Newbridge. *T. viridana* L. (det. LKE), Newbridge. *Pandemis heparana* D. & S., Hundred House; Llandeilo; Rhosgoch. *P. corylana* Fab., Hundred House. *P. ribeana* Hubn., Hundred House, 22.7, 1. *Carcina quercana* Fab., Newbridge. *Cacoecia podana* Scop., Newbridge. *C. xylosteana* L., Newbridge. *Philedone gerningana* D. & S., Littlehill Common, 21.7, 2. *Argyroploce lacunana* Dup., Hundred House; Newbridge; Aberedw; Llandeilo. *A. nubiferana* Haw., Hundred House; Newbridge; Llandeilo; Rhosgoch. *A. striana* D. & S., Newbridge, 19.7, 1. *Argyrotoxa bergmanniana* L., Newbridge; Rhosgoch. *A. conwagana* Fab., Llandeilo; Aberedw; Hundred House; Newbridge; Rhosgoch. *Laspeyresia ulicetana* Haw., Newbridge; Ddôl, many amongst *Ulex*. *L. woeberiana* D. & S., Rhosgoch. *Euxanthis hamana* L., Hundred House. *E. angustana* Hubn., Ddôl. *Bactra lanceolana* Hubn., Rhosgoch. *Acroclita*

naevana Hubn., Llandeilo. *Cnephasia osseana* Scop., Llandeilo, very numerous; Newbridge; Rhosgoch.

Sophronia semicostella Hubn., Hundred House. *Acedes semifulvella* Haw., Newbridge. *Pleurota bicostella* Clerck., Llandeilo, 20.7, several. *Endrosis sarcitrella* L., Hundred House, in dwellings and at m.v.l. *Borkhausenia pseudospretella* Staint., Rhosgoch *Argyresthia goedartella* L., Littlehill Common, many flying around isolated birches; Llandeilo.

TRICHOPTERA

(All det. P. E. S. Whalley)

All taken at m.v.l.

Limnephilus luridus Curt., Rhosgoch, 4. *L. centralis* Curt., Rhosgoch, 1; Hundred House, 1. *L. lunatus* Curt., Hundred House, 1; Llandeilo, 1; Rhosgoch, 2; *L. auricula* Curt., Hundred House, 2. *L. sparsata* Curt., Hundred House, 1. *Glyphotaelius pellucidulus* Retz., Rhosgoch, 1. *Polycentropus flavomaculatus* Pictet, Rhosgoch, 1. *Athripsodes dissimilis* M'Lach., Newbridge, 1. *Oecetis testacea* Curt., Newbridge, 1. *Lepidostoma hirtum* Fab., Hundred House, 1; Newbridge, 1. *Stenophylax sequax* M'Lach., Hundred House, 1. *Potamophylax latipennis* Curt., Hundred House, 2; Newbridge, 1. *Hydropsyche instabilis* Curt., Hundred House, 1; Newbridge, 1; Rhosgoch, 4. *H. pellucidula* Curt., Rhosgoch, 1.

NEUROPTERA

(det. P. E. S. Whalley)

Hemerobius stigma Steph., Newbridge, 1; Rhosgoch, 1.

COLEOPTERA

(det. E. Lewis unless otherwise indicated)

Tachinus marginellus Fab., Hundred House, swept. *Sitona puncticollis* Steph., Hundred House, 22.7, 3 in an m.v. trap. *Phyllobius virideaeris* Laich., Aberedw, on *Linaria vulgaris*. *Rhinoncus pericarpius* L., Hundred House, on thistles. *Ceuthorrhyncus* sp (*?asperifoliarum* Gyll.), Hundred House, on thistle. *Gymnetron antirrhini* Pk., Aberedw, numerous on *Linaria vulgaris*; Newbridge. *Phytonomus rumicis* L., Hundred House, 18.7, a pupa, reared 29.7.

Aphodius rufipes L., Hundred House; Newbridge; Llandeilo; Rhosgoch, abundant at light. *A. fimetarius* L., Hundred House, 22.7, 2 at m.v.l. *Serica brunnea* L., Llandeilo, 20.7, found very abundantly after dark with the aid of a lantern, crawling over grazed grassy patches on a *Calluna* moor, many pairs *in copula*. *Helophorus minutus* Fab., New Radnor, 2 on the wall of an Inn; Hundred House, 1 under a stone in a small stream.

Carabus granulatus L., Hundred House, 1 on the front doormat. *C. problematicus* Hubn. (det. L. H. Evans), Hundred House, under moth trap, 22.7. *Notiophilus biguttatus* Fab., New Radnor, numerous on a mossy bank. *Nebria brevicollis* Fab., Hundred House; Newbridge; Llandeilo. *Pterostichus madidus*

Fab., Hundred House; Llandeilo. *P. niger* Schal., Hundred House; *P. vulgaris* L., Hundred House. *Agonum mülleri* Hbst., Llandeilo, 1.

Gastroidea viridula de Geer, Aberedw, on *Linaria vulgaris*. *Luperus longicornis* Fab., Hundred House, Rhosgoch. *Gallerucella lineola* Fab., Rhosgoch, 2 swept. *Aphthona venustula* Kuts., Hundred House, swept. *Cantharis fulvicollis* Fab., Rhosgoch, swept. *Anobium punctatum* D.G., Hundred House, in buildings.

Trichius fasciatus L., Hundred House, 17.7, 2 flying in bright sunshine, netted in error for the bee *Bombus muscorum* L. *Necrodes littoralis* L., Hundred House, 22.7, 3 at m.v.l. *Necrophorus investigator* Zett., Newbridge, at m.v.l. *Attagenus pellio* L., Hundred House. *Telmatophilus typhae* Fall., Newbridge, on *Typha latifolia*. *Lathridius nodifer* West, New Radnor, 1 on the wall of an Inn.

Cassida rubiginosa Mull. (det. L. H. Evans), Hundred House, larvae on thistle, bred. *Coccinella septempunctata* L. (det. L. H. Evans), Hundred House. *Anisosticta* 19-*punctata* L., Rhosgoch, swept from alders. *Cateretes rufilabris* Lat., Newbridge, on *Linaria vulgaris*.

DIPTERA

(All det. P. J. Chandler)

Xylota sylvarum L., Newbridge. *Scaeva pyrastri* L., Hundred House. *Hybomitra distinguenda* Verr., Newbridge. *Platycheirus albimanus* F., Newbridge. *Eristalis arbustorum* L., Rhosgoch. *Haematopota pluvialis* L., Rhosgoch. *Hydrotaea irritans* Fall., Llandeilo; Littlehill Common. *Pallenia vespillo* F., Rhosgoch. *Empis livida* L., Rhosgoch. *Chrysopilus cristatus* F., Rhosgoch. *Anisopus punctatus* F., Hundred House. *Scatophaga stercoraria* L., Hundred House. *Campylochaeta inepta* Meig., Llandeilo. *Delia trichodactyla* Rdi., Rhosgoch. *Copromyza similis* Collin, Rhosgoch. *Nupedia infirma* Meig., Newbridge. *Tipula lateralis* Meig., Hundred House.

HYMENOPTERA

Bombus muscorum L. (det. P. N. Crow), Hundred House. *Tenthredo balteata* Klug., Llandeilo, ♀. *Athalia lineolata* Lep., Llandeilo (both det. P. J. Chandler).

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31 Havelock Road, Croydon, SY. June 1972.

A Holiday in or near the Western Alps in June-July 1971, with notes on the Lepidoptera

By E. P. Wiltshire

Synopsis

Visits to the Alandon valley, Geneva (SWITZERLAND), the Aravis range, Haute Savoie, (FRANCE), the Val d'Aoste and southern slopes of Mont Blanc (ITALY), the Col Petit St Bernard (FRANCE) and mountains near the Lac du Bourget, Savoie (FRANCE), are described. A severe infestation of a large *Prunus padus* tree by *Hypomeuta evonymella* Lewis, the capture of *Parnassius phoebus sacerdos* Stichel males, and the occurrence of *Epilobophora sabinata* Hübner in that part of Italy are mentioned in the course of a general narrative. 160 Rhopalocera and Macro-Heterocera are listed at the end.

Narrative

Having made hotel reservations at Col de la Croix Fry near Manigod (Haute Savoie) and at Entrèves, near Courmayeur (Italy, south of Mt. Blanc), my wife and I left Normandy by car on 14th June and drove to Geneva in two days, breaking our journey at Macon, where we left the Autoroute du Sud. At Geneva we stayed with friends and during five days I did no entomology except for a visit to the Alandon valley in the Geneva canton, a favoured spot where a number of southern species, found nowhere else in Switzerland, fly. A prolonged search on 16th July on *Scrophularia canina* showed that *Cucullia* larvae were scarce and half-grown at most. The larva of one species, obviously *C. verbasci* L., was not kept, but photographs were made of the other, believed to be *C. caninae* Ramb. Unfortunately an ichneumon, instead of a moth, emerged in 1972.

Manigod is a small village on a minor road not far from the charming little town of Thônes. It is separated from the winter sports resort of Clusaz by the Col de la Croix Fry, c. 1450 m. Right on the col, quite alone, stands the hotel Les Rosières at which we had booked: it is an alpine-chalet-type of construction of three or four stories, surrounded by wet meadows and forest. For shopping one has to go to Clusaz, Grand Bornand or Thônes itself; at this season we had it to ourselves, and I worked a mixed light on the main current on our hotel balcony the first three nights of our short stay. The weather was fine and calm until our last night, when it rained heavily. For the diurnals, we worked the neighbourhood and towards the higher slopes at 1570 m. of the Aravis range, on foot, or descended by car to the neighbourhood of Thones. The cattle had just moved up to the higher slopes and were the dominant mammal there; but in the forest there

were some clearings where the low vegetation was less monotonously graminaceous, and we took such species as *Heodes tityrus subalpinus* Speyer, *Callophrys rubi* (L.) and *Erebia oeme* Huebn. Larvae of *Malacosoma alpicola* Stgr. were found on *Polygonum bistorta* but later had to be transferred to *Salix viminalis*: the moths emerged in mid-July.

The lower slopes near Thônes were decidedly more productive for diurnals but were too far to work by night. On dry, slatey slopes at La Vacherie, not far from Thônes, a great many butterflies were on the wing on 22nd June, including *Parnassius appolo* (L.), *Papilio machaon* L., *Mesoacidalia agaja* (L.) and *Aricia a. allous* Geyer. This district is a frontier zone between *Pyrgus malvae* (L.) & *malvoides* (E. & Ed.) whence hybrids have been reported, but the only Grizzled Skipper seen was a ♀ *Spialia sertorius* (Hoffm.). I was thus unable to advance further the study of these forms started in 1963-7 as resumed in Wiltshire-de Bros 1966. About eight species of diurnal moth were also seen flying on these slopes, including the charming little *Sterrha serpentata* Hufn., and *Zygaena loti* D. & S.

Among the many nocturnal species attracted to the mixed light at the Col, was *Athętis pallustris* Hübn., which is common to light on damp high biotopes in the Alps, very different from its few English localities; also two large grey *Cucullia* forms, *C. campanulae* Freyer & *chamomillae* D. & S. and two *Gnophos* species, *G. glaucinarius* Hübn. & *ambiguatus* Dup.

On 25th June we drove towards Chamonix, noticing *Aporia crataegi* L. was common around a petrol station in the gorge at Le Chatelard, drove through the Mont Blanc tunnel and thus easily reached our destination at Entrèves, situated at a height of 1400 m. at the head of the Val d'Aoste, just below the tunnel-exit, with the glaciers and peaks of the Mont Blanc massif towering overhead. We had booked at the Hotel Esso on the main road just below Entrèves village, as the more ordinary hotels at Courmayeur, a little lower down, could not book us for the whole period desired, due to an Italian week-end with a Monday bank holiday, on which enormous crowds appeared all over the place, and the Esso was the only one able to do so.

Being at Entrèves had some advantages, for the situation gave quick access to many splendid localities at both higher and lower elevations; but on the other hand, strong winds blew down the valley every night to the detriment of possible night work. A short descent in the car, however, as far as Verrand or Palusieux, brought one to sheltered and rich habitats where the actinic tube, working on the car battery, was productive.

The highest locality visited was Mt. Pretty, 2200 m., above La Palud; it was the first stop on the cabin-ski-lift to the ski-stations on top, and we went there in the cabin on 2nd July and walked down the steep and rather hair-raising path below

the cables. At the top, near the station "Pavillon", *Erebia triaria* de Prunn. and *E. pluto* de Prunn. were perhaps the most interesting catches; males of *Lasiocampa quercus* (L.) doubtless subsp. *alpina* Freyer, and *Parasemia plantaginis* (L.) f. *matronalis* Freyer were active, the former very elusive, and full-grown larvae of *Malacosoma alpicola* were found too. From 2000 m. downwards the trees began and a greater variety of diurnals was noted, *Papilio machaon alpica* Verity bing particularly active and fresh, and *Eumedonia eumedon* (Esper) fewer and less obvious. A ♂ *Euchloe ausonia* Hübner was taken together with a ♀ *Anthocharis cardamines* (L.) which it was perversely courting.

The highest points accessible by car from Entrèves were the two lateral valleys at the head of the Val d'Aoste, running at the foot of the Mt. Blanc massif, Val Veny westwards, and Val Ferret eastwards. For lepidoptera the latter was more rewarding, with males of *Parnassius phoebus* ssp. *sacerdos* Stitchel crossing the road and easy to catch on 3rd July near the golf course at c. 1600 m. On flowery slopes close to La Palud at c. 1500 m. *Maculinea arion obscura* Christ. and *Erebia alberganus* de Prunn were abundant on 26th June. By the roadside above this village at c. 1550 m., an extraordinary sight revealed itself to passing travellers: a large tree of *Prunus padus* severely affected by larvae of *Hyponeuta evonymella* Lewis. It was some thirty feet high and entirely encased in a mummy-like white shroud with dangling festoons of desperate larvae trying to find further food. A few of these had spread their webs to bushes at the tree's foot; but these, not being *Prunus padus,* were not to their taste and hardly nibbled. A few larvae were taken as samples and the six imagines hatched between 18th and 22nd July. At 1700 m. in the Val Ferret *Pieris napi bryoniae* Hübn., *Pyrgus malvoides* El. & Ed., *Aricia a. allous* Geyer and *Eumedonia eumedon* (Esper) were among the many diurnals taken, and *Lasiommata petropolitana* (F.), mostly in poor condition, was common from Entrèves itself up to 2000 m. *E. alberganus* was found equally commonly, below Courmayeur at 1200 to 1500 m.

In the Val d'Aoste itself *Parnassius apollo* was amazingly common at 1100-1200 m.: and not very far from Aosta itself, at about 740 m., the fine arge 5-spotted *Zygaena transalpina* race *italica Dz.* was flying with an assortment of "fritillaries". *Aricia agestis* D. & S. and *Lasiommata maera* (L.) As for night work in the Val d'Aoste below Courmayeur, light on 29th June at c. 1200 m. near the woods of Verrand was quite attractive, producing *inter alia Agrotis simplonia* Geyer, *Tethea or* F., and *Auchmis comma* D. & S.; but the night of 3rd July at c. 1100 m. between woods, cultivation and a motor-road near Palusieux was better: *Thetidia smaragdaria* (F.) and *Sterrha humiliata* Hufn. were flying commonly at dusk and sunset respectively, and after dark the actinic tube attracted many species, notably *Epilobophora sabinata* Huebner, which

I have not seen anywhere mentioned from Italy though it is known from its special middle height habitats in Austria, Switzerland and France; only one example of it appeared; those that came to light commonly included *Pharetra euphorbiae* D. & S., *Rhodostrophia calabra* Pat., and *Catascia serotinaria* D. & S.; to light but less commonly also came *Dyspessa ululа* Borkh., *Hadena uteago* D. & S., *Pachetra sagittifera* Hufn., etc.

On 5th July we said goodbye to Italy and drove over the Petit St Bernard Col into the Haue Savoie. The weather inclined to be cloudy with light showers; but a few catches were made on the French side of the Col. The first such locality was at 2050 m., and *Calostigia lineolata* F. (=*turbata* Huebn) was abundant in the shelter of rocks on the roadside: on the grassy slopes at this point, when the sun appeared, *Colias palaeno europome* Esper and *Psolos quadrifaria* Sulz. and males of *Parasemia plantaginis* (L.) were caught, the latter being the typical form with less black hind-wings than those taken a few days before on the slopes of Mont Blanc. Lower down, at 1775 m., just below the tree-line, *Erebia alberganus* appeared again flying in meadows, but the sunlight was short-lived, so we pushed on towards our destination at the Lac du Bourget, in the more westerly mountains of the Savoy. A tremendus storm burst upon us near Chambéry, causing serious floods and damage higher up, but not impeding us. We stayed two nights in the hotel we had selected from the Michelin Guide, namely "Ombremont" on the steep western shores of the lake. It was comfortable and beautifully situated, but our first night's sleep was ruined by a wedding-party. This was just a pause on our homeward journey; but as 6th July was fine we sampled the diurnal lepidoptera of the Mt. de la Chavaz, and here too we found the Fritillaries abundant at c. 1100 m. We did no night work, beyond catching a Noctuid at our hotel, being too far from the Chatagne marshes, which would probably have provided the most interesting assortment of moths in the Savoy, as Mons. C. Dufay's recent work there has shown.

On the 7th July we drove through some magnificent gorges, joined the Autoroute du Sud near Macon, and broke our journey at the picturesque town of Avallon. We arrived home in Normandy on 8th July.

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LIST IF LEPIDOPTERA TAKEN OR OBSERVED, JUNE-JULY 1971 IN OR NEAR WESTERN ALPS

Abbreviations for localities

AL. Alandon, Genève, 450 m., SWITZERLAND.

Ch. Chatelard, near Chamonix, 700 m., Hte Savoie, FRANCE.

Col C. Col Croix Fry, Manigod, 1450 m., Savoie, FRANCE.

Col P. Col Petit Saint Bernard, 250 m., Hte Savoie, FRANCE.

En. Above Entrèves, especially Val Ferret, 1500-2000 m., south of Mont Blanc, ITALY.

On. Ontex, Mt. Chavaz, 1100 m., near Bourget du Lac, FRANCE.

P.Bo. Petit Bornand, Bargy chain, 700 m., Hte Savoie, FRANCE.

Ros. Rosières, near Col P., 1775 m., Hte Savoie, FRANCE.

Tho. Lac Vacherie, near Thônes, 700 m, Hte Savoie, FRANCE.

Val. Below Courmayeur, Val d'Aoste, 740-1200 m., particularly Palusieux, 1100 m., ITALY.

[ ] seen and identified but not taken.

[*Papilio machaon* (L.) (subsp. ?) Col C., Tho.]
Parnassius apollo (L.) Val
phoebus (F.) subsp. *sacerdos* Stichel En.
[*Aporia crataegi* (L.) Ch., En., Tho., Val.]
[*Pieris brassicae* (L.) En.]
napi (L.) ssp. ? Col C. ssp. *bryoniae* Hübn. En., Col P.
Euchloe ausonia Hübn. En.
Anthocharis cardamines (L.) Al., En., P. Bo.
Colias phicomene Esp. En.
palaeno europome Esp. Col P.
hyale (L.) Col C., En., Tho
[*Gonepteryx rahmni* (L.) On., Val]
Leptidea sinapis (L.) En., On., Val.
Limenitis camilla (L.) Al., Val.
Nymphalis polychloros (L.) Val.
Polygonia c-album (L.) On.
Aglais urticae (L.) Col C., Col P., En.
Mesoacidalia aglaja (L.) On., Tho.
Brenthis daphne D. & S. Val.
ino Rott. On.
Cucullia chamomillae D. & S. Col C.
campanulae Freyer Col. C.
(?) *caninae* Freyer larvae Al.
[*verbasci* (L.) larvae Al.]
Blepharita adusta Esp. Col C., Val.
Apatele psi (L.) Col C.
Pharetra euphorbiae D. & S. Col C., Val.
auricoma D. & S. Col C.
Hyppa rectilinea Esp. Col C.
Auchmis comma D. & S. Val.
Actinolia hyperici D. & S. Val
Apamea sublustris Esp. Val.
zeta curoi Calb. Val.
sordens Hufn. Col C.
Mesapamea secalis (L.) Col C.
Oligia strigilis (L.) Col C., Val.
latruncula D. & S. Col C.
Caradrina morpheus Hufn Val.
flavirena Guenee Val.
Hoplodrina blanda D. & S. Val.
Athetis pallustris Hübn. Col C.
Pyrrhia umbra Hufn. Val.
Jaspidia deceptoria Scop. Tho.
Colocasia coryli (L.) Col C.

Clossiana euphrosyne (L.) Col C., En., P. Bo.
dia (L.) On.
Melitaea phoebe D. & S. Val.
didyma Esp. On., Val.
diamina Lang En, Val.
Mellicta athalia celadussa Fruh. En., On., Tho.
parthenoides Kef. Val.
Euphydryas aurinia debilis Ob. En.
Melanargia galathea (L.) Al., Tho., Val.
Erebia triaria de Prun. En.
medusa (L.) Al.
alberganus de Prun. En., Ros., Val.
oeme Huebn. Col C., Tho.
pluto de Prun (*oreas* Warr.) En.
[*Maniola jurtina* (L.) Al., On., Val.]
Coenonympha pamphilus (L.) Al. En., Ros.
arcania (L.) En., Val.
gardetta de Prun En.
Lasiommata maera (L.) Tho., Val.
petropolitana (F.) En.
Callophrys rubi (L.) Col C., En., Tho.
Heodes virgaureae (L.) Ch.
tityrus subalpinus Speyer Col C., Ros.
Cupido minimus Fuessly Col C., En., Val., P. Bo.
Celastrina argiolus (L.) On.
Maculinea arion obscura Christ. En.
Aricia agestis D. & S. Val.
artaxerxes allous Geyer En., Tho.
Cyaniris semiargus Rott. En., Tho.
Lysandra bellargus Rott. Val.
Polyommatus icarus (L.) Val.
Pyrgus malvoides El. & Ed. Col P., En.
Spialia sertorius Hoffm. Tho.
Erynnis tages (L.) Col C., En.
Ochlodes venatum Br. & G. Val.
Pergesa porcellus (L.) Col C.
Plusia chrysitis (L.) Col C.
[*Autographa gamma* (L.) Val.]
Chrysaspidia bractea (D. & S.) Col C.
Autographa v-aureum Hübn Col C.
Phytometra viridaria Clerck Col C.
Ectypa glyphica (L.) Col C.
Herminia tentacularia (L.) P. Bo.
Spargania luctuata D. & S. Col C., En.
Entephria caesiata D. & S. Col C.
cyanata Hübn. Col C.
Calostigia aptata Hübn. En.
laetaria Lah. En.
Calostigia lineolata F. (=*turbata* Hübn.) Col C., Col P.
Lampropteryx suffumata D. & S. Col C.
Diactinia silaceata D. & S. Col C.
Chloroclysta miata (L.) Col C.
citrata (L.) Col C.
Cidaria fulvata Forster Val.
Thera obeliscata Hueb. Col C.
Hydriomena coeruleata F. Col C., Val.
Horisme calligraphata H.-S. En.
Pareulype berberata D. & S. Val.
Rheumaptera hastata (L.) Col C.
Euiithecia venosata F. Col C. Val.
lariciata Freyer, Val.
vulgata Haw., Val.
(?) *subumbrata* D. & S., Val.
Perizoma albulata D. & S. Col C., En.
Xanthorhoe spadicearia D. & S. Col C., Val.
incursata Huebn. Col C.
Catarhoe cucullata (Hufn) Col C.
Epirrhoe tristata (L.) Col C., En.
molluginata Huebn. Col C., En.
galiata D. & S. Val.
Anaitis praeformata Huebn. Col C.
Odezia atrata (L.) Val.
Scotopteryx vicinaria Dup.
Epilobophera sabinata Hübn. Val.

Malacosoma alpicola Stgr. (larvae) Col C., En.
[*Lasiocampa quercus* (L.) (?) ssp. *alpina* Freyer En.]
Cerura vinula (L.) Col C.
Clostera curtula (L.) Col C.
Agrotis simplonia Geyer Val.
exclamationis (L.) Val.
Ochropleura plecta (L.) Col C.
Noctua comes Huebn. On.
Anaplectoides prasina D. & S. Col C.
Hada nana Hufn. Col C., Val.
Polia bombycina Hufn (=Aplecta *advena* D. & S.) Val.
Pachetra sagnittifera Hufn. Col C., Val.
Sideridis evidens Huebn. Val.
Heliophobus reticulata Goeze Val
Mamestra pisi (L.) Col. C.
bi-ren Goeze (*glauca* Hübn.) Col C., Val.
dysodea D. & S. Val.
Hadena luteago D. & S. Val.
irregularis Hufn. Val.
Mythimna conigera D. & S. Col C. Val.
comma (L.) Col C.
Sterrha humiliata Hufn. Val.
serpentata Hufn. Tho.
aversata (L.) Val.
inornata Haw. Val.
Scopula immorata (L.) Tho.
incanata (L.) Val.
Rhodostrophia calabra Pat. Val.
Lomaspilis marginata (L.) Col. C.
Semiothisa liturata Clerck Col C.
clathrata (L.) Col C. [En.]
Selenia bilunaria Esp. Col C.
Gonodontis bidentata Clerck Col C.
Alcis repandata (L.) Col C., Val.
Gnophos ambiguatus Dup Col C.
glaucinarius Hübn. Col C. Val.
Catascia serotinaria D. & S. Val.
Psolos quadrifaria Sulzer Col P.
Thetidia smaragdaria (Fab) Val.
Eilema complana (L.) (larva) Val.
Parasemia plantaginis (L.) f. typ. Col P.
f. *matronalis* Frr En.
Diacrisia sannio (L.) Tho.
Spilosoma lucricipeda (L.) Col C.
lutea Hufn. Col C.
Zygaena transalpina Esp. ssp *italica* Dziurz. Val.
Dypessa ulula Borkh. Val.
Hepialus humuli L. Col C.
Hypomeuta evonymella Lewis En

On the Nest of *Halictus (Seladonia) jucundus komensis* Cockerell (Hymenoptera: Apoidea, Andrenidae)

G. R. Cunningham—van Someren

Synopsis

A description, with figure, is given of the nest, cells and contents of the Social Bee *Halictus* (*Seladonia*) *jucundus komensis Cockerell* from Karen near Nairobi, Kenya.

Introduction

Halictus (*Seladonia*) *jucundus* Smith is widespread in Africa from the Cape to Southern Rhodesia and Zanzibar. Cockerell (1937). Cockerell (1939) described the subspecies *komensis* from the east end of Kome Island, North West

Victoria Nyanza, from material collected by G. D. Hale Carpenter on 12th January, 1929. In the British Museum, Natural History, named collection there are specimens taken by Dr V. G. L. van Someren labelled Jinja, Uganda, 1928, and Nairobi, Kenya, 1930, and these are named by Cockerell as *H. jucundus* var.

Howell V. Daley (personal communication) who kindly compared specimens of *Halictus* for me with the material in the British Museum reported that my specimens from Karen, are more brassy-green than the type of *H. jucundus* Smith and that they agree with the subspecies *komensis* type of Cockerell. Dr Daly wrote that he could not trace anything concerning the biology of the species.

The Nest of *H.* (*S*) *jucundus komensis*

An observant member of my staff reported that "three small golden bees" were hovering above a bare patch of soil resulted in the following record on part of the biology of the bee. On 10th January 1971, at Karen, 2000 m, three golden bees, all pollen laden were seen hovering above a small proturbence on the soil surface and one by one they entered a small hole in this. Later, they or others emerged from what was obviously the entrance to the nest. Three female bees were captured, one after the other as the returned to the nest with pollen, togther with a single male.

The entrance to the burrow was raised above the soil surface by about 2·0 cm and was some 3-4·0 cm long and excavated at a slight angle above the soil surface and was probably in part built up with excavated soil. Fig. I. Careful digging below the entrance tube revealed a burrow that ran almost vertically down for 10·5 cm and led to a cluster of cells. While excavating a further female bee was captured in the burrow. The cells, a cluster of five, were orientated almost horizontally around the burrow. Cell 1 contained a female bee about to emerge, the exeuva having been shed except on the wings. Cell II contained a very dark female pupa and Cell III, a less advanced pupa. Two other cells were empty, their inmates having emerged, however one, a male, whose wings were still partly sheathed, was collected from the excavation debris.

Digging deeper another burrow was found leading from the base of the first cell cluster, downwards and roughly at 45°. This burrow was approximately 7·0 cm long and led after a sharp bend to a second series of cells. These were obviously new and like the first were orientated around the burrow. Cell VI was being provisioned with pollen. Cells VII-IX were sealed and each contained a pollen ball and a single egg. Cell X contained a pollen ball plus a very small larva c. 3·0 mm in length.

During this second operation a further two bees were captured which had probably escaped from the burrow or had

been provisioning Cell VI. Two pollen laden bees were taken while they flew around the excavation and an immature male, probably from the first cluster of cells was found in the debris.

The diameter of the main and subsidiary burrow, c. 2·0-3·0 mm, was just greater than the width of the bee enabling the insect to turn round easily within the tube. The cells appear to have been excavated and were ovate- elliptic in section, 8·5 mm long internally and 4·5 mm at the broadest. The apex or entrance to the cell was directly attached to the burrow. Each cell was lined with a matrix containing some fine "fibres" cemented with secretion which gave a polished shiny interior which was slightly ridged longitudinally, possibly the result of pressure from the mandibles as the matrix was being laid down. At the cell apex there was a collar of fine white "fibre" and adhering to these numerous small grains of soil sealing the exit of each cell.

The balls of bright orange pollen, possibly from a garden composite on which the bees had been seen, were roughly spherical with a diameter of 4·0 mm and weighed 31·5 mgm each. The eggs were glistening pearly white, slightly curved, sausage-shaped with ends rounded and measured 2·5 mm. The eggs were attached to the wall of the cell above the pollen ball. There was no obvious egg sculpture (high power) and each was clearly in a different stage of development. The one small larva was white, opaque, with slightly yellowish head and the body carried transverse, alternate, patterned and plain striations. The larva was lying on the pollen ball and feeding actively.

The soil of the nest site was red lateritic, friable, and was moist due some 29 mm of rain that had fallen some days prior to excavation. At 10·5 cm depth the site of the first cell cluster the soil was moist enough to mould with the fingers. The second series of cells was situated just above a rather hard well compacted moist subsoil.

Since so many pollen laden female bees were attending the nest it is clear that *H.* (*S*) *jucundus komensis* is a social species, like many others in the genus and newly emerged females from the first cluster of cells probably later assist in provisioning later series of cells.

Acknowledgements

My especial thanks to Dr. Howell V. Daly for determining my material and providing references. My thanks to Iqtidar Ali for assistance in the delicate operation of excavating the nest.

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Isogenus nubecula Newman in Flintshire (Plecoptera, Perlodidae)

By A. Brindle

Stoneflies are not one of the more popular orders as far as entomologists are concerned: the insects are inconspicuous and perhaps are better known to fresh-water students. The order, however, has a certain amount of interest. It is small, and is one of the few orders which are as well, or even better, represented in the North of England than in the South; although the majority of the species are widely distributed and often common, there are some whose distribution is not well known. The apparent discontinuity of the distribution of *Rhabdiopteryx anglica* Kimmins, for example, is probably due to lack of collectors, and there are three species of which the British status was uncertain—*Isoperla obscura* (Zetterstedt), *Chloroperla apicalis* Newman, and *Isogenus nubecula* Newman, all of which occur in large rivers on the Continent. The first named species was only known from the river Trent, and may have disappeared there owing to pollution, but it seems to be unlikely that it was confined to this single river in England. The status of the first two species is still uncertain, but the status of *I. nubecula* as British has been recently confirmed by Hynes (1963). The purpose of the present paper is to publish details of what appears to be first authenticated British specimen of *Isogenus nubecula.*

Although a number of specimens of this species have been recorded in the past, the specimens have either proved to be *Diura bicaudata* (L.), or, if correctly named, lacked data labels (Hynes, 1963). Late in 1958 the late Mr H. L. Burrows informed Dr H. B. N. Hynes and Mr D. E. Kimmins that he had collected a female specimen of *nubecula,* but Hynes (1963) reported that he had been unable to obtain any further information about the specimen.

At one of the meetings of the Manchester Entomological Society in Autumn, 1958, Burrows showed to the late Dr W. D. Hincks and to the present author, a set specimen which Burrows said was *Isogenus nubecula.* A satisfactory check on the specimen was not possible at the meeting, but neither Hincks nor myself had serious doubts about its identity, largely owing to the known competence of Burrows. Burrows was an excellent and careful entomologist, and had a great appreciation of rarities; he frequently worked in the field with the late Harry Britten, and specialized in the Neuropteroid orders and in the Lepidoptera, but accepted rarities in other orders. Amongst his finds were *Oligotricha clathrata* (Kolenati) (Trichoptera) and *Nathanica fulviceps* (Stephens) (Neuroptera), both in large numbers at Burnt Woods, Staffordshire, and the small *Tabanus plebeius* Fallen (Diptera) at Abbotts Moss, Cheshire,

and elsewhere. He also had a large series of the Scotch Argus *Erebia aethiops* (Esper) from its former locality near Grassington, Yorkshire. In later years he turned more particularly to Diptera.

The specimen of *nubecula* was pinned and set with the wings outspread and was in a small glass-topped box; the head of the pin had been cut off and that end of the pin tapered, so that the specimen could be pinned in the box either with the dorsal or the ventral side uppermost. One of the forewings was missing, but otherwise the specimen seemed to be in excellent condition. Both Hincks and myself asked Burrows, separately, where it had been taken, but later discussion with Hincks indicated some discrepancy about the locality, which may well have been an error on our part but was more likely due to the well known reluctance of collectors of rarities to be entirely candid. The area of Whixall Moss, however, was mentioned, but this was thought to be unlikely. Burrows was asked to publish the record in view of its rarity, but this was never done: although his knowledge of field entomology was very great, it was difficult to persuade him to write papers at all, although one short paper on the North-west Psychidae was finally extracted from him for the Transactions of the Manchester Entomological Society in recent years.

For some reason or other, the desirability of checking the specimen of *nubecula* and the locality was not followed up. I am unable to comment on the remark by Hynes (1963) that he was unable to obtain any more information about the specimen.

Nothing further occurred about the specimen until the recent sudden death of Burrows: his collection, in storeboxes, and his notebooks, were rescued from probable destruction by the Secretary of the Manchester Entomological Society, Mr E. H. Fielding, who has since passed over a number of specimens of various orders from the collection to the Manchester Museum. Mr Fielding was asked to look out for the specimen of *nubecula* and the features of the specimen were mentioned, including the missing anterior wing which would make the recognition simple, but he was unable to locate it in the collection of Plecoptera. Very recently, however, the specimen was located in a box crowded with various insects and presented to the Manchester Museum. The Museum is indebted to Mr Fielding for this specimen and for the other specimens from the Burrows collection.

A check on the specimen leaves no doubt that it is *Isogenus nubecula*: it is a female and the subgenital plate of this species is distinctive, being very large, as wide as the abdomen, and with a more or less concave posterior margin. The anterior left wing is missing, and the right forewing shows some differences in venation to the figures in Aubert (1959) and Despax (1951), but the venation of the species appears to be variable, at least in German specimens, and is commented on by Hynes (1963). The figure of the forewing in Hynes (1958, fig. 6 E) shows six

branches to R 2+3 and 4+5, as compared to five branches in Aubert (1959) and Despax (1951). The present specimen has six branches. Hynes (1958, fig. 6E) shows an additional incomplete anterior branch arising from M, basal to RM, and becoming obsolete after the junction with RM. In the present specimen this anterior branch extends to the wing margin, and one additional cross-vein links this branch with the last branch of R4+5, distal to RM, thus forming a cell with RM as its basal side. This venational form is also mentioned in Hynes (1963).

Although the identity of the specimen, which appears to be the first British specimen with a data label, seems certain, the locality is certainly not typical and the date is rather late. The locality is Bettisfield, Flintshire, which lies to the west of Whixall Moss, and is a frequent starting place for entomologists visiting the Moss. From Bettisfield, a walk along the canal bank, itself very productive, leads into Whixall Moss at the south-west corner. The only aquatic habitat of any size near Bettisfield is the Shropshire Union Canal, and no large rivers occur anywhere near the locality. The date is 15.6.1958, whereas Hynes (1963) considers the normal emergence time by the Welsh Dee to be April: however the Perlodidae often have a long emergence time and females of both *Diura* and *Perlodes* tend to occur long after their usual times of emergence.

The notebooks belonging to the late Mr Burrows contain a wealth of records from various localities, many of which have changed considerably in subsequent years, but these records consist mainly of dates of occurrence and although the record of *nubecula* occurs amongst the records from Whixall Moss and area, there seem to be no details of exactly where or in what circumstances the specimen of *nubecula* was actually taken. Although Burrows was reticent on localities, his records, when finally given, could be relied on, and it is most unlikely that a wrong locality was given.

The only subsequent records of *Isogenus* from Britain are those nymphs collected by Dr Hynes from the Welsh Dee (Hynes, 1963), which indicate that the species could be more widely distributed. The most satisfactory method of listing the stoneflies from an area is by regular sampling for the nymphs, since these often occur in large numbers, and streams are much more easily searched than terrestrial habitats—the terrestrial adult stoneflies can be most elusive at times. If the nymphs occur in the deeper parts of large rivers, however, the sampling becomes much more difficult and it is in this type of habitat that the nymphs of *nubecula* occurred. It is probably significant that all the three species quoted as being of uncertain British status are all large river species, and more attention to the order by entomologists could well result in the clarification of the status of all three species. Hynes (1963) however found the nymphs to be scarce where found, so that the work involved in searching for nymphs is likely to be arduous, and possibly suitable for the more energetic entomo-

logists. The area around Bettisfield will, of course, be given attention, but *nubecula* is considered to be scarce in Continental localities, so the chances of finding more specimens of *nubecula* at Bettisfield seem remote, apart from the apparent unsuitability of the area.

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Green Pupae

By an Old Moth Hunter

On the 27th August, many years ago, I found a green chrysalis. It was suspended in a silken cradle between the leaves of an ash, on a little shoot that rose from the trunk no more than two feet above ground. Having already, at that early age, noted that most chrysalids are green for few hours after the larval skin has been cast off, I added, in my diary recording the discovery, "evidently just pupated". The following day, however, my pupa was still green, a light grassy green, and so it remained until 13th September, when a male Dusky Thorn emerged from it.

Since that far-off day I have bred *Ennomos fuscantaria* many times, and always his pupa remains green. It distresses me. There is something immodest about a green pupa. It is not playing the game. Why do these Dusky Thorns which pupate above ground remain green as pupae? Protective colouration? I doubt it: there are plenty of insects which pupate among growing leaves and their pupae behave decorously. For some reason of which I am ignorant *fuscantaria* throws discretion to the winds and remains a toothsome morsel for birds, in appearance at least, throughout his pupal career. It seems very stupid of him. But perhaps the cradle deceives birds, who mistake it for a spider's web and the pupa for a poisonous green spider.

The Lunar Thorn also inhabits ash trees, but has not yet made up his mind whether brown or green affords the better protection to a pupa; he pupates, normally, as brown as brown can be; but sometimes he decides to go in for an autumn brood, and then his chrysalis remains green until the moth emerges. *Lunaria* usually cocoons among moss, and here a green pupa might have a better chance to elude prying eyes, so why not stick to green for the normal brood? Are ash trees inhabited by large green spiders which appear only in the autumn when *fuscantaria* and *delunaria* (as the men of science call the autumn brood of *lunaria*) have pupated? What

say the arachnologists? Or can the hemipterists (I am thinking of shield-bugs) help us?

Fuscantraria never seems to me to be a very common moth; in fact I have to work hard to obtain him. His larva is difficult to find: so exactly the colour of an ash leaf that the quickest way to find him is to draw the leaves gently through one's hand. He reclines along the petiole on the under side, and there he remains by day, in wind and rain. At night he moves very little, eating holes in the leaves round about him and departing to fresh pastures only when he judges that the extent of his meals has endangered his camouflage. I can find no record in my diaries of ever having found the imago otherwise than at a street lamp, which shows what a duffer I am. But I find the larvae every now and then, as well as the pupa.

Tetralunaria, the 'Purple Thorn', is a most lovely thing. One comes across him in the moth state much more readily than as a larva. He does not disdain telegraph poles. He sits on the top of a hedge. I once found him on the trunk of a mighty Tulip Tree, a veritable *Liriodendron tulipifera,* up which he had crawled to expand his wings. A rare tree for a larva to feed on. But then, the Purple Thorn is a rare moth, at least so far as his beauty is concerned. And on the 22nd of April I discovered him in an alder bush. We were passing, my wife, daughter and I, a clump of tall leafless alders. I stopped. "There," said I, "is a Purple Thorn". I pointed to a large male *tetralunaria* doing his best to imitate a dead leaf, on the far side of the bush, about seven feet from the ground. My wife can give me points and a beating any day at spotting moths at rest; she once showed me — or rather tried to show me; for I could not see it for the life of me and indeed hardly believed her until I had the insect in a box — a *socia* asleep in a deep crevice of oak bark ten feet from the ground. My daughter has the keen eyes of youth. They peered and peered. In vain. Then I pushed my way through the branches secured my 'Thorn', and exhibited it in a glass-bottomed box. "Don't you ever dare to complain about your eyes again," said my daughter.

But it really wasn't much of a feat. There were no dead leaves on that bush, and the 'Thorn', though five or six feet from me, was exhibiting the unmistakably wing profile of his race. It was quite easy. And now that he is set he measures 42 mm. across his front wings.

His larva is, I believe, polyphagous. Says Barrett; "He will eat almost all kinds of deciduous trees and shrubs — raspberry, bramble, honeysuckle and cotoneaster." I have found him on none of these plants, but, every now and then, on alder, oak, birch and once on ash. So he can put up with almost any kind of food. Yet for all that I have never found him to be a common moth, at least in those parts of the kingdom wherein I have shouldered the pill-box.

As a larva he is, of course, quite impossible. The one I found on an ash was such a perfect twig that he put the real twigs to shame. He out-Heroded Herod; he was *plus royaliste que le roi.* He knew much better than the tree what an ash twig really ought to look like. Indeed, it was a marval that he did not burst into leaf. So proud was he of his mimicry that he refused to budge and I had to stimulate his backside with a grass-stem. Protesting loudly, he at last consented to enter the box. Inside it he lay inert for a moment or two; then, realising that something had gone wrong, he rushed around looking for a twig to imitate. Finding none, he gripped the petiole of a leaf with his claspers, swayed to and fro, chattering with rage, then sulked all the way home. But he made a most lovely moth, and that was the main thing, wasn't it?

Of *lunaria's* larva I say nothing at all: his sole object in life is to outdo *tetralunaria,* and he usually succeeds. If birds wasps and other predaceous animals hunted their meat by sight alone the Lunar Thorn would be one of our commonest insects. He is *sui generis,* he is an abnormity, a *lusus naturae.* And he is the forerunner of a very lovely and not too common moth.

Hydrillula palustris Hübn. (Lep. Caradrinidae) in Lincolnshire

By D. O'Keeffe

On the nights of 9th and 10th June 1972, my friend Bernard Skinner took 32 male *palustris* in a locality in Lincolnshire indicated to him as a likely place for the species. He was unable to divulge the exact locality, which had been mentioned to him in confidence, but he did tell me that it was quite unlike the conventional localities for this species (i.e. Woodwalton and Chippenham Fen), it being open ground, only slightly marshy and the sort of waste land on the verge of farm-land that is just a little too wet for cultivation, especially in winter.

I concluded there must be many such spots in the Lincolnshire Fen districts, and so on 12th June, I set off more with hope than optimism to try my luck.

Arriving in East Lincolnshire about 9.00 p.m. I had one hour to find a site for my M.V. lamps, and driving around I soon noted several promising looking spots. By 10.00 p.m. dusk was fast approaching, and so I finally decided to try a rough piece of ground, covered with tussocks of grass interspersed by patches of rushes. The ground flora was quite rich but in the fading light and my haste to set up my equipment, I was unable to take much note of the various plants that grew there but was struck by the masses of dewberry growing over the ground, and amongst the other plants, there were only a few scattered patches of *Spiraea.*

Just before my arrival there had been a heavy shower, so that everything was soaking wet, and with no wind, a thick mist soon arose. With nothing on the wing at dusk, my spirits sank, and any hope I had of seeing *palustris* rapidly began to evaporate.

At midnight I decided to try and get some sleep, but before doing so, went to top up my generator with petrol. As I approached one of my traps, I saw a solitary moth fluttering round the lamp in a manner which I did not recognise, except that it resembled a large *Nonagria neurica* or *dissoluta*. I quickly boxed the moth, which proved to be a male *palustris*, unfortunately rather worn. I excitedly examined the contents of my traps finding a further 13 male *palustris* had already arrived but only two were in good enough condition to keep

As Mr Skinner had not seen *palustris* before 1.15 a.m., and by midnight I already had 14, I had visions of quite a harvest by morning. However, when I packed up at 4.00 a.m. not a single additional moth of any kind was to be seen. It was a very poor night for other species, with only about 50 individuals of 12 species to my lights.

Judging by my experience and that of Bernard Skinner, I am confident that *palustris* will prove to be widespread and locally common in suitable terrain from the Cambridgeshire Fens northwards to near the Humber, and especially around The Wash.

Edelston *et al.* writing in 1944 (*Entomologist* **79**: 70) pointed the way to correct places in which to look for *palustris* and I quote: ". . . The discovery of larvae in their natural surroundings, and notably their relative abundance in different situations, renders possible some estimate of the condition most suitable to the species. These are not, in our experience the more luxuriant parts of the fen, where the vegetation is dense and high, but rather where there is a tussocky growth of grass, e.g. of *Calamagrostis epigejos* (L) with patches of *Spiraea* . . . Rather are they the margins where swampy area joins the drier land, or lightly grazed cattle marshes containing the herbage a good proportion of *Spiraea* and other marsh vegetation . . . In fact, the ecological conditions that appear favourable to H. palustris are not uncommon, in many parts of the country and it would be interesting to know whether the species is not very much more widely distributed than has so far been realised."

I hope that these notes will encourage other lepidopterists to seek out *palustris* in new areas durng the coming season.

BRITISH AUCTIONS OF NATURAL HISTORY COLLECTIONS

I am engaged in compiling for publication in 1973, a *Register of British Natural History Auctions from the Earliest Times (1700-1972)*, and should be glad to hear as soon as possible from anyone who may have collections of sale catalogues for the period prior to 1900.—J. M. CHALMERS-HUNT.

Fig. 1.

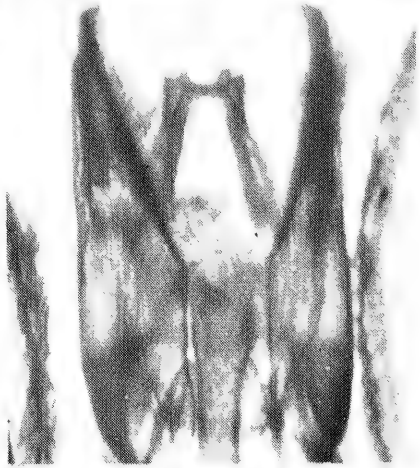


Fig. 2.

Fig. 3.

Fig. 4.

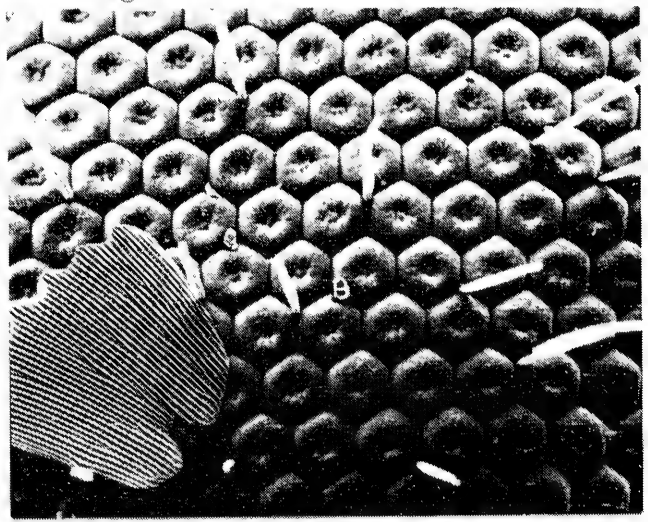


Fig. 10B.

PLATE I

Fig. 5A.

Fig. 5B.

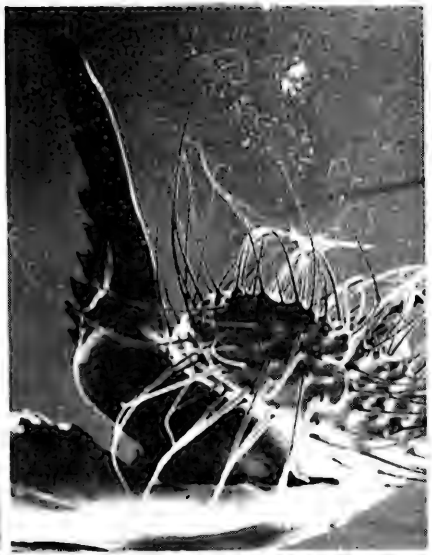


Fig. 5C.

Fig. 5D.

PLATE II

Fig. 6A.

Fig. 6B.

Fig. 6C.

Fig. 6D.

Notes on Southern African Rhopalocera (Lepidoptera)

By D. M. Kroon

Family : HESPERIIDAE
Genus : *GEGENES* Hübner (1819)

Evans in his monograph of the African Hesperiidae (1937) observes: "The genitalia of *G. hottentota* and *G. letterstedti* (=*G. niso*) seem alike."

Several microscopical genitalic preparations of both *G. niso* (L.), 1764, and *G. hottentota hottentota* (Latreille), 1823 i.e., with the black patch on the forewing, do not seem to bear out this statement. Specimens dissected for this study originated near Salisbury — Rhodesia, Sasolburg — Orange Free State, Estcourt — Natal, and Honeydew Vlei near Johannesburg in the Transvaal.

Though similarly shaped, structural differences are present in the valves. The apices of *G. hottentota* valves are decidedly rounded, whereas in *G. niso* they taper to a relatively sharp point (Figs. 3 and 4, Plate 1). The valvular spine is also longer and more dentate in *G. hottentota.* The preparation when viewed ventrally reveals another difference. The subunci of *G. hottentota* angulate sharply medially from their origin for about a third of their length, then continue distally in a parallel fashion till they overlap the end of the uncus where they diverge sharply (Fig. 1, Plate 1). The subunci of *G. niso* appear as more or less straight structures gradually converging as they approach the end of the uncus, where they also diverge sharply (Fig. 2, Plate 1).

G. hottentota hottentota appears to be rare in South Africa. In the Transvaal Museum are some specimens bearing locality labels marked Nelspruit, and more recently specimens have been taken at Honeydew Vlei by Mr W. H. Henning and his sons. *G. hottentota ocra* (Evans) is fairly widespread in South Africa though less common than *G. niso.*

Family : LYCAENIDAE
Genus : *SYNTARUCUS* Butler (1900).

Falling into this group in Southern Africa are a group of microscopically similar butterflies. The male genitalia, however, are quite distinct and have been described by Mr H. Stempffer and Mr G. E. Tite. Included is a series of photographs illustrating the valvular differences, as well as the subunci, of the five Southern African species. Included are also photographs depicting two variations of valvular form found in *S. pirithous* (L.). The first of these depicts a small spine or spines at the base of the larger spine but on the INNER curvature of the valve (Fig. 9B, Plate IV). The second refers to a form with a ridge of spines on the OUTER curvature (Fig. 10A,

Plate IV), which I have only found in South West Africa near Fort Namutoni.

Indentification of the species can be positively established by genitalic examination using as reference the specific differences exhibited mainly by the valves but also the subunci. Naked eye appearances of the imago being so deceptive, the collector is faced with no alternative but to net every specimen in the field, and subject it to microscopic examination later. Females taken in copula establish their identity with certainty, but current research into the female structures is also revealing differences. Attempts have been made to establish criteria for separating males using external features, but, in any long series, variations become only too apparent. *S. pulcher* (Murray), 1874, however, does differ and can be separated fairly readily from other members of the Genus. *S. jaenneli* (Stempffer), 1935, can sometimes be separated on examining the hindwing underside, which is browner and has thinner wavy white lines medially and a broader white submarginal band.

In practice I have found it useful to compress gently the lower abdomen of all my specimens with flat forceps shortly after they have died. The genitalia extrude and remain sufficiently exposed for positive microscopic examination later without damaging the specimen in any way. Furthermore, with a keen eye and a 15X hand lens it is possible to identify *S. pirithous* specimens and separate these from the other less common members of the Genus in the field.

DISTRIBUTION RECORDS—SOUTHERN AFRICAN SYNTARUCUS

These records refer only to specimens dissected by myself and falling within the artificial Southern African Zone.

S. jeanneli Stempffer, 1935: (Figs. K. and L, Plate V).

Mention has already been made of the undersides of this species which do appear to exhibit some differences from other members of the Genus. Early in September, I have taken a series near Sabie in the Eastern Transvaal. During January Mr W. Teare took a series at the same spot flying in the company of *S. pirithous*. In Swaziland they fly at Mbabane. Mr A. J. Duke has taken specimens at Mazoe in Southern Rhodesia.

They occur not uncommonly along the Eastern Escarpment of Rhodesia and I have taken them in April at Umtali, the Vumba Mountains, and Burma Valley. I should point out here, at his own request, that Mr C. G. C. Dickson erroneously reported a few years ago that he had found the species at Durban, Natal. In fact the species concerned was subsequently described by Mr G. E. Tite as *S. brevidentatis*. Other workers have recently informed me that *S. jaenneli* flies in the Northern Transvaal at the Entabeni Forest. *Genitalia Figured*: (valves Fig. 5A+5B, subuncus Fig. 5C, aedeagus Fig. 5D, Plate 11).

S. babaulti Stempffer, 1935: (Figs. E and F, Plate V).

Previously not recorded from Southern Africa, it has in fact been caught in several localities, its identity being confirmed by dissections made by Mr C. G. C. Dickson and myself. To date it has not been taken in South Africa itself. *S. babaulti* was discovered in South Africa for the first time on 28th October 1972, by Mr Graham Henning, and the genetalic dissections made my myself confirmed his finding. They were flying with *S. pirithous* and *S. jeaneli* at Barberton, Eastern Transvaal. It occurs in several spots in Southern Rhodesia and Mozambique. Specimens sent to us for dissection from Mr A. J. Duke near Salisbury proved to be *S. babaulti*. In September, they have been taken at Mapembi, the Vumba Mountains and Xiluvo in Mozambique. During April I have caught them at Umtali, Vumba Mountains, Burma Valley and Xiluvo in Mozambique. In a single locality near Umtali *S. jaenneli, S. brevidentatis, S. pirithous*, and *S. babaulti* were flying together in April. *Genitalia Figured*: (valves Fig. 6A+6B, subuncus Fig. 6C, aedagus Fig. 6D, Plate 11).

S. brevidentatis Tite, 1958: (Figs. G+H, Plate V).

This is not a rare species, being distributed throughout the Sub-continent but occuring in localized pockets. In the Eastern Cape it occurs at Van Staaden's River Pass and along the Natal coast near Durban. During September it flies together with *S. pirithous* on Plumbago plants at Letaba in the Eastern Transvaal. In April I have found it abundant at the Buybe River in Southern Rhodesia. It occurs near Salisbury, and at Umtali both in Rhodesia. Mr W. Teare has taken a good series at Hartebeestpoort Dam near Pretoria in the Transvaal. In South West Africa I only found them in the Waterberg Mountains, though *S. pirithous* was very common everywhere. They were abundant in the Waterberg during late September but less common in December at the same locality. *Genitalia Figured*: (valves Fig. 7A+7B, subuncus Fig. 7C, aedagus Fig. 7D, Plate 111).

S. pulcher Murray, 1874: (Figs. I+J, Plate V).

This lovely little species is fairly distinctive and usually separable on inspection. The male genitalia resemble those of *S. brevidentatis* but the subunci are almost smooth and not markedly serrated as in this species. Although rare, it has been taken in Natal, a good series having been presented to me by Mr W. Teare taken at Enseleni River mid-December. It is said to be common at the Victoria Falls and has been taken at Lourenco Marques and north of Beira in a swampy locality. *Genitalia Figured*: (valves Fig. 8A+8B, subuncus 8C, aedagus Fig. 8D, Plate III).

S. pirithous (L.): (Figs. A—Namutoni specimen, Fig. B+C+D, Plate V).

This name has replaced *S. telicanus* (Lang), 1789. This species is the most abundant member of the Genus, being widely distributed throughout our zone, and further north through Africa to Europe. The valve is easily identified, and bears a single tapered spine. Randomly distributed is another form of the same valve where small single or multiple spines occur at the base of the major spine (Figs. 9B+10E, Plate IV),

Amongst Rhodesian specimens dissected this was very common and also occurred in South West African material. Another variant found in South West Africa is one where there exists a ridge of spines on the OUTER curvature of the larger spine (Fig. 10A, Plate IV). In a personal communication Mr H. Stempffer assured me that amongst hundreds of specimens he has dissected from all parts of Africa he has not seen this form before, but considers it merely a variant of *S. pirithous*.

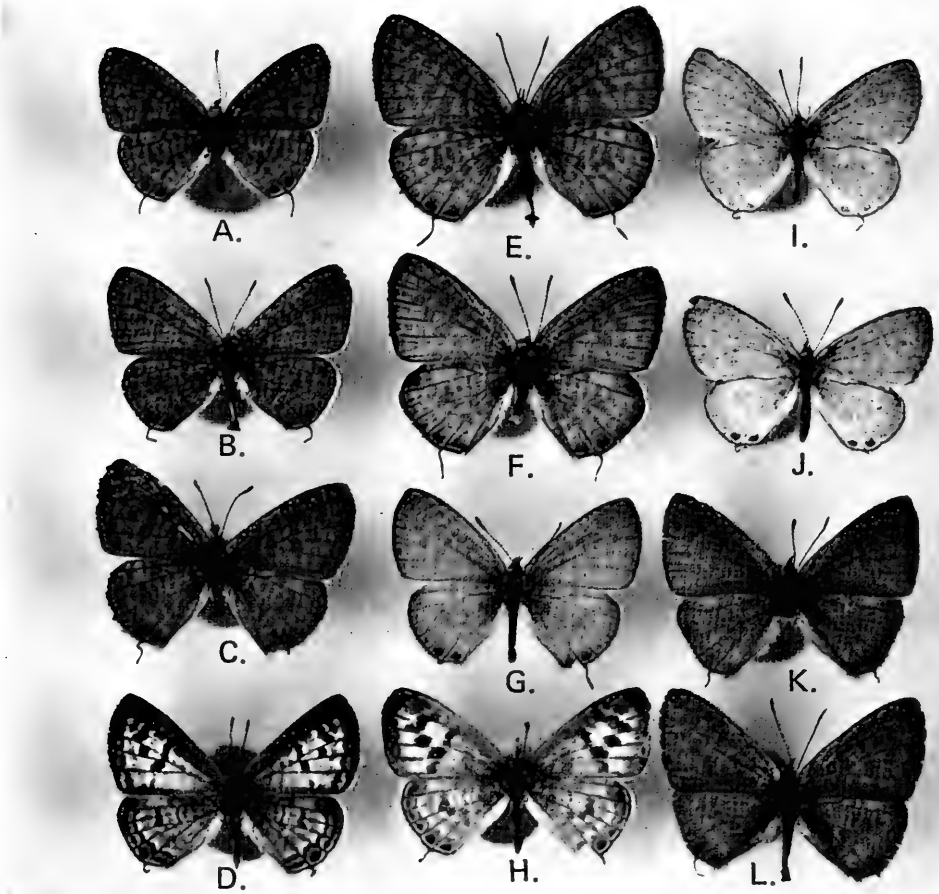
Genitalia Figured: (Fig. 9A valve, 9B valve with basal spine, 9C subuncus, 9D aedeagus, 10A valve of Namutoni specimens with ridge on outer surface, 10E internal ridge enlarged, 10C subuncus of Namutoni specimens, 10D aedeagus of Namutoni specimens). Plate IV.

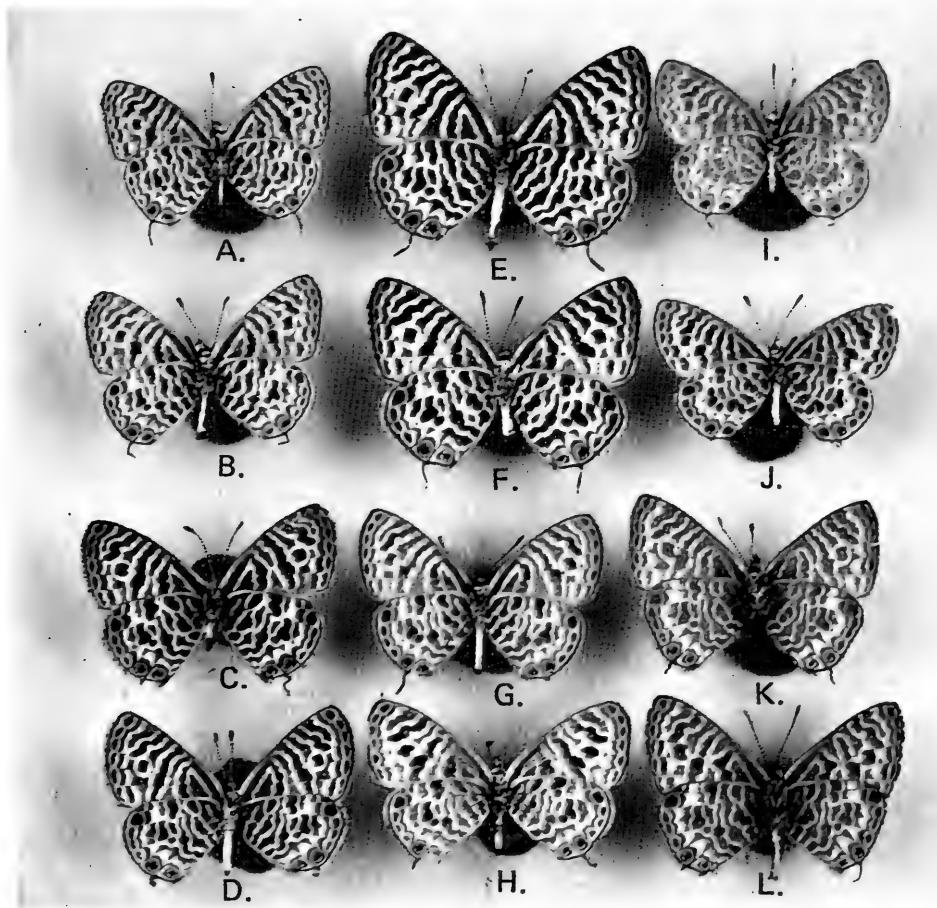
Searching for other structural differences has not been rewarding. Photomicrographs of *Syntarucus* eyes has revealed no differences up to magnifications of several thousand. Fig. 10B, Plate 1 shows clearly the architecture of the compound eye with hairs and a single scale.

Acknowledgements

I wish to record my appreciation for the help and encouragement given by the following persons: Mr C. G. C. Dickson, who urged me to investigate this group of insects, his constant advice and generous help during the preparation of this paper and the publication thereof. Mr K. M. Pennington who read the paper and offered valuable advice throughout. Mr W. Teare, Mr W. H. Henning and his sons, Mr A. Duke who all supplied valuable material, without which it would have been impossible to continue this study. Prof. P. A. J. Ryke who generously allowed me valuable extra time on the scanning electron microscope, which provided the superb photographs, and his technical assistants Mrs Stutterheim and Mr V. Hamilton-Attwell. Dr L. Vari, of the Transvaal Museum, for allowing me access to valuable Museum material, and patiently demonstrating firsthand just how genitalic slides were prepared. Mr Raymond Jones for valuable assistance and help during a collecting trip to Mozambique to procure material for the study. Lastly, I was grateful to Mrs R. Southey who supplied me with my first *S. babaulti* specimens.

PLATE V.





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KEY TO PLATES

Plate I

Fig. 1.	*G. hottentota*	Subuncus	×290	(approx.)
Fig. 2.	*G. niso*	Subuncus	×290	,,
Fig. 3.	*G. hottentota*	L. valve apex	×580	,,
Fig. 4.	*G. niso*	L. valve apex	×580	,,
Fig. 10B	SYNTARUCUS	Eye with hairs+scale	×435	,,

Plate II

Fig. 5A.	*S. jeanelli*	L. valve (internal view)	×160	(approx.)
Fig. 5B.	*S. jeanelli*	L. valve (external view)	× 80	,,
Fig. 5C.	*S. jeanelli*	Subuncus	×142	,,
Fig. 5D.	*S. jeanelli*	Aedeagus	× 73	,,
Fig. 6A.	*S. babaulti*	L. valve (internal view)	×146	,,
Fig. 6B.	*S. babaulti*	L. valve (external view)	×160	,,
Fig. 6C.	*S. babaulti*	Subuncus	×142	
Fig. 6D.	*S. babaulti*	Aedeagus	× 73	,,

Plate III

Fig. 7A.	*S. brevidentatis*	L. valve (external view)	×146	(approx.)
Fig. 7B.	*S. brevidentatis*	L. valve (internal view)	×153	,,
Fig. 7C.	*S. brevidentatis*	Subuncus	×138	,,
Fig. 7D.	*S. brevidentatis*	Aedeagus	× 73	,,
Fig. 8A.	*S. pulcher*	L. valve (external view)	×146	,,
Fig. 8B.	*S. pulcher*	L. valve (internal view)	×153	,,
Fig. 8C.	*S. pulcher*	Subuncus	×138	,,
Fig. 8D.	*S. pulcher*	Aedeagus	× 73	,,

Plate IV

Fig. 9A.	*S. pirithous*	Both valves	× 80	(approx.)
Fig. 9B.	*S. pirithous*	L. valve+basal spines	×153	,,
Fig. 9C.	*S. pirithous*	Subuncus	×142	,,
Fig. 9D.	*S. pirithous*	Aedeagus	× 80	,,
Fig. 10A.	*S. pirithous* (ex Namutoni)	L. valve external ridge of spines	×380	,,
Fig. 10E.	*S. pirithous*	L. valve external view of internal basal spines	×400	,,
Fig. 10C.	*S. pirithous*	Subuncus	×132	,,
Fig. 10D.	*S. pirithous*	Aedeagus	× 73	,,

Plate V. Top half uppersides, lower half undersides

A. S. pirithous ♂ (Namutoni)	E. *S. babaulti* ♂	I. *S. pulcher* ♂
B. S. pirithous ♂	F. *S. babaulti* ♂	J. *S. pulcher* ♂
C. *S. pirithous* ♂	G. *S. brevidentatis* ♂	K. *S. jeanelli* ♂
D. *S. pirithous* ♀	H. *S. brevidentatis* ♀	L. *S. jeanelli* ♂

New Records of Microlepidoptera for the County of Somerset

By A. M. Emmet

On the 20th of September 1972, my wife and I paid a flying visit to Leigh Woods on the Somerset side of the Avon Gorge. Although we could only spend three hours on the ground, our visit resulted in the identification of thirteen species not previously recorded from the county and the confirmation of eleven others listed by Turner (1955) as very rare or of doubtful occurrence. The purpose of the visit was to search for *Stigmella tiliae* Frey on the small-leafed lime, and most of our time was devoted to that tree; but we also searched for leaf-miners on a limited number of other pabula.

In the notes which follow, the species are listed under their food-plants. Those marked with two asterisks are, apparently, new to Somerset; those marked with a single asterisk are new to Leigh Woods. In the case of previously recorded species, Turner's estimate of their current status in the county is appended in square brackets.

Acer pseudoplatanus L. (Sycamore)

***Phyllonorycter geniculella* Rag. Mines not uncommon.

Agrimonia eupatoria L. (Agrimony)

***Nepticula fragariella* Heyd. Tenanted and vacated mines. The species has been unusually plentiful in the south of England in 1972.

Betula spp. (Birch)

***Heliozela betulae* Staint. Several vacated mines.

***Caloptilia betulicola* Her. Vacated rolled leaves.

Phyllorporia bistrigella Haw. Vacated mines. [Rare and local amongst birches.]

**Nepticula lapponica* Wocke. Several vacated mines. [Rare and local on birch].

Crataegus monogyna Jacquin (Hawthorn)

Lyonetia clerkella L. Mines common; also on *Malus*. [Rather uncommon and local.]

***Stigmella paradoxa* Frey (*nitidella* Hein.) Two vacated mines. The nearest previously recorded locality is in Oxfordshire.

***S. hybnerella* Hübn. Vacated mines common. Turner's records for *Nepticula ignobilella* Staint, probably refer wholly or in part to *hybnerella*.

***N epticula pygmaeella* Haw. Vacated mines common.

***N. crataegella* Klim. Vacated mines common. Turner's records for *N. oxyacanthella* Staint. probably embrace this species in the form of a first generation he falsely attributes to *oxyacanthella*.

***Ectoedemia* (*Dechtiria*) *atricollis* Staint. Several tenanted mines.

Fagus sylvatica L. (Beech)

Pammene weirana Doug. A larva between spun leaves. [Local and uncommon].

Fragaria vesca L. (Wild strawberry)

***Ectoedemia* (*Dechtiria*) *arcuatella* H.-S. Tenanted mines locally common. Vacated mines of *N. fragariella* Heyd. were also noted on this plant as well as on Agrimony (*q.v.*).

Malus sylvestris Miller (Crab-apple)

**Ectoedemia* (*Dechtiria*) *pulverosella* Staint. Several vacated mines. [Possibly still occurs in some of the old orchards, but records are lacking].

Quercus spp. (Oak)

***Extoedemia* (*Dechtiria*) *albifasciella* Hein. Tenanted and vacated mines in small numbers throughout the wood.

Sorbus torminalis L. (Wild service tree)

One of the purposes of the visit was to search for the mines of *Stigmella torminalis* Wood, which has not been recorded from Somerset. None was found, but as only one wild service tree and a few saplings were located, the failure cannot be regarded as conclusive.

**Phyllonorycter corylifoliella* Haw. Mines were common, as they were on *Crataegus* and *Malus*. This species seems to have been accidentally omitted from Turner's list.

P. mespilella Hübn. A vacated *Phyllonorycter* mine with the pupal skin projecting was probably of this species. [Doubtfully resident at the present time].

***Parornix scoticella* Staint. Vacated mines and (on the same leaves) empty folded edges were almost certainly the work of this species which feeds on *Sorbus aria* agg. in the same manner.

Thelycrania sanguinea (L.) Fourreau (Dogwood)

Antispila pfeifferella Hübn. Vacated mines. [Very local.]

Tilia cordata Miller (Small-leaved lime)

Roeslerstammia erxlebella Fab. Tenanted mines common. The early feeding of this larva seems to be unfamiliar to most entomologists. It makes a small mine, nearly always at the tip of the leaf. It effects its first moult in the mine, which it then quits to feed externally. [Very rare, associated with birch and lime.]

Bucculatrix thoracella Thunb. The short, vacated mines, moulting cocoons and nibbled undersides of the leaves were abundant, but the larvae had all gone. [Formerly reported as very common near Bristol, but now very scarce.]

Stigmella tiliae Frey. Three tenanted mines (in one of these the larva proved dead) and about a dozen vacated mines, mostly of the first generation. They were found mainly on inner, more or less concealed leaves. During its early life the larva mines only the lower surface of the leaf and the track is invisible unless it is held up to the light. Later the mine

occupies the whole thickness of the leaf, and is conspicuous. This last phase is brief, and the time for finding tenanted mines is correspondingly short. [A doubtful resident now].

****Coleophora hornigi*** Toll (*paripennella* auct.) Two larvae found feeding on this rather ususual food-plant. Hering (1957) does, however, record it on lime.

What is the moral of this embarrassingly long catalogue of newly and rarely recorded species? First of all, the majority of them are not rare at all: they have just not been looked for. Until recently, there has been a dearth of lepidoperists interested in the smaller moths throughout Britain, and Bristol has been as hard hit as other parts of the country. I lived there from 1957 to 1963, but it was no until the last eighteen months that I took an interest in the micros, and I was still woefully ignorant of the whole subject. I was too reliant on my net, and my records were sketchy.

Secondly, Turner was a very cautious man. He compiled an excellent list, but was apt to consider that the absence of records for a species indicated the absence of the species itself. What in fact he was recording was a paucity of lepidopterists. An active and knowledgeable entomologist could turn up the majority of the moths he describes as probably extinct in the county.

Thirdly, Leigh Woods constitute an entomological locality of tremendous possibilities. The vegetation is lush and varied, and there are many rare foodplants to be found. A detailed survey would yield rich results.

This seems a good opportunity to make a correction and an addition to my Somerset notes of 1967. I there recorded *Nepticula distinguenda* Hein, as bred from mines taken at Shapwick on birch in 1965. At that time I knew nothing about leaf-mines and I did not even retain them. My determination was based on the bred imagines. Using Meyrick's key I identified some as *distinguenda* and others as *Stigmella betulicola* Staint. As Beirne (1945) does not depict the genitalia of either species, it is difficult to make a positive check of their identity. I am now of the opinion that they are all *betulicola,* a common and widely distributed species though unrecorded by Turner. *Distinguenda* on the other hand is a rare species, and although it is possible that it occurs at Shapwick, my record from that locality should be discounted.

I have also found a specimen of *Stigmella ulmivora* Fol. in a series of *Nepticula marginicolella* Staint. bred in 1963 from elm mines collected in Leigh Woods. This too is a new county record. I have already recorded *Phyllonorycter dubitella* from Leigh Woods (*Ent. Gaz.,* **22**: 63).

Finally, let me apologise to any lepidopterist who may have already recorded from Somerset, any of the species I am presenting as new to the county. I am unaware of any supplement to Turner's list for the microlepidoptera other than my own notes of 1967.

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Ireland, 1972

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

I spent my usual summer at Dingle, despite warnings from some of my friends here. I should say at once that it was most quiet and peaceful there, a good deal more restful than an English sea-side town at the week-end or one attracting football fans. It was, however, disappointing that only one couple of my usual friends from England came over, especially as now I am getting older, I missed my usual lifts to the mountains.

I left England by the Swansea-Cork boat on 14th June; the railway "go slow" had just ended and a telephone enquiry elicited the answer that I must not rely on the punctuality of the trains, so I was forced to hire a car from Westcliff to Swansea to make sure of not missing the boat.

When I reached Ireland the weather was very unpleasant, not particularly wet (do not mind that), but the coldest I have ever known in the country in my 35 visits, though several of these were in April and May.

For the first month a catch of 50 in the M.V. trap might be considered good, but when a heat wave arrived at the end of July, 1,000 was not unusual.

It was also the worst year for immigrants I have ever known; I saw but three *Vanessa atalanta* L. by day, and although I set the M.V. every night but 3 from 15th June to 5th September, there were only 7 immigrants in all, 5 *Plusia gamma* L., 1 *Leucania unipuncta* Haw. (a very nice female) and a huge female *Celerio galii* Rott! The last-named on 21st July calls for a little comment. It was a very wet night, and as my trap had got bashed about on my return last year, it let in a lot of water. Of course, the *galii* got below the egg cartons into the water and ruined herself as a specimen, which was pure cussedness, as over a dozen *Deilephila elpenor* L. were caught in the same night, and not one was injured. However, I managed to revive and feed her and she lived 3 days and laid 6 eggs. Only 1 of these hatched, but it gave me great pleasure to watch the larva pass through all the green stages to the final instar of chocolate with cream spots and a red head and horn. It pupated successfully and I have a fine healthy-

looking pupa which I hope will hatch in the spring. It was a great job feeding the larva as the nearest lady's bedstraw was 2 miles away, but luckily I told Mr Michael Long, the well-known local naturalist, of my difficulty, and for the insect's last fortnight he motored to Ventry every 2 days and brought me a supply. According to Baynes, there are only 9 previous records for *galii* in Ireland, and since the Donovan family's big catch in the early 30's, only 3 records of *unipuncta*.

Other records that may be of interest are: *Macrothylacia rubi* L. On 16th June an enormous very dark female came to the trap, much the biggest and darkest I have. I have several times bred *rubi* from West Cork, and the bred female I have still is extra light. These *rubi* were bred from larvae seen racing over the heather when I was trout fishing in April 1916, when the rebellion was on and the South West (*pace* "Ryan's Daughter") was as quiet as it is now. I particularly mention this spring racing for although it is mentioned in several early books, Col. Frazer some years back queried whether it ever took place, or was an oft-repeated tale. If one of these larvae was dropped in a big chip-box it invariably spun a cocoon within 24 hours.

Cryphia muralis Forst. This seems to be becoming more difficult to get every year, as houses get scraped down and painted. As the weather was poor for collecting expeditions, I searched even harder than usual and saw perhaps 30 in all. I only kept 4, one of these, a blackish green, and another, a new one to me, pale whitish grey and black. The markings of this specimen are the usual Dingle kind, quite unlike *impar* Warren. I have not yet seen a typical insect at Dingle.

Luperina nickerlii s-sp. *knilli* Boursin.—I took but one in 1972, on 28th August, but it was nicely mottled, quite unlike the black ones I have previously seen at Dingle.

Plusia festucae L.—This was in the trap almost every night, but still no *gracilis* Lampke.

Perizome bifaciata Haw.—I mentioned in a former note how I had taken an aberration with the wing from the 2 lines to the cilia pale buff, but had unfortunately dropped my forceps on it and ruined it. Last year I collected a bunch of Bartsia and placed it in a bag, and found quite a lot of larvae feeding. On my return I placed this bag beside me and some children, whose parents did not mind what they did so long as they only annoyed other passengers, raced round the Pullman lounge and one put his foot squarely on my bag. I reflected for a few minutes that King Herod was a much misunderstood social reformer, but on my return home found there were a few survivors, and bred half a dozen. They are exactly like my local ones, so the one I broke was evidently a rare aberration.

Dysstroma truncata Hübn.—On 16th July a very pleasant Dutch family who were staying at Benners gave me a lift to the Conner. They had done so 2 days previously, but when we got there a nasty cold wind was blowing, so we went on a general tour. On the 16th, however, it was sunny and reasonably calm,

so we climbed another 1,000 feet (2,800 feet in all) up the Brandon Range. We saw but one moth, but this, when I caught it, turned out to be the mountain single-brooded race of *truncata* which Donovan wrongly referred to *concinnata* Steph. It was a male newly emerged, and the only moth we saw. It is a much brighter insect than those Donovan, Graves and myself have taken at Windygap about 1,000 feet up between Glengarriff and Killarney. These are usually dull grey with a small red spot. It is about two-thirds the size of lowland *truncata* and the forewings are narrower and more sharply pointed. It is odd that I have never seen this moth before, in one of my favourite places. I think it is the highest in which *truncata* has been taken in Ireland.

Cleora lichenaria Hübn.—A nice melanic male on 4th August.

Pempelia dilutella Hübn.—A very large specimen of light chalk-brown colouring on 25th July.

Homoeosome nebulella Hübn.—A damaged specimen on 15th August, apparently the third authenticated Irish record.

Notes and Observations

NOTES ON THE AFRICAN LUNAR MOTH: *Argema Kuhnei* PINHEY (LEP. SATURNIIDAE).—I was very interested in Mr Little's paper (*Ent. Record*, **84**: 193) under the above heading. I have not found that the larva of the allied *A. mimosae* is particularly susceptible to virus infection, but the first instar-larva is difficult to start feeding. Once in the second instar I have not found them more difficult than any other larva of the larger Saturniids.

Dale and Greenway (*Kenya Trees and Shrubs*) do not mention the genus *Monotes* (presumably it does not occur in Kenya) so that I am unable to determine the family to which it belongs. It is always helpful to know the family of a foodplant as it may be a help in rearing hitherto unbred related species. Incidentally, *A. mimosae* appears to be one of those species whose specific name, although botanical in origin, bears no relation to the actual foodplant, in this case *Sclerocarya caffra* Sond. (Anacardiaceae).

From the Figure, the cocoon seems to be more solid than that of *mimosae*, which has numerous small perforations, or pinholes, all over it.

I notice that both Mr Little and Dr Pinhey spell the word Lunar with a final "r"; I was under the impression that the name was more usually written "Luna" without the final "r", the specific name of the American species.

Is it not strange that so large and conspicuous, and, judging from the number of cocoons found, not uncommon insect, should have remained unknown until just recently?—D. G. SEVASTOPULO, Mombasa, 2.xi.1972.

THE OCCURRENCE OF POLYPHAGA AEGYPTIACA (L). (ORTHOPTERA: POLYPHAGIDAE) IN BRITAIN.—Amongst some specimens in a box belonging to the late A. M. Morley of Folkestone, was a large insect that his daughter Joan gave me. It bears a label inscribed in Morley's handwriting: "Folkestone Harbour 16 vii 1954". I submitted the specimen to Mrs J. A. Marshall (née Meadows) of the Department of Entomology, BMNH (S. Kensington), who determined it as an apterous ♀ of *Polyphaga aegyptiaca* (L.), an inhabitant of S. Europe, E. Mediterranean and N. Africa. Dr Ragge tells me that so far as he is aware there is no previous record of the occurrence of this species in Britain, but that its status here is probably that of an importation. At Mrs Marshall's request I have presented the specimen to the BMNH.—J. M. CHALMERS-HUNT.

LYONETIA CLERKELLA L. (LEP.: LYONETIIDAE).—On the 15th October 1972, I gathered a leaf from what seemed to be a stunted apple tree which had escaped from cultivation and was growing at the edge of a cliff at Polkerris, Cornwall. The leaf contained two typical mines of this species, but only one mine was occupied by a larva.

In captivity this larva duly abandoned its mine and made a typical cocoon suspended by the usual reinforced strands of silk.

Sometime in November a melanic moth emerged, having the forewings a uniform dark sooty brown, with the usual markings on the outer third of the wings only very faintly discernible against the general background colour. I would be interested to hear of any other record of melanism in this species.—JOHN L. GREGORY, Lepidoptera House, Bodelva, Par, Cornwall. 30.xii.1972.

MIGRANT LEPIDOPTERA IN HEREFORDSHIRE 1972.—During a year which was notable for the scarcity of the common migrant lepidoptera, it was pleasant to find 2 slightly damaged specimens of *Celerio galii Rott.*, which appeared at light on the night of 20th/21st July 1972 in my garden in Ledbury. The only other records that I can trace for this county were 2 examples recorded over a hundred years ago in 1870.

The same night saw 14 *Plusia gamma* L., by far the largest number seen on a single night this year. Another interesting species which occurred the same night was *Dioryctria abietella* Schiff. No less than 6 examples appeared and all were worn. There is some controversy as to the migratory habits and status of this species. Certainly I have never recorded this species before in nearly 10 years of regular light-trapping in this area, and the simultaneous appearance of the other migratory species is suggestive of a migratory wave of insects in which this pyrale may possibly have taken part.—Dr M. W. HARPER, Cotham, Upperfields, Ledbury, Herefordshire. 12.xi.1972.

LITHOPHANE SEMIBRUNNEA HAW. (LEP.: NOCTUIDAE) IN WEST KENT.—On the evening of 3rd November 1972, my wife found a specimen of *L. semibrunnea* (Tawny Pinion) at rest on the door of our kitchen.—D. S. BURROWS, 22 Lime Tree Walk, West Wickham, Kent. 19.xi.1972. [This appears to be a rare moth in West Kent—Ed.]

Obituaries

CLIFFORD EDWARDS (1886-1972)

Clifford Edwards who passed away on July 27, 1972 at the age of 85, belonged to the fast dwindling band of field collectors, of a former generation who were fortunate enough to know many of our choicest localities in their heyday before the inroads on them of modern civilisation. Born in 1886 at Ruthin in North Wales, he came of a large family in which some of his late brothers were equally devoted to the pursuit of our lepidoptera. One of these was the Rev. W. O. W. Edwards, formerly vicar of Chilbolton. After being commissioned in the Devon Regiment, and serving in the 1914 War he joined a commercial firm in the City of London, eventually becoming its chairman. It was from 1919 onwards that he transferred his affections from birds to butterflies and moths getting together over the ensuing years a most comprehensive series of the British macrolepidoptera. He was indefatigable in his search for a special quarry and travelled to most parts of the British Isles usually in company with Mr Bertie Dixon of Micheldever who greatly assisted him in their joint quest. The Highlands were a favourite hunting ground, as also was the west of Ireland in more recent times. In Shetland they were among the few to obtain the local form of the Northern Dart (*Amathes alpicola*). Clifford Edwards was an accomplished breeder of difficult species and in 1961 was lucky enough to take a specimen of the Crimson-speckled Footman (*Utetheisa pulchella*) at his home at Westerham. It turned out to be a female which obliged with ova from which he bred a small number of this fine insect. From this generation was later bred a very large number of insects by Dr Kettlewell and his collaborators and thus afforded an insight into the genetics of this rare visitor to our shores. In his latter years, serious crippling curtailed his activities in the field but he was nevertheless always pleased to receive his old friends to talk over their respective captures. Clifford Edwards was a very charming personality, a first class entomologist and a staunch friend to many of us who will greatly miss his geniality and kindness, and who will wish to accord all sympathy to his widow and family.

C. G. M. de W.

ARTHUR MACDONELL MORLEY (1879-1972)

There must be many entomological visitors to Folkestone as well as other naturalists and friends alike who will have learnt with great sorrow of the passing there on October 6th, 1972 of Arthur Morley at the remarkable age of 93. During his fory-five years of residence in the well-known resort in Kent he devoted himself wholeheartedly to the study of the lepidopterous fauna of that region and did a great deal to enhance our knowledge of its general natural history.

Born in Canada as far back as August 1879 he lived through the last two decades of the Victorian era. His family soon afterwards moved to California and he used to tell of his father riding into the village of Hollywood. He also vividly recalled a visit to New York in 1887 when his parents were en route to England. Soon after settling here he was sent to a preparatory school in Wales where Augustus John was another pupil. This promising young artist did a sketch in a notebook which Arthur always greatly treasured. Later at Tonbridge School one of his chief rivals in class was E. M. Forster, also like John eventually to become a recipient of the Order of Merit. Arthur Morley won a classical scholarship to Wadham College, Oxford where he had a brilliant career and on leaving the University first became an assistant master at Felstead School, and a few years later classical assistant to Dr Nairn, then Headmaster of Merchant Taylors. But a wholly scholastic life did not suit his outlook and early this century he joined the then Board of Education, becoming an H.M. Inspector of Schools. After holding posts at Exeter, Liverpool and elsewhere, he came to Folkestone in 1927 which was to be his home for the rest of his life. For his services in this field of education he was awarded the O.B.E. in 1945.

He had inherited a large collection (mainly of exotic butterflies) from his father, who had amassed them during travels in tropical regions. It was virtually from this nucleus that stemmed Arthur Morley's abiding interest in this group of our insect fauna. It was not long after his arrival in Folkestone that he began to reconnoitre the local countryside and discovered the riches round the woods near Hamstreet, at that time little-known area of the Kentish Weald and soon to become one of the chief hunting grounds of many lepidopterists. He also worked Dungeness which had been neglected by collectors for many years, and this famous locality again yielded remarkable captures from 1930 onwards. Each summer at Folkestone he used to concentrate on the local colonies of the Chalkhill and Adonis Blues which brought many fine aberrations.

The famous Warren on the Folkestone cliffs engaged his special attention and it was there in 1937 that he rediscovered the little Rest Harrow moth (*Aplasta ononaria* Fuessly) which had not been seen there for many years. He was fortunate

enough eventually to breed it, an achievement which had not been accomplished before in this country. Naturally over the years in such a rich part of England for lepidoptera, several rare species favoured him. One of the most outstanding was the Three-humped Prominent (*Notodonta tritophus* D. & S.) which came to his trap in Folkestone in 1958, a great rarity in Britain; and on another occasion to that trap in his garden the Scarce Black Arches (*Nola aerugula* Hübn.). Earlier in 1946, a little geometrid moth on his home window proved to be the Subangled Wave (*Scopula nigropunctata* Hufnagel) which had not been recorded for many years, though it has since appeared in another part of Kent. Dungeness too provided him with some choice insects such as the Scarce Dagger (*Apatele auricoma* D. & S.) in 1933, and the very rare pyrale the Large Dactylis Grass Veneer (*Ancylolomia tentaculella* Hübner) in 1938 only the second British record.

He used to make annual visits to various parts of the British Isles including the Highlands where he obtained most of of the local specialities. He also wielded his net to good advantage on the Continent with rewarding visits to France and the Alps before the last War. In 1945 while on an official visit to Palestine he was able to bring back a fine assortment mainly of moths as he also did later when he visited his son in Perth, Western Australia, in 1955. His fine captures from this trip he generously gave to the national collection at South Kensington.

Arthur Morley soon became recognised as a leading naturalist especially following the publication of his list of the butterflies and moths of the Folkestone area extending to Dungeness. He closely identified himself with the Folkestone Natural History Society and for some ten years after the war was its President. During his tenure of office he did a great deal to foster the cause of preservation and to encourage the study of insects and other fauna, chiefly among the younger generation. He was also a fellow of the Royal Entomological Society and a member of long-standing of the former South London Entomological and Natural History Society.

His home in Radnor Park West was always open house to all entomologists and many others. Here he and his wife, Lois, who died in 1965, used to be most generous hosts. All who met Arthur Morley must have been struck not only by his great charm, but also by his ready wit, his amazing vivacity and remarkable vigour. Nothing seemed to daunt him—his *joie de vivre* was quite infectious, especially when one was fortunate enough to be his companion in the collecting field. His lucidity and general faculties remained unimpaired right to the end of his long and active life. Even on his 90th birthday, he regaled an audience of his family and friends to anecdotes of his youth and on the trends of modern education

most of which were far from being to his liking. All who were privileged to know him feel they have lost not only a delightful companion but a really true and staunch friend. All sympathy goes out to his son and two daughters.

C. G. M. de W.

Current Literature

Catalogue of the Lepidoptera of Norway, Part III (Geometrae, Arctiinae, Zygaeninae, Psychinae, Cossinae and Jugatae) by Magnus Opheim. Lepidopterologisk Selskap, Zoologisk Museum, Oslo, 36 pp.

As with the first two parts of this catalogue, the species are listed and numbered on the left hand side of the double page, and combined with a distribution chart (columns for the various departments of Norway) on the remainder of the double page.

A foreword in the English language points out that the nomenclature follows *"Cat. Lepid. Fenniae et regionum adiacentium, I. Macrolepidoptera"*. Helsingfors, 1962, and that 15 species of Bombyces and Noctuoidea have been added to the Norwegian list since the publication of Part II.

After the list are three pages of notes on certain species, and on the last page are charts showing the number of Geometrid species in the various provinces.—S.N.A.J.

From Mr Opheim I also have a separate of his paper on **the Norwegian species of Momphidae**, including *Mompha, Blastodacna, Batrachedra, Stathmopoda, Pancalia* and *Sorhagenia,* in which he sinks *Mompha divisella* Herrich-Shäffer 1853 in *M. decorella* (Stephens) Stainton.—S.N.A.J.

From Professor Alexander B. Klots I have two separates: **North American Crambinae: Notes on the Tribe Chiloini, and a Revision of the Genera** *Eoreuma* **Ely and** *Xubidia* **Schaus (Lep. Pyralidae)** from Journal of the New York Entomological Society **LXXVIII**, June 1970, No. 2: 100-120, in which he describes 6 new species and figures genitalia of 15 species in all. He also designates a lectotype for *Spermatophthora multilineatealla* Hulst, here included in the Genus *Xubidia*: and **Notes on the Life History of** *Zastusa dora* **(W. H. Edwards) Lep. Hesperiinae**, from Journal of the New York Entomological Society **LXXIX** June 1971 No. 2: 84-88, in which he describes the ecology and adult behaviour, and also the early stages of this skipper with his customary thoroughness. Although the species is a common one, its life cycle was previously unknown.—S.N.A.J.

From Teodoro Monteiro O.S.B. I have four separates, publications of Instituto de Zoologia "Dr Augusto Nobre" Faculty of

Portugese Sciences: **No. 105 Lépidoptères de I'Algarve,** which gives a map of the Algarve province, notes on its entomological history, the localities visited and Climate, Flora and Fanua. He points out that while he does not set out to give a complete catalogue of the Lepidoptera of the province now, he hopes to do so, and the present work deals with the Geometridae. The species are listed with comments, and in some cases, genitalia drawings. Some species are new to the Portugese list.

No. 111. Révision des Espèces portugaises du Genre Procris Fabricius (Zygaenidae, Lep.) gives an account of the species examined with genitalia drawings.

113. Le Genre Euchromius Guenee au Portugal (Lep. Crambidae) deals with 5 species with genitalia drawings.

116. Discestra pedrosai n.sp.: un Noctuidae nouveau pour la Peninsule Iberique, et quatre autres nouveaux pour le Portugal (Lep. Noctuidae), in which *D. pedrosai* is described and illustrated in a halftone plate with similar species and genitalia dissections. There is also a halftone plate illustrating *Discestra sodae* (Rambur), *Orthosia miniosa* (Denis & Schiffermuller), *Gortina umbrosa* (Warren), *Allophyes alfaroi* Agenjo and *Grammodes geometrica* Fabricius, all new to the Portugese list, with genitalia drawings in the text.

The text of all these papers in in the French language.—S.N.A.J.

Proceedings and Transactions of the British Entomological and Natural History Society, Vol. 5 Part 1, £0.65.

Pages 1-21 carry a paper on The Distribution of Snail-killing Flies (Diptera Sciomyzidae) in Ireland by P.J. Chandler, with a tabular analysis of Haliday's publications, manuscripts and collection of Sciomyzidae. There is also a distribution table and map. Pages 21-26 give an account of the 1971 exhibition with a plate of noteworthy and aberrant Lepidoptera. This part also carries an obituary notice for Air Marshal Sir Robert Saundby.

Part 2. starts with an account of the indoor meeting on 13th January and the annual general meeting on 27th January. The Presidential Address took Wicken Fen as the scientific subject, with special reference to its Microlepidoptera, giving an historical account of the fen, followed by an appendix giving an account and list of Microlepidoptera recorded from Wicken. There are obituaries for Captain John Ellerton R.N. and A. J. Wightman.

Part 3. carries a further instalment of **G. M. Hagget's Larvae of the British Lepidoptera not figured by Buckler,** with two coloured plates, one illustrating larvae of *Amphipyra berbera* Rungs and *A. pyramidea* Linn. for comparison; the other shows larvae of *Schrankia taenialis* Hübner and of *Gortyna borelii* Pierret. This is followed by a paper by R. F. Bretherton on Eastern Immigrants and resident natives; a survey of some British Lepidoptera.—S.N.A.J.

From Dr U. Parenti I have **Revisione degli Elachistidi (Lep: Elachistidae) palearctici I. I Tipi di Elachistidi del Museo di Storia Naturale di Parigi.**

This treats of the types of species described by P. Chretien. A. Constant, E. Dattin, J. de Joannis, S. le Marchand, E. Meyrick and E. L. Ragonot, in the Paris Natural History Museum, with 13 plates illustrating male and female genitalia.—S.N.A.J.

From **H. Zoerner** I have **Minenstudien I, Beitrag zur Kenntis der Lebenweise von bekannten und unbekannten Minieren (Lepidoptera, Coleoptera und (?) Hymenoptera).**

Mines in *Alisma, Anchusa, Anthemis, Cardaria, Crambe. Cynoglossum, Echium, Fagus* and *Hypericum* are mentioned. with text drawings of 7 mines. These are dealt with after the manner of M. Hering.

The Classification, Evolution and Dispersal of the Winter Stonefly Genus Allocapnia by **Herbert H. Ross** and **William E. Ricker**. Illinois Biological Monographs **45**. 166 pp. £4.25, American University Publications Group Ltd.

The introduction mentions the origin of this study and the fact that some 200 people, listed in the acknowledgements, offered help. The study opens with a note on the phylogenetic position of *Allocapnia,* followed by one on its systematic treatment in which there are keys to the sexes, to the males and to the females.

There follows an account of 38 species, which are divided into 10 groups. This is followed by a chapter on their phylogeny, accounting for the 10 groups. Next is a chapter on Geographic Dispersal, with a note on an early ancestral type. The next chapter is on Dispersals and Time, with dispersal patterns, and then a summary.

The full list of helpers, who formed the "Winter Stonefly Club" is given, and then three pages of literature cited. The section from p. 103 to 162 is devoted to illustrations, diagrams and distribution maps. There are profile drawings of ♂ and ♀ *A. mystica* and ♂ *A. vivipara.* There are phylogenetic diagrams of the Capniidae showing the position of *Allocapnia,* and of *Allocapnia* showing the position of the species. There are 22 distribution maps, a generalised diagram of climates in eastern and central U.S., and a diagrammatic summary of pertinent features concerning dating, climates, and name correlation of the Pleistocene and late Pliocene in south eastern North America.

The printing and paper are good, and the book is bound in a strong paper cover. It should be extremely useful to many grades of students both for the actual matter discussed and as a model for the building up of a discussion.—S.N.A.J.

A Silkworm is Born by **Ann Stepp.** Oaktree Publishing Co. 96 pp, £1.25.

This book is another item in the Sterling Nature Series. and is intended for those who might take up the raising of silkworms as a hobby. In my school days there were few schoolboys, or girls, for that matter, who had not at one time or another gone in for silkworms, and the more successful were able to augment their pocket money with their industry, but the fashion seems to have passed, possibly owing to the decreasing number of mulberry trees. The book gives a chapter on the processing of silk, and also a short history of the silk trade. The whole is illustrated copiously by photographs of various aspects of the subject.—S.N.A.J.

Hewitson on Butterflies, 1867-1877, with a Preface by **Dr L. G. Higgins.** E. W. Classey Ltd., £4.80.

This valuable book is a collection of reprints of papers by W. C. Hewitson which, though of considerable importance. are considered great rarities today.

The forward by Dr Higgins sets out the items here reproduced, with the dates of the publication of the original papers. He also gives an account of Hewitson's activities. The papers are: "Descriptions of one hundred new species of Hesperiidae", "Descriptions of some new species of Lycaenidae". "Equatorial Lepidoptera collected by Mr Buckley", and "Bolivian Butterflies collected by Mr Buckley".

These reproductions are printed on good paper and would seem to be faithful replicas of the originals; they are well bound together in cloth boards with gilt lettering. They form a very important item for entomological libraries, both public and private, and Mr Classey is again to be complimented for having brought another rarity within reach of those interested.—S.N.A.J.

The Biology of the Heteroptera by **N. C. Miller**, 2nd (Revised) edition xiii+206 pp.+5 pl. E. W. Classey Ltd., £4.50.

The Introductions of the first and second editions commence this book: in that of the first edition, the author explains the division of the Hemiptera into Homoptera and Heteroptera, and explains his handling of the sub-order. His introduction to the second edition sets out the additions and corrections made.

Part 1 gives a general account of the Heteroptera, and is divided into six chapters, Chapter 1 listing family and subfamily names in pages 3 to 7; Chapter 2 goes into the development of the insects from egg to adult, which development, unlike the metamorphoses of most insects, is a gradual one without the dramatic changes. Chapter 3 is on the legs of the Heteroptera, with two pages of line drawings illustrating the great diversity of functional development in the various families. Chapter 4, on stridulation goes into various cases

noted, but the author points out that as no tympanal organs have been noted in any families but the Corixidae, he assumes them to be solely nervous reactions. Chapter 5 ennumerates the enemies of Heteroptera and Chapter 6, the association of Heteroptera with mammals and birds as parasites and also as food.

Part 2, pp. 49-175 deals with the families of Heteroptera, and goes through the sub-order systematically, giving some account of the genera included in each family. This section is illustrated by 5 halftone plates of photographed insects, which are not too satisfactory, many of the figures being too dark to show more than the outline, but the line drawings in the text are excellent.

The 18 pages of references will give the student ample opportunity for further study, and the index, which follows, completes the book.

The customary good printing and binding apply also to this book, and it should be a very useful addition to the shelves of all entomological libraries.—S.N.A.J.

The World of Butterflies by **Michael Dickens** and **Eric Storey**, 127 pp. Osprey Publishing Ltd., £1.95.

This book is intended more to direct attention to the beauty of butterflies and to accentuate the loss to mankind that would be involved in their destruction by "progress". At first sight this may seem too idealistic, but if materialism is allowed to extinguish the human side of our life, the loss will be irreparable, and there will be nothing left to make life worth living. To avoid this, the authors recommend breeding from the egg (where high percentage hatches may well be expected as against the low percentage of wild insects reaching maturity) and releasing surplus insects at the place from which the parents were taken.*

The subject of butterflies is well set out in the introduction, and this is followed by coloured figures of 108 species from any parts of the world, in most cases one to a page, with a standarised commentary below it under the headings of Scientific name, family, common name, wingspan, range, habits and habitat, foodplants, sexual dimorphism and subspecies and similar species.

The book is well printed on good paper, and the colour work in practically all cases is very well produced. It should be attractive to the dilittante collector, and also to a large number of nature lovers, whose attention it may well direct towards the closer study of some of the world's butterfly fauna.—S.N.A.J.

*Reverting to the suggestion that surplus insects should be returned to the original habitat, this should be done with extreme caution, for overcrowding the food supply is just as sure a death as in the oviposition of an ichneumon or the beak of a bird.—Ed.

E. pulchellata Stephens: Foxglove Pug.

Native. Woods, shingle beach, waste places, etc.; on *Digitalis purpurea*. Frequent and recorded from all divisions, except 2 and 4.

The moth is univoltine it seems, appearing on the wing from late May to early August. In 1921, however, H. G. Gomm (*Diary*) found one at rest on a wall at Margate on May 7, an exceptionally early date; and in 1907, A. R. Kidner (*Diary*) records taking one at Blackheath on September 9, perhaps a second generation example.

The species is especially plentiful at Dungeness, more so there it seems than anywhere else in the county. On June 1, 1952, I counted some eighty specimens there resting on the leeward side of a black hut (C.-H.); on June 7, 1950, there were 76 inside a derelict house (E. C. Pelham-Clinton); and on June 11, 1932, de Worms (*Entomologist*, **66**: 50) saw the moth in "swarms . . . flying round sallow bushes". Wakely (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 78) records the larvae as plentiful at Dungeness in flowers of *D. purpurea* on July 9 1955; and A. J. L. Bowes (*Diary*) found the larvae abundantly there on this in August 1934.

VARIATION.—The following abs. are in R.C.K.:—*guttata* Cockayne, ♀ holotype, Lydd, August 3, 1937 (cf. *Ent. Rec.*, **65**: 167); *reducta* Bastelb., one, bred Kent, May 10, 1940, E. A. Cockayne; ab. "dull ochreous", bred Kent, May 18, 1940, E. A. Cockayne.

FIRST RECORD, 1831: Birch Wood (Stephens, *Haust.*, 3: 280).

E. irriguata Hübner: Marbled Pug.

Resident, now long extinct. Woods [on oak].

1. Birch Wood, rare (Stephens, *Haust.*, **3**: 290); larva found September 1841, imago bred April 29, 1842 (Douglas, *Entomologist*, **1**: 358).

6a. Darenth Wood, rare (Stephens, *loc. cit.*).

[8. Dover, in "woods" (Webb, 1891; Webb, 1899). Wanting confirmation (C.-H.).].

[13. Tunbridge Wells* (M. M. Phipps in Knipe, 1916). Wanting confirmation (C.-H.).].

FIRST RECORD, 1831: *Eupithecia variegata* (Stephens, *loc. cit.*).

E. exiguata Hübner: Mottled Pug.

Native. Woods, hedgerows, bushy places; on hawthorn, oak.

1. West Wickham, three, May 1859 (Allchin, *Ent. week Int.*, **8**: 4); common, June 1, 1861 (Fenn, *Diary*); May 22, 1949, June 2, 1954, 1957 (C.-H.). Lewisham, May 21, 1861; Blackheath Park June 4, 1861, very common; Courtfleet Wood, Erith, June 13, 1884 (Fenn, *Diary*). Lee (*V.C.H.*, 1908). Kidbrook; Bexley; Eltham (*Wool. Surv.*, 1909). Forest Hill (Cansdale, *Ent Rec.*, **2**: 69). Petts Wood, 1950 (E. Evans); frequently (A. M. & F. A. Swain). Orpington, one, June 1953 (R. G. Chatelain).

2. Gravesend; Faversham (H. C. Huggins).

3. Broad Oak, May 22, 24, 1939, June 5, 1944 (C.-H.).

5. Farnborough*, common (W. Barnes, in *Wool. Surv.*, 1909). Chelsfield, one, May 24, 1950 (A. M. & F. A. Swain). High Elms, larva on hawthorn (D. R. M. Long).

6. Fawkham Green, larva October 1930, imago emerged May 1931; Ridley, larva, October 11, 1931, imago emerged May 1932 (A. R. Kidner, *Diary*).

6a. Darenth, larvae found feeding on oak (Machin, *Entomologist*, **4**: 128). Chattenden (Chaney, 1884-87); June 4, 1892 (Fenn, *Diary*). Gravesend district* (H. C. Huggins).

7. Wigmore Wood (Chaney, 1884-87). Westwell, common (Scott, 1936; Scott, 1950).

8. Wye*; Brook* (Scott, 1950). Folkestone Warren (Knaggs, 1870). Dover district, "common in the woodlands" (E. & Y., 1949). Dover, a few (B. O. Gardiner).

9. Thanet (H. C. Huggins). Birchington, June 10, 1952 (W. D. Bowden).

11. Hoads Wood, larva on hawthorn (Cue MS).

12. Ham Street (G. V. Bull); in Orlestone Woods, April 10, 24, 1939 (C.-H.); in Orlestone Woods, June 2, 1956 (R. F. Bretherton). Kingsnorth (Scott, 1936). Ashford (P. Cue). Thanington, one, June 1, 1950 (R. Cheesman)†. West Ashford, one, May 10, 1960, one, May 25, 1960 (M. Enfield). Willesborough, one, 1959 (D. Youngs); one May 1960, one, June 1960, one, June 1961 (M. Singleton). Ashford, a larva, imago reared April 1961 (M. Singleton).

13. Tunbridge Wells* (Knipe, 1916). Goudhurst, one, 1959 (W. V. D. Bolt).

14. Sandhurst (G. V. Bull).

16. Folkestone, one or two (A. M. Morley).

First Record, 1860: West Wickham (Allchin, *Ent. week. Int.*, **8**: 4).

E. insigniata Hübner: **consignata** Borkhausen: Pinion-spotted Pug.

Resident, perhaps native. Old apple orchards; [on apple].

The species is widely distributed in Kent, but appears to be mainly Wealden and very scarce. According to Barrett (*Lep. Br. Isles*, **9**: 35), its apparent rarity in Britain "doubtless arises from its habit of keeping about the tops of the apple-trees."

1. Near Birch Wood (Stephens, *Haust*, 3: 290).

8. Wye, one, bred 1906, in E. Goodwin coll. (C.-H.).

10. Otford, one imago taken off an apple tree at the Bull Inn (L. W. Newman *teste* W. A. Cope), nine in R. C. K. bred, Otford, May 1909, L. W. Newman (C.-H.).

11 Tonbridge, one April 23, 1871 (Raynor, *Entomologist*, **6**: 79).

12. Ashford district, exhibited (Chittenden, *Proc, S. Lond. nat. Hist Soc.*, **1899**: 107). "Mid. Kent" [?Ashford district], ♂ and ♀ taken by G. H. Heath, May 13, 1913 (Heath, *Trans. Cy Lond. ent. nat. Hist. Soc.*, **1912-13**: 35). Willesborough, one in m.v.l. trap, May 22, 1955 (W. L. Rudland). Ashford Town, in garden, at m.v.l., two fresh, May 12, 1954, one worn, June 11, 1956, one, May 8, 1958, one, May 9, 1961 (Cue MS.; Cue, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1954-55**: 23).

13. Pembury (Stainton, *Man.*, **2**: 84).

14. Sandhurst, one, May 25, 1929, one, May 15, 1932, one May 16, 1932, one, May 14, 1939 — all at light (G. V. Bull; Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1935-36**: 39). Wittersham, one taken by R. C. Tuely (Tweedie. *Proc. S. Lond. ent. nat. Hist. Soc.*, **1962**: 48).

First Record, 1831: Taken "near Birch-wood" (Stephens, *Haust.*, **3**: 290).

E. valerianata Hübner: Valerian Pug

Native. Damp woods; on *Valeriana officinalis.*

[6. Rochester district*, 1905, "in breeding cage" (Ovenden, *Ent. Rec.*, 18: 18).]

11. "Benenden 5.8.1946 G. V. Bull", one so-labelled in my coll. (C.-H.). Hoads Wood, about 12 larvae on flower heads of *V officinalis*, July 22 and August 2, 1958, from which I bred a single imago May 15, 1958, also an *Apanteles* sp. parasite (C.-H.); larvae, July 1960 (Cue MS.).

12. Ham Street, one in RCK labelled: "Ham Street, bred 1950, G. Haggett" (C.-H.).

First (Confirmed) Record, 1946: G. V. Bull.

[(*E. pygmaeata* Hübner: Marsh Pug

Records almost certainly based on misidentification.

5. Chevening, May 3, 1912 (Gillett, *Diary*); in light trap, one, May 20, 1914, by F. Gillett (Prideaux, *Entomologist*, **47**: 228).)]

E. venosata Fabricius: Netted Pug.

Native. Chalk downs and rough chalky places, Kentish rag quarries, etc.; on *Silene cucubalus.*

1. [West Wickham], 1861 (Huckett, *Ent. week. Int.*, **10**: 115). West Wickham, larvae on *S. cucubalus*, 1947, imagines reared (C.-H.); 1951 (E. E. J. Trundell). Erith (C. Fenn, in *Wool. Surv.*, 1909). Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Wilmington (L. T. Ford). Orpington, 1954 (L. W. Siggs).

2. Dartford Marshes, one, June 17, 1962, three at bladder campion flowers, May 27, 1964 (B. K. West).

3. Oldridge Wood, larvae (J. A. Parry).

5. Farnborough* (W. Barnes, in *Wool. Surv.*, 1909). Chevening, larva 1911; June 8, 1912; May 21, June 6, 1914 (Gillett, *Diary*). Westerham (R. C. Edwards). Lullingstone (D. R. M. Long).

6. Greenhithe (Farn MS.). Otford (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1902**: 50). Gravesend, on fences, one, May 24, 1912, one June 11, 1915 (F. T. Grant); (H. C. Huggins). Swanley, 1917 (Colthrup, *Ent. Rec.*, **30**: 73). Shoreham (S. F. P. Blyth). Longfield, a few larvae, July 5, 1931 (Kidner, *Diary*), Eynsford (Jacobs, *Proc. S. Lond. ent. Hist. Soc.*, **1932-33**: 89). Pinden; Horton Kirby (E. J. Hare). Otford and Farningham, larvae, July 6, 1958 (A. J. Showler)

6a. Darenth Wood (Stephens, *Haust.*, **3**: 290); larva, July 12, 1903 (Kidner, *Diary*); (S. F. P. Blyth). Cobham Great Wood, one, May 23, 1868 (J. J. Walker MS.).

7. Faversham (see *First Record*). Darland Hill (Chaney, 1884-87). Westwell (Scott, 1936).

8. Folkestone Warren, larvae on *S. cucubalus* (Knaggs, 1870). Dover Cliffs, June 24, 1932; Ewell Minnis, June 5, 1933 (J. H. B. Lowe). Wye (Scott, 1936). Brook (C. A. W. Duffield). Adisham, larvae on *S. cucubalus*, 1947 (C.-H.). Deal*, two, August 18, 1899 (H. D. Stockwell, *Diary*). Dover, one, 1945 (B. O. C. Gardiner).

11. Tonbridge (Raynor, *Entomologist*, **6**: 79). Wateringbury (*V.C.H.*, 1908).

12. Great Chart, one, June 23, 1956, in Goldwell Quarry (C.-H.).

FIRST RECORD, 1799: *Phalaena decussata* . . . "taken at Faversham by Mr Crewe" (Donovan, *Nat. Hist. Br. Ins.*, **8**: 38).

E. centaureata Denis & Schiffermuller: Lime-speck Pug.

Native. Saltmarshes, woods, gardens, shingle beach, waste ground, etc.; on *Senecio jacobaea, Polygonum aviculare, Aster tripolium, Pimpinella major, Knautia arvensis, Peucedanum officinale,* dahlia. Frequent and recorded from all divisions except 7 (probably occurs). "Generally common" (*V.C.H.* 1908).

The larva appears to be a fairly general feeder on the flowers of both cultivated and wild plants. It has been recorded as having been found on *Senecio* at Dungeness, September 24, 1955 (E. C. Pelham-Clinton); on *S. jacobaea* at Chatham (Mathew, *Entomologist*, **23**: 347); on *Knautia arvensis* at Shoreham, and on dahlia at Littlestone (D. R. M. Long). J. W. C. Hunt found it on "Scabious" [*K. arvensis*] at the North Foreland; Edelsten (*Entomologist*, **78**: 192) recorded finding it in numbers in the Faversham district on *Peucedanum officinale;* and I have taken it on, and in each case reared it from, *Polygonum aviculare,* Sharnal Street, August 30, 1964, bred May 1965, on *Aster tripolium,* Seasalter, September 13, 1964, bred June 22, 1965, and on *Pimpinella major,* High Halstow, October 20, 1968, bred June 1969 (C.-H.).

The moth is apparently bivoltine, first appearing on the wing in May (usually during the latter half) and continuing throughout June to about mid-July with what may be a partial second generation in August and September. D. R. M. Long's earliest date at Bromley is May 13, 1961, his latest there September 22, 1965, with maximum daily total six on June 22, 1961. H. G. Gomm (*Diary*) records taking an imago in 1921 at Sarre on May 2, and in 1953, W. L. Rudland took one at m.v. light as late as October 3.

VARIATION. — The following aberrations are in RCK. — *centralisata* Stgr., one, Bickley, August 22, 1911, W. Rait-Smith; *obscura* Dietze, one, Lewisham, 1901; ab. having "median shade developed", one, Greenwich, September 1890.

FIRST RECORD, 1858: Folkestone (Tompkins, *Diary*).

E. trisignaria Herrich-Schäffer: Triple-spotted Pug.

Native. Woods, wet copses; on *Angelica sylvestris, Pastinaca sativa.*

3. Blean, one or two larvae on *A. sylvestris,* imago reared (H. C. Huggins).

5. Andrews Wood, Shoreham, one, July 15, 1956 (C.-H.).

6. Greenhithe* (Farn MS.). Otford* (*V.C.H.*, 1908).

8. Wye district*, larvae plentiful on *P. sativa* (Reid, *Ent. Rec.*, **20**: 13).

10. Sevenoaks* (*V.C.H.*, 1908).

12. Brook (C. A. W. Duffield, in Scott, 1950); larvae on *A. sylvestris,* 1958 and 1959, an imago bred (Cue MS.).

FIRST (PUBLISHED) RECORD, 1908: Kent [Wye district], September 1907, larvae "plentiful, though local, on *Pastinaca sativa*" (Reid, *Ent. Rec.*, 20: 13). Prout (*Entomologist*, **41**: 54) refers to P. C. Reid (*in litt.*, 21.ix.1907) as having noticed that *trisignaria* "were on the larger and more rampant plants along the edges of and just inside a copse."

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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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The Editor would be willing to consider the purchase of a limited number of certain back issues.

Notes on some of the British Nepticulidae, II

By A. M. Emmet

The current notes follow the pattern set by the first series and cover much of the same ground: that is to say, there is not much extension of the range of food plants. But there is plenty of new material. Three new species are added to the British list and one to the Irish list. Evidence is produced to show that three species hitherto considered to be British do not in all probability occur in this country. Three supposed species are reduced to synonymy. There is the first description in English of the imago of a species hitherto only recorded here from its mine and there are tables for the determination of some of the neps not in Meyrick (1928). Two life histories which have been erroneously described in our standard text-books are put right. Ten species of doubtful status are discussed and with some of them arguments are put forward for their retention or rejection as 'good' species. Attention is drawn to some of the errors in Beirne's *Male Genitalia of the British Stigmellidae,* and there is more besides. There is enough to justify me in once more putting pen to paper. Yet there is still much to be done, for knowledge breeds an awareness of ignorance, and problems, in this fascinating group, grow like hydra's heads.

The most important recent publication on the Nepticulidae has been *Notes on Nepticulidae I* by Roland Johansson. This paper, which is written in English, appeared in *Entomologica Scandinavica* **2**, 241-262, and was published in 1971. It falls into two parts, the first a general introduction and the second a revision of the oak-feeding neps of the *ruficapitella* group. I shall draw extensively on the second section in due course under the heading *Quercus,* but here I should like to discuss some of the interesting points raised in the introduction.

First of all, Johansson discards the name *Stigmella* (Schrank 1802) because it is a generalised description only without reference to a designated genotype; moreover, Schrank's description is inaccurate as applied to the Nepticulidae in that he says that the palps are absent, the tongue is present and the wings are rolled. Johansson therefore reverts to the name *Nepticula* (Heyden 1843) which was in general use until Fletcher re-introduced *Stigmella* in 1934. Thank you, Johansson! In saying this I expect I speak for every micro-lepidopterist in the country.

Nevertheless, there is still a problem. Johansson's revision came too late for full cognisance to be taken of it in the new edition of Kloet and Hinck's Check List, which was already in page-proof form and too far advanced for major alterations. The list, therefore, retains the name *Stigmella.* The purpose of the check-list is to give us standarisation of nomenclature and this can only be attained if we accept its rulings whether we like them or not. So I feel that in the interests of uniformity we should follow Kloet and Hincks unless an amendment

is published.

Beirne (1945) divided the Nepticulidae into nine genera as shown in my previous notes (*Ent. Record* **83**: 76): Johansson splits them into only two groups. The first of these, *Nepticula,* embraces Beirne's first two genera, *Stigmella* and *Nepticula.* Beirne's distinction was based solely on characters of the male genitalia such as the shape of the uncus, but was not reflected in the biology of the insects or the external characters of the imagines. Few people could remember whether a moth was a *Stigmella* or a *Nepticula* or could see why this should be so. In principle, therefore, I welcome this change, but will continue to use *Stigmella* for the reason given above.

Johansson recognises that his genus *Nepticula* is rather unwieldly, so he subdivides it into two groups of associated speces under the name of a member of the group. Thus we have the *aurella* group, the *ruficapitella* group, the *oxycanthella* group and so on. This is convenient only when the groups are homogeneous, but in some cases it appears that they are not.

The remainder of the Nepticulidae (Beirne's genera 3-9) are lumped together by Johansson into a single genus *Trifurcula* Zeller 1848 (*sensu lato*), but he retains Beirne's divisions as sub-genera. To divide one half of the family into groups and the other half into sub-genera is untidy and I cannot believe this policy will find wide acceptance.

Johansson makes two further changes in Beirne's nomenclature: he prefers *Ectoedemia* Busck 1907 to *Dechtiria* Beirne 1945 on the rule of priority, and *Scoliaula* Meyrick 1895 to *Bohemannia* Stainton 1859 on the grounds that the latter name is preoccupied. The new Kloet and Hincks concurs with the former but not with the latter amendment.

Johansson gives a useful list of the British and Scandinavian species of Nepticulidae classified as has been indicated. Nine of the British species are marked with an asterisk signifying "Status of species uncertain, in all probability synonymous with the preceeding species." Two more are marked with a double asterisk, meaning "Status of species uncertain." One of these latter is *ignobilella* Stainton and I hope I shall be able to settle this case once and for all in the notes which follow. I have no knowledge of the other species, *castanella* Stainton; the new Kloet and Hincks list regards it as doubtfully synonymous with *ruficapitella* Haw.

I do not know whether Johansson is expressing his personal opinion or current continental doctrine in his allocation of single asterisks, but I propose to consider each case. In some instances I have little of consequence to say, in others a good deal. I am sure that one of his asterisked species is synonymous and two are not; for the remainder I express my views with varying degrees of uncertainty. My opinions are based on biology rather than morphology and so may supplement the work of more professional naturalists.

I shall now proceed to discuss the pairs or groups of questionable species.

(1) *aurella* Fabricius
**nitens* Fologne
splendidissimella Herrich-Schäffer
**gei* Wocke
fragariella Heyden
**dulcella* Heinemann

I am treating these three pairs together as they belong to the same group. I have not yet studied them in detail, so I have little of moment to say. I have already discussed the case of *nitens* (*Ent. Record* **83**: 78-83), coming to the tentative conclusion that it is a good species; but my mind is still open. It seems that *nitens* has been scarce in recent years and further study has been held up for lack of material.

Certainly *gei,* as understood in this country, is not the same as *splendidissimella* which is a distinctive species as an adult. Our *gei* has the *aurella* pattern, that is to say the forewings have the basal third of a metallic hue, the outer two thirds purple or purplish fuscous, and a metallic gold or silver fascia just beyond the middle. It is quite likely that *splendidissimella* sometimes feeds on *Geum,* but (in Britain, at any rate) so does this other species.

There are certainly two species which feed on *Fragaria* and you can tell from the mine which one you are going to breed. That which comes from the larger mine with dispersed frass is what we call *fragariella,* while the little moth coming from the finer mine with the thin median line of frass is our *dulcella.* The adults look quite distinct and both do not necessarily occur in the same locality.

I shall now give a table comparing the species under discussion but omitting *splendidissimella.* It is based on insufficient material and represents a starting point, not a considered conclusion: it is there to be criticised and to provoke correction. Many heads have been scratched over these species during the last hundred years and there is more scratching to be done before we reach a final answer.

The description of wing-colours is difficult because they are structural rather than pigmental; this means that they look different when seen in different lights or from different angles. Possibly they look different to different people. This may explain the confusing contradiction in the descriptions of the several species in our literature. Moreover, the species are not strictly host-specific but from time to time trespass on each other's foodplants. For this reason the series in collections get mixed and entomologists imagine a degree of variation that does not exist.

It is well known that the genitalia of this group provide little help in determination. I wonder whether an analysis of the structure of the scales, especially those of the basal part of the forewing, would offer a surer basis for distinction.

Feature	*aurella*	*nitens*	*gei*	*fragariella*	*dulcella*
Wingspan	7 mm	5-6 mm.	5-6 mm.	5-6 mm.	4-5 mm.
Head	Deep orange	Orange to black	♂ orange, ♀ orange-fuscous	Blackish, possibly sometimes orange	Pale yellowish orange
Eyecaps	Pale orange	White	Yellowish white	Yellowish white	White
Forewings					
(a) basal ⅓	Bronzy shot with purple	Brilliant metallic green, costa often purple	Bronzy purple, costa more purple	Brassy green, costa often purple	Brownish or olive bronze
(b) outer ⅓	Deep purple	Deep purple fuscous	Deep violet purple	Deep purplish brown	Dark brown with a purplish sheen
(c) fascia	Rich golden	Yellowish silver	Silver to pale gold	Pale gold, narrow	Silver to pale gold broader
Foodplants	*Rubus, especially R. fruticosus*	*Agrimonia*	*Geum urbanum G. rivale ? Rubus* spp	*Agrimonia Fragaria, Rubus idaeus, R. caesius*	*Fragaria*

(*To be Continued*)

Butterflies collected in Catalonia in June 1971

By Otakar Kudrna, F.R.E.S.

This paper gives a short account of butterflies collected in Catalonia, Spain, during a fortnight from 6th to 20th June 1971. The main aim of this trip was to explore a low range of limestone mountains Sierra de Garraf located approximately between the city of Barcelona and the town of Sitges along the Mediterranean sea-coast, where Sagarra (1912) found *Pieris manni* Meyer and other interesting species. Unfortunately, this area was found to be full of cement-works and suffering from considerable pollution in general, a by-product of the recent industrialisation of Catalonia. Also the weather was rather unsettled in Spring 1971 and unusually cold during the whole month of May causing an unexpected delay in emergence of many species. Although the number of species actually met with is therefore somewhat limited, it may be of some interest to record the results of my collecting in Sierra de Garraf and other localities in Catalonia, from which we mostly have no recent records (Manley and Allacard, 1970). Nearly all further mentioned species are in my collection except Hesperiids, that are in the collections of the Royal Scottish Museum in Edinburgh and were determined by E. C. Pelham-Clinton.

A list of localities:

Segur (Province of Tarragona). A village some 15 km south-west of Sitges on the costal road. Collected on 10th June on sandy soils covered with poor grass and numerous flowering Compositae near the sea-coast.

Cubellas (Province of Barcelona). A village some 12 km south-west of Sitges on the coastal road and railway. Collected mainly on rough ground in dried-up river-bed of Rio Foix and in a few suitable places along the above mentioned road on 15th June.

Sitges (Province of Barcelona). A town some 40 km south-west of Barcelona on the sea-coast and main railway from Barcelona to Valencia. Collected mainly on the hillsides of "Prubellas" on various types of ground: sandy soils, pine wood, slopes covered with various species of shrubs, etc., on 8th, 12th, 13th, 17th and 18th June.

Garraf (Province of Barcelona). A village at the foothills of Sierra de Garraf, some 10 km north-east of Sitges on the coastal road and railway to Barcelona. Collected on steep and hardly accessible slopes of limestone hills facing the sea on 9th June.

Martorell (Province of Barcelona). A town north-west of Barcelona at the confluence of rivers Noya and Llobregat. Collected mainly in meadows along the road to Esparraguera on 16th June.

Olesa de Montserrat (Province of Barcelona). A village on the narrow gauge railway line Barcelona-Manressa. Collected

among orchards near the river Llobregat on 16th June.

Aereo Montserrat (Province of Barcelona). A narrow gauge railway and cable car junction under the famous Monasterio Montserrat. Collected in the deep valley of the river Llobregat on 11th June.

Monistrol (Province of Barcelona). Another village on the river Llobregat and narrow gauge railway Barcelona-Manresa. Collected on grassy hillsides and pastures on 11th June.

A list of species:

Papilio machaon hispanicus Eller—Abundant: Segur, Sitges, Olesa.

Pieris brassicae L.—Found only near Sitges, 1♂ and 1♀ 12.vi.71 and another specimen near Cubellas. Rare at the time, perhaps just the beginning of the Summer brood.

Pieris rapae L.—Although nearly a hundred specimens were taken and studied in order to ascertain whether *P. mannii* Meyer still occurred in the area (Sagara, 1912) all specimens proved to be the former species. Very common: Segur, Sitges, Garraf, Aereo Montserrat, Olesa.

Pieris napi dubiosa Röber—Found only in a small spot near Garraf: 1♂ and 4♀♀ 9.vi.71.

Pontia daplidice L.—Only two specimens were taken: Cubellas, 1♀ 15.vi.71 and Olesa, 1♂ 16.vi.71.

Leptidea sinapis L.—Not recorded from Catalonia for some 60 years (Manley and Allacard, 1970). Sporadic in pine woods on the top of "Prubellas" near Sitges: 1♂ 8.vi.71, 1♀ 12.vi.71, 1♂ 17.vi.71.

Anthocharis belia euphenoides Stgr.—A single freshly emerged female found in Aereo Montserrat 11.vi.71.

Colias crocea Geofroy—Common almost everywhere, in some localities whitish females ff. *helice* Hb. and *helicina* Obth. numerous.—Sitges, Olesa, Martorell, Segur, Cubellas, Aereo Montserrat.

Gonepteryx cleopatra L.—Sporadically, but not rare on bushy hillsides, mostly freshly emerged specimens: Garraf, Sitges, Aereo Monserrat.

Gonepteryx rhamni L.—Only one male seen but not taken near Aereo Montserrat, 11.vi.71.

Vanessa atalanta L.—The only specimen seen near Sitges 18.vi.71.

Vanessa cardui L.—Becoming common near Sitges and Cubellas.

Melitaea didyma occidentalis Stgr.—Males abundant near Sitges, single specimens also taken near Cubellas and Aereo Montserrat. The only female taken in Monistrol 11.vi.71.

Melitaea phoebe occitanica Stgr.—Only two specimens found: Cubellas, 1♀ 15.vi.71 and Sitges, 1♂ 17.vi.71.

Melanargia lachesis Hb.—Several males of both *M. galathea* L. and *M. lachesis* Hb. available in my collection from Spain, France, Italy and Czechoslovakia have been dissected.

There appears to be a probably constant difference in the male genitalia (i.e. uncus) supporting on morphological grounds the opinion that *lachesis* Hb. is not conspecific with *galathea* L. Apart from the fact that both species are known to be sympatric in France (Bretherton, 1966) and Spain (Manley and Allacard, 1970) without interbreeding. The intermediate forms known to occur along the distributional frontier between *galathea* L. and *lachesis* Hb. (Higgins and Riley, 1970) seem to be only superficial and therefore of limited taxonomic value. The individual variability in markings is characteristic of the whole genus *Melanargia* Meigen (i.e. Wagener, 1961). However, further investigation will be required to establish the fact beyond any doubt. *M. lachesis* Hb. found abundant: Sitges, Aereo Montserrat, Monistrol, Olesa, Martorel.

Melanargia occitanica Esp.—Only two very worn specimens taken: Monistrol, 2♂♂ 11.vi.71.

Pararge megera L.—Abundant: Sitges, Cubellas, Segur.

Pararge aegeria L.—Only a few specimens found on open rock hillsides near Sitges.

Lasiommata maera L.—A single male taken near Garraf, 9.vi.71.

Coenonympha dorus Esp.—Abundant in restricted spots: Sitges.

Maniola jurtina hispulla Esp.—Common and widely distributed: Sitges, Garraf, Segur, Cubella, Monistrol, Olesa, Martorel, Aereo Montserrat.

Pyronia bathseba Fabr.—Common and later becoming worn in Sitges and Garraf, single specimens found elsewhere: Segur, Aereo Montserrat.

Pyronia cecilia Vallantin—Less common than *P. bathseba* Fabr. and probably not fully out yet, as only one female was taken among more numerous males: Sitges, Segur, Cubellas.

Nordmannia esculi Hb.—Uncommon at the top or Prubellas near Sitges and in Garraf.

Strimonidia spini Schiff.—Only a few specimens taken: Sitges.

Lycaena phlaeas L.—Only two males found, possibly just the very beginning of second brood: Cubellas, Aereo Montserrat.

Lampides boeticus L.—Garraf, 1♂ 9.vi.71.

Syntarucus pirithous L.—Only Sitges: 1♂ 8.vi.71 and 1♂ and 1♀ 12.vi.71, a few other specimens seen.

Celastrina argiolus L.—Sitges, 1♀ 8.vi.71.

Aricia cramera Esch.—Cubellas, 1♀ 15.vi.71.

Polyommatus icarus Rott.—Common: Garraf, Sitges, Olesa.

Plebicula escheri Hb.—Aereo Montserrat, 1♂ 11.vi.71.

Lysandra hispana H.-Sch.—Rare near the coast and just emerging inland: Sitges, 1♂ 12.vi.71, Aereo Montserrat, 2♂♂

and 1♀ 11.vi.71, Monistrol, 1♂ 11.vi.71.

Carcharodus aleceae Esp.—Sitges, 1♂ 13.vi.71 and Cubellas, 1♀ 15.vi.71.

Carcharodus boeticus Rambur—Olesa, 1♂ 16.vi.71.

Thymelicus actaeon Rott.—Abundant: Sitges, Garraf, Segur, Olesa and Cubellas.

Acknowledgments

My thanks are due to Col. W. B. L. Manley for a gift of *Melanargia* spp. from Spain and Italy, to Dr Colin Smith for a gift of *Melanargia lachesis* Hb. from Madrid and *M. galathea* L. from Jaca and to Professor T. Weis-Fogh for his support of this work.

All names quoted for localities throughout the text correspond with Mapa militar de Espana, 1:200.000, published by Servicio geografico del epercito in 1968-69, sheets 9-4 and 9-5.

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Observations on British Butterflies in 1971

By Dr C. J. Luckens

(*Concluded from page* 21)

walls which were bulging with Cow Wheat. As this was the area for *Mellicta athalia* Rott. this wood seemed worth exploring, and sure enough we found a weak colony of this intensely local butterfly. The locality was not previously known to the Cornwall Naturalists Trust, but if *athalia* is to survive here, action must be taken speedily. In the very spot where the half dozen or so butterflies were flying a crop of young conifers were growing up, and the cow wheat, all but swamped was confined to a path circling the plantation.

We started to explore the valleys north of Bude on July 1st, our objective being to find *Maculinea arion* L. I might add however that we decided beforehand that no collecting would be attempted at all.

At Welcombe where we commenced, plenty of *Argynnis aglaia* L. were flying in the hot sun with early *Eumenis semele*

L. and *Melanargia galathea* L. just emerging. There were also a few *P. icarus* and *C. rubi* about, and the odd specimen of *C. selene,* some still in good condition.

The following morning I set off by myself over the cliff path and into several coastal valleys, finishing up near Hartland.

It was very hot and I saw many butterflies in incomparable surroundings — this North Devon cliff scenery is bettered by none (except perhaps the soaring Skye coastline of my youth). *A. aglaia,* already rather worn, was out in numbers dashing about in the sun, *M. galathea* in lackadaisical flight was present locally, and again late *C. rubi* and *C. selene* were noted. During the morning I encountered Mr Jenkyn of Stoke, who was deputising for the warden of one of the Devon Naturalists Trust Reserves. He was gloomy about the prospects of survival for *M. arion* in Britain. However around midday we twice saw large slatey-blue butterfiies flying past and purposefully, in a manner quite unlike *P. icarus,* and though identification could not be made for certain, Mr Jenkyn was of the opinion that these were probably *M. arion.*

That afternoon my wife and I revisited our newly discovered locality for *M. athalia* near the South Cornwall/Devon border. While I was standing waist deep in the young conifers watching these fritillaries, a full-grown Vixen suddenly bounded out of the bushes opposite and onto the path, where she stood about twenty feet away, blinking rather blearily in the sunlight. Suddenly she caught sight of my immobile form and coming even closer, peered with sleepy enquiry, screwing up her eyes as if to get me in better perspective. She trotted down the track a few yards to get a different angle, and then back again, all the time peering and wrinkling her eyes in puzzled curiosity. Eventually she decided that I was an excrescence on the landscape of no importance and sat down and scratched her ear with an air of boredom. I watched her for a long time as she sat on her haunches in the sun, until she eventually trotted off about her business. A day already memorable for rare butterflies was further enhanced by this unusual encounter.

I returned to the North Devon valley the following day, and on arrival at about 4 p.m. had a close view of another large grey-blue butterfly in flight which I am sure was not *P. icarus.* A short time later, while walking through some rushes, I suddenly spotted a butterfly at rest on a stem a few feet in front of me, and to my intense excitement I realised that I was looking at a female *M. arion*—the heavily spotted grey underside was unmistakable. As I approached closer, she flipped up, circled the clump of rushes several times making as if to resettle, and then changed her mind and flew strongly up the rough hillside where I failed to follow her. While I was searching for her resting place I disturbed a sunlazy black Adder, the existence of which Mr Jenkyn had told me about the previous day.

On July 5th, we travelled to South Cornwall again, to a County Naturalists Trust Reserve near Callington. In this locality *M. athalia* was flying in fair numbers but very worn. My impression is that the West-Country race of butterfly is more secretive in its habits in comparison to the Kent race that I know well. Even in hot sunny conditions the *athalia* I saw in Cornwall seemed to spend a lot of time with wings spread at rest, and on the wing, flight was low and fluttering. There were a few very worn *C. selene* about in the wood, and dozens of *M. galathea.* Over a sunlit bramble patch in the centre of the wood the first *Argynnis paphia* L. were sailing. The remainder of the afternoon was spent by the Upper Fowey river, where we swam in a clear shingly pool hidden by gorse and surrounded by the low hills of Bodmin Moor.

During the rest of our stay in the West Country I managed to cover, on foot, all the coastal valleys between Welcombe and Hartland Point. I sunburned badly, lost a lot of weight but saw no more *M. arion.* Several valleys look outwardly ideal for this fastidious insect — large clumps of Thyme on *Lasius flava* Ant mounds, sheltered by gorse bushes, were not uncommon features; an eternal optimist I cling to the hope that *M. arion* will soon make a come-back and perhaps re-colonise some of its haunts which remain suitable.

We started our homeward journey on July 10th, and stopped fleetingly in the New Forest en route. *Limenitis camilla* L. and *A. paphia* seemed scarcer than usual in one of our favourite glades.

After staying at Haywards Heath over the weekend I went over to Hampshire on the Monday to look for *Apatura iris.* L. Plenty of fresh *L. camilla* were about, a few *Thecla quercus* L., *P. C-album* and *Thymelicus sylvestris Poda,* but the main quarry was not to be seen. Two Roe deer put in an appearance however, and I had a good view of a weasel scampering over the forest path. On my way back *Plebejus argus* L. was emerging on a stretch of heath beside the road, and the same butterfly was abundant on Chailey Common the following day.

After our return to Ashford we paid a visit to Blean Woods on the 14th, and here at the opposite side of the country, we were once again looking at *M. athalia.* The colony that we have watched for five years now was still thriving, and we saw many specimens in fresh condition.

We motored over to Haywards Heath the following weekend and from there revisited some Hampshire and West Sussex localities for *A. iris,* on July 19th, I saw one of these splendid butterflies flying high over some oaks in a locality on the Hants. border, and that turned out to be the only definite sighting I had of *iris* for the season. I renewed aquaintances with Mr C. Wyatt however, and had a long talk with Mr R. Smith who that year had reared and released over forty imagines from ova laid by a female *A. iris* the previous summer.

In the afternoon my parents accompanied me to a West Sussex wood where many species of butterfly were on the

wing. Male *L. sinapis* of the second brood were already about with plenty of *P. icarus, A. paphia* and *L. camilla.* A worn *A. aglaia* was netted for identification and then released.

Three days later, back in Kent, *Thymelicus lineola Ochs.* was emerging in a coppiced wood near Shadoxhurst; flying in company with its congener *T. sylvestris* and also many *Maniola tithonus* L. in fresh condition. After practice one can soon separate these two skippers in the field by the underside coloration alone, referring to the distinctive antennae only in cases of doubt.

In some of the rides of Orlestone Forest we found *T. lineola* and *T. sylvestris* in roughly equal proportions, while in others (in the same woodland block) *T. lineola* was inexplicably absent. On the Wye downs the proportion of *lineola* to *sylvestris* was about one to five.

On July 23rd, a hot and sunny day, two specimens of *Argynnis cydippe* L. were seen in a wood near Ashford. This seems to be a scarce and local butterfly in Southern England nowadays, and I have never yet seen it in the New Forest where seemingly it was once common.

During the last few days of July and early August *L. camilla, P. c-album* and *T. quercus* were fairly common in Orlestone Forest. A single *C. argiolus* was seen on the fringe of Romney Marsh on the 1st of August, but this butterfly by no means came up to expectations this year, after its abundance in 1970 — the only other second brood specimen seen was a worn female on September 18th, feeding at a bramble patch.

A wide selection of commoner butterflies including fair numbers of *M. galathea* were flying on the Wye downs on August 5th, and altogether sixteen different species were recorded. But after a good start to the month, August weather became rather cold and windy by the 10th, and very few butterflies were about at Folkestone on that date.

However, conditions were better on August 18th when I went over to a locality near Eastbourne where last year we recorded several of the more local chalk lepidoptera. Plenty of *Lysandra coridon Poda* and *L. bellargus* were out on this occasion, with numbers of *P. megera, A. urticae, P. icarus, A. agestis,* and one or two *E. semele* and *Hesperia comma* L. This is the only place in Sussex that I know for *H. comma* though it is an insect that's fairly easily overlooked, and in my experience flies only in bright sunshine.

We had another beautifully fine day on August 25th, when we walked along the downs behind Folkestone. *L. bellargus* was about in large numbers but with very little variation present. Some of the females in the spring brood had been very dark with prominent orange lunules, and heavily suffused with blue scales, but this striking form was absent among the late summer butterflies. We found *L. coridon* conspicuous by its absence at Folkestone this year. I saw only one specimen flying with *L. bellargus*, but *A. agestis* and *P. megera* were

again fairly common in their second broods.

A very welcome bonus at the end of the season was provided by *Vanessa atalanta* L., which started to appear in numbers towards the end of August and continued well into the autumn. In fact the last butterfly of our 1971 season was a fine fresh Red Admiral seen by my wife in our garden on November 1st, after we had moved to Southampton. Up until then we could always be sure of seeing one or two feasting on the fallen apples during the extremely mild and sunny days of September and October.

We commenced the season with *E. aurinia* larvae and the last real entomological expedition was in search of the same when my father and I went on August 28th, to look for a locality near Guildford where this insect occurs. I had rather hazy direction but we found the place straight away and saw several larval webs within minutes of arrival. I collected a few caterpillars from one of the largest nests and these are now hibernating in their winter web on potted Scabious. We are looking forward to releasing the *aurinia* imagines next June in their place of origin.

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Cotton Jassid: A Nomenclatural Correction

By N. P. Chopra
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A short note on the nomenclatural status of the cotton jassid, *Amrasca devastans* (Distant) by Kapoor and Sohi (1972) in which the authors have advocated to retain the generic name *Amrasca* following Ghauri (1967) and replace the specific name *devastans* Distant 1918 to *biguttula biguttula* Ishida 1913 following Dworakoswka (1970) cannot escape severe criticism from taxonomists. The authors state that "when a new genus *Amrasca* has already been accepted widely and *Empoasca devastans* has many common characters enough to put it in *Amrasca,* there is full justification that the cotton jassid should be placed in *Amrasca*" although they have not examined the type species of *Amrasca* or other related genera. They have overlooked the fact that *Amrasca* Ghauri was proposed for a new species of Mango leafhoppers, *A. splendens* to which *Empoasca devastans* was transferred while *Sundapteryx* Dworakoswka was proposed especially for the type *Chlorita biguttula* Ishida 1913 (=*Empoasca devastans*). The authors' argument to retain the so called widely accepted generic name *Amrasca* for *devastans* Distant and reject *Sundapteryx,* which is a perfectly valid name, does not hold ground unless *Sundapteryx* is formally synonymised with *Amrasca.* It may be mentioned here that the time lag between the publications validating *Amrasca* and *Sundapteryx* is only three years. Therefore, following the code of Zoological

PLATE VI

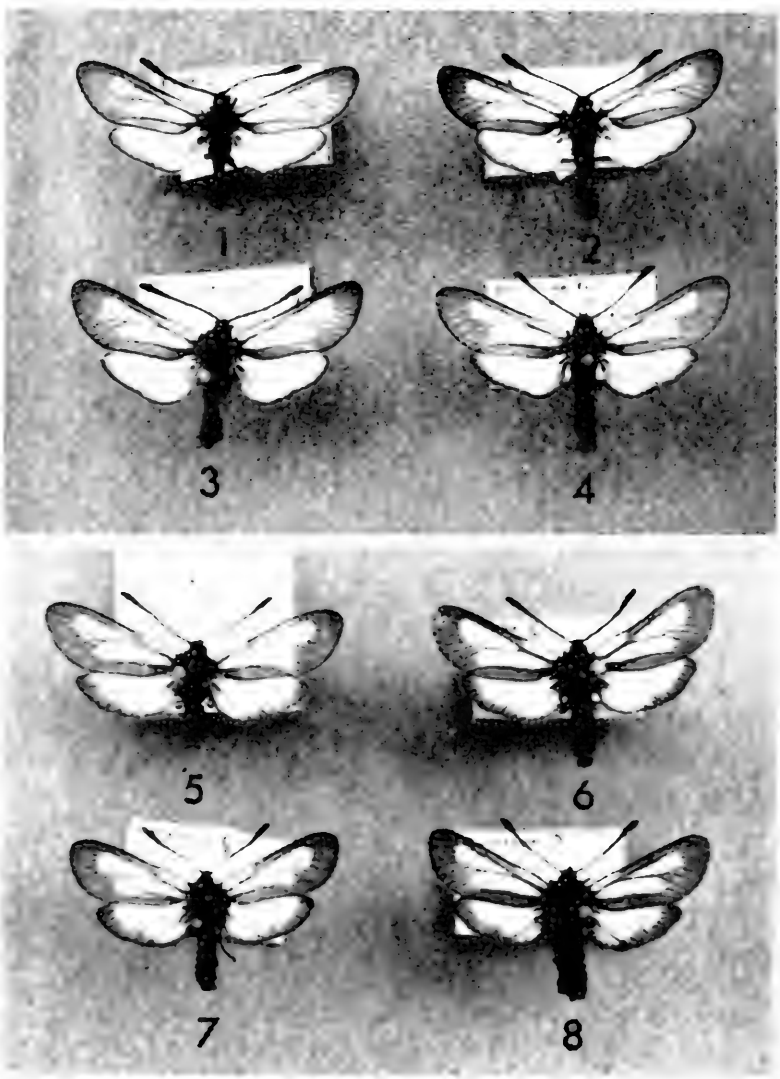

Fig. 1. *Zygaena adsharica tbilisica* n ssp. Holotype ♂, wingspan 28 mm
Fig. 2. *Z. adsharica tbilisica* n. ssp. Allotype ♀, wingspan 29 mm.
Fig. 3. *Z. adsharica tbilisica* n. ssp. Paratype ♂, wingspan 29 mm.
Fig. 4. *Z. adsharica tbilisica* n. ssp. Paratype ♀, wingspan 30 mm.
Fig. 5. *Z. adsharica ziganacola* n. ssp. Holotype ♂, wingspan 30 mm.
Fig. 6. *Z. adsharica ziganacola* n. ssp. Allotype ♀, wingspan 29 mm.
Fig. 7. *Z. adsharica ziganacola* n. ssp. Paratype ♀, wingspan 27 mm.
Fig. 8. *Z. adsharica ziganacola* n. ssp. Paratype ♂, wingspan 28 mm.

Nomenclature, it is evident that at present the correct scientific name of the common Indian cotton jassid must be *Sundapteryx biguttula biguttula* Ishida 1913. Kapoor and Sohi's publication (1972) does not validate the generic name *Amrasca* for the Indian jassid.

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On *Zygaena (Mesembrynus) adsharica* Reiss (Lep. Zygaenidae): Description of two new races*

By Hugo Reiss and Günther Reiss

Zygaena adsharica Reiss was described as a subspecies of *Z. araratensis Reiss* from specimens (in coll. H. Burgeff) from Achalzich (Chambobel and Adshara Mountains), Transcaucasia, (H. Reiss, 1935). H. Reiss (1930: 9, pl. 1h; 1933: 251) originally misidentified *adsharica* as *erebaea* Burgeff. Koch (1939) separated *adsharica* as a species distinct from *araratensis*, his material originating from Borshom, Georgia. Biological and distribution studies should verify Koch's assumptoin. Haaf (1952) figured the ♂ genitalia of *adsharica* from Achalzich under the name *erebaea* Burgeff. H. Reiss (1953) illustrates *adsharica*. Holik and Sheljuzhko (1955) treated *adsharica* as a species, basing their conclusions on material from northwest Transcaucasia, especially from the neighbourhood of Borshom. Of the population described below, only 1 ♂ from Tiflis was available to them. Alberti (1958) figured the genitalia and placed *adsharica* as a subspecies of *Zygaena brizae* Esper. We consider that *Zygaena adsharica* Reiss is one of the *brizae* group species that through isolation has evolved and developed into races, that differ materially from one another.

Zygaena adsharica ssp. **tbilisica** n. ssp.

We have 1 ♂, labelled Grusia, Tbilisi, 28.5—9.6 1964. leg Slaby; further, 5 ♀♀ labelled Georgia, Tbilissi Umgebung, 500-600 m, 15 and 19. 6 1970 (worn), leg. Muche, 2 ♂♂ with similar data, 18. 5. 1971, leg. Muche, 1 ♀, 20. 5. 1971, leg. Muche, and 19 ♂♂, 8 ♀♀ from the same locality, 500-600 m, 30.5. to 1. 6. 1971 (likewise worn), leg Muche. The flight period begins in the middle of May.

Wingspan: 3 ♂♂ 26 mm, 5 ♂♂ 27 mm, 8 ♂♂ 28 mm, 5 ♂♂ 29 mm, 1 ♂ 30 mm; 1 ♀ 23 mm, 1 ♀ 25 mm, 2♀♀ 26 mm, 1 ♀ 27 mm, 3 ♀♀ 28 mm, 4 ♀♀ 29 mm, 4 ♀♀ 30 mm. The antennae are distinctly clubbed in the males; in the females somewhat narrower. Thorax black with blue sheen. The abdomen is shortly haired in both sexes. The legs are blue-black, on the sides somewhat dirty yellow. The wing shape is pointed. The blue-black scaling of the forewing is thin. The streaks show a bright light carmine red. The red of the hindwing is even lighter, almost translucent. A limited enlargement of the streaks formed of spots 3-5 of the forewing is rare. The blue-black, likewise thinly scaled hindwing border is narrow in all specimens, sometimes only distinctly seen on the apex, otherwise extending along the inner margin. The black fringes are distinct. The underside is like the upperside only more matt.

We name this race **tbilisica** n. ssp. after the locality. Holotype ♂, 18. 5. 1971, wingspan 28 mm; Allotype ♀, 20. 5. 1971, wingspan 29 mm, and Paratypes in coll. Reiss.

The figures show the form and length of the antennae, the wingshape, the size and form of the forewing streaks and the hindwing border.

In coll. Reiss is a series of *Zygaena adsharica* Reiss from Cagveri, ca 900 m, near Borshom, which according to Holik & Sheljuzhko (1955) does not differ from the nominate race from Achalzich. According to the data labels these specimens were taken by Slaby from 7-10. 7. 1967. Further there are 1 ♂, 5 ♀♀ of *adsharica* leg. Neuschild, from Abastuman, 1909, from the Grusia Mountains, 1909, and from Borshom, 1910.

Compared with *tbilisica, adsharica* is on average smaller. The antennae are shorter. The blue-black scaling is denser and the red brighter. The forewings are more rounded at the apex. The forewing streak consisting of spots 3-5 sometimes diffuses outwards. The blue-black hindwing border is more thickly scaled, in breadth variable, but always broader than that in *tbilisica.*

Compared with *tbilisica, Zygaena araratensis* Reiss (1935) from Kasikoparan, West Armenia, is smaller. The two syntypes (♂♂) were further described, a lectotype (wingspan 21·1 mm) was designated, and the genitalia of the latter were illustrated by Reiss (1961). The antennae are shorter and more lightly clubbed. Forewing streak (3-5) is suffused outwardly compared with *tbilisica. Z. araratensis* and *adsharica tbilisica* are similar in the almost matt scaling of the wings and the narrow hindwing border.

The genitalia preparations of 2 ♂♂, 1 ♀ of *tbilisica* n. ssp. and the photomicrographs were prepared by Mr Fr. Heller,

* The order follows the systematic catalogue by Reiss and Tremewan (1967).

Museum für Naturkunde, Stuttgart, and show that this subspecies belongs in the *brizae group*. We are grateful to Mr Heller for his help.

Zygaena adsharica ssp. **ziganacola** n. ssp.

We received from Mr Rasse 1 ♂, 1 ♀ labelled Asia minor sept., near Hamsiköy, Zigana Pass, 1400-1600 m, 7. 1970 and 9 ♂♂, 5 ♀♀ from the same locality, 20 and 25. 7. 1971. The Zigana Pass (Zigana Dagli) lies in north-east Turkey, ca 50 km south of Trapezunt (Trabzon).

The wingspan is very variable: 1 ♂ 23 mm, 2 ♂♂ 25 mm, 2 ♂♂ 26 mm, 2 ♂♂ 28 mm, 1 ♂ 29 mm, 2 ♂♂ 30 mm; 1 ♀ 26 mm, 2 ♀♀ 27 mm, 1 ♀ 28 mm, 1 ♀ 29 mm, 1 ♀ 30 mm. Compared with the above mentioned series of *Zygaena adsharica* from Borshom, Abastuman and the Grusia Mountains in coll. Reiss, the new race appears to be larger and more robust, especially in the ♂♂. The abdomen, expecially in the ♂♂, has longer hairs. The dark ground colour of the streaks and hindwings is darker. In 2 ♀♀ the forewing is almost without a sheen. The red of the forewing streak (3-5) is somewhat suffused outwardly. The blue-black hindwing border is on average essentially broader, especially in the ♂♂. The black fringes are longer. The underside is similar to the upperside, but rather more matt.

We name this race **ziganacola** n. ssp. after the locality. Holotype ♂, 7. 1970, wingspan 30 mm, Allotype ♀, 20. 7. 1971, wingspan 29 mm, and the Paratypes in coll. Reiss.

We are indebted to Mr Fr Heller, Museum für Naturkunde, Stuttgart for the genitalia preparations and the photographs. The figures on the plate show the shape and length of the antennae, the wing shape, the size and form of the forewing streaks and the hindwing border.

We thank Mr Muche and Mr Rasse for sending us the material and the opportunity of describing it.

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New Forest Mercury Vapour Light Records for 1972

By L. W. Siggs

Another disappointing year for numbers of lepidoptera visiting the Minstead trap.

	Nights	Specimens Total	Average	Species Average
March	20	1296	65	9
April	30	2250	75	9
May	31	648	21	8
June	30	910	30	16
July	31	5470	176	50
August	31	3584	116	40
September	26	1800	69	19
October	26	1443	55	16
November	11	540	49	8

Comparison with the average daily catch over the 10 years may be of interest:—

	1962-71	1971	1970	1969	1968	1967	1966	1962-5
March	48	62	13	20	74	61	78	45
April	114	110	92	101	99	69	73	151
May	44	33	76	33	50	30	24	49
June	158	76	343	84	179	125	107	166
July	254	181	209	190	—	226	199	321
August	238	202	242	272	232	175	297	240
September	116	81	72	157	130	90	95	135
October	54	49	35	62	—	45	38	65
November	23	21	32	14	15	23	22	27

It will be noted that there is a great deal of variation. This is probably due to weather conditions, i.e. temperature, especi-

ally at night, humidity and wind. The minimum night temperature for June 1970 was 10°C and for 1972 7·5°C. The average catch was 343 and 30 respectively. The largest catch in 1972 was on 21st July with 787 specimens of 104 species, when the maximum day temperature was 24°C and the minimum night temperature was 16°C.

A comparison of 1972 with the 10-year averages shows that numbers were up in March and November, average in October, but down in all other months. We had a warm, sunny spell in the second half of March, but the high November figure was due to three special nights, 243 on 2nd with a minimum temperature of 8°C after a sunny afternoon and misty evening; 102 on 5th with a minimum temperature of 12°C, a new moon and some drizzle; and 85 on 6th with a minimum of 12°C. For the rest of the year, the weather was notoriously poor with nights colder than usual.

It is not surprising that most species came in far fewer numbers than usual. On the other hand, the fact that 10 species showed a "best ever" record in 1972 suggested further analysis. With two exceptions, the larvae hibernate and presumably have benefitted from the rather mild weather during the past winters. The figures for the eight hibernators are:—

	1972	Previous best since 1961
Cybosia mesomella L.	120	79
Idaea (*Sterrha*) *aversata* L.	225	193
Polia nebulosa Hufn.	125	42
Ourapteryx sambucaria L.	47	31
Hemithea aestivaria Hübn.	63	27
Apamea characterea Hübn. (*epomidion* Haw.)	16	9
Campaea margaritata L.	93	51
Thera variata Schiff.	50	40

Of the two exceptions, *Lomospilis marginata* L. 283 (198), had an influx of 89 specimens in 4 consecutive days in July, but I can suggest no reason for *Euplexia lucipara* L. 44 (19).

There were four additions to the Minstead list:—

Tethea or Schiff.
Perizoma (*Colostygia*) *didymata* L.
Hepialus hecta L.
Elaphria (*Hapalotis*) *venustula* Hübn.

The following species, which are not common here, were recorded:—*Agrotis vestigialis* Hufn., *Polia bombycina* Hufn. (*nitens* Haw.), *Cerapteryx graminis* L., *Arenostola phragmitidis* Hübn., *Apamea ophiogramma* Esp., *Cucullia asteris* Schiff., *Catocala nupta* L., *Polychrysia moneta* F., *Scopula imitaria* Hübn., *Larentia clavaria* Haw., *Pelurga comitata* L., *Eupithecia tenuiata* Hbn., *Cleorodes lichenaria* Hufn., *Selidosema brunnearia* Vill.

The local colony of *Lithophane leautieri* Boisd. has prospered; 31 were recorded. *Oeoegia* (*Procus*) *versicolor* Borkh., a recent novelty here, is flourishing with 15 recorded this year.

MIGRANTS. Worse than ever!

Lithosia quadra L. (5), *Agrotis ipsilon* Hufn. (13), *Lycophotia* (*Peridroma*) *porphyrea* Schiff. (4), *Autographa* (*Plusia*) *gamma* L. (73), *Nomophila noctuella* Schiff. (1), *Palpita unionalis* Hübn., (1), *Plutella xylostella* L. (*maculipennis* Curt.) (1).

POLYMORPHISM.

Biston betularia L.		*Idaea* (*Sterrha*) *aversata* L.	
typical	103 (80%)	*remutata*	168 (75%)
carbonaria	15 (12%)	*aversata*	57 (25%)
insularia	10 (8%)		

Eilema griseola Hübn. (typical 8, *flava* 1)
Alcis repandata L. (typical 88, *conversaria* 6)
Ectropis bistortata Goeze (*biundularia* Borkh). (typical 11, melanic 1)

The great bonus of the season was the appearance of *Ourapteryx sambucaria* L. ab. *olivacea* Standfuss (see *Ent. Rec.*, **84**: 248) and *Timandra griseata* Petersen (*amata* sensu auct.) ab. *nigra* Rebel. (see *Ent. Rec.*, **84**: 241.)

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Sungate, Football Green, Minstead, Lyndhurst, Hants.

Warwickshire and Beyond, 1972

By David Brown

Although most collectors will agree that the 1972 weather was poor and moths few, here in Warwickshire I had a quite remarkable season for I discovered on my doorstep good colonies of three very rare species for the county, *Xylomyges conspicillaris* L., *Arenostola fluxa* Hubn and *Trichopteryx polycommata* Schiff. *Fluxa* was indeed a new species entirely for the County list.

The season commenced at Charlecote on the mild night of January 22nd when my M.V. trap produced 4 *Phigalia pilosaria* Schiff and one *Conistra ligula* Esp.

During February I was, no doubt like many others, prevented from running my M.V. trap due to the coal strike and consequent call for economy in the use of power. As it happened weather conditions at this time were far too cold for anything to be on the wing.

On the 16th March I spotted my first butterflies of the year —2 *Aglais urticae* L. enjoying the spring sunshine in Victoria Park, Lemington Spa. I paid my usual spring visit to Ryton

Wood on March 17th. Ten species of Macro including 16 *Apocheima hispidaria* Schiff. came to light. The next day *Achlya flavicornis* L. was a welcome addition to my Charlecote list. But it was on the night of 5th April that I had a most marvellous discovery in a nearby wood which is rich with Ash and Privet. The heath trap produced 4 perfect *T. polycommata.* Obviously this wood has never been explored previously by Entomologists and expectations of further discoveries are high. On other nights further *polycommata* came to light while others could be found resting on the privet hedges. *Orthosia populeti* Fab. also proved very plentiful in this wood. On April 14th M.V. at Oakley Wood produced 110 moths including 5 *Panolis flammea* Schiff. while on the same night *Lithophane semibrunnea* Haw. appeared in my home trap and again on May 3rd together with *X. conspicillaris, Cucullia chamomillae* Schiff., *C. verbasci* L. and *Lampropteryx suffumata* Schiff. The M.V. trap at Walton railway embankment on the 7th May yielded *Clostera curtula* L. and at Charlecote further *conspicillaris.*

On the night of May 19th I had an unusual, yet unfortunate, bonus of moths in my light trap. An adjacent barn of hay went up in flames. The blaze singed a stand of Poplars and with my garden being situated to the leeward an abnormal quantity of Poplar feeding species were forced to transfer their quarters. There were high numbers of Prominents and the Puss moth. Curiously the village fete was held in the paddock adjacent to the burnt out barn on the following day—the shell and twisted remains proving an added attraction.

On the 29th June I set out to explore Ham Street Woods, which to me were fresh grounds. I was lucky to be allowed to operate my M.V. trap from a local farm, however, little of note appeared.

I found Ham Street Wood most disappointing, especially after reading in the Record the prolific experiences of other collectors. Admittedly climatic conditions were far from good but I am still of the opinion I would have caught more in local Warwickshire woods had I stayed at home. On every night at Ham Street I drew a blank. On 2nd July I decided to try Dungeness where at least something proved to be flying! By 1.00 a.m. a long list of species had been made including two new to me, *Hodena W-latinum* Hufn. and *H. lepida* Esp. The following day it was a delight to see *Melitaea athalia* Rott. still in good abundance at Blean Wood near Canterbury. I made steps for home on 4th July.

During the first half of July my garden trap attracted good numbers of *Polia nitens* Haw and *Apamea ophiogramma* Esp. On July 13th I found myself in Cambridgeshire staying at the same farm as last year in the village of Swaffam Priors. I was again allowed to operate my M.V. trap. I was also lucky with regard to weather conditions for it was hot and sunny during the day and each evening at dusk a thick cloud cover ap-

proached from the East Coast to give very warm and muggy nights. An interesting list of species was thus acquired.—*Lophopteryx cucullina* Schiff., *P. nitens, Hadena bicolorata* Hufn., *H. conspersa* Schiff., *H. lepida, Heliophobus calcatrippae* View., *Eumichtis adusta* Esp., *Apatele aceris* Linn., *Leucania obsoleta* Hübn., *Lygephila pastinum* Treit., *Gastropacha quercifolia* L., and *Apeira syringaria* L.

Meanwhile I motored to Wicken Fen each evening and operated my blacklights. During my ten day stay 115 species of macros were recorded at blacklight in the Fen. Some of the more interesting species were:—*E. adusta, Meliana flammea* Curt., *Leucania straminea* Treit., *L. pudorina* Schiff., *L. obsoleta, Simyra venosa* Borkh., *Craniophora ligustri* Schiff., *A. ophiogramma* Esp., *Coenobia rufa* Haw., *Chilodes maritima* Tausch., *Lithacodia fasciana* L., *Earias clorana* L., *Zanclognatha cribrumalis* Hubn., *Thumatha senex* Hubn., *Cybosia mesomella* L., *Sterrha interjectaria* Boisd., *Mesoleuca albicillata* L., *Perizoma sagittata* Fab., *Rheumaptera undulata* L., *Anticollix sparsata* Tr., *Epione repandaria* Hufn., and *Phragmataecia castaneae* Hubn.

Arriving back in Warwickshire on 22nd July my home trap on this night attracted 3 *A. ophiogramma,* 3 *Pyrrhia umbra* Hufn and *Unca trigemina* Werneberg. The night after M.V. at Oakley Wood produced *Rhyacia simulans* Hufn., 10 *Polia nebulosa* Hufn, *P. nitens* and on the following night another *simulans,* and *Spaelotis ravida* Schiff.

It was a delight on the 26th July to visit Ryton Wood and confirm the continued presence of *Limenitis camilla* L. gliding as usual along the rides of this large Oak Wood in the summer sunshine. They were in very fresh condition and evidently only just emerged. The Heath traps at this wood on the following evening produced *Boarmia roboraria* Schiff. This was a memorable occasion for it is now some fifty years since this beautiful species was last recorded at this famous old locality.

I journeyed over to the Wyre Forest on 29th July where *Minoa murinata* Scop. was flying freely in the sunshine. However, the main object of my visit was to assess the extent of *Argynnis adippe* Schiff. It is, sadly, a butterfly which has long disappeared from all its old Warwickshire haunts. I searched without success in many suitable looking parts of the Forest. Before leaving I decided to have a quick look along the disused railway embankment near Bewdley and was immediately rewarded by the sight of two specimens basking in the waning sunshine.

On July 31st I set out to North Wales on the wettest holiday I can ever recall, for from approximately 11.00 a.m. on this day until my return on August 2nd it rained continuously. Nevertheless I set up my moth traps in the Sychnant Pass near Conway. Despite the driving rain and a strong persistent breeze *Amathes ashworthii* Doubl. soon appeared,

still in good condition. Other species of note were:—*Diarsia dahlii* Hübn., *Amathes ditrapezium* Schiff., *Apamea furva* Schiff., *Nudaria mundana* L., *Colostygia olivata* Schiff., *Epirrhoe galiata* Schiff. and *Gnophos obscurata* Schiff. The following night 16 *ashworthii* appeared together with *Agrotis trux,* 2 *Sterrha eburnata* and 2 *Entephria caesiata* Schiff, plus the previous night's species. Despite the rain I returned home highly satisfied with my trip.

At Charlecote on August 5th *Strymonidia W-album* Knoch was numerous on bramble flowers, still in mint condition—quite a contrast with 1970 when this butterfly was in a worn state before the end of June! My garden trap that evening produced *R. simulans,* followed on the next night by *Anaplectoides prasina* Schiff.

On August 11th I took a second trip over to Cambridgeshire trying my lights in Chippenham Fen after dark. A rewarding 61 species of macro appeared on this cool and windy night. Species worth a mention are 5 *C. curtula, Arenostola fluxa* Hubn., 4 *A. phragmitidis* Hubn., 3 *C. rufa,* 12 *C. maritima, Lithosia complana* L, and 6 *Lygris testata* L. The following night was spent at Wicken Fen where 62 species were noted including *Harpyia furcula* Clerck, *S. ravida, S. venosa, Eremobia ochroleuca* Schiff, 14 *A. phragmitidis,* and *Z. Cribrumalis.* By searching the reeds and grasses many *A. fluxa* and *Nonagria dissoluta* Treit were located. Fully grown larvae of *Phlogophora meticulosa* L. were also plentiful. The night of 14th August proved to be the warmest of my stay and among some 50 species recorded at Wicken, 2 *H. furcula,* 2 *S. venosa, E. clorana* and 15 *Lithosia griseola* Hubn. were the best. In my M.V. trap at Swaffam Priors that night 8 *E. ochroleuca,* 2 *A. phragmitidis* and *Horisme vitalbata* Schiff. turned up. I returned home from this interesting expedition on the 15th August.

I spent an enjoyable evening on the 16th August watching numerous *Mormo maura* L. flying around an illuminated water-wheel on the Avon near Warbrick.

On 21st August I headed down south for a few days staying at Lulworth. It was nice to witness such a profusion of butterflies on the downs compared with this seasons scarcity in Warwickshire. A beautiful white variety of *G. obscurata* (ab. *calceata* Staud.) was netted after being disturbed from amongst some rocky ground. Over at Ballard down, Swanage, the hillside was alive with *Lysandra coridon* Poda but no notable varieties were found.

Back again in Warwickshire on August 28th I found a thriving colony of *A. fluxa* in a local wood which I had been meaning to explore for many years previously. On 30th August I blacklighted in Hay wood near Birmingham. This wood is a unique habitat in Warwickshire for it has an abundance of ling growing along its rides, it was therefore hardly surprising to find *Pararíarsia glareosa* Esp. in abundance.

I was pleased to welcome Dennis O'Keeffe at home on 1st September. By previous request I hoped to arrange a supply of *Cosmia diffinis* L. Accordingly we set up my two M.V. traps confidently in the garden. He then powered me off to Chesterfield to join Brian Elliot in whose domain we set up three heath traps and worked M.V. lights from two generators hoping to attract *Enargia paleacea* Esp. But unfortunately the sky became very clear to produce almost frosty conditions. Even so 4 *paleacea* did appear. Dennis and I arrived back at Charlecote at 1.20 a.m. I felt very guilty that my traps could only supply him with one *diffinis*!

Two days later I was happy to arrange a further invasion from the South. This time Bernard Skinner came to try for *diffinis*. Having rather more time on his hands I took him to a local lane lined with elms. He had far better weather conditions than Dennis and his 2 M.V. traps and blacklights produced 19 *diffinis* altogether.

Warwick County Museum contacted me on the 12th September to confirm identification on a large hawkmoth. It was, in fact, *Herse convolvuli* L. caught only a few miles away at Harbury.

A search of the broom bushes in Waverley Wood near Leamington Spa on the evening of 3rd November produced 20 *Chesias legatella* Schiff. I then tried ivy blossom growing over old walls in the nearby village of Weston under Weverley. Moths were feeding in plenty, especially *P. meticulosa* and *Agrochola lychnidis* Schiff., but only singles of *Peridroma porphyrea* Schiff. and *C. ligula*.

My final collecting expedition of the year took me south to Marlow hoping to locate *Ptilophora plumigera* Schiff. It was the night of 5th November and I set up two blacklights in the woods on the valley slopes near Medmenham. It was to prove rather a slow evening as there was little on the wing, indeed my interest tended to be diverted by the glows across the valley of numerous bonfires and the coloured patterns of fireworks in the sky.

I was about to abandon the trip when suddenly about 9 p.m. two specimens, one of each sex, arrived at my lights. Nevertheless, further waiting proved abortive and with the sky clearing and the temperature falling I had to be content with this small catch.

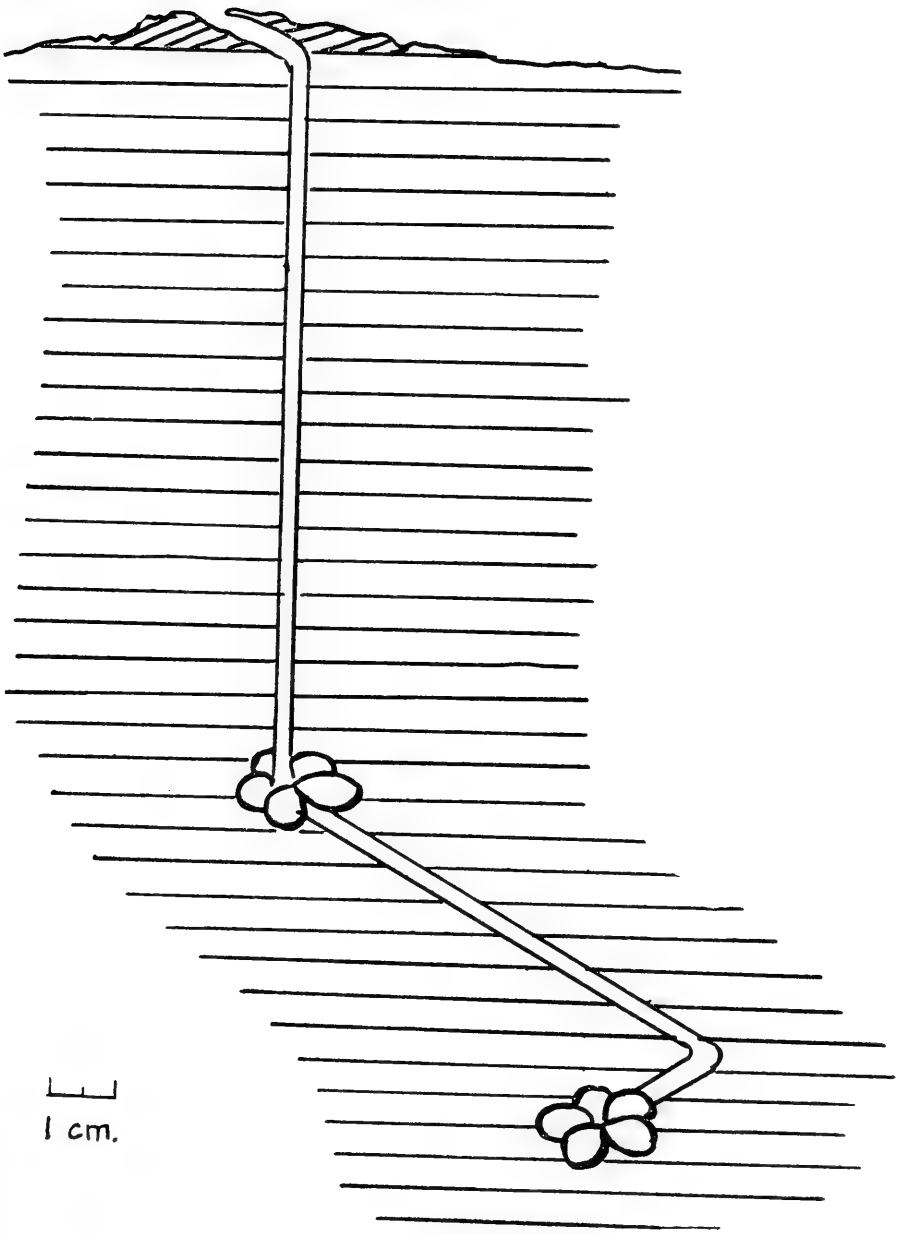
My year was pleasantly completed when a fellow Warwickshire collector and myself made a non-collecting visit to Brian and Mrs Elliott at Chesterfield. Time went all too quickly in enjoying seeing his meticulously arranged collection, visiting an impressive exhibition by his local Natural History Society, and before heading back to the Midlands partaking of their excellent hospitality.

Charlecote, Warwick.

On the Nest of *Halictus* (*Seladonia*) *jucundus komensis* Cockerell (Hymenoptera : Apoidea, Andrenidae)

G. R. Cunningham—van Someren

(*Concluded from page* 49)



Collecting Lepidoptera in Britain during 1972

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

The year 1972 opened with some very mild weather which was prevalent virtually throughout January with no really wintry periods. On the 16th of that month, Mr J. A. Greenwood accompanied me to Horsell Common where we were pleased to find quite a number of sticks of sallows apparently inhabited by second-year larvae of *Aegeria flaviventris* Staud., but as usual they were very difficult to bring through to maturity. February was equally congenial as a whole, again with no periods of cold weather which extended into March. *Biston strataria* Hufn. was on the wing by the last week of February with *Achlya flavicornis* L. soon to follow in the first days of March which in its second week saw the start of one of the warmest early spring spells during that month. For two weeks from the 13th to 27th the daily temperature was well over 60°F. and sometimes 70°F. with the result that there was a rush of early species with many of the hibernating butterflies on the wing. The sallow blossom burst into full bloom during the second half of March and was nearly over by the start of April in many parts of Southern England. During a visit to Dorset on March 19, Brimstones and Small Tortoiseshells were prevalent in many local gardens.

On 29th March Mr J. L. Messenger and I set out to spend the Easter holiday in the Wye Valley, making our headquarters at the very comfortable Beaufort Arms Hotel at Tintern as we had done in 1967 at this time of the year. We were able to set up our static m.v. trap in the car park of the hotel with very profitable results, especially with a good number of *Gypsitea leucographa* Schiff. as nightly visitors. Weather conditions were reasonably mild and rainy. The last day of March, Good Friday, we went over to Usk on a visit to Dr Neil Horton who had quite a flow of the spring species to his trap as well. April opened with a very congenial day. *Polygonia c-album* L. was especially numerous in the woods around Tintern. That evening we motored to Ledbury where we were entertained by Dr Michael Harper and his wife and after dark worked some nearby sallows which produced besides the common Orthosias *Cerastis rubricosa* Schiff., *Xylocampa areola* Esp., *Nycteola revayana* Scop., *Earophila badiata* Schiff., *Eupithecia abbreviata* Stephens, while some bushes near our host's house provided a single *Trichopteryx polycommata* Schiff. On our last evening April 2, near Tintern, we tried our m.v. lights in some woods slightly inland up one of the valleys leading into that of the Wye. In spite of rain there was quite a run of the usual spring species, including *G. leucographa, Cerastis rubricosa* Schiff. and *Orthosia munda* Schiff. as well as a single *O. advena* Schiff. and *Lycia hirtaria* L. Four nights running the static trap at the Beaufort Arms had yielded just on 400 insects with plenty of the common Orthosias, mainly *O. stabilis*

Schiff. *O. incerta* Hufn. and *O. cruda* Schiff. with a fair admixture of *O. gracilis* Schiff., also *O. gothica* in the ascendancy. On 2nd April there was a single *Lithophane socia* Hufn. Geometers were chiefly represented by *Earophila badiata* in some quite variable forms, also dark examples of *Trichopteryx carpinata* Borkh. and an occasional *Colostygia multistrigaria* Haworth. Our last night we had one *Chlorochlystis coronata* Hübn. *Biston strataria* was very numerous and there was a late *Phigalia pedaria* F. On Easter Monday, 3rd April, we went on to stay with Mr and Mrs Ronald Demuth at their fine home at Oakbridge, near Stroud, but it was an unfavourable night for the capture of any insects. We returned to Surrey on 4th April well pleased with our sojourn at Tintern and visits to the Forest of Dean.

Most of April was quite mild with average temperatures which brought out Orange-tips and the Holly Blue by the middle of the month as well as *Saturnia pavonia* L. On 21st April Mr Messenger and I beat sloe blossom near Kirdford and obtained several of the characteristic stumpy larvae of *Chloroclystis chloërata* Mabille, a Pug akin to *C. rectangulata* L. which Mr E. C. Pelham Clinton had bred out in 1971 and recognised as a British species for the first time. Later on when I compared my recently bred specimens with a small series I bred out in 1944 near Salisbury from the larvae also beaten from sloe, I realised I had had this new species in my collection for 28 years masquerading as *C. rectangulata.* The next day, the 22nd, I joined a party of the British Entomological Society at Effingham Common where we found larvae of *C. chloerata* Mab. quite numerous on sloe. In fact this insect was later found to occur in most localities over a wide area of Southern England wherever sloe blossom was in some plenty.

On April 23rd I motored to the New Forest to stay as before with Admiral Torlesse, but conditions were very unpropitious and virtually nothing of interest appeared at light in that region. The last week of April was still very mild with most of the early spring butterflies starting to appear, though the few warm days which ushered in May saw a fair spate of the Pierids which were reasonably numerous in the Chiddingfold area on the 7th, in particular *Pieris rapae* L, and *P. napi* L. But very cool conditions set in about the middle of the month which were to have a big influence on the whole subsequent season. However, a comparatively warm day on 21st May brought out quite a number of species again in the Dunsfold region. On this occasion *Leptidea sinapis* L. was now well on the wing together with a fair showing of *Clossiana euphrosyne* L., *Gonepteryx rhamni* L., *Pararge aegeria* L., *Pyrgus malvae* L. and *Erynnis tages* L. The last week of May too was far from spring-like. I left Morocco on 27th May returning on 15th June, having missed probably the coldest first half of June this century in Great Britain.

I was welcomed back to a fortnight of very inclement and wet weather with the daily temperature seldom rising above 65° F and never exceeding 70° F for the whole month which is almost unheard of. The result was that no really profitable collecting was possible and there were very sparse numbers of insects at light. On the last day of June I paid my customary midsummer visit to the East Kent woods making my headquarters at Ashford. But even in this rich region three nights running a m.v. trap in the Orlestone woods near Hamstreet produced a very meagre harvest compared with most seasons at this time of the year.

The month of July started with a fairly warm day, but provided very little of note. The only species worth recording that night in the woods was *Euphyia luctuata* Schiff. which is still holding its own in that part of Kent. In spite of very promising conditions after a mild day on 2nd July only about a dozen species were seen at light. These included *Deilephila elpenor* L., *Pterostoma palpina* Clerck, *Dasychira pudibunda* L., *Plagodis dolabraria* L., *Alcis repandata* L., *Pseudoboarmia punctinalis Scop.* and *Biston betularia* L. By now the year was well behind the average for normal dates of emergence and in some instances such as that of seeing *P. punctinalis* Scop in early July, denoted its continuing in the wing nearly a month later than its usual time of appearance in early June. However, there were signs of an improvement in this very bleak summer when I motored to Portland on 7th July with Mr J. L. Messenger. We once more made our headquarters at the Pennsylvania Castle Hotel where we were again given facilities for setting up our static m.v. trap in the garden overlooking the cliff at Church Ope Cove, but we struck on the whole fairly inclement conditions which precluded much night work and by day too the sun only shone fitfully. We met Mr H. E. Chipperfield on the evening of 8th July, but again it was far too windy to do any profitable collecting along the cliffs. To give an idea of the lateness of the season *Plebeius argus* L. was only just starting to appear among the many old quarry workings, mainly on the western face of the peninsula. However, when Mr Messenger revisited this area a month later with Mr Bretherton, this little Blue was in very good numbers with a spate of *Lysandra coridon*. Poda. *Maniola jurtina* L. too was also only just on the wing too. Three nights running our static trap at the hotel did not produce a very large harvest. *Arctia villica* L. came on the first two nights with one example having almost spotless hindwings. There were several *Dasychira pudibunda* L. also *Philudoria potatoria* L. and *Hippocrita jacobaeae* L. Among the noctuids *Leucania l-album* L. was by far the commonest species, while *Caradrina ambigua* Schiff. was fairly numerous. Other species seen included *Habrosyne derasa* L., *Spilosoma lutea* Hufn., *Heliphobus reticulata* Vill., *Hadena rivularis* F., *Agrotis ipsilon* Hufn., *A. clavis* Hufn., *Leucania pallens* L., *Plusia gamma* L.,

Crocallis elinguaria L. an early date. *Cleora rhomboidaria* Schiff. and *Aspitates ochrearia* Rossi. None of the local coastal species were noted. We returned to Surrey on 10th July after a brief stop in the New Forest where we found a few larvae of *Orthosia gracilis* Schiff. in tents on the bog myrtle, but no butterflies were seen.

The next day summer at last arrived with the thermometer rising into the 70's and for the next ten days insects emerged in a real spate both night and day. In the Chobham area *Plebeius argus* L. was at last well on the wing on 13th July. It was very a warm day on the 15th when I toured the Chiddingfold and Petworth areas, but was disappointed to see so few insects. The next afternoon of the 16th I joined Dr J. Holmes in the Woolmer forest region where again *P. argus* was now appearing in fair numbers. During the subsequent week the temperature more than once topped 80° F. On 21st July near Bisley, light attracted a good many species including *Mimas tiliae* L., *Notodonta ziczac* L., *Philudoria potatoria* L., *Thyatira batis* L., *Nola cucullatella* L., and the geometers *Perizoma alchemillata* L., *Xanthorhoe quadrifasciairia* Clerck. *Hemithea aestivaria* Hübn., *Ellopia fasciaria* L., *Semiothisa liturata* Clerck, *Alcis repandata* L., *Sterrha biselata* Hufn. and *Bupalus piniaria* L.

On 22nd July I paid another visit to the New Forest. En route I stopped in Alice Holt Forest for a short time in very warm conditions with 75°F in the shade, but little was moving except an occasional *Limenitis camilla* L. and a few *Aphantopus hyperanthus* L. *Apatura iris* L. was apparently not yet out. I once more stayed with Admiral Torlesse at Sway. That evening a Heath light placed in one of the rides of Rhinefields Enclosure attracted several species which included *Hyloicus pinastri* L., *Miltochrista miniata* Forst., *Ellopia fasciaria* L., *Laspeyria flexula* Schiff., *Boarmia roboraria* Schiff., *Sterrha inornata* Haworth, *Orthosia plumbaria* F. and *Ourapteryx sambucaria* L., while the only visitors to the sugar were *Apamea epomidion* Haworth and *Schrankia taenialis* Hübn. The next morning the trap at Sway contained at least 350 insects, among which were *Hyloicus pinastri* L., *Dasychira fascelina* L., several *Cucullia asteris* Schiff., a single *Chilodes maritima* Tausch, a rarity in the Forest, as well as *Parastichtis suspecta* Hübn. The next day, 23rd July, was somewhat of a disappointment, as so little was on the move at this height of the summer period. *Argynnis paphia* L. was only just starting to get on the wing, while hardly anything of note came to light in Holmesley Enclosure that night, except a few *B. roboraria* Schiff. The trap at Sway lodge next morning produced some more *C. asteris, D. fascelina* and a few *Apamea scolopacina* Esp. and one *Semiothisa alternaria* Hübn. On the morning of 24th July I called on Mr L. W. Siggs at Minstead and he showed me a remarkable aberration of *Ourapteryx sambucaria* he had just taken in which the ground colour was a bright sort of

emerald green all over. I then went on to the woods at Whiteparish, just south of Salisbury, where I met Dr John Eagles of Corsham. We were pleased to find a colony of *Melanargia galatea* L. with many of this delightful butterfly flying together with a few *A. paphia* L., *L. camilla* L. and many *Thymelicus sylvestris* Poda, but once again *Apatura iris* L. did not oblige. I returned to Surrey that evening.

Another fine and warm day greeted me when I met Mr Messenger and Mr R. Bretherton on White Down near Gomshall. *Argynnis aglaia* L. was careering about near the ground in fair numbers. Mr Bretherton had the good fortune to take a couple of the Clearwing *Bembecia scopigera* Scop (*ichneumoniformis* Schiff.) by meticulously sweeping the low herbage near flowers. Very few other butterflies were seen, not even *L. coridon* Poda at this quite advanced date. 29th July was another very fine day in the 70's. By now *Plebeius argus* L. was in full flight on the Surrey commons and quite fresh. Later that day I revisited Alice Holt Forest en route to Dorset, but yet again no Purple Emperors put in an appearance. I went to stay with my relations near Blandford and on 30th July accompanied them to Hod Hill where Marbled Whites were in plenty and there was a good showing of Chalkhill Blues and Meadow Browns. On my way home, the last day of July, I once more went to the Whiteparish woods where *M. galatea, Maniola tithonus* L. and *Thymelicus sylvestris* Poda were all in fair numbers. On the downs near Winchester *L. coridon* too was reasonably numerous.

August opened with a very wet and thundery day. On the 3rd I flew out to Malaya en route to Australia to attend the 14th International Congress of Entomology in Canberra, the third week of the month, thence to New Zealand, returning home via Fiji and Vancouver, the middle of September. Some very congenial weather welcomed me when I got back on the 18th, with the thermometer well in the 60's, and plenty of the late summer insects on the wing, in particular the Pieridae—mainly *P. napi* L. and *P. rapae* L. On the afternoon of 25th September I travelled by train to the Essex coast to stay with Mr Benjamin Fisher in he Thorpe-le-Soken area. It was a very cool night and the searching of *Peucidanum officinale* after dark, failed to reveal any *Gortyna borelii* Mab, of which he had the first one at light a few nights previously. *Ennomos autumnaria* Wernb. was one of the few visitors to the static trap, apparently quite common now in those parts. The last days of September were equally fine and warm, as was 1st October when I visited Mr Denzil ffennell at Itchen Abbas. Whites and *Aglais urticae* L. were still flying. The first week of this month saw the temperature over 65°F each day and this high level was well maintained when I once more travelled to Portland on October 6, staying as usual at the Pennsylvania Castle Hotel, but it was far too windy for much to be flying that night. Very misty conditions pervaded the area on the 7th when I motored over to Beer in South Devon to see Mr George

Woollatt. He showed me a fine *Celerio galii* Rott he had taken there in July, also a Jersey Tiger with almost melanic forewings and a complete absence of the cream stripes. But no insects were forthcoming in that region.

The night of 7th October was more propitious when I ran my m.v. light on the cliff overlooking Church Ope Cove, but there were not many visitors, only *Aporophyla nigra* Haworth. *Antitype flavicincta* Schiff., *Omphaloscelis lunosa* Haworth *Amathes xanthographa* Schiff., and *A. c-nigrum* L. However, this lack of insects at this spot was well compensated for by quite a spate at the static trip in the grounds of the hotel with over 300 insects on this and the following nights. A surprise arrival was a very late and somewhat worn *Cryphia muralis* Forst., also a *Nycteola revayana* Scop. However, two of the coastal species were well to the fore. These were *Leucochlaena hispida* Gey., and *Eumichtis lichenea* Hübn, in a very variable series with some very pale specimens. *Leucania l-album* L. was once more in abundance as was *A. nigra* Haworth with some eighty examples. Other noctuids included *Euschesis comes* Hübn., *Caradrina ambigua* Schiff., *Agrotis ipsilon* Hufn., *A. xanthographa* Schiff., *Phlogophora meticulosa* L., *A. flavicincta* Schiff., *O. lunosa* Haworth, *Agrochola lychnidis* Schiff. and a few *Plusia gamma L.* The geometers were mainly represented by a few *Larentia clavaria* Schiff., *Xanthorhoë designata* Hufn., *Dysstroma truncta* Hufn and *Aspitates ochrearia* Rossi. An unexpected visitor among the Pyrales was the pearl-white *Palpita unionalis* Hübn on the 7th, a migrant which had become quite scarce in recent years. 8th October was a very dreary foggy day, but a large bank of *Artemisia absinthii* yielded quite a number of larvae in all sizes of *Cucullia absinthii* L., but a fine wall of ivy that night proved a virtual blank. I motored back to Surrey on the 9th.

The rest of October provided some very fine autumn conditions which kept butterflies on the wing till right to the end of the month, *Polygonia c-album* L. was especially plentiful on michaelmas daisies, but *Pyrameis atalanta* L. seemed wholly absent in the south-east of England, though it was quite prevalent in the more westerley regions. On the 25th October, there were a good many *Oporinia dilutata* Schiff. at my sister's garden at Virginia Water. The first week of November was extremely mild with the temperature almost 60° F on occasions right up to the 7th of the month when a cold snap set in and numbers of insects declined rapidly. The remainder of November was for the most part very bleak with a milder spell returning in the last few days. I visited the Folkestone area on 1st December, but the only insect seen in that vicinity were a few *Operophtera brumata* L. This was the final observation for the year.

To sum up, 1972 was in general opinion a most disappointing year for numbers of our lepidoptera, possibly largely due to the most inclement June of the century which made it an

extremely late season. Such species as *Euphydryas aurinia* were mainly on the wing in July, quite a month later than normal. Migrants too were very scarce and except for a few *Pyrameis cardui,* the only outstanding species to visit our shores was a small influx of *Celerio galii* Rott. during the second half of July.

Notes and Observations

CUCULLIA VERBASCI LINN. ON ROMNEY MARSH.—On 7th May 1972, I found a specimen of *Cucullia verbasci,* Mullein Shark, in my Rothamsted trap at Boulderwall, Dungeness, Kent. Later in the year, on 28th June, Mr E. Carpenter of Lydd showed me a plant of *Verbascum thapsus,* Mullein, with some 30 larvae of *verbasci,* on the outskirts of Lydd town. These had been discovered by his brother on the previous day. These appear to constitute the first record of this species for Romney Marsh.—R. E. SCOTT, Boulderwall, Lydd. Kent. 2.ii.73.

THE ORANGE TIP (EUCHLOE CARDAMINES L.) OVIPOSITING ON DAME'S VIOLET (HESPERIS MATRONALIS) — I have collected Orange-tip eggs in this county for many years, mostly, I suppose, in the hope of rearing a good aberrant form, but until May 1972 I only ever found the usual 1, 2 or 3 eggs on a plant of Jack by the Hedge (*Alliaria petiolata*), Cuckoo flower (*Cardamine pratensis*), Charlock (*Sinapis arvensis*), and Hedge mustard (*Sisymbrium officinale*). However, I thought my experience in 1972, a poor season in this county for *cardamines,* might be of interest.

During May, in Hazleborough Woods, I was watching some butterflies, the large white (*Pieris brassicae* L.), the small white (*P. rapae* L.), the green veined white (*P. napi* L.) and the orange-tip flying round and feeding on a clump of the white flowers of Dame's Violet (*Hesperis matronalis*), some dozen plants in all. On taking a closer look, I saw the flowers and bud clusters had many eggs on them, and took six flower heads at random. These flower heads had 6, 7, 10, 12, 15 and 22 eggs respectively, all *cardamines,* many of which were freshly deposited. From these, reared singly as they are such avid cannibals, especially in the early stages, I had 56 pupae, only one of which was of the green form.

Now why were there so many eggs on these plants? There was not an abundance of females; only four were seen that day. Did the same females fly around and around the ridings hitting the same spot time after time? Or was priority given to this foodplant for ovipositing? In good years *cardamines* ova can be found throughout the town, giving the impression that the females are great travellers.—J. H. PAYNE, 10, Ranelagh Road, Wellingborough, Northants, 1.i.1973.

PLUSIA INTERROGATIONIS L. IN NORFOLK.—When visiting Mr Patrick Kearney after Christmas at his home at Cley-next-Sea in North Norfolk, I was most interested to note among his captures from his m.v. trap a very dark specimen of the Scarce Silver-Y which he had taken there on 1st August 1972. The insect in question was appreciably different from the forms usually associated with the Highlands, the north of England, Ireland and Wales, where it is a resident species. This specimen was much darker with a less mottled appearance and approximated well to a short series in the Natural History Museum coming from Lulea in Finland. It would seem that its source of origin was some part of Scandinavia. I gather that there have been other records of this species in southern England in 1972, and that there was quite an influx also in Holland where it is seldom seen. R. F. Bretherton (*Proc. Brit. Ent. Nat. Hist. Soc.*, **1972**: 106) gives a summary of records for these apparently migrant *P. interrogationis*, mentioning probably about 30 since 1945. There were no less than 14 during 1955. The only other record for Norfolk seems to have been in August 1964.—C. G. M. DE WORMS, Three Oaks, Woking. 4.ii.73.

LEUCANIA UNIPUNCTA ON THE ISLE OF CANNA IN JANUARY.—On 4th January 1973, there began a spell of calm high-pressure weather which lasted for a week, the temperature during that time being around 43° or 44°. On the evening of the 5th I put on the m.v. trap and next morning found one specimen of *P. meticulosa* L. and one of *H. defoliaria* Clerck. On the morning of the 7th there were five specimens of *H. defoliaria* in the trap, and to my great surprise, a perfect specimen of *L. unipuncta* Haw., paler than that depicted by South.

On 9th January there were two specimens of *P. meticulosa* in the trap, and on the tenth and the eleventh specimens were noticed in the house. I have found this moth in mid-winter before (17/12/66); but of the three specimens of *L. unipuncta* in the Canna collection, all very worn, taken previously, two were caught in October and one in May, the last in 1966. Can there have been a mid-winter migration of *L. unipuncta* and *P. meticulosa* recently?—J. L. CAMPBELL, Isle of Canna, Scotland.

Obituary

SIR COMPTON MACKENZIE

As is well known, Sir Compton MacKenzie died at his home in Edinburgh on November 30th, St Andrew's Day 1972. What is perhaps not quite so well known is that he was a lifelong lover of lepidoptera. Entomology was one of the many interests he maintained throughout his life; although he had not collected butterflies since his schooldays, he was always glad to discuss them.

In Octave Two of his "My Life and Times" (p. 99) he tells how, when eleven years old and returning from a school vacation spent in France with a collection of butterflies he had made and packed in eight cigar boxes, his collection was ruined by an officious customs officer who insisted on opening every single one of the cigar boxes with a chisel, in spite of protests from other passengers. "In that moment" wrote MacKenzie "I declared a vendetta against bureaucracy and I have maintained it all my life." One of the consequences of that vendetta was his comic novel "The Red Tapeworm".

Late in life Sir Compton MacKenzie became the owner of a charming converted farmhouse sixty miles north of Toulouse, in the foothills of the Dordogne, where much of the land had gone back to scrub oak and juniper after phylloxera had wiped out the vines before the first War.

The main motive for the acquisition of this haven was peace and quiet for writing, away from the crowded summers of the Edinburgh festival — he wintered in Edinburgh. But I am sure that a strong secondary motive was the abundance of the local butterflies, which gave him great pleasure. Within a quarter of a mile of his house there could be found as many species of butterflies as occur in Britain, if not more. Insects of all kinds were favoured there, not only by the terrain and climate, but by the fact that traditional methods of farming were still followed locally which meant that there was no chucking around of chlorinated hydrocarbon insecticides; and also, I am afraid, by the local habit of hunting small birds. There were very few small birds to be seen there, and this must have relieved the pressure on the lepidopterous population.

The writer was only able to take advantage of invitations to this beautiful spot for short spells in early May and late October, but even in that time he observed twenty-five species of butterflies there, including *P. podalirius* and *P. machaon*. In a sheltered little valley behind the house there were strong colonies of *C. hyale* and *L. bellargus*, and occasional specimens of *C. croceus* and *L. rivularis* on the wing in October, and of *M. deione*, *E. aurinia*, *M. cinxia* and *C. dia*, all on the wing together in early May. What a delightful thing to have on a property of 13 acres.

The writer is certainly not the only amateur entomologist who was indebted to the inspiration of Sir Compton MacKenzie's interest in butterflies, which in this case went back to Barra days in the early 1930s. One of Sir Compton's latest books, published in 1970, was *Butterfly Hill*, no. 13 of the Early Bird series. It was written to interest small boys in butterflies and their conservation; let us hope that it has won many converts to entomology in the present generation of schoolboys and their sisters.

J. L. Campbell

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 the candidates and of the plan of work proposed.

It is envisaged that awards would be made to assist travelling and other expenses necessary for field work, for the study collections, for attendance at conferences, or exceptionally for the costs of publication of finished work. In total they are not likely to exceed £150 in 1973.

Applicants need not be resident in the United Kingdom, and research in any part of the world may qualify.

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For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley BR2 9EE, Kent.

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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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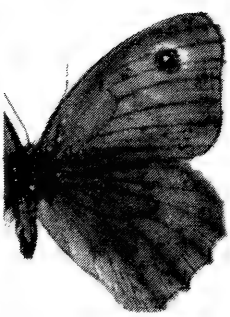
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Temperature Effects on *Maniola jurtina* (L.) (Lep. Satyridae)

by George Thomson f.r.e.s.

While it would be misleading to say that a great deal of fruitful research has been undertaken with livestock of the species, it is true that *Maniola jurtina* has featured fairly prominently in the breeding and rearing cages of those who partake of this time consuming activity. Most of the articles resulting from these 'experiments' have been devoted to expressing anguish at the difficulties of obtaining ova from the females or of bringing the young larvae through the precarious winter season, although a few have dabbled in minor genetic problems. The effects of temperature on the melanin pigments of the Pieridae and Nymphalidae as well as some moths are well known, but there is no record of such experiments on *jurtina* or any other Palaearctic Satyrid as far as I know. It has been suggested by those who are not familiar with the complex nature of the species that the occurrence of the known geographical phenotypes is the direct result of environmental conditions, particularly temperature, but, as was pointed out by Graves (1930) who probably knew the species better than any of his contemporaries.

"The theory that the Atlantic climate is the cause of the modification of *jurtina* in the direction of *hispulla* or of *hispulla* in the direction of *jurtina* is arguable, but it does not explain why maritime conditions produce such dissimilar results in Jersey and Brittany on the one hand and in the Scilly Isles on the other, or why the humidity of Cumbria and Merioneth has affected variation quite differently from the humidity of Tyrone".

This enigmatic situation could, in part, be explained in terms of selective forces working within rigidly isolated populations or population groups, and perhaps, in individual cases, as the result of the various remarkable phenomena which have been detected in the species—sympatric evolution (Ford, 1964) and temporal sub-speciation (Thomson, 1971). But unless the effects of environmental influences on the organism have been determined, the danger that data could be totally misinterpreted remains likely.

Key to Plate VII

Figures 1-12. *Maniola jurtina* ♀♀, experimental material: last larval instar and pupae kept at 30° C. Figures 1, 7 and 12 showing areas of wings in which scales have been detached during emergence (previously referred to f. *cinerea* Cosm.).

Figures 13-16. *Maniola jurtina* ♀♀, Dunblane, Perthshire, July 1972: collected in locality from which experimental material was obtained.

(Figures 1-7, 9-11: uppersides; 8-12, 16: undersides)

It was with this in mind that an attempt was made to resolve these problems. It is known that the critical period during which temperature has its effect on the resulting wing patterns is that of the late larval and early pupal stages. The use of swept larvae was, therefore, considered to be a satisfactory way of obtaining the livestock on which temperature experiments were to be carried out. It was hoped that a great number of these creatures would be obtained without too much trouble, but the experience of six nights work producing only twenty four larvae proved this to be rather optimistic in spite of the fact that expert advice on this method of collecting was kindly given by Mr W. H. Dowdeswell. The total sample was taken from one locality, a railway embankment in Dunblane where the species is common, and was collected over the period from May 21 until June 15 [May 21 (3), 27 (8), June 4 (7), 5 (4), and 15 (2)]. This was divided into two groups one of thirteen larvae which was to be reared through at a constant temperature of 30°C from the final larval instar, and the other into three sub-groups for periods of the first one, two and three weeks of the pupal stage at 6°C. The high temperature was maintained by a 100 watt electric light bulb enclosed within a one foot square metal box acting below the 'rearing box'. Fresh foodplant had to be supplied at least once a day, sometimes more often, as the heat quickly dessicated the grass. The low temperature group was kept in a domestic refridgerator. Both groups were kept in total darkness throughout the feeding period; even when foodplant was changed this was done in dark red light.

Larval/pupal period

High temperature: A remarkable acceleration of the growth rate was immediately noticed, the larvae feeding at gluttonous rate twenty four hours a day. Two of the fifteen larvae died as larvae and a further three as pupae. Larval size varied a great deal, but many pupated when still relatively small. Pupation took place between June 2 and 25 [June 2 (4), 3 (1), 5 (2), 8 (1), 12 (1), 19 (1), 23 (1) and 25 (1)]. Pupal markings varied considerably but they seemed to be far more lightly marked on average than those illustrated in the available literature or in that most eloquent description by Newman (1874).

"The colour of the chrysalis is pale apple-green, freckled with whitish or yellowish green, and adorned with purple-black markings, of which the more conspicuous are first, two dorsal series, commencing behind the head, passing on the fourth, seventh, eight and ninth segments, and continuous on the remainder; secondly, a series passing over the ears, and occupying the dorsal margin of the wing cases; thirdly, an angulated longitudinal stripe on the wing cases, dividing them into two nearly equal parts; fourthly, a shorter stripe nearer the tip of the wing cases; and fifthly, the cases of the fore and middle legs."

The only one of the markings described above which was conspicuously present in all of the pupae was the 'angulated longitudinal stripe', the remainder of the markings being more or less obscure. There was no correlation, however, between pupal markings and those of the imagines. The emergence began on June 11 and continued until July 3, and on the following dates: June 11 (1 with a further 2 dissected from the pupae), 14 (1), 19 (1), 24 (2), 30 (1), July 1 (1) and 3 (1). All the butterflies were female except a single male dissected on June 11. The period spent in the pupae ranged from seven to sixteen days, averaging 10.8 days, which represents between a half and one third of the period normally spent in the stage. Those which emerged later tended to have been those which had remained in the pupae longer, but not to a significant degree.

Low temperature: The larvae were initially placed at 6°C but when the fully grown larvae became totally inactive it was realised that pupation was not likely at that temperature and were placed at room temperature. By this time they had become appreciably larger than those kept at the high temperature. Pupation took place on July 11 (1), 12 (1), 13 (2), 20 (1), 21 (2), 23 (1), and 25 (1)., immediately after which they were returned to the refridgerator. Their colour varied a great deal tending to be rather lightly marked as was the case with the high temperature group. It was presumed that this divergence from the norm was due to local or geographical variation and not temperature. All of the nine pupae died within a short time of being removed from the refridgerator.

Comparison of the imagines

Because of the 100% mortality in the low temperature sample, the females reared at 30°C had to be compared with a series from the emergence in the same year (1972) and locality from which the larvae had been swept. Although it would be impossible to find out exactly what were the prevailing conditions in the locality during the late larval and pupal stages, it is certain that the temperature during that period never exceeded 20°C. During the period from the end of May. until the middle of July, when the *jurtina* from which the sample was taken would have been in these early stages, the temperature range was about 7°-13° (night) and 12°-20° (day). It would be safe to say, therefore, that the 'wild' sample lived through considerably colder conditions than those reared artificially. The species emerged in the locality on the July 13 and was on the wing until September 5. This was a week or so later than is usual in the area, but the spring and early summer had been remarkably unseasonal.

The upperside fulvous markings of the wings were modified by the high temperature, but only within certain limits. The length of the submarginal fulvous band on both fore and hindwings was unchanged (i.e. the total number of inter-

spaces in which the colouring is present). However, in all of the reared specimens the ground colour invaded the fulvous in one or more of the following ways:

a) as a suffusion of the dark scales of the ground colour (f. *huenei* Krul.)
b) by an encroachment of the ground colour along the nervures.
c) by reducing the width of the fulvous band, usually by an increase in the width of the outer margin.

Two of the specimens were rather small with a wingspan of only 43 mm and 46 mm compared to the average for the locality of about 52 mm. Effects other than these were not pronounced although there was an indication that the size of the apical eyespot and the intensity of the underside dark medial line and outer margin of the forewings were increased, but more material would be required to confirm this.

Three of the individuals had the appearance of an 'albino' type which is encountered more or less frequently in many parts of Britain and Central Europe and which, until now, I have placed under the name of f. *cinerea* Cosm. These forms are often reported to have scales which are malformed, lying at odd angles or totally lacking in some parts of the wing. The fact that three of the specimens resulting from temperature experiments were affected in this way one of them also lacking a great number of scales on the underside, seemed to be more than coincidence. Examination of the empty pupal cases of these individuals revealed that the missing scales were still adhering to the inner surfaces. Undoubtedly, the high temperature and consequential low humidity prevented the wing membrane from effecting a normal release. The scale malformation can thus be explained simply as a result of dessication, and the many published notes attributing this aberration to disease are shown to be misguided. It should be pointed out, however, that all the specimens which go under the name of f. *cinerea* are not due to improper emergence and reference to the relevant literature (Thomson, 1969) will assist in the identification of this form.

Ford (1945) and others have reported that a high temperature tends to restrict melanin production and a low one promote it. The results of experiments on *Aglais urticae* (L). are well known. The situation is reversed in the *Pieris* species and, as the brown colour in *jurtina* is, presumably, a melanin, this is also the case in this species and related Satyrids.

Temperature effects in wild populations

The effect of temperature on the wing markings of the species must be insignificant compared to its genetic make up, particularly if we consider the fact that these races which are more brightly marked with fulvous in the south of Europe must be subjected to considerably higher temperatures than those of central Europe. The subspecies *hispulla* Esper of

Spain and *jurtina* of North Africa differ from the races found further north, in France and Britain, to a greater extent than from each other. However, the modification of the fulvous in ssp. *jurtina* (and f. *fortunata* Alpheraky from the Canary Islands) in relation to that of *hispulla* (with its typically unbroken submarginal fulvous band) could well be largely environmental as they show the same tendencies which have been seen in the experimental material. The narrowing of the rather distinctive fulvous band of the individuals from the late emergence on the Isle of Wight (Thomson, *loc. cit.*) and parts of southern Europe could also be due to temperature alone but there are great dangers in drawing any conclusion in this field as many of the late emerging specimens could well be appearing at a much later date because of cool conditions prevailing in the early stages. The rather brightly marked females from south-east Sweden could well be the result of cooler conditions in the north than those to which ssp. *janira* of Germany are subjected.

Perhaps the best illustration of the temperature effect on the wing markings of other Satyrid species in the wild can be seen in the British *Pararge aegeria* (L.) This butterfly is interesting in that it passes the winter either as larvae or pupae. Those which 'hibernate' in the pupae, and thus in the relatively cool conditions of our winter, emerge in April, while those which winter as larvae pupate in spring and produce a brood in May and early June. The individuals of Generation I, part 1 (as termed by Ford) are much more extensively marked with fulvous than the specimens from Generation I, part 2. It is likely that all of the first brood *aegeria* from the west of Scotland pass the winter as larvae as they do not emerge until the end of May, thus passing through the pupal stage in spring. The markings of these butterflies are almost as light as the Generation I, part 1 specimens from the south of England; in some cases more so, reflecting the effect of the cooler conditions in the northern part of Britain. It is notable that the typical *aegeria* from southern Europe is, like *jurtina,* more extensively marked with fulvous than its northern counterpart, indicating, perhaps, a strong physiological as well as evolutionary relationship.

The total mortality of the low temperature sample, although disappointing, is interesting as it could suggest the limits to which the species can be subjected and, consequently, the reason for the range of the species in northern Europe and in the mountains. *Jurtina* does not fly much further north than 62° in Scandinavia although it is found in the Norwegian valleys a little further north. The species is not commonly found in places above about 1,000 metres in Central Europe and 1,500 metres in southern Europe. There are some notable exceptions to this, particularly the colony at Verbier in the Swiss Valais where the butterfly can be taken commonly at 1,750 metres. The inability of this insect to withstand seven

days at a temperature of 6° would strictly limit the northern and altitude distribution of *jurtina* and there is every possibility that it would do so to something very close to that which we find to-day.

Because of the inadequate numbers involved in this study, a few female *jurtina* were set to lay during the summer. Some 500 eggs were obtained. An attempt was made to force the hatching of 50 of the ova by placing them at 20°C but all died within a day. A similar fate met 50 first instar larvae which were treated likewise, and it was concluded that the remaining stock would not be exposed to high temperatures until they had reached at least the fourth instar. This would seem to show that the immature stages of this species are very intolerant of temperature excesses, whether they be high or low, which is remarkable when we consider the very wide distribution of the butterfly.

Conclusions

1. Temperatures of 6°-30° C maintained throughout the last larval instar and pupal stages had no effect on the pupal markings of *Maniola jurtina.*
2. A low temperature of 6° C prolonged the larval stage and encouraged the development of larger than normal larvae, but placed at this temperature for only seven days at the pupal stage created a 100% mortality.
3. A temperature of 30° C reduced the pupal stage to between one-half and one-third of the normal period, and reduced the fulvous markings on the upperside of the forewings and hindwings, but only within certain genetically determined limits. There was also an indication that the size of the apical eyespot was increased and the medial line on the underside of the forewings darkened, but not greatly or consistently.
4. While the effects of temperature can be seen in wild populations, the factors producing the known phenotypes of the geographical races are genetic and not environmental.
5. The northern and altitude limit of the species is possibly determined by the inability of the pupae to withstand low temperatures for periods as short as a few days.
6. The form *huenei* Krul. is directly, and the form *cinerea* Cosm. is indirectly the result of unusually high temperatures during the immature stages.

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On *Zygaena (Agrumenia) youngi* Rothschild (Lep., Zygaenidae)*

By Hugo Reiss and Günther Reiss

Zygaena youngi Rothschild was described in 1925 from 1 ♂ taken above Azrou, Middle Atlas, Morocco, as follows "75. *Zygaena youngi* sp. nov. Differs from *orana* and its subspecies by its much larger size, more brilliant red colour and in having the seventh outer spot longer and straighter. Expanse 23 mm. 1 ♂ above Azrou, Middle Atlas, 1800 m=6767 ft, Juni 1925." The description of the ♂ Type in Seitz, Suppl. 2 by Hugo Reiss (1930) reads "A ♂, found in June above Azrou (Middle Atlas), 1800 m, has on the forewings a light blue gloss and bright red coloration. Spot 2 somewhat enlarged, spots 3, 4 and 5 are so close to one another that they are weakly connected by their lighter surroundings. Spot 6 is placed more vertical than in *orana* and is almost without the light edging, whilst from spot 5 it is relatively widely separated. On the underside the forewing spots are weakly confluent. Antennae clubbed, round at the extremity. Head, thorax and abdomen deep black and fairly strongly haired. Outer sides of legs black-brown. We figure the Type from the Tring Museum." The figure on plate 3a shows too much yellow content in the red, and the edging of the spots is too strongly emphasised.

Tremewan (1961) figures the Type ♂ of *Z. younqi* Rothschild, 23 mm, 1.6.1925 (Hartert & Young); further, 1 ♂, 22 mm, from Lake Sidi Ali, Middle Atlas, 2250 m, 8.6.1925 (Hartert & Young), that was originally described as *Z. orana media* Rothschild (see also Reiss & Tremewan, 1960, with figures of the Type ♂ and the ♂ genitalia). Alberti (1958) placed *younqi* as a subspecies of *Zygaena maroccana* Rothschild. We would like to follow the opinion of Lord Rothschild and place *youngi* as a species, until biological knowledge which at present is lacking, is published. Wiegel (1965) wrote that he and his wife had studied the biology of *Z. youngi*. This will be published eventually. He says in advance that *Z. younqi* is a good species.

We received in exchange from Wiegel 1♂ 1♀ of *Z. younqi*, leg. H. and Ch. Wiegel, labelled Aguelmane de Sidi Ali, 2100 m, 19.5 and 23.5.1965: also 1 ♂ 1 ♀ labelled south of Azrou 2000 m, 13.6 and 22.6.70.

From the above mentioned specimens it can be seen with certainty that the population of *youngi* from the "Tache de Taza" (Tazafleck), Middle Atlas, that was described but not named by Reiss (1943), is different from the nominate race of *youngi*.

For the population from Tazafleck we propose the name **timeliltica** subsp. nov. For the variation of the race we refer to the description made in the year 1943.

*The arrangement follows the systematic catalogue of Reiss & Tremewan (1967).

In the year 1943 Hugo Reiss had before him from coll. Le Cerf: 8 ♂♂ 6♀♀ from a Cedar forest near Timelilt, about 15 km east of Djebel Ahmar, 1400-1700 m, 25 and 26.6.1928; 3 ♂♂ 2 ♀♀ from a forest near Taffert, south-south-east of Djebel Ahmar, about 15 km from the Military Post 1565, at the foot of the north side of the Djebel bou Iblane chain, 1500-1600 m, 21.6.1929; 3 ♂♂ 1 ♀ from the Military Post 1565 of Djebel Ahmar, 1700-1765 m, 17-21.6.1928 and 24, 27.6.1929; 1 ♂ 1 ♀ from the high valley of the Oued Soufouloud, near the village of Kzar el Kebir, 2200 m, 28 and 30.6.1929.

All these localities lie south of the valley of the Oued Zloul. In addition 1 ♂ 1 ♀ valley of the Oued Zloul, 1200 m, 17.6.1928

Of these specimens, 12 ♂♂ 9 ♀♀ (Types and Paratypes) are in coll. Le Cerf in the Natural History Museum, Paris. In coll. Reiss are found as Paratypes of *timeliltica*, 2♂♂ 1♀ from a Cedar forest near Timelilt, Middle Atlas, 1400-1700 m, 25 and 26.6.1928, leg. Le Cerf; 1 ♂ 1 ♀ from a forest near Taffert, Middle Atlas, north side of the Djebel bou Iblane chain, 1500-1600 m, 21.6.1929, leg. Le Cerf and 1 ♂ from the Military Post 1565 of the Djebel Ahmar, 1700-1765 m, 27.6.1929, leg. Le Cerf.

Z. youngi timeliltica appears on average somewhat larger than *youngi youngi*, the wingspan and size of the forewing spots, and the edging of the latter, can be seen in figures 35-39 (1943). The red appears less brilliant. The yellow-white edging of the forewing spots is, when present, narrower and somewhat paler than in *youngi*. Forewing spot 1 is strongly enlarged, extending along the costa as far as spot 3 in 10 ♂♂ 9 ♀♀, and as far as spot 5 in 2 ♂♂ 2 ♀♀. Spot 2 is enlarged, and in 10 ♂♂ 4 ♀♀ is broadly enlarged almost to the height of spot 3. Spots 1 and 2 are generally confluent with the red scaling from their base along half their length, then are separated by the blue-black ground colour, but in 2 ♂♂ 1 ♀ these spots are completely confluent with red scaling. Spot 3 generally reaches in size spot 5. Spot 4 is in size to spots 3 and 5. In 7 ♂♂ 6 ♀♀ spots 3, 4 and 5 are approximately of the same size. Spot 6 is almost always parallel with the axis of the body in set specimens; it is narrowly bow-shaped, generally narrower in the upper half and in 2 ♂♂ broken up by the dark veins. Spots 3 and 4 are, in comparison with those of *youngi youngi*, more or less widely separated in 2 ♂♂ 4 ♀♀, otherwise (1 ♂ excepted) these spots are joined by the yellow-white edging. In 1 ♂ 1 ♀ the forewing spots are without the pale edging. 4 ♂♂ 4 ♀♀ show distinct yellow-white edging around spots 2, 3, 4 and 5. 3 ♂♂ 2 ♀♀ have spots 3, 4 and 5 narrowly connected with yellow-white scaling along the veins, and in 3 ♂♂, 1 ♀ this yellow-white edging is suffused and connected to spot 2, as in the Type ♂ of *youngi*, see figure 39 (1943). The remaining specimens have rudimentary edging. In all specimens, spots 1 and 6 are without pale edging of the spots. In the specimens of *youngi youngi* before us, 1 ♂ 2 ♀♀ have rudimentary yellowish edging around spots 1 and 6. 1 ♂ 2 ♀♀ of *youngi* have, when compared with *timeliltica*, a dis-

tinct narrow line of yellow scales along the inner margin of the forewing, that however is joined to spots 2 and 4 only in 1 ♂; in 2 ♀♀ the edging of spot 2 is enlarged and is only narrowly separated from spot 4 by the dark ground colour. This yellowish line even goes as far as spot 4 in 1 ♂ 1 ♀.

The dark hindwing border often appears in *timeliltica* somewhat less strong than in *youngi;* in the latter it is generally visible as a distinct blue-black peg before the fold which is often less distinct in *timeliltica.*

The underside of the wing is somewhat more matt in *timeliltica* than in *youngi.*

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Colony Fission in the House Ant *Monomorium indicum* Forel (Hymenoptera : Formicidae)

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ABSTRACT. Some observations on colony fission and nest mates of the house ant *Monomorium indicum* Forel, from Punjab, are given.

Introduction

Colony fission (sociotomy) is one of the methods of founding new colonies among some social insects (Grasse and Noirot 1948, Ribbands 1953, Butler 1955) and social spiders (Bradoo, 1972). In certain species of ants, colony fission has been reported by Elton (1932), Ledoux (1950), Gosswald (1951), Duncan-Weatherly (1953), Schneirla (1956), Vanderplank (1960), Soans and Soans (1971). In this process, a considerable section of the population leaves an old nest and proceeds outwards forming a long column in which all the castes in the society are present. After covering some distance, they finally separate from the old nest and establish a fresh independent colony in a new nest.

Observations

The observations on *Monomorium indicum* Forel, as reported here, were made at 4 p.m. on 19th August 1972, at Abohar, Punjab. It was the second day of the first showers after a long summer and the sky was cloudy. The temperature at the time of observation was 25·5 degrees centigrade and the relative humidity was 86%. Numerous workers of *M. indicum* were emerging from a small opening located in the wall at the base of a cupboard in my room. They moved quickly along the cemented floor and many workers were carrying the whitish immature stages in their mouthparts. Simultaneously, some workers were also returning to the nest. But those coming out were more numerous, in a prominent trail that moved out through a nearest door into the compound. About 40 feet away from the original nest, the trail of workers entered a small crevice at the base of an adjoining house in the compound. While observing the back and forth movement of the workers, two winged ants (reproductives) were found moving slowly at two different places in the trail, surrounded by a large group of workers. At times, the winged ants moved outside the long trail but the surrounding workers forced them back for the onward journey till they finally entered the new nest.

The workers that emerged from the old nest were also accompanied by two types of nest mates, namely, a small black, unidentified Thysanuran and a minute apterous cricket of the genus *Myrmecophila* Latr. Both these nest mates ran very quickly with the workers up to the new nest in the compound. The crickets emerged one at a time from the nest exit after every 3 to 10 minutes. A total of thirty specimens of *Myrmecophila*, in different stages of growth including a few adults were collected by us. When disturbed, they rushed back to the old nest. When killed or disabled they were carried by the workers to the old nest. Schimmer (1909) records in his monograph that *Myrmecophila salomonis* Wasm. lives in the nest of *Monomorium salomonis* (L.) from Tunis.

The second nest mate of *M. indicum* observed during colony fission also emerged as single individuals from the old nest

and these black Thysanurans moved very fast among the workers, dodging every worker that came in front from the opposite side. Many individuals of different sizes of this nest mate were also collected during about one hour duration. When killed or disabled, they received the same treatment as the crickets. Soans and Soans (1971) reported colony fission in a South Indian species, *Monomorium gracillimum* Smith, from Kerala State, but they have found no nest mates in this species.

The movement of the ants between the two nests (old and new) lasted for more than four hours and by 8 p.m., no ants were observed emerging from the old nest. We estimate that during this four hour duration, at least 130 Myrmecophila and about 65 to 70 Thysanurans would have reached the new nest along with a large number of workers. However, all those workers that emerged from the old nest did not necessarily move into the new nest, as some of them returned from midway and many others came out of the new nest and moved towards the old nest. But no reproductives or immature stages were returning from the new nest. For most of the time, there was an intermixing of the workers of the two colonies along the trail and by 8 p.m., the number of ants gradually decreased and finally no individuals were found moving between the two colonies which apparently had become well separated and estabished independently.

Hence, in *M. indicum*, colony fission involves not only the separation of a large number of workers, immature stages and a few winged reproductives but also a considerable number of their nest mates.

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The Robinson Pattern Moth Trap — Trial Modifications

After much experimentation over the last five years, I have modified my basic Robinson pattern moth trap to ensnare those insect losses that occur subsequent to initial capture. The following data were converted from an experimental two feet diameter aluminium dish, to that of a conventional professionally made twelve inch dish—this being the normal trap that is bought. Ideally, sheet aluminium should be used for the following modifications, but doubtless other less expensive materials could be employed.

A smooth interiored cylinder is attached to the inside of the existing insect entry aperture. The dimensions should be such that the diameter is sufficiently large to enable an interior lip of approximately one or two centimetres to be formed by the original aperture edge, and, in length roughly equi-distant to the floor to tube measurement.

The second of the three interdependent additions consists merely of a refinement to the existing water tray. A very shallow cone is formed from a circle of metal, and after a one centimetre hole is drilled through the apex, is attached to the original tray. This component should be of a diameter exceeding the tray by approximately four centimetres.

The final, and most important, refinement is a small cone attached to a stem forming an arrow shape. The cone's diameter is approximately half that of the tube, and the height half that of the cone's diameter. The stem is shaped into a 'battlements' contour, to provide for the release of water when attached to the centre of the new rain trap. Its length should be sufficient to produce a measurement of six centimetres from floor to cone tip.

In conclusion, there are four aids to prevent insect losses once trapped:—

1. The cylinder prevents medium and high flying insects within the trap from finding the exit so easily.

2. The inner cylinder baffle makes an accurate vertical flight of some inches necessary for effective escape.
3. The rain trap lip prevents success from floor level flights.
4. The arrow shaped constricture allows easy entry but severely restricts exit.

Should any reader require further information regarding techniques, detailed measurements, or a diagram, please write to me as below.

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Collecting and Observation Notes 1972

By D. M. Richmond and K. Bevan

The first trip of the year, undertaken with the perennial and boundless optimism appropriate to the occasion, was to Witherslack on 25th March. By dint of much traversing of the moss and anxious peering into cloud-laden sky, a solitary *Archiearis parthenias* L. (Orange Underwing) was spotted. Subsequent visits to the same locality on 26th March and 1st April produced only two further specimens of this insect, and of its usual partner *Achyla flavicornis* L. (Yellow Horned) nothing was seen. No doubt it was merely displaying a sensible respect for the dreadful weather which we would have done well to emulate.

For another ten days or so the windy, cloudy and often wet, weather continued. The 12th April, however, was inspiringly fine and prompted a quick visit to Witherslack. A number of *Gonepteryx rhamni* L. (Brimstone) and *Nymphalis io* L. (Peacock) were observed and raised our rather despondent hopes.

On 16th April we journeyed to the Wyre Forest. *N. io* was well in evidence and one *Polygonia c-album* L. (Comma) was taken—a female which refused to perform in the breeding cage. Unfortunately, shortage of time precluded but a short reconnaissance of the northern part of the Forest.

Witherslack, on 23rd April produced the first *Callophrys rubi* L. (Green Hairstreak) of the season and, on 3rd May, obligingly delivered up four *Odontosia carmelita* Esp. (Scarce Prominent)—a species which was again noted on 6th May, being then accompanied by some fine, dark specimens of *Notodonta trepida* Esp. (Great Prominent). Three days later on 9th May the spring brood of *Celastrina argiolus* L. (Holly Blue) was emerging.

On 12th May, the woods at Witherslack were not very productive—only one *O. carmelita* and one *Colocasia coryli* L. (Nut-tree Tussock) being taken. Things improved rapidly within a few days, and on 20th May, with the moon at first quarter, the same woods produced a profusion of insects. *N. trepida* was abundant, about fifty specimens visiting the light

during a period of about two hours, accompanied by numerous *C. coryli, Drymonia dodonaea* Schiff. (Marbled Brown) *Thera variata* Schiff. (Spruce Carpet), *Bapta bimaculata* F. (White-pinion Spotted), *Thyatira batis* L. (Peach-blossom), *Drepana binaria* Hufn. (Oak Hook-tip) and *Notodonta ziczac* L. (Pebble Prominent).

After this outburst of activity the weather again took charge, with heavy rain, strong winds and low temperatures making further expeditions out of the question until 28th May when a quick visit to a local, unused railway cutting was made. Despite the cold wind, intermittent bursts of sunshine tempted *Polyommatus icarus* Rott. (Common Blue) *Pieris napi* L. (Green-veined White) *Pararge megera L.* (Wall Brown) *Lycaena phlaeas* L. (Small Copper) *Coenonympha pamphilus* L. (Small Heath) and *Callimorpha jacobaeae* L. (Cinnabar).

Another visit to Witherslack on 3rd June was notable for the complete absence of moths and an overpowering quantity of *Melolontha melonlontha* (Cockchafer) — one or two of which gained access to our car by hiding themselves in our haversacks. At three a.m. in the morning, and in the darkness of a motor car, one's reaction to these huge insects crawling up one's trouser leg is quite extraordinary!

On the basis of a fairly good weather forecast for North Wales, 10th June found us in Anglesey with the specific purpose of seeking *Euphydryas aurinia* Rott. (Marsh Fritillary). The day was cool and windy but, fortunately, fine with some sunshine. Our rather tedious car journey was rewarded, after much diligent searching, by one example of this species. It was a male and in such sparkling condition that we concluded we were a little to early to see this fine butterfly in any numbers.

On the following day, in an endeavour to help the Biological Records Centre put another few dots on its distribution maps, we explored the south bank of the River Ribble near its estuary and were pleased to record some common butterflies in this, hitherto, uncharted area.

M.V. in our home locality produced *Plusia festucae* L. (Gold Spot), and a belated *Scoliopteryx libatrix* L. (Herald) together with some melanic *Gonodontis bidentata* Clerck. (Scalloped Hazel) on 16th June.

Taking advantage of a sunny day on 1st July, we rambled over Arnside Knott. We were surprised to see a female *G. rhamni* so late in the year and, apart from a few *Argynnis selene* Schiff. (Small Pearl — bordered Fritillary), *Ochlodes venata* Br & Grey. (Large Skipper) and one *Diacrisia sannio* L. (Clouded Buff), it was all that we did see!

On 8th July we verified the continued existence of a colony of *Coenonympha tullia* Mull. (Large Heath) in west Lancashire seeing about thirty specimens in a period of about two hours. The colony thus seems secure, but we noted that areas of the heath are, apparently, fired from time to time. Next year,

if possible, a population sample will be taken to help establish the status of this colony. *O. venata* also exists here, one of its few localities in Lancashire.

The 7th July, at Witherslack, was a good night for quality if not quantity—*Anaplectoides prasina* Schiff. (Green Arches), *Polia nebulosa* Hufn. (Grey Arches) and *Apatele alni* L. (Alder Moth) succumbing to the lure of the light on the moss. It seemed that the season was improving and so it proved on 14th July when Witherslack yielded up a few of the good things which it keeps in store for persistent customers.

Plusia bractea Schiff. (Gold Spangle), *Polia hepatica* Clerck. (Silver Arches), *Ceramica pisi* L. (Broom Moth), *Craniophora ligustri* Schiff. (Coronet), *Apatele leporina* L. (Miller) and *Cucullia umbractica* L. (Shark) all jostled for positions on the light sheet, interspersed with *Plusia pulchrina* Haw. (Beautiful Golden Y), *P. festucae* — one of which was a strikingly dark specimen. *Deilephila elpenor* L. (Elephant Hawk) and *Laothoe populi* L. (Poplar Hawk) were quite common and whirled about, disturbing the scores of *Drepana falcataria* L. (Pebble Hook-tip). Eventually, we had to turn for home and leave all but the selected specimens to the tender mercies of the bat which had been our constant companion throughout the night.

On 19th July, three specimens of *Nola cucullatella* L. (Short-cloaked Moth), an insect which is not common in this area, came to local m.v. ...

Witherslack, on 21st July, produced something of a surprise — a solitary *Celerio galii Rott.* (Bedstraw Hawk). *P. bractea* Schiff. was again in evidence along with *A. prasina.* A number of *Apeira syringaria* L. (Lilac Beauty) also appeared and were joined by *Thapophila matura* Hufn. (Straw Underwing) and *C. pisi. Geometra papilionaria* L. (Large Emerald) was abundant, as was *N. ziczac.* One *Jodis lactearia* L. (Little Emerald) was observed.

Great Orme was visited on 25th July on a fine day, and a delightful afternoon spent sitting on the steep hillside watching *Eumenis semele* L. (Grayling) and *Plebejus argus* L. (Silver-studded Blue) disporting themselves in the hot sunshine. *P. argus* ssp *caernensis* was abundant along the lower pathways — now that it has been placed on the endangered list perhaps it will long remain to delight the eye with its quicksilver blue flight.

The following day, 26th July, a quick trip to Beetham revealed *O. venata, Aricia agestis* Schiff. (Brown Argus) and *E. semele.*

On 27th July we returned to the Wyre Forest and noted an abundance of *Aphantopus hyperantus* L. (Ringlet) and *Thymelicus silvestris* Poda. (Small Skipper) with a few *Maniola tithonus* L. (Gatekeeper) and *Pararge aegeria* L. (Speckled Wood) for company.

Erebia aethiops Esp. (Scotch Argus) was just emerging on Arnside Knott on 28th July and a number of *T. sylvestris, A. agestis* and *Argynnis adippe* Schiff. (High Brown Fritillary) were also noted. The day was warm, though sunless.

The 1st to 3rd August were spent in the delightful village of Hurley, Berkshire — the weather, unfortunately, not matching the beautiful surroundings. Heavy rain, leading to floods in the area, precluded much activity but, during the few fine hours *M. tithonus* and *O. venata* were abundant on Ashley Hill and a few specimens of *P. aegeria, P. c-album, O. venata* and *T. sylvestris* were observed in Great Wood. M.V. in the garden of our host, in the village of Hurley produced *Euschesis janthina* Schiff. (Lesser Broad-border), *E. interjecta* Hubn. (Least Yellow Underwing), *S. libatrix, Leucania pallens* L. (Common Wainscot), *L. pudorina* Schiff. (Striped Wainscot) and *Ellopia fasciaria* L. (Barred Red).

P. bractea was still flying at Witherslack on 11th August but there was little of note otherwise.

On 12th August, a worn male and female *M. tithonus* were taken at our local railway cutting and another six specimens (males and females) were seen. We are not sure of the status of this insect on the Fylde coast, except that it cannot be said to be common. In a combined total of about forty-five years collecting in this area we had not seen *tithonus* until this year. Nor have we ever seen it in the general area of Morecambe Bay (Witherslack, Arnside, Beetham etc.) despite the post-1960 records published by the Biological Records Centre (any information about this species in the Blackpool area would be of interest to the writers).

For some reason, which is not apparent from our diaries, nothing much was undertaken for the remainder of August until 31st when we went again to the Wyre Forest. During a period of about three hours no less than fifteen species of butterfly were noted there as follows: *Pieris brassicae* L. (Large White), *P. rapae* L. (Small White), *P. napi* (Green-veined White), *Aglais urticae* L. (Small Tortoise-shell), *Nymphalis io* L. (Peacock), *Gonepteryx rhamni* L. (Brimstone), *Argynnis paphia* L. (Silver-washed Fritillary), *Aphantopus hyperantus* L. (Ringlet), *Maniola jurtina* L. (Meadow Brown), *M. tithonus* L. (Gatekeeper), *Polygonia c-album* L. (Comma), *Pararge aegeria* L. (Speckled Wood), *Coenonympha pamphilus* L. (Small Heath), *Ochlodes venata* Br & Grey (Large Skipper), *Thecla quercus* L. (Purple Hairstreak).

Our previous experience of *T. quercus* had been restricted to one or two specimens taken, with much effort, at a locality in Westmorland. Here, in the Wyre Forest, on a steamy, sultry aftrnoon this species, apparently unaware of what is reported to be the normal flight characteristic, descended to the low herbage alongside the Dowles Brook, and there scores of specimens fluttered before our delighted and astonished gazes — a memory of the 1972 season which it is very pleasant

to recall.

Witherslack, on 2nd September, was still producing *P. bractea* and a solitary *Pterostoma palpina* Clerck. (Pale Prominent) was taken.

On 14th September local m.v. attracted *Cirrhia gilvago* Schiff. (Dusky Lemon Sallow), *Eumichtis lichenea* Hubn. (Feathered Ranunculus) and on 16th September at Witherslack *Atethmia xerampelina* Esp. (Centre-barred Sallow) *Citria lutea* Stroem. (Pink-barred Sallow). *T. variata* and *Amathes castanea* Esp. (Neglected Rustic) came to light.

A local moss-land, just outside Blackpool was visited on 20th October and we were able to record some common moths for the Biological Records Centre.

Notably absent from this area this year have been *Vanessa atalanta* L. (Red Admiral) and *V. cardui* L. (Painted Lady). Other commitments have prevented further activities but, overall, we consider it to have been a year in which results have justified the (for us) rather large number of trips taken.

D. M. Richmond, 1 Walton Terrace, Staining Road, Blackpool, Lancs. K. Bevan, Wayside, Staining Road, Blackpool, Lancs.

Sex Ratio in the Population of *Micronecta scutellaris* (Stål) (Fam. Corixidae : Hemiptera)

By J. M. Julka*
(Central Inland Fisheries Research Institute, Barrackpore)

Micronecta scutellaris (Stål) is one of the commonest aquatic bugs inhabiting fish ponds. It is most abundantly found in the shallows on the littoral zone of ponds, resting on aquatic plants, stones or any other submerged objects. The present studies are based on the material collected at regular intervals, from February 1963 to January 1965, from a perennial fish pond at Barrackpore.

All collections were made with a wooden hand net of conventional design (30cm. diameter) using organdi cloth of fine mesh. The net was operated from six equally spaced stations around the pond. An effort was made to standardize the individual collection by visiting the specified station every time, collecting at arm's length and, after two sweeps, moving to the next station. For all standard net sweeps, mouth of the net was completely dipped into the water and speed was kept reasonably constant.

In determining the sex ratio, 6470 and 25,451 specimens were examined. Tables I and II show the monthly sex ratio between the males and females. A glance at the tables would reveal that in most of the months there is a preponderance of the females. The data, where the number of the individuals

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is more than 40, was subjected to statistical treatment by means of 'Chisquare Test', under the hypothesis that a 1:1 ratio exists between the males and the females. The chi-square values in most of the cases were highly significant against this ratio and indicated that the population did normally have more females than males in these months. Only in July 1964 were the males significantly more numerous than the females. However, Crisp (1962) did not find any marked difference from 1:1 ratio of males and females in *Corixa germari* (Fieb.).

TABLE I

Sex ratio of Micronecta scutellaris (Stål), 1963-64

Month	Number of specimens examined	Sex ratio Male	Female	Chi-square	P
Feb. '63	44	1 :	3	11·0	0·001
March	336	1 :	2·4	58·33	<0·001
April	165	1 :	1·6	8·29	<0·01
May	4974	1 :	1·3	105·96	<0·001
June	95	1 :	1·2	0·54	>0·05
July	304	1 :	2·7	66·35	<0·001
*August	8	1 :	1	—	—
*Sept.	13	All females		—	—
*October	—	—		—	—
Nov.	116	1 :	2	13·79	<0·001
Dec.	228	1 :	1·1	0·35	>0·05
Jan. '64	127	1 :	1·1	0·20	>0·05

*Chi-square not applied due to inadequate data.

TABLE II

Sex ratio of Micronecta scutellaris (Stål), 1964-65

Month	Number of specimens examined	Sex ratio Male	Female	Chi-square	P
Feb. '64	1597	1 :	1·4	43·97	<0·001
March	1248	1 :	1·5	58·41	<0·001
April	106	1 :	1·5	3·77	0·05
May	1778	1 :	3·3	50·76	<0·001
June	1410	1 :	1·6	69·93	<0·001
**July	4520	1 :	0·8	42·06	<0·001
August	12458	1 :	1·1	10·99	<0·01
Sept.	246	1 :	2·2	32·06	<0·001
Oct.	278	1 :	2	31·78	<0·001
Nov.	286	1 :	2·4	47·05	<0·001
Dec.	1258	1 :	1·7	95·16	<0·001
Jan. '65	248	1 :	1·1	0·26	>0·317

**Males significantly more numerous than females.

The author is grateful to Dr B. S. Bhimachar, former Director, Central Inland Fisheries Research Institute, Barrackpore, for his able guidance. Thanks are also due to the Ministry of Education for the award of a Senior Research Scholarship, during the tenure of which these studies were carried out.

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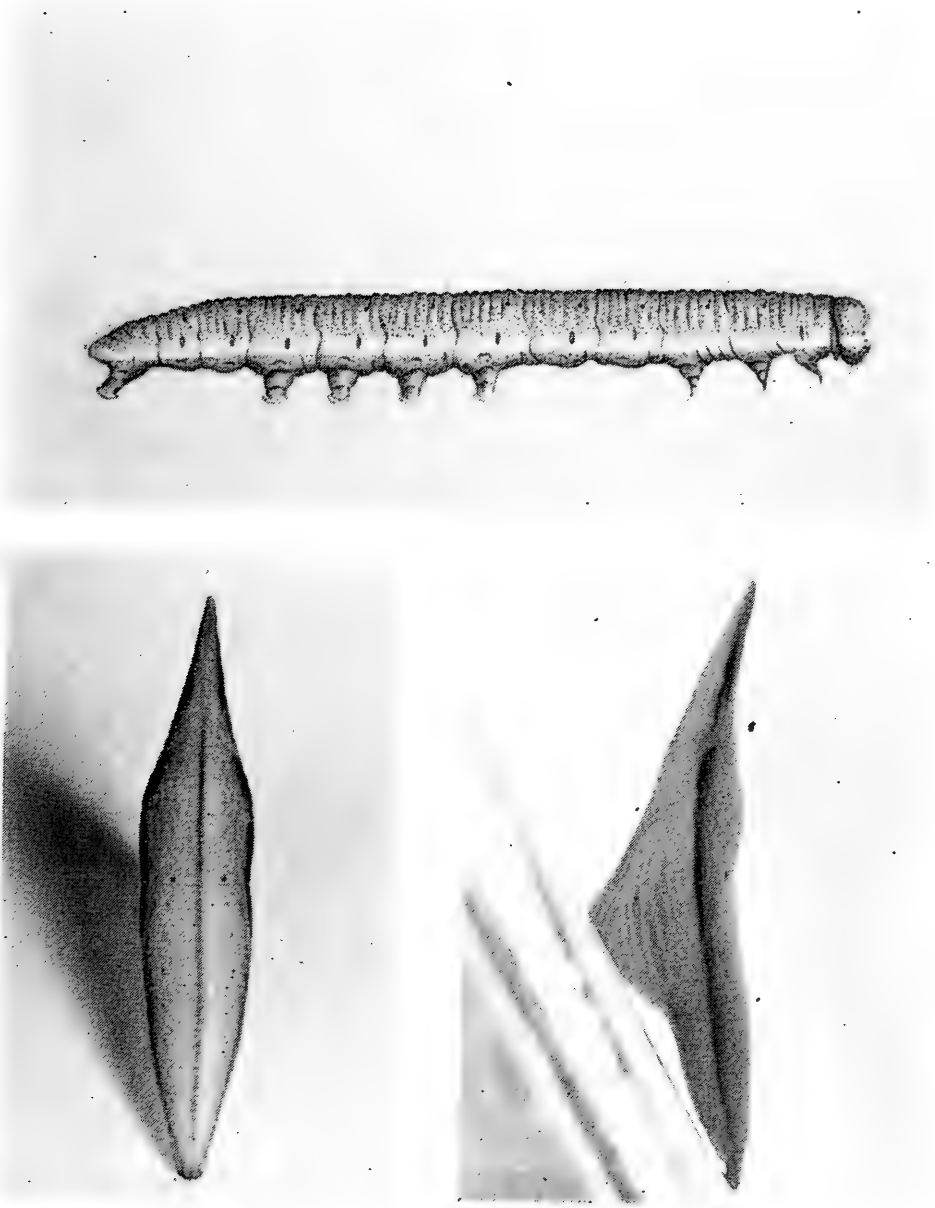

Anthocharis damone Boisduval
Above—Larva, lateral view.
Below—Pupa, dorsal and lateral views.

The Larva and Pupa of *Anthocharis damone* Boisduval from Greece (Lep. : Pieridae)

By John G. Coutsis, B.A., M.Arch.

The full grown larva of *Anthocharis damone* is approximately $1\frac{1}{8}$ inches in length and is identical in shape to that of *Anthocharis cardamines* L.

The head is light blue-green with dense and minute dark blue-green dots and numerous, short, whitish hairs. Sides of head with a white line, ending frontally into a round whitish spot.

The body has a light blue-green upperside, shot with very numerous and small dark blue-green dots and covered with short, whitish hairs. Ventral area same as dorsal one, but ground colour a shade darker. Sides of body with a white line that bears a well defined lower edge and a rather fuzzy upper edge. The spiracles are white and are placed along the upper edge of the white lateral line. Each body segment has two minute sub-dorsal wartlets, one on each side, that bear a short black bristle. Prolegs and true legs same colour as the rest of ventral area.

The pupa has a length of just under 1 inch and has the same shape as that of *cardamines*. At first it has an overall bright green colour, but this is eventually replaced by drabber hues. Dorsum light sandy-grey. Ventral area dirty grey-white; veins of wing cases somewhat lighter coloured. Sides of body with a supraspiracular dark grey-green line, that extends from the last abdominal segment to the front end of the head prominence, being interrupted only by the antenna case. Upperside with a narrow mid-dorsal dark grey-green line, that extends from the last abdominal segment to the base of the head. All body segments have two minute sub-dorsal blackish spots, one on each side, the ones on the first abdominal segment being decidedly the largest. Wing cases with a small black spot in the discoidal area. There are traces of a grey-green, ventral line, on each side and along all abdominal segments.

Larvae obtained from eggs laid in the wild on the flower buds of *Isatis tinctoria* L. and subsequently bred in captivity on same plant.

It is worth noting that the pupa of *Euchloe ausonia* Hübner, apart from being heavier, has a head prominence that is markedly bent downwards, whereas *damone* has it slightly bent upwards.

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Observations on British Butterflies in 1972

By A. P. Gainsford, F.R.E.S.

As soon as the first warm sunny day in March heralds the Spring a dry leaf swept up and animated by the morning breeze will occasionally catch the eye of the entomologist and maybe he will hesitate for just a brief moment. Is it *P. c-album* L., *N. io* L., *A. urticae* L. or even *N. polychloros* L. already awakened from hibernation through the long months of Winter? This year the 14th of March was just such a day and a visit to Grenofen near Tavistock was amply rewarded with sightings first of *Polygonia c-album* L. at about eleven a.m. followed a few minutes later by a solitary *Nymphalis io* L. and then, by midday, literally scores of *Gonepteryx rhamni* L. of both sexes. *Aglais urticae* L. was seen in Plymouth towards the end of February, but the first one I met with was on the coast at Millandreath, near Looe in Cornwall, during he afternoon of the 15th March.

A spell of lovely weather followed for just ten days, but practically none of the butterflies which appeared so suddenly on the 14th ventured forth again that month.

On the 23rd a *Pieris rapae* L. fluttered into our garden, a very early visitor indeed, and *N. io* were out in strength along the south-facing cliff path west of Polperro with a few *A. urticae* among them.

On the 25th of March the weather broke up and became cold again and more normal for the time of year. Easter was dull and wet and April commenced with gales, showers and mists over the coasts and hills. Very strong winds varying from west to north-west persisted for the first half of the month together with sleety showers and generally stormy conditions with only a few gleams of sun from time to time.

The 17th of April dawned clear and bright and rather warmer, and although I had beaten several males and a female *Celastrina argiolus* L. out of the Ivy bushes on Battern Cliff at Downderry, Cornwall, on the 10th, I had not seen any flying of their own free will. Now they were active and plentiful, together with both sexes of *Pararge aegeria* L. A few *P. rapae* were struggling to beat along lanes on the higher ground against the fresh wind and a *Pieris brassicae* L. flapped awkwardly over a hedge near Polbathic. The 18th showed *C. argiolus* to be common once again at Polperro, and rather more fresh than most of the Downderry population.

Pleasant weather with good sunny periods continued despite strong north-west to north-east winds, and a walk along the coast from Bovisand to Heybrook Bay on the 20th revealed the presence of several *Lycaena phlaeas* L. The first *Pieris napi* L. flew over the garden on the 21st at 1 p.m.

The cold north-east wind persisted and the brief periods of sunshine could only be enjoyed in well sheltered places. It was at Sowden's Bridge, deep in a little Cornish valley near Pelynt,

where I first noticed *Anthocharis cardamines* L. on the 25th. Two males were seen amongst prolific Garlic Mustard, Ragged Robin, Bluebells and other pretty wild flowers which still transform some of the nooks and crannies of our badly treated country lanes into fairyland. By the following day they were plentiful in the Seaton Valley near Downderry, but the weather was deteriorating. By the 29th the wind had veered to the south-west and the sky became overcast with rain following. Gales with lashing showers took over until the end of the month.

The 1st of May was memorable for the early showing of *Argynnis euphrosyne* L., almost the "April Fritillary" as it was known to Ray and the early entomologists prior to 1752. Despite the wind the sunshine was warm after a poor start to the day and a chance inspection of a steep hillside with a southern aspect recently cleared by the Forestry Commission and smothered with Spring flowers offered first a male and then a female on Dandelion low down where the sun's rays were strongest.

The 2nd turned out to be the most exciting day of the year. Taking my mother from Downderry to Looe in the afternoon, I paused at Sowden's Bridge to enable her to pick some Primroses. *A cardamines* was by now quite common and the approaching cloud had not yet obscured the sun. As an afterthought I took my net as well as my camera and entered the woods along the fishermen's footpath. I happened to notice what I thought was a female *cardamines* some twenty yards or so away flying towards me, and almost at once it veered off across the stream. A gust of wind wafted it back again and as it passed close by I netted it with a gentle follow-through stroke. I examined it casually, and at once could hardly believe what I saw. It was a freshly emerged male with the usual bright orange forewing markings replaced with pale pinkish buff and the moss-green on the underside of the hindwings with plain dark grey. Subsequently it was pronounced best and rarest British butterfly shown at the Centenary Exhibition of the British Entomological and Natural History Society in London on the 4th of November last and described by the Rev. John Marcon as "a once in 75 years long."

So far the season had looked reasonably encouraging, but the situation was now about to change quite dramatically. It rained solidly all day on the 3rd of May and continued dull, thundery and misty with another whole day of rain on the 6th. It remained cold with a great deal of rain and strong winds throughout the month and very few butterflies were seen. Despite these depressing conditions the sun did occasionally break through, and on the 17th *A. cardamines* was found to be plentiful at Hill Bridge near Marytavy. The weather suggested that a trip to Wembury Point for *Pyrgus malvae* L. would be a waste of time. Instead I found it at Lydford on the 19th flying with *A. euphrosyne,* and ten days or so later it was quite common in this favoured spot.

On the 22nd I took a fresh male *L. phlaeas* ab. *obsoleta* at Hill Bridge. Having carelessly missed it twice it returned yet a third time some ten minutes later to offer me another chance. The same afternoon I drove across the Moor to Stover, near Newton Abbot, where last year *A. euphrosyne* had been so numerous, but despite reasonable conditions and plenty of Bugle there were no more than half a dozen to be seen. Two *Erynnis tages* L. were noticed, the first and last of our season.

Strong winds up to force 9 persisted for a week or so and planned trips to Dorset, Wilts, Huntingdon and Norfolk were all completely abortive.

Apart from a few species it was now apparent that most emergences would be late, delayed and extended by the continuing bad weather. Among the few was the delicate little *Leptidea sinapis* L. brought out by some warm morning sun in their Woodbury habitat near Exeter on the 1st of June. This brief experience of Summer was over by early afternoon and the cold winds and canopy of cloud with periods of rain set in yet again. Another butterfly apparently determined not to be beaten was the rare and very local *Melitaea athalia* R., and I was more than surprised to see the first male on the 3rd, a very early date even for a good season. Their locality near Brent Tor supports colonies of at least twenty eight species and the few sunny periods early in the day brought out some *Euphydryas aurinia* R., one slightly crippled *Polyommatus icarus* R. and a very very fresh *Coenonympha pamphilus* L. Despite atrocious weather with more gales and long periods of heavy rain some short-lived appearances of a watery sun on the 7th prompted three more to fly, and a lone *Ochlodes venata* B. & G. accompanied them. The first female *M. athalia* showed itself on the 9th.

Rain delayed an intended visit to Maidencombe near Torquay to check on the *Cupido minimus* F. site until the 10th, but the more hopeful early morning sunshine was soon interrupted by frequent and heavy showers. However, two males were seen over a period of about two hours intensive searching. The Kidney Vetch looked very sparse and has declined rapidly over the last few years. As the greater part of the area is quite out of reach the causes can only be natural ones. Facing due south over Torbay some hundreds of feet precipitously above the sea, it is a place of impressive beauty.

The next three days were continuously wet and cold until 4 p.m. on the 13th when the sun broke through and a quick inspection of a wood at Lowleybridge near Launceston resulted in finding three *Argynnis selene* S. struggling to get out of the saturated undergrowth. Then, suddenly, as though to remind us of what we were missing, the 14th was a most lovely sunny day with a clear blue sky until dusk. Sightings at the *M. athalia* locality near Brent Tor included about 30 *athalia*, 5 *E. aurinia*, 10 *P. malvae*, 10 *A. euphrosyne* and 3 *A. cardamines*. At the old *E. aurinia* site at Hill Bridge only 3 males could be

found in an hour's search. Almost at once conditions returned to the cold, wet and windy pattern of the last six weeks.

On the 19th I postponed a trip to Bicester for *Strymonidia pruni* L. on the advice of Mr John Heath of Monks Wood, and also a visit to Whixall for *Coenonympha tullia* M. on the 23rd.

There was no improvement on the 24th. New Forest and South Wiltshire lore states that if there is no really warm weather by Midsummer Day then there will not be any afterwards either—a depressing prospect if taken too seriously.

The afternoon of the 26th however, allowed us briefly to feel the full power of the sun, and a hasty drive to Luckett on the River Tamar resulted in the satisfaction of seeing *M. athalia* strong again in the Cornish Reserve. Two male *Maniola jurtina* L. were the first to be observed. On the 29th another moist, cloudy day with a little sun in the afternoon, the first *Argynnis aglaia* L. emerged at Grenofen, and "flaming" June ended with leaden skies, rain and mist and a cold, dismal wind much as it had started.

July began with no improvement in the forecast, and I set off on the 2nd for Bicester to look for *S. pruni* with very little hope of success. The rain barely ceased all day though I reached the various localities I had planned to visit with an almost desperate determination, refusing to recognise the inevitable results. Then, hearing on my car radio that there would be no change in the weather for several days I had to admit defeat and decided to cut my losses and drive home. I finally reached Tavistock at 10 p.m. with over 450 miles behind me since early morning.

By the 6th only one or two more *A. aglaia* were out at Grenofen, and very few *M. jurtina* where hundreds should be in evidence. On the 7th, a warm bright morning, I went to Bovey Heath to see if *Plebejus argus* L. had yet appeared, but found only a few *C. pamphilus* sheltering from the cold wind. A glimpse of the woods near Becka Falls at Manaton, Devon, where *Limenitis camilla* L. flies was yet another reminder of the lateness of the season, for the Bramble blossom was only just beginning to burst from the bud in sunny places and no butterflies at all were about. By early afternoon mist and drizzle had set in again.

A dull morning on the 10th cleared to give good sunshine after mid-day and over 80 *M. athalia* were counted in under two hours at the site near Brent Tor, but some evidence of the incongruity of this season was provided by the sight of a fresh female *E. aurinia* and several *P. malvae* including an extreme ab. *taras*. The first female *M. jurtina* made its debut shortly afterwards.

Then at last the weather changed dramatically to clear skies with really warm sunshine and on the 12th of July I made another pilgrimage to Oxfordshire for *S. pruni* at Hell Coppice and Waterperry Wood, and again drew a blank. I learned later that it did in fact show up in very small numbers

about three weeks late, but not in the areas I had visited. The next day was very warm and I spent it in the New Forest around Lyndhurst and Brockenhurst. It felt more like early June than mid-July and *Argynnis paphia* L. was only just beginning to emerge. No *L. camilla* were to be seen but *Aphantopus hyperanthus* L. was everywhere in abundance. A rather tedious drive to Dorchester at mid-day merely substantiated my suspicion that *Strymonidia w-album* K. would be absent as yet from my favourite locality there.

By the 14th it was evident that we were in the midst of high Summer and once again the old lore was proved wrong and the influence of icebergs said to be further south in the Atlantic than usual a somewhat lame story. My good friend Donald Russwurm felt that *P. argus* must by now be out and we visited a favourite site of his just out of Brockenhurst at about 10 a.m. After a while a few of both sexes were seen where normally it would be in hundreds. Several were already worn.

The hot weather continued, but in the south-west it became overcast and sultry. The 19th was very hot indeed and down in the river valley at Grenofen in the afternoon it felt like a tropical jungle. *M. jurtina* was now in plenty and *A. aglaia* females were beginning to come out. A lone female *Melanargia galathea* L. flapped past to my considerable surprise. I have never seen it anywhere in this district before. On the 21st a single *Argynnis adippe* S. settled on a fern in the same place, and in this season of unlikely events it was a female. *A. aglaia* and *A. adippe* are without doubt among the most splendid of all butterflies to watch in their tireless and wild flight activity. They can literally zoom away when disturbed and rocket up the edge of the forest and away above the tops of the highest trees and out of sight in seconds. It is exhilarating to witness the quite amazing power of these remarkable insects. However, another week showed that both species were to be scarce, and they were soon over. Also at Grenofen, the following day, *Thymelicus sylvestris* P. and fresh *P. c-album* were on the wing.

On the 23rd July another walk through the site near Brent Tor revealed the establishment of a large colony of *A, paphia* feasting on the Bramble blossoms over a wide area. A few well-worn *M. athalia* must have been about the last after a flight of nearly eight weeks and their ground was now occupied by *M. galathea* in strength. I also saw two faded *Vanessa cardui* L., a very scarce insect this year.

By the 25th, in this beautiful weather, I could not resist another look into the little wood south of Dorchester for *S. w-album.* Enormous stands of Milk Parsley had grown up smothering the Bramble which was even now mostly only in bud, and no butterflies were to be seen apart from a few *M. jurtina* and *A. hyperanthus.* I drove on, a little despondently, to Carey's Manor Hotel at Brockenhurst where I had booked

a room for two nights.

The New Forest looked more inviting than it had done a fortnight ago, but it still lacked the fullness of bloom that one would normally expect. *Maniola tithonus* L., *A. hyperanthus* and *T. sylvestris* were very common everywhere, but *L. camilla* and *A. paphia* were far less plentiful than usual, and only two *paphia* ab. *valezina* could be found in two days. Another inspection of the area near Brockenhurst provided all the evidence required to establish the fact that *P. argus* was comparatively low.

Apatura iris L. had a reasonable showing at Chiddingfold, but I did not see any at Alice Holt and could not spare the time to wait until evening from arrival in the early afternoon.

Calling at Winchester on the 27th to pick up one of my sons who had been staying with friends, I spent an hour on St Catherine's Hill to find *Lysandra coridon* P. in enormous numbers, flying as usual in company with *M. galathea, T. sylvestris, A. urticae* and hundreds of *M. jurtina.* After so many surprises and disappointments, I felt quite a sense of relief to see before me a carpet of butterflies in better than normal strength and more or less on time.

(To be continued)

Notes and Observations

CLOSTERA CURTULA LINN. ON ROMNEY MARSH. — On 13th August 1972, I found a specimen of *Clostera curtula,* Large Chocolate-tip, in my Rothamsted trap at Boulderwall, Dungeness, Kent. This appears to be the first record of this species for Romney Marsh.—R. E. SCOTT, Boulderwall, Lydd, Kent. 2.ii.73.

HYLES GALLII ROTTEMBURG (BEDSTRAW HAWKMOTH) IN FLINTSHIRE.— Mr Jonathan Williams (aged 15) of 2 Brookdale Way, Waverton, Chester, has advised me that he found a larva of *gallii* feeding on Rosebay Willow-herb on the British Steel John Summers Nature Reserve, Shotton, Flintshire on 9th September 1972. The larva was in its final instar when found and pupated seven days later. Mr Williams has since informed me that he has successfully reared the moth.—P. J. BAKER, Mount Vale, The Drive, Sandhills Lane, Virginia Water, Surrey.

BIOLIGICAL EVIDENCE OF RELATIONSHIP BETWEEN THE MARPESIINAE AND EUNICINAE (LEP. NYMPHALIDAE). — It is always satisfactory when evidence of relationship between allied groups is shown by other than normal criteria employed by museum taxonomists.

Such a case has recently occurred. When breeding various members of the Eunicine genus *Asterope* Hübn. (*boisduvalli*

Wllgrn. and *trimeni* Auriv.) it was noted that the larvae in the first two instars constructed a column of frass and silk from the edge of the leaf on which it rested between feeds. Recently I have bred the Marpesiid *Cyrestis camillus* Fab. *elegans* Bsd., and the first instar larva has exactly the same habit.

Larvae of the two sub-families are totally different, the larva of *Asterope* having a subdorsal, lateral and sublateral series of fine branched spines and a pair of small spines on the head, whilst the larva of *camillus* is smooth with a pair of very large erect smooth outcurved processes on the head and an erect dorsal process on the 5th and 11th somites.

The foodplants of *Asterope* belong mainly to the Euphorbiaceae, although *boisduvalli* is also recorded as feeding on Sterculiaceae (*Sterculia* spp.) and Bignoniaceae (*Kigelia moosa*), whilst *Cyrestis,* both in Africa and Asia, feeds on *Ficus* spp. (Moraceae), the Asiatic genus *Chersonesia* Dist. also feeds on *Ficus* spp. The Euphorbiaceae and Moraceae contain latex, Sterculiaceae and Bignoniaceae do not.

It would be most interesting to know if the Oriental and South American Marpesiids and the many South American Eunicids share this peculiar habit of constructing a silk and frass perch in early instars.—D. G. Sevastopulo, Mombasa, 18.x.1972.

An Unusual Instance of Xenophagy.— On the 21st of October, 1972, I picked a Nepticulid mine which I did not recognise from a birch sapling at Rowney Wood in north Essex. I kept the mine by itself in a 1 inch glass tube lined with damp sphagnum, and though the larva fed up slowly, in due course it vacated the mine and vanished into the moss. The tube was amongst a batch which I brought indoors into a warm room in early February and on the 22nd of that month an imago of *Nepticula floslactella* Haworth emerged. I searched through the moss and found the cocoon which is white and covered in loose, flossy silk as is characteristic of *floslactella.* A re-examination of the mine also shows that its characters are typical of *floslactella,* while my notes record that the larva, which mined dorsum upwards, had the obscure chain of dark spots on the venter which is found in that species.

N. floslactella normally feeds on hazel and hornbeam, on the former of which it is common in Rowney Wood. As far as I know, there are no previous records of its occurrence on birch. Other lepidopterous leaf-miners which will eat both birch and hazel include *Bucculatrix demaryella* Stainton (which mines only when young) and several *Coleophoridae* such as *serratella* Linn. (*fuscedinella* Zell.), *fuscocuprella* H.-S., *orbitella* Zell. and *binderella Koll.* — A. M. Emmet, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 7.iii.1973

TELEIODES (TELEPHUSA) ALBURNELLA ZELL IN HAMPSHIRE.— Among a number of micros which Mr D. W. H. ffennell has recently identified for me is a male specimen of *T. alburnella* which was taken in my m.v. trap at Minstead (New Forest) on 28.vii.72. I understand that this is the first record of this species for Hampshire.—L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

THE WHITE SPECK MOTH AND KENT BLACK ARCHES IN SURREY — A female *Leucania unipuncta* Haw. came to my trap on the night of the 6th November. She laid over three hundred fertile ova during the following four nights. This arrival was the more welcome in such a year as this when even *Plusia gamma* L. has been scarce, and not one *Nomophila noctuella* D. & Schiff. has been seen.

Another first record here was a *Nola albula* D. & Schiff. on the 7th August. — R. FAIRCLOUGH, Blencathra, Deanoak Lane, Leigh, Surrey, 28.ix.1972.

Obituary

ARTHUR THOMAS POSTANS who passed away on February 15 at his home, 13 Stanfield Road, Winton, Bournemouth, at the age of 81, was the most enthusiastic and meticulous entomologist it has ever been my pleasure and good fortune to know.

A hairdresser by profession he was in business in Portsmouth for many years until being bombed out in 1941, when he and his family moved to Bournemouth. It was some years after this that I came into contact with Arthur Postans and I will never forget his method of setting insects, which was immaculate.

He also kept really comprehensive records in diaries of his observations and captures which might well prove of great interest to the *Entomologist's Record.* I would say without hesitation that Arthur Postans was a man who did his civilian job with enjoyment and to perfection whilst pursuing his lifetime hobby with even greater enthusiasm.

His collection is one, nay—the finest I have ever seen in private hands and would provide many surprises to entomologists over the whole country. He despised the idea of buying specimens and many of his rarest ones he bred and reared himself. His collection would be well worth consideration by any Museum or Trust interested in adding to their exhibition, a collection of specimens par excellence in every detail and with complete data.

The death of Arthur Postans is not merely the loss of a dedicated entomologist but also that of a gentleman and a friend. Arthur Postans leaves a daughter, Mrs Iris Carter, who resides at Wimbledon Park, S.W.19.

W. Harley Greaves, M.P.S., Bournemouth.

Current Literature

Ichneumonoloia Orientalis. II. The Tribe Rhyssini by **M. K. Kemath & V. K. Gupta**, 1972. Published by the Association for the study of Oriental Insects, c/o Department of Zoology, University of Delhi, Delhi-7 (India).

I am glad to see this excellent monograph. I must first congratulate the persons who started Oriental Insects to promote research in systematics. By bringing out such monographs, the association for the study of Oriental Insects is giving an excellent approach in the elaboration of the fauna of Oriental Region.

The monograph deals with 7 genera, 101 species and 40 sub-species. Out of these 47 are new species and 23 new subspecies.

In the introduction the taxonomic position of the tribe Rhyssini and its economic importance has been dealt with briefly. The members of this group are parasites of sircids which infest conifers. Thus they may be of great value in the control of sircids. Recently, *Rhyssa perusaroria himalayensis* Wilkn. has been exported from India to Australia and New Zealand for the control of *Sirex noctillo* F. The list of the museums with their complete addresses will be of great help to other workers. This is followed by the nicely drawn historical resume comprising the works from 1829 to the present. The taxonomic characters used in the text have been clearly explained with the help of good line drawings.

For easy understanding of Indo-Australian genera a table of comparative taxonomic characters is given which increases the efficiency of their dichotomous key. Keys to all the species and sub-species have also been drawn. The excellent way of giving distributional tables and maps of species and subspecies is really worth praising.

The presentation of monograph is very attractive. The plates of the species and sub-species showing taxonomic characters are self explanatory. 63 references are given which are arranged alphabetically.

The monograph deserves its place in all the institutional libraries and even personal libraries.—V. C. Kapoor, Associate Professor of Entomology, Punjab Agricultural University, Ludhiana.

Wild Life Conservation and Dead Wood by **Alan E. Stubbs**, illustrated with photographs by **David J. Carter**. Devon Trust for Nature Conservation, 18 pp., £0.20.

This useful little pamphlet gives an account of many of the insects associated with dead wood. It also draws attention to the regrettable habit of tidy-minded "conversationists" of removing dead trees before they give shelter to so many interesting insects.—S.N.A.J.

E. intricata Zetterstedt ssp. **arceuthata** Freyer: Freyer's Pug.
Resident. Gardens; foodplant unknown.

The species first appeared in Kent in 1951, since when it has occurred regularly in a number of localities and may be increasing its distribution yet.

1. Petts Wood, two, June 21, 1951, one, May 21, one, May 25, one, June 12, 1952 in A. M. & F. A. Swain coll. (C.-H.). West Wickham, three at m.v.l., May 25, 1952 (Chalmers-Hunt, *Entomologist*, **86**: 55); one on fence. May 1953, one on fence, June 7, 1957, three in m.v. trap, June 10-13, 1963, one in m.v. trap, July 7, 1971 (C.-H.). Orpington, one, July 1955, one, June 1957, two, June 1958 (R. G. Chatelain). Bromley, in m.v. trap, June 22. 1963 (1), June 9 (1), 21 (1) 1966 (D. R. M. Long).

5. Westerham, two, July 3, 1951 (R. C. Edwards)†.

11. Aylesford, three, 1955, one, 1956, two, 1957 (G. A. N. Davis); are all in my coll. (C.-H.).

12. Ashford Town, in garden, one, June 25, 1955, one, June 1956, four. 1957, one, 1958, one, 1959, two, 1962, one, 1963 (Cue MS.). West Ashford. five at light, June 1960, one at light, June 1961 (M. Enfield)† Wilkesborough, one at light, July 1961 (M. Singleton)†.

13. Tunbridge Wells, two, c. 1955 (L. R. Tesch)†.

14. Goudhurst, one, 1958 (W. V. D. Bolt)†.

14. Goudhurst, one, 1958 (W. V. D. Bolt)†.

16. Folkestone, five in m.v. trap, June 22-August 16, 1956, one, 1959 (A. M. Morley).

First (Published) Record, 1953: West Wickham (Chalmers-Hunt. *Entomologist*, **86**: 55).

E. satyrata Hübner: Satyr Pug.
Native. Chalk downs, open woods; on *Succisa pratensis*.

1. Chislehurst, May 24, 1890 (Tutt, *Ent. Rec.*, **1**: 64). Eltham (A. H. Jones, in *Wool. Surv.*, 1909). West Wickham, June 10, 1950 (R. F. Birchenough); 1951 (E. E. J. Trundell); one, June 19, 1963, one, July 4, 1971, both in m.v. trap (C.-H.). Sparrow Common, Crofton, larva on flower-head of *S. pratensis* taken by F. A. Swain, 1948, imago reared June 2, 1949, specimen in A. M. & F. A. Swain coll. (C.-H.); six larvae on flowers of *S. pratensis*, August 9, 1963, from which three imagines reared (F. A. Swain); four imagines, June 6, 1963 (C.-H.). Bromley, one at light, July 1, 1963 (D. R. M. Long).

5. Farnborough* (W. Barnes, in *Wool. Surv.*, 1909). Chevening, May 18. 29, 31, June 3, 1914, two, May 30, 1918 (Gillett, *Diary*). Halstead (R. E. Frampton *teste* S. Wakely). Biggin Hill, three, May 17, 1952, two, May 20, 1953 (C.-H.); swarmed at dusk, June 4, 1954, 19 taken, but could have taken many more (R. F. Birchenough).

6. Sevenoaks*, 1885, H. Vaughan, two, in BMNH (C.-H.). Shoreham* May 26, 1890 (Tutt, *Ent. Rec.*, **1**: 294). Strood*, larvae, 1904 (Ovenden *Ent. Rec.*, **10**: 294). Cuxton, June 5, 1908 (*Ent. Rec.*, **21**: 32). Birling Downs, June 15, 1912, May 29, 1915 (F. T. Grant).

6a. Chattenden, five, June 18, 1884; June 8, 1889 (Fenn, *Diary*); eight bred, 1885 in R.C.K. (C.-H.); June 14, 1913 (F. T. Grant). Chattenden (Tutt. *Ent. Rec.*, **4**: 229, 249). Cobham Woods, June 8, 1912 (F. T. Grant).

7. Westwell, 1907, 1908, in R.C.K. (C.-H.). Chatham*, one, 1908, W. Crocker, in R.C.K. (C-H.).

8. Folkestone (see *First Record*); three in BMNH, Folkestone, 1879, W. Purdey (C.-H.). Brook (C. A. W. Duffield *teste* Scott, 1964).

VARIATION.—In R.C.K. are ab. *caeca* Dietze, one, North Kent, 1918, L. W. Newman; ab. *limbopunctata* Dietze, two, Westwell, bred June 1907, L. B. Prout.

FIRST (PUBLISHED) RECORD, 1880: Folkestone (Ullyett, *Rambles of a Naturalist Round Folkestone*, 146).

E. absinthiata Clerck: Wormwood Pug.

Native. Woods, gardens, waste places, etc.; on *Senecio jacobaea, Solidago virgaurea, S. canadensis, Artemisia vulgaris, Achillea millefolium, Aster tripolium.* Frequent and recorded from all divisions, except 4 (probably present). "Generally common" (*V.C.H.*, 1908).

The principal foodplant in Kent seems to be *S. jacobaea.* I have taken numerous larvae on this at Dungeness, and there are many records of the finding of the larva on this plant at other localities in the county. I have also found the larva on *S. canadensis* in my garden at West Wickham; on *A. vulgaris* at Vauxhall near Canterbury; in numbers on *S. virgaurea* in Blean Woods; on *A. millefolium* at Ramsgate, and in each case reared them (C.-H.). Mathew (*Entomologist*, **25**: 292) records finding the larvae at Chatham on *A. tripolium.*

The moth appears to be regularly bivoltine, the first generation appearing on the wing in late May and June and again in late July and August, sometimes continuing into September.

VARIATION.—There is considerable variation in the degree of subterminal pale spotting ranging from a continuous row in which they are joined to form a line, to occasional total obsolescence except for the pale posterior spot which is never absent in my experience. There is also much variation in size, one that I bred from a larva on *A. millefolium* from Ramsgate being exceptionally large with alar expanse 27mm. As regards ground colour, a specimen in my coll. labelled "Tunbridge Wells, 11.viii.1914" is pale whitish ochreous; and another which I took at Halling, June 29, 1958, is by contrast greyish purple-brown (C.-H.).

FIRST RECORD, 1858: Folkestone, between July 24 and August 1, 1858 (H. Tompkins, *Diary*).

E. goosensiata Mabille: Ling Pug.

Native. Heaths; on *Calluna vulgaris.*

1. West Wickham (see *First Record*); four, June 1859 (Allchin, *Ent. week. Int.*, **8**: 4). Bostall Heath, July 17, 22, 1865, worn, August 4, 1866 (Fenn, *Lep. Data* MS.) St. Pauls Cray Common (C. Fenn, in *Wool. Surv.*, 1909). Chislehurst, several, 1891, in R.C.K. (C.-H.); one, August 8, 1906, four, August 4, 1909 (S. F. P. Blyth) Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Dartford (*V.C.H.*, 1908). Hayes Common, larvae abundant, October 8, 1919, September 29, 1920 (Kidner, Diary). Abbey Wood, one, July 15, 1952 det. D. S. Fletcher (A. J. Showler).

6. Greenhithe* (Farn MS.).

8. Kingsdown district (Shepherd, *Entomologist*, **17**: 137).

11. Yalding (*V.C.H.*, 1908).

12. Ham Street, one, August 5, 1936, taken by A. M. Morley (Scott, 1950). Hothfield, one larva on *C. vulgaris*, September 9, 1961, reared June 16, 1962 (C.-H.).; three larvae August and September 1961, reared 1963 (Cue MS.).

13. Tunbridge Wells (Knipe, 1916).

First Record, 1858: West Wickham (Stainton, *Man.*, **2**: 89).

E. assimilata Doubleday: Currant Pug.

Resident, perhaps native. Gardens, hop-fields; on *Ribes nigrum*, *Humulus lupus*, probably also on *R. rubrum* agg.

Note: In the past, the larva was often troublesome in Kentish hop-gardens where it destroyed the growing tips of shoots. However, it appears that nowadays owing to modern methods, *assimilata* is less frequent in hop-gardens.

1. Buckle & Prout (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, **1900**: 70) state that in the London area [in metropolitan Kent] it is "generally common in gardens on red currant and hop". Beckenham, 1863 (Leigh, *Week. Ent.*, **2**: 118). Chislehurst (Cockerell, *Entomologist*, **18**: 20). Sydenham, common c. 1888 (Sellon, *Ent. Rec.*, **2**: 164). Greenwich, on black currant (West, *Ent. Rec.*, **18**: 199). Westcombe Park (J. W. Tutt, in *Wool. Surv.*, 1909). Blackheath; Lee (C. Fenn, in *Wool. Surv.*, 1909). Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Eltham (*V.C.H.*, 1908). Sidcup, larva, September 10, 1925; twelve larvae on currant, September 1936; larvae, September 26, 1937 (Kidner, *Diary*). Orpington 1957 (L. W. Siggs); three, August 1958 (R. G. Chatelain). Bexley (L. T. Ford). Petts Wood, one, June 9, 1937, in A. M. & F. A. Swain coll. (C.-H.). Blackheath, apparently rare (A. A. Allen). Abbey Wood, one, August 21, 1952, det. D. S. Fletcher (A. J. Showler). West Wickham, one, May 25, 1952, gen. det. D. S. Fletcher (C.-H.); August 2(1), 8(2), 24(1) 1963 (R. F. Birchenough). Bromley, larva on *R. nigrum* (D. R. M. Long).

2. Sheppey, one, July 10, 1869 (Walker MS.). Near Upnor*, not common, May, August (Chaney, 1884-87).

3. Whitstable, one, 1948, one, 1949 (P. F. Harris)†.

5. Farnborough* (W. Barnes, in *Wool. Surv.*, 1909). Westerham (R. C. Edwards). Downe (R. F. Birchenough, in de Worms, *Lond. Nat.*, **1957**: 139).

6. Greenhithe (Farn MS.). Gravesend (H. C. Huggins).

6a. Cobham, one, May 19, 1912 (F. T. Grant).

7. Sittingbourne (H. C. Huggins).

8. Dover (E. & Y., 1949).

9. Margate, one, August 30, 1950 (W. D. Bowden)†.

10. Sevenoaks, July 29, 1920, June 1, August 21, 1922 (Gillett, *Diary*).

11. Yalding (*V.C.H.*, 1908). Aylesford, two, 1955, gen. det. D. S. Fletcher (G. A. N. Davis).

12. Ashford, one, in garden, c.1953 (P. Cue). West Ashford (M. Enfield). Willesborough, one, 1959 (D. Youngs).

13. Tunbridge Wells (Knipe, 1916). Goudhurst, one, 1957 (W. V. D. Bolt)†.

14. Sandhurst, one, August 1, 1939, one, May 30, one bred, August 1, 1948 (G. V. Bull); now in my coll. (C.-H.). Appledore (P. Cue MS.).

16. Folkestone* (Ullyett, 1880). Folkestone Town (A. M. Morley).

VARIATION.—In R.C.K. is a "dark brown ground" ab., two, North Kent. 1924, L. W. Newman.

FIRST RECORD, 1863: Beckenham (Leigh, *Week. Ent.*, **2**: 118).

E. expallidata Doubleday: Bleached Pug.

Native. Woods; on *Solidago virgaurea.*

1. Plumstead (Clark, *Trans. Cy. Lond. ent. nat. Hist Soc.*, 1900: 69). Farningham Wood, several larvae, September 29, 1929, larvae fairly plentiful as follows: September 25, 1930, September 19, 1931, September 27, 1932. September 30, 1933 (Kidner, *Diary*).

3. Blean, larva and imago (H. C. Huggins); (L. T. Ford). Thornden Wood, swept one larva from *S. virgaurea* in a clearing among many larvae of *E. simulata,* September 20, 1953, reared August 25, 1954 (C.-H.). Canterbury (J. A. Parry). Littlebourne, one, August 8, 1955 (P. B. Wacher). East Blean, larva on *S. virgaurea* seedheads, October 29, 1967 (Wakely, *Ent. Rec.*, **80**: 127).

6. Greenhithe (Farn MS.). Shoreham, several, 1948 (H. E. Hammond).

6a. Darenth Wood, two, August 8, 1861, amongst ragwort (Fenn, *Ent. week. Int.*, **10**: 196); two larvae, September 28, 1932 (Kidner, *Diary*). "Kent" [Darenth Wood?]* (Allchin, *Ent. week. Int.*, **8**: 4); (Crewe, *Ent. Ann.*, **1862** 48).

8. Folkestone Warren, one (Knaggs, 1870). Covert Wood, larva (H. C. Huggins).

10. Sevenoaks, August 13, 1920 (Gillett, *Diary*). Westerham, larvae (Ennis, *Proc S. Lond. ent. nat. Hist. Soc.*, **1932-33**: 105); (S. F. P. Blyth). Seal Chart (S. F. P. Blyth).

11. Yalding (*V.C.H.*, 1908). Headcorn, three imagines at rest one night on golden rod flowers, c. 1935 (W. A. Cope). Wateringbury, one. 1910, two bred 1911, in E. Goodwin coll. (C.-H.). Hoads Wood, one, c. 1953 (P. Cue). Sevenoaks Weald, one, August 17, 1960, at m.v,l. (E. Sadler).

12. Ham Street, a few flying, August 22, 1932 (de Worms, *Entomologist* **66**: 106); sometimes common (Scott, 1936); one, August 27, 1954 (P. B. Wacher); September 15, 1950 (R. C. Edwards); larvae in Orlestone Woods. September 29, 1956 (R. F. Bretherton); an imago taken, Orlestone Woods, September 8, 1962 (M. Singleton); August 14, 1965 (D. W. H. ffennell).

13. Goudhurst, two ,1960† (W. V. D. Bolt).

16. Folkestone, one on fence in garden, August 18, 1957 (A. M. Morley).

FIRST RECORD, 1860: *"Eupithecia pallidaria . . .* I possess specimens of this insect bred from larvae found in Kent, by Mr Gorham, on *Solidago virgaurea"* (M'Lachlan, *Zoologist*, 6944). Alternatively, we may cite for the same date: Allchin, *Ent. week. Int.*, **8**:4.

E. vulgata Haworth: Common Pug.

Native. Gardens, woods, etc.; on hawthorn, yarrow, *Solidago virgaurea, Heraclium sphondylium.* Frequent and recorded from all divisions except 4 and 7, but is doubtless present in both. "Generally common" (*V.C.H.*, 1908).

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

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For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley BR2 9EE, Kent.

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Hertfordshire Ants—Would any readers having records or sightings of ants of any species in Hertfordshire kindly send an indication of species, date and grid reference plus any locality details, to the address below, to help with a survey currently being undertaken.—*P. J. Attewell* and *S. D. Mackey*, 69 Thornbury Gardens, Borehamwood, Herts.

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BACK NUMBERS—Prof. T. C. R. White of the newly established University of the South Pacific, has appealed for back numbers of the Ent. Rec. and any other entomological journals to help stock the biology section of their library. The University caters mainly for the South Pacific islands (Tonga, Samoa, Fiji, etc.) and although receiving financial aid from many countries including Britain, it will be many years before the essentials of a library are built up. Any help will therefore be greatly appreciated. Please contact Prof. White at School of Natural Resources, University of South Pacific, SUVA, Fiji; mentioning *Entomologist's Record.*

WANTED URGENTLY—For illustration, half dozen late instar larvae of the Transparent Burnet moth, *Zygaena purpuralis*, from Ireland or Scotland. Postage etc. refunded.—*W. G. Tremewan*, 16 Orchard Ave. Woodham, Weybridge, Surrey KT15 3EB.

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 must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

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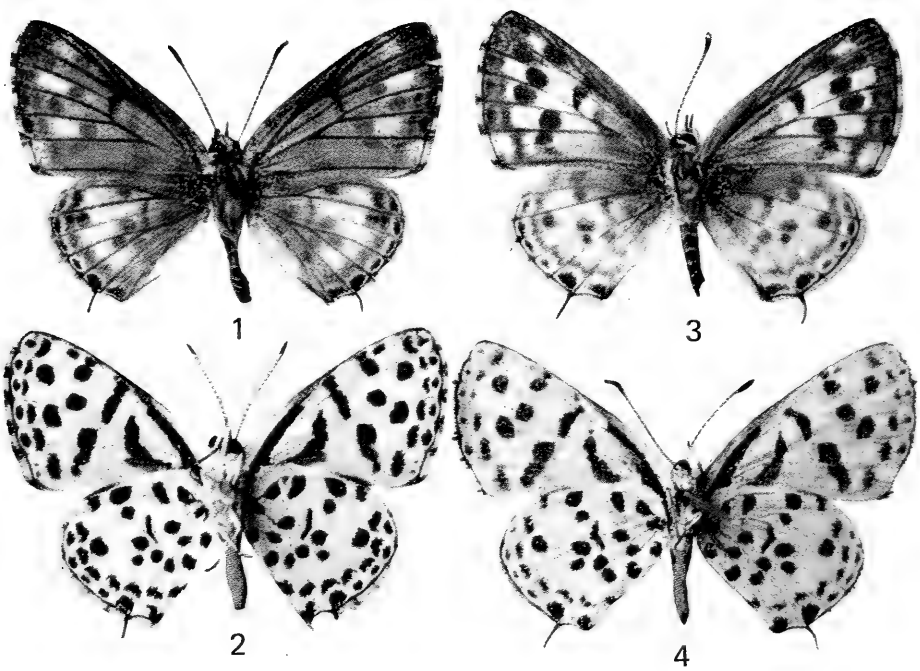

CASTALIUS HINTZA (TRIMEN) SSP. KROONI

Fig. 1 ♂ Holotype (upperside).
Fig. 2 ♂ Paratype (underside). Tyger Valley, S W A.
Fig. 3 ♀ Allotype (upperside).
Fig. 4 ♀ Paratype (underside). Otavi, S.W.A.

Figures twice natural size (Photo: H. N. Wykeham)

Note: Basal colouring in Fig. 3 should be light blue not violaceous.

A new race of *Castalius hintza* (Trimen)* (Lepidoptera: Lycaenidae) from South West Africa

By C. G. C. Dickson

No. 28

Trimen based his original description of *Lycaena hintza* on specimens from the present Eastern Cape Province (King William's Town and the Bashee River) and it is considered that representatives of this butterfly from South West Africa differ sufficiently from topotypical material to form another race, as described hereunder.

Castalius hintza krooni subsp. nov.

Male. Upperside

Differs from the nominate race in the presence of generally quite conspicuous patches of white scaling on all wings and in the more sharply defined dark and light divisions in the cilia of the forewings.

Forewing. Besides the one which frequently occurs in area 1b and adjoins wing-margin (and which is sometimes present in nominate specimens), white patches are nearly always visible in areas 2 and 4 (beyond the dark discal spots of underside which partially show through the wing) and, in the more extreme specimens, also in area 6, while others may occur incipiently elsewhere on the wing. Marginal dark marking in the form of semi-detached spots in the more extreme examples, including the holotype. Cilia with the blackish divisions at end of veins narrower and better defined in relation to the more prominent white spaces, than in nominate specimens.

Hindwing. White patches more prominent than in forewing; in the more extensively marked specimens such as the holotype, occurring in areas 1c-6, with some of the upper ones very elongated and the inner-marginal area itself conspicuously white. The dark marginal marking tending to be more broken up (as in the forewing) than in nominate race and, as in the holotype, frequently edged inwardly with white scaling. Cilia much as in the nominate race.

Underside

All wings much as in nominate specimens, allowing for some individual variation; the dark and light spaces in the cilia generally more neatly defined.

Length of forewing: 10·0-12·5 mm. (12·5 mm., in holotype).

Female. Upperside

White portions of wings as a whole more extensive than in nominate race, though not always so, in the forewing.

* *Lycaena hintza* Trimen, 1864. *Trans. ent. Soc. Lond.*, **3rd Ser., 2**: 177. *Lycaena hintza* Trimen, 1887. *South African Butts.*, **2**: 79, pl. 8, figs. 1, 1a.

Forewing. Cilia with the dark portions, though finer, well defined, as in the male.

Hindwing. Dark marking in general finer than in nominate race.

Underside

All wings as in the male and, as in that sex, with the markings frequently less heavily developed than in nominate specimens.

Length of forewing: 11·75-13·0 mm. (11·75 mm., in allotype).

Body and ancillary portions as in the nominate race, although the underside of the thorax and the legs may be a little whiter in the present race.

♂ Holotype, SOUTH WEST AFRICA: Otavi; 22.ix.1971 (Dr D. M. Kroon); specimen to be presented by Dr Kroon to the Transvaal Museum.

♀ Allotype, SOUTH WEST AFRICA: data as holotype, 29.xii.1971; also allocation of specimen.

Paratypes presented to British Museum (N.H.), data as holotype, 1 ♂ (D.M.K.); Tiger Valley, 4.i.1972, 1 ♀ (D.M.K.). British Museum Reg. Nos. Rh. 17310 and 17311.

Paratypes in the author's collection, as holotype, 1 ♂; Waterberg, 29.ii.1971, 1 ♂ (D.M.K.).

Paratypes in Coll. Dr D. M. Kroon, as holotype, 22.ix.1971, 1 ♂, 29.xii.1971, 4 ♂♂, 1 ♀; Windhoek, 27.xii.1971, 1 ♂, 1♀ (D.M.K.).

The average size of *C. hintza krooni* is below that of nominate specimens, but there is much variation in the size of individual specimens of both these races. From a preparation which has been made by Dr L. Vári of the Transvaal Museum, the male genitalia agree with those of nominate examples. Although the distribution of *C. hintza* will not be continuous, owing to gaps occurring between populations in many instances, there is likely to be an irregular cline in part of its range between the Eastern Cape and South West Africa. Certain Natal males show some definite indication of the white patches in the hindwing, anyway, as do others from the Transvaal. A small male from Lucerne near Zeerust, in the extreme Western Transvaal, taken by Mr A. L. Capener on 16th November 1948, is not far removed from *C. hitza krooni*. This new race does, however, have a very wide distribution in South West Africa. The type material is all from this territory. A pair of Rhodesian specimens (Farm "Sabi Star", Chitora Valley, 12-15.ix.1972) captured by Dr Kroon, much resemble S.W.A. examples of this butterfly. It must be mentioned that a small proportion of S.W.A. males do have the white marking very largely suppressed in the forewings; but even in these specimens it has been clearly apparent in the hindwings. Mr K. M. Pennington encountered this insect, many years previously, when collecting butterflies in South West Africa.

This race is named with pleasure after Dr D. M. Kroon, who has furnished the following note concerning specimens he observed in the field: "At Windhoek I took them singly, flying low in a dry

sheltered valley, often settling on low bushes, in particular a thorny dark green bush, ? *Zizyphus* sp. They were not uncommon. Further north at Otavi it is much hotter and many specimens were seen and taken along the mud of a small stream, together with several other small Blues, including *Syntarucus pirithous* (L.), *Zizeeria knysna* (Trimen) and others."

The earlier portion of the life-history of *C. hintza hintza* has been described and illustrated in colour by Clark and Dickson in *Life Histories of the South African Lycaenid Butterflies*, pp. 69, 72, Pl. 32 (1971).

"Blencathra", Cambridge Avenue, St. Michael's Estate,
Cape Town.

Observations on British Butterflies in 1972

By A. P. Gainsford, F.R.E.S.

(concluded from p. 133)

The all too brief spell of real Summer came to an end on the 30th of July with some rain and a considerable drop in temperature. With the fate of *Maculinea arion* L. now foremost in my mind I had arranged to meet Bob and Rosemary Goodden at the "secret" site on the north Cornish coast, but continuous rain throughout the morning and heavy showers during the afternoon spoilt any chance we might have had of seeing any butterflies. A solitary saturated figure in the depths of the valley turned out to be Jeremy Thomas of Monks Wood rounding off his intensive study of this most critical species and its ecology. Apparently the flight period had been very late and brief in the extreme, lasting from about the 21st to the 27th only but surprisingly encouraging in numbers which added up to some thirty or so butterflies. Much extremely useful information on the ant hosts had been obtained and we were able to hear a good deal about the fascinating and so far successful breeding with stock brought home from Brittany which Bob Goodden is carrying out so ingeniously and painstakingly at Sherborne.

The first week of August was mostly wet with strong winds but another spell of hot, sunny weather began on the 11th, and, with only short-lived interruptions, continued until the 26th of October in the south-west.

A. paphia flew on strongly into October being seen in fair condition on the 12th after a very good season indeed, and the last few *M. athalia* were seen as late as the 12th of August. *E. semele* were about a fortnight overdue at Kit Hill, but as plentiful as ever, and the last few were flying on the 4th of October.

N. io was missing until about the 16th of August, and then slowly became as abundant as ever. At Hill Bridge on the

1st of September they were to be seen in large numbers on the prolific Devil's Bit Scabious, making as beautiful a picture under a deep blue sky flecked with white cumulus as any seen this year.

Thecla quercus L. was both late and scarce in Devon, and it was not until the end of August that I noticed one or two around the higher branches of a single oak near Lydford, and I saw no *Thecla betulae* L. at all despite good weather continuing until the third week of October. This latter butterfly is now quite rare in the south-west.

On the 14th of September I found a few freshly emerged *V. cardui* at Hannafore, Looe, where they had been common a year or two ago in August.

No less than six *V. atalanta* sought nectar from the practically dead blossoms of a small Buddleia in my garden at about mid-day on the 6th of October, and on the 12th they were plentiful on the coast, especially at Polperro where they settled frequently on the flower buds of Ivy together with *V. cardui, A. urticae* and *P. rapae.* The late *L. phlaeas* made a poor showing, but *G. rhamni* were everywhere as indeed were *P. aegeria. A. agestis* and *P. icarus* however, usually so common down here in late Summer, were indeed hard to find, and the same could be said of the late brood of *P. megera.*

On the day before the weather finally broke up, the 25th of October, I counted no less than sixteen *A. urticae,* two *N. io,* two *V. atalanta* and a *V. cardui* all together on a single clump of *Sedum spectabile* in the front garden of a little house at Heybrook Bay.

Reviewing it all in retrospect one would hardly be justified in calling it a poor season for our butterflies. Some species enjoyed a particularly good flight season while others were brief and weak. But what emerged as the outstanding difference from an average year was the strange company some of them kept as a result of Nature's timing being upset. The hardy ones were reasonably punctual and even early, but the majority were delayed by anything from one to as much as seven weeks. Emergences were in many cases interrupted and extended, and sometimes there were flowers but no butterflies or the butterflies but no flowers. Surprises were many, but no harm has necessarily resulted except at the hand of man himself. In these enlightened times while more and more thoughtful people devote their time and energy to the conservation and protection of our sinking butterfly populations is it sad to relate that highly destructive practices are still being permitted which can only have disastrous effects. An instance must be the bulldozing clear of all vegetation of so many of the rides in the Old Rockingham Forest complex and even at Castor Hanglands and spraying with weed-killer between the young conifers by the Forestry

PLATE X

Aneurus nepalensis n.sp., female, holotype.

Commission, and there is every indication that *C. palaemon* may have been exterminated. At Castor Hanglands it had been driven into only one ride the previous year and has been declining rapidly for some time. I have made enquiries which indicate that not one specimen was seen this season. Doubtless we still have the colonies in Inverness, but these are of a distinctly different race. If any reader can supply any up to date information concerning this species in England I should be very glad to have it.

The last sighting for this year was on top of Pew Tor, Dartmoor, where two *A. urticae* gambolled among the rocks in warm sunshine on the 19th of December. It may not be long. the way things seem to be going, before a butterfly or two may be encountered at some time during every month on the calendar.

Mulberry House, Whitchurch Road, Tavistock, Devon.
November 1972.

A new species of the genus *Aneurus* Curtis 1825, from Nepal (Hemiptera : Aradidae)

By Nicholas A. Kormilev and Ernst Heiss

Abstract: The authors describe a new species of the genus *Aneurus* Curtis, 1825, from Nepal, which they propose to name *Aneurus nepalensis* **n. sp.** and give a key for all oriental *Aneurus* species known up to now.

Zusammenfassung: Aus der orientalischen Region sind bis heute 16 Arten der Gattung *Aneurus* Curtis, 1825, s. str. bekanntgeworden, deren Beschreibungen sich zum Teil in sehr verstreutem Schrifttum befinden. Der letzte Bestimmungsschlüssel wurde von BERGROTH vor rd. 60 Jahren für die damals bekannten Arten publiziert und ist heute überholt. Die Autoren haben daher eine neue, ale bekannten Arten dieser Region umfassende Bestimmungstabelle zusammengestellt und beschreiben eine neue Art Aneurus nepalensis **n. sp.** aus Nepal.

Sixteen species of the genus *Aneurus* Curtis, 1825, s. str., were recorded from the Oriental Region, to which we may add one more, from Nepal.

The last key for the Oriental species of the genus *Aneurus* Curtis was constructed by Bergroth almost 60 years ago and now is out of date. Therefore we are offering a new key.

We wish to express our thanks to Dr W. R. Dolling, British Museum (N.H.), for sending us data for *Aneurus indicus* Bergroth and *Aneurus greeni* Distant.

Key to the Oriental *Aneurus* species

1. Spiracles III and IV ventral and not visible from above ..... 2.
   At least spiracles III to V ventral and not visible from above ..... 5.
2. Anterior process of head short, reaching $^3/_4$ of antennal segment 1; antennal segment II shorter than III. (CHINA, Fukien, Kwantung) ..... *nitidulus* Kormilev, 1955.
   Anterior process of head longer, at least reaching tip of antennal segment I ..... 3.
3. Anterior process of head only reaching tip of antennal segment I; antennal segment I shorter than II ..... 4.
   Anterior process of head produced beyond tip of antennal segment I; antennal segment I as long as II. (INDIA, VIET NAM, TAIWAN ..... *sinuatipennis* Bergroth, 1914.
4. Antennae longer, 1.75 × as long as head's width across eyes; antennal segment II as long as III. (CHINA, Hainan) ..... *insularis* Kormilev, 1970.
   Antennae shorter, only 1.5 × as long as head's width across eyes; antennal segment II longer than III. (VIET NAM) ..... *tainguensis* Kormilev, 1970.
5. Spiracles III to V ventral and not visible from above. (BURMA) ..... *indicus* Bergroth, 1892.
   Spiracles III to VI ventral and not visible from above ... 6.
6. Antennal segment I longer than II, lateral borders of pronotum not sinuate. (INDONESIA, Sumatra) ..... *conviva* Bergroth, 1914
   Antennal segment I at most as long as II; lateral borders of pronotum sinuate ..... 7.
7. Lateral borders of pronotum with a tooth on hind lobe anteriorly. (NEPAL) ..... *nepalensis* **n. sp.**
   Lateral borders of pronotum without tooth ..... 8.
8. Antennal segment I as long as II ..... 9.
   Antennal segment I shorter than II ..... 11.
9. Antennal segment II longer than III, IV distinctly longer than II+III. (INDONESIA, Sumatra) ..... *socialis* Bergroth, 1914.
   Antennal segment II as long as III, IV shorter than II + III ..... 10.
10. Exterior borders of connexivum VII (♂) regularly rounded; paratergites reaching tip of hypopygium; connexivum VII (♀) separated from tergum VIII by angular projections of tergum VII, which are reaching outer border of abdomen. (INDIA) ..... *sublaevis* Bergroth, 1914.
    Exterior borders of connexivum VII (♂) firstly strongly sinuate, then arcuate; paratergites not reaching tip of hypopygium; connexivum VII (♀) reaching tergum VIII, angular projections of tergum VII not reaching outer border of abdomen. (CHINA, Yunnan) ..... *yunnanensis* Hsiao, 1964.

11. Anterior process of head produced beyond tip of antennal segment I ..... 12.
Anterior process of head at most reaching tip of antennal segment I ..... 16.
12. Larger species, ♀ over 4.75 mm. ..... 13.
Smaller species, ♀ less than 4.5 mm. ..... 14.
13. Corium concolor. (CHINA, Taiwan) .....
taiwanensis Kormilev, 1972
Corium with stramineous streak. (CEYLON) .....
greeni Distant, 1905.
14. Antennal segment II as long as III, pronotum as long as scutellum. (VIET NAM) ... *vietnamensis* Kormilev, 1968.
Antennal segment II longer than III, pronotum either longer, or shorter than scutellum ..... 15.
15. Antennal segment II distinctly longer than III (6:4); pronotum longer than scutellum. (PHILIPPINES, Luzon)...
plicatus Bergroth, 1914.
Antennal segment II only slightly longer than III (8:7); pronotum shorter than scutellum. (INDONESIA, Sumba I.) ..... *sutteri* Kormilev, 1953.
16. Anterior process of head reaching tip of antennal segment I; antennal segment II as long as III, IV shorter than II+III; exterior border of connexivum VI (♂) not produced posteriorly beyond exterior border of connexivum VII. (CHINA, Hainan) .....
hainanensis Kormilev, 1968
Anterior process of head not reaching tip of antennal segment I; antennal segment II shorter than III, IV as long as II+III; exterior border of connexivum VI (♂) roundly produced beyond exterior border of connexivum VII. (CHINA, Hainan) ..... *sublobatus* Kormilev, 1968

Aneurus nepalensis new species
Fig. 1-5 and photo

Female: Elongate ovate; finely granulate on head, pronotum, scutellum, terga VII and VIII, connexivum and legs.
Head: almost as long as its width across eyes. (17.5:18); anterior process conical, reaching tip of antennal segment I; antenniferous tubercles acute, diverging. Eyes semiglobose, protruding. Postocular tubercles blunt, granulate, not reaching outer borders of eyes. Vertex with transverse rows of fine granules; infraocular callosities moderately large, ovate, depressed posteriorly. Antennae thin, 1.7×as long as head's width across eyes (31:18); relative length of antennal segments I to IV are : 6:7.5:7.5:10; antennal segment I obovate, II and III tapering towards base, both petiole, IV fusiform, also petiolate. Granules on antennal segment I-III with short bristles, on IV with semierected hairs. Labium short and robust, reaching line connecting hind border of eyes.
Pronotum: half as long as its maximum width (20:41); fore lobe narrower than hind lobe (30:41). Collar narrow, with a

thin, transverse sulcus along fore border; antero-lateral angles rectangular with rounded tips; lateral borders of fore lobe sinuate; lateral borders of hind lobe parallel at humeri, dilated into small, rounded lobes anteriorly, just behind interlobal depression. The latter more accentuated laterally and obsolete medially. Hind border almost straight. Fore disc densely and sharply granulate; median depression not reaching collar, flanked by 2 (1+1) crescent-shaped callosities and further laterated by 2 (1+1) small, oblique, ovate callosities. Hind disc finely and densely granulate, granules forming not very distinct, transverse rows.

Scutellum: shorter than its basal width (16:25); all borders carinate; lateral borders arquate, hind border widely rounded. Disc granulate, granules forming concentrical rows; median carina narrow, formed by a thin zig-zag line, extending from base to 2/3 of disc.

Hemelytra: reaching 2/3 of tergum VII; corium reaching basal 1/3 of scutellum. Membrane brown, whitish at base.
Abdomen: longer than its maximum width across segment IV (77.5:58). Connexivum wide; exterior borders of connexiva V to VII slightly produced at 2/3 of their length; discs of connexiva finely granulate. Each connexivum from III to VII with 2 callous spots, of which fore spot is smaller and rounded hind spot larger and ovate. Tergum VII with 2 (1+1) small, rounded spots. Tergum VIII placed at a lower level, it is narrower than head's width across eyes (16:18). Paratergites short, rounded posteriorly, slightly shorter than segment IX, which is weakly sinuate posteriorly. Venter finely granulated with transversely rugose areas; Sternum IV-VII with a medial elongate — ovate smooth callosity laterally with three small, round, callous spots on each side. Spiracles II, VII and VIII lateral and visible from above; III to V ventral, placed far from border. Meso and Metasternum show the same medial elongate callosity as sternum III-VII.
Legs: femora densely granulate; tibiae very finely granulate. Hind right tibia and tarsus missing in Holotype.

Color: black, eyes and lateral borders of connexiva, ventral smooth callosities except on Meso- and Metasternum brownish, coxae, tibiae, tarsi and labium yellow brown.

Total length 5.40 mm; width of pronotum 1.64 mm; width of abdomen 2.32 mm.

Holotype ♀, NEPAL, Khartedara, 26-3200 m. 27.vi.1965, Wild coll. (*Quercus* forest); deposited in the Heiss collection.

Aneurus nepalensis n.sp. is related to *A. indicus* Bergroth 1892 and *A. socialis* Bergroth and may be separated by the differences given in the key. Both species are also smaller than the new one: *A. indicus* Bergroth ♀ 4,7-5 mm, *A. socialis* Bergroth ♀ 4-4.8 mm.

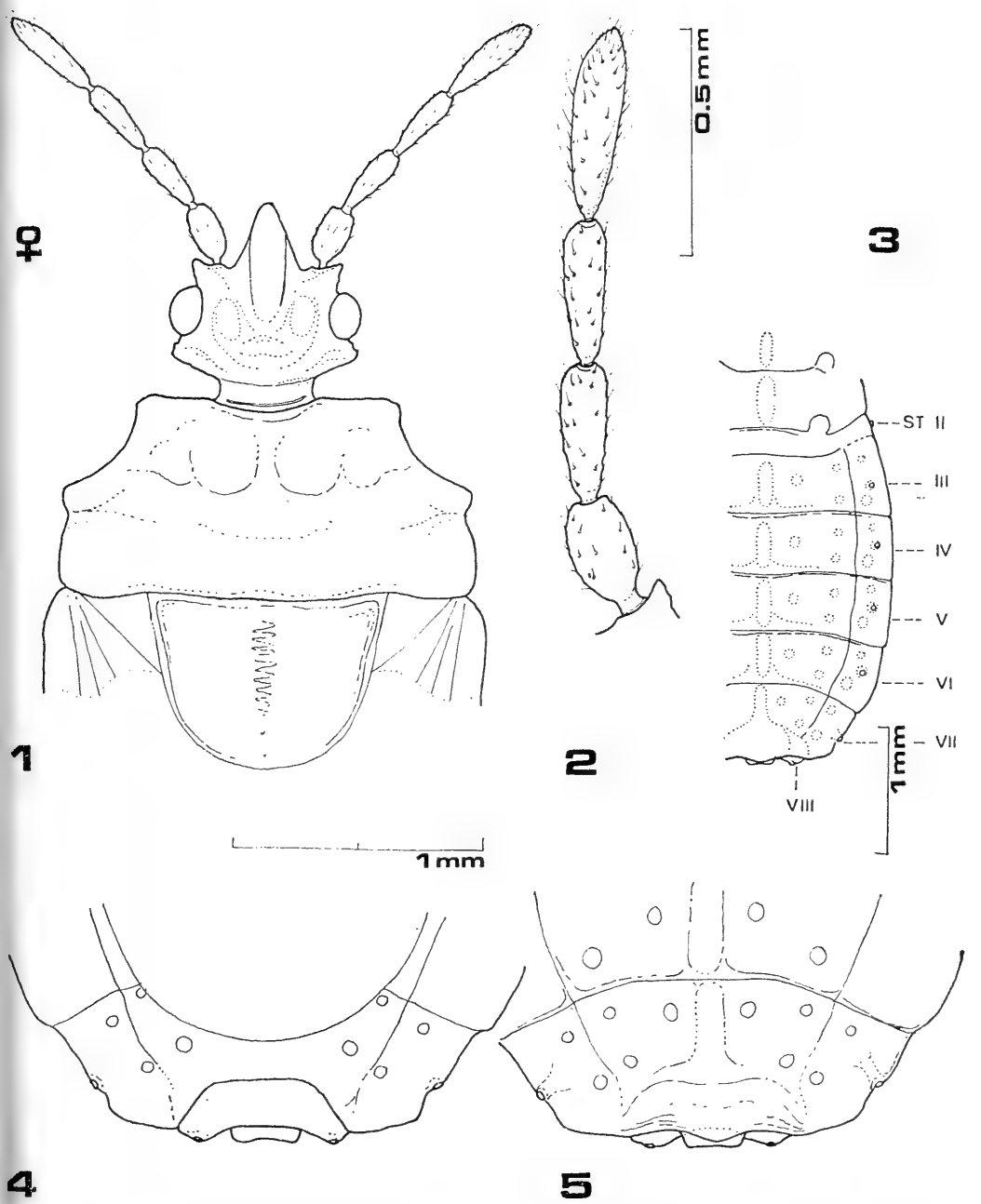

Fig. 1-5. *Aneurus nepalensis* n.sp., female, holotype: 1: Head, pronotum and scutellum. 2: Right antenna. 3: Position of spiracles on ventral side of abdomen. 4: Tip of abdomen dorsal. 5: Tip of abdomen ventral.

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Zygaena (*Zygaena*) *viciae* Dennis & Schiffermüller in Asia Minor (Lep., Zygaenidae): Description of a New Subspecies*

By Hugo Reiss and Günther Reiss

The widely distributed *Zygaena viciae* Denis & Schiffermüller, typical from the Vienna region, in Austria, was formerly known under the name *meliloti* Esper, which is now used to represent the subspecies from central and southern Germany, typical from Erlangen, Franconia.

Holik & Sheljuzhko (1957) have established that the records of *Zygaena* quoted as *laphria* from the localities Achalzich (Chambobel) 1910, Kulp and Kasikoparan 1901 are incorrect. *Zygaena laphria* Freyer, described from the Caucasus, cannot be identified with certainty. In the systematic catalogue of Reiss & Tremewan (1967) the name *laphria* Freyer is therefore placed as a nomen dubium.

According to the most recently collected material it is assumed that in Asia Minor, from Armenia westwards, the

*The order follows the systematic catalogue of Reiss & Tremewan (1967).

PLATE XI

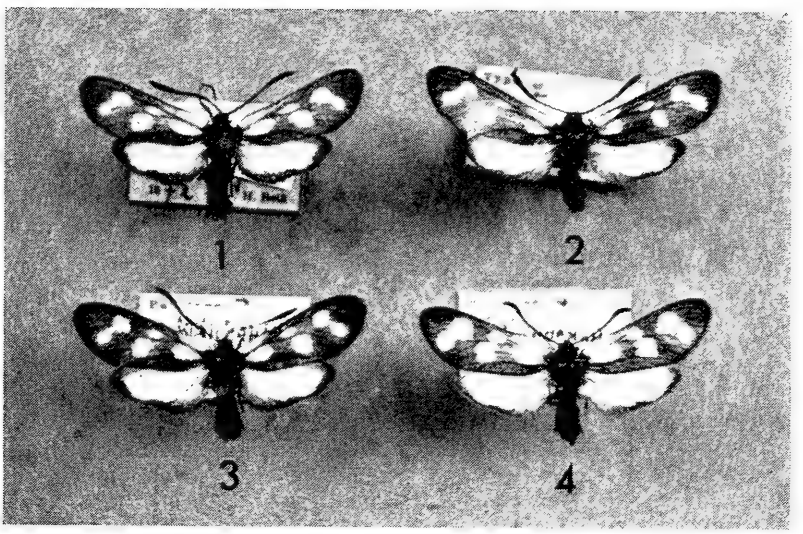

Fig. 1. *Zygaena viciae rassei* n. ssp. Holotype ♂, wingspan 28 mm
Fig. 2. *Z. viciae rassei* n. spp. Allotype ♀, wingspan 30 mm
Fig. 3. *Z. viciae rassei* n. ssp. Paratype ♂, wingspan 29 mm.
Fig. 4. *Z. viciae rassei* n. ssp. Paratype ♀, wingspan 30 mm.

almost always five-spotted and mostly red-girdled *viciae* predominate over the six-spotted races which rarely have a red abdominal belt or girdle, the latter until recently being known under the species name *laphria* Herrich-Schäffer. Here, *laphria* Herrich-Schäffer (1851/1852) from Amasia and *philomelica* Reiss (1935) from Ak-Sehir are treated as subspecies of *Zygaena viciae.* Biological studies must now follow. Six-spotted races of *viciae* also occur in the southern Alps and in Italy southwards to Sicily. Of special mention here is the ssp. *sicula* Calberla (1895) from Mistretta, 1000 m, Sicily, because it has a similar spot formation to the above mentioned races from Asia Minor. Calberla had already noted this similarity.

Unfortunately the types of *laphria* Herrich-Schäffer from Amasia cannot be found. Reiss & Tremewan (1960) figure 1 ♀ from Amasia, ex coll. Zeller. Holik & Sheljuzhko (1957) described 3 ♂♂ 5 ♀♀ from Tokat, leg. Kindermann and 3 ♀♀ from Ak Dagh near Amasia, leg. Staudinger, ex coll. Staudinger. In coll. Reiss are found 1 ♂, labelled Amasia, and 5 ♂♂, 4 ♀♀ paratypes of *philomelica* Reiss.

D. & K. Bernhauer gave us 2 ♀♀, labelled N. Turkey, Köse near Erzincan, 1800 m, 18.8.1968. These specimens are very worn and are only of value for their locality data. Spot 6 of the forewing is joined to spot 5; the abdomen is without the girdle or belt.

From Kizilcahaman, north-west of Ankara, 1300-1500 m, we have 1 ♂, 3 ♀♀, 7.1970, leg. Rasse and 14 ♂♂, 7 ♀♀, 15, 16, 18.7.1971, leg. Rasse. These specimens differ from all described races from Asia Minor. Wingspan: 1 ♂ 25 mm, 2 ♂♂ 26 mm, 5 ♂♂ 27 mm, 4 ♂♂ 28 mm, 2 ♂♂ 29 mm, 1 ♂ 30 mm; 1 ♀ 27 mm, 4 ♀♀ 29 mm, 3♀♀ 30 mm, 1 ♀ 31 mm 1 ♀ 32 mm. The dark ground colour of the thorax and abdomen, and the antennae and the legs, is glossy blue-black. The hairs of the thorax and abdomen are short. The antennae of the ♀ are more lightly clubbed than in the ♂ and run to a sharp point. The wing shape is mostly pointed. The dark ground colour of the forewings shows a light blue or bluish green gloss or sheen. Forewing fringes blue-black. The red coloration of the 6 forewing spots and the hindwings is somewhat light, bright carmine red. Spots 1 and 2 are confluent, but may be sometimes separated by the dark vein. Spot 3 is small, usually elongate or in the form of a small short streak. The variably quadrangular spot 4 is larger than spot 3, from which it is separated by the dark ground colour. Only in 2 ♂♂ and 2 ♀♀ are the enlarged spots 3 and 4 closely adjacent to each other. Spot 5 is smaller than spot 4, and is usually ovoid in shape. The small spot 6, which in no specimen is absent, is isolated in 7 ♂♂ and 1 ♀, is narrowly connected to spot 5 in 6 ♂♂ and 7 ♀♀, and is broadly connected only in 2 ♂♂, 2 ♀♀. The blue-black hindwing border is broad at the apex and the tornus. From the tornus along the inner margin the wing is suffused with

blue-black scaling. The fringes of the hindwings are blue-black. The red on the underside of the wings is rather paler. The paired forewing spots are on the underside more or less distinctly confluent. Two ♀♀ have a red abdominal belt, dusted with black scaling, on one segment both on the upper and underside of the adbomen (ab. *cingulata* n. ab.). In one of these ♀♀ the red abdominal belt is suffused over two segments on the underside.

Von Demelt sent us 1 ♀, labelled Isik Dagh, 100 km north of Ankara, near Güvem, 1000-1500 m, 6.1966, wingspan 29 mm, that we consider as belonging to the subspecies described above.

We name this well differentiated subspecies *rassei* n. ssp. after its discoverer. The figures show especially the size, the wingshape, form of the antennae, forewing spots and hindwing border.

Holotype ♂, 18.7.1971, wingspan 28 mm, Allotype ♀, 16.7.1971, wingspan 30 mm, and Paratypes in coll. Reiss.

The genitalia preparation of 1 ♂ (as well as a photomicrograph of same) show that the genitalia of ssp. *rassei* do not differ from those of *viciae* (*meliloti*), as figured by Haaf (1952). We thank Mr Heller, Museum für Naturkunde, Stuttgart, for preparing and photographing the genitalia.

An interesting locality for *viciae* is near Bursa (Brussa), Ulu Dagh, in west Asia Minor, 1 ♀, leg. D. Bernhauer, 12.7.1971. In this specimen, wingspan 29 mm, spots 3 and 4 of the forewing are broadly confluent. Spot 5 is large, somewhat suffused, spot 6 is absent on the upperside. The dark hindwing border is narrow. On the underside, the forewing spots are lightly suffused and confluent. The connected spot 6 is on the underside slightly evident.

The ssp. *laphria* Herrich-Schäffer, typical from Amasia, differs from *rassei* in the generally larger size and larger forewing spots, of which spot 6 is not reduced and separated from spot 5 by the dark ground colour. Tremewan (1969) recorded 1 ♀ from Tavsan Dagi (north of Merzifon), 20.7.1959.

The ssp. *philomelica* Reiss, typical from Ak-Sehir, in Anatolia, differs from *rassei* by the size and frequency of five-spotted specimens. It inclines strongly towards a reduction of spot 6 of the forewing. The dark hindwing border, well represented at the apex, is mostly narrow and does not extend much, if at all, beyond the tornus.

We are indebted to Mr Friedrich Rasse for collecting the material for us at Kizilcahaman. In addition we thank Mr K. von Demelt and Messrs D. and K. Bernhauer.

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Notes on the Butterflies of Corsica, 1972

By A. L. Panchen, M.A., Ph.D., and M. N. Panchen

Introduction

The following notes are the result of collecting in northern and central Corsica during August 1972. The occasion was a family camping holiday, using a series of public camp sites and camping areas as a base for exploring a variety of habitats at different levels.

Bretherton and De Worms (1963) have produced an account of collecting in Corsica in July and early August together with a useful annotated list of the butterfly fauna of the island. Their account is supplemented by a note by Sir George Johnson. Johnson's collection was made during the first half of August in the region around Porto, about 80 km. to the north of the capital Ajaccio on the west coast.

We were on Corsica for three weeks, from Saturday, 5th August until Friday 25th of that month. We feel that our account may be of some interest in that we collected over a period of a number of days in two areas on the north coast of the island, which was not visited by Bretherton and De Worms or by Johnson. We also visited some of the classic mountain sites described by the former authors but at a time at least a fortnight later in the summer than they. A comparison of our observation with theirs is therefore also of some interest.

We arrived in Corsica on the evening of the 5th of August by car ferry from Nice and set up our camp at a site some 4 km. from Calvi, our port of arrival. The camp site is situated at the coast and on the east bank of the small River Figarella which rises in the mountains some 20 km. to the south.

We left Calvi on the 8th August and travelled to the attractive little town of St Florent on the gulf of that name just to the west of the north-eastern peninsula, Cap Corse. We then left St Florent by way of Bastia for the mountainous interior on the 11th August and motored along route N193 by the River Golo to Corte. There we camped by the river in the Gorge de la Restonica for three nights. This was one of the areas visited by Bretherton and De Worms. Our next base was also visited by them: this was Vizzavona, where we camped in the famous forest for three nights before leaving for the west coast on 17th August.

After spending two days to the south of Ajaccio, where we did virtually no collecting, we returned to Calvi by way of the magnificent and sometimes terrifying mountainous coast road N199, incidentally passing through Porto where Johnson collected. Accommodation even for campers is difficult in the Porto region in late August and we drove on to our original camp site near Calvi, which served as our base for the remaining six days.

Of the 55 species of butterfly listed by Bretherton and De Worms as certainly occurring in Corsica since 1900, we caught 31 and saw and certainly identified 3 more. We neither took nor saw any species from their "doubtfully recorded" list.

We will first include some notes on each locality and its butterfly fauna and expand these by further details of the taxonomy and ecology of a few of the more interesting species.

Localities and fauna

The camp site at Calvi is situated between the main Calvi-St Florent road and the sea, and on the bank of the River Figarella which here is a sluggish and somewhat polluted stream. Part of the site may once have been cultivated land but must have degenerated to rough weedy pasture before the site was laid out. To the east of this part of the site the fields continued and were covered with waist or even shoulder-high herbaceous weeds. A number of peach and other fruit trees are present on the site itself.

Between the open area and the sea a small rather dark wood of large, mostly deciduous, trees also forms part of the camp site and from this a path lined by high wild herbaceous plants leads down to the sea parallel to the river.

During our first period at the Calvi camp site the commonest butterflies in the open area were undoubtedly *Pyronia tithonus* and *Polyommatus icarus flavocinctata* Rowland Brown. Because of the lateness of the season males of the former species were very uncommon and, when seen, very worn, whereas the females were numerous, particularly and characteristically in thickets and on high weeds. This was also the case with the much less numerous *Maniola jurtina hispulla,* which was also fairly common. In the case of the common blue *P. icarus,* however, it was the males which were

conspicuous in the low weedy grass of the site itself although the females, because of their more cryptic colouring, may have been commoner than was apparent. The species was accompanied by a few specimens of *Lycaena phleas, Coenonympha pamphilus* and *Celastrina argiolus.*

Apart from a specimen of *Vanessa atalanta* seen by the river path the remaining species seen during our first short stay at Calvi were all of the family Pieridae. *Pieris rapi* was common, but not so numerous as one might expect, *P. brassicae* less so. We took one specimen (a female) of *Pontia daplidice* flying along a sandy path bordered by scrubby vegetation east of the camp site and saw what may have been other specimens flying over the low dunes by the sea to which the path led. Finally we took one specimen of *Colias crocea,* a female, form *helice.* Interestingly this specimen and another, also *helice,* taken at Bocognano (see below) were the only members of this species we saw on Corsica.

During our second period in the Calvi area we both caught and saw a greater variety of species, partly due to our longer stay, partly to concentration on the wooded area of the camp site and partly to collection in a wide surrounding area.

Of the species collected or seen before *V. atalanta* (several specimens) *P. tithonus, C. pamphilus, M. jurtina hispulla* (a good male taken), *L. phleas, P. icarus* and *Pieris brassicae* were still present.

In addition specimens of the scarce swallowtail *Iphiclides podalirius* were to be seen flying around the tops of the fruit trees.

The wooded area of the camp site proved rich in species. *Pararge aegeria* was common and we came to realise that the magnificent fritillary *Pandoriana pandora* was relatively common. Specimens, however, flew at about twenty feet or more and settled in trees at that height, only occasionally swooping down to visit thistles and other flowers. This behaviour may be unusual for this species and was in contrast to that which we saw in the mountains (see below). We managed, however, to net one female.

A clearing at the edge of the wood bordered on one side by trees and otherwise nearly sorrounded by bramble thickets was particularly fruitful. There we encountered *Leptidae sinapis* (common), *Polygonia c-album* (common) and *Syntarucus pirithous* in addition to the species noted which we had seen on our previous visit. We took four specimens of *S. pirithous* (3 males, 1 female). Of these one male is quite exceptionally small with a forewing length of less than 10 mm. (base to apex): the other three fall within the 12-13 mm range given by Higgins & Riley (1970). One specimen of *Limenitis reducta* Staudinger (*L. rivularis* auct. incl. Bretherton & De Worms) was seen persistently returning to an inaccessible part of the bramble thicket. A specimen of *Vanessa cardui* was also seen near the wood feeding on very tall purple

thistles. Our only skipper *Carcharodus alceae* was taken in the overgrown field next to the camp site on 22nd August.

One of our particular aims in butterfly hunting in Corsica was to attempt to trap the spectacular *Charaxes jasius jasius*. This sole European representative of a large African genus was not seen by Bretherton and De Worms, but was trapped in some numbers by Johnson in the type of trap commonly used for the genus (Owen 1971).

Much of the lowlands and foothills of Corsica are covered by the *maquis*, a richly scented arid scrubland. In the *maquis*, *Arbutus unedo*, the strawberry tree, foodplant of *C. jasius*, is common in many places. We first hung our trap on August 18th in an area where *Arbutus* was common, south of Pte. de Sette Nave bordering the Gulf of Ajaccio, but two days yielded no specimens. In the Calvi area, however, we trapped three fresh specimens and saw several more.

There we first hung the trap, baited with banana pulp and a few drops of wine, near the village of Moncale about 7 km. SSE of the camp site. This was on August 21st. We started to return to camp via a road that crossed the Figarella and near the bridge saw, but failed to net, at least one specimen feeding on a small patch of very dry rotten plums presumably left by a visitor. We also saw another specimen of *L. reducta* by the river and collected a specimen of *Coenonympha corinna* by the roadside. We then returned to the trap to find that we had one very large female *C. jasius*. Its winglength is over 50 mm compared to the range 38/41 mm (male . . "female larger") given by Higgins and Riley. When near the trap we saw one specimen of *Papilio machaon*.

We subsequently trapped two male *C. jasius* together on August 22nd at about 5 km. inland from Calvi and very little above sea level. On August 24th, while none was trapped, we saw at least half a dozen individuals in flight near the same locality.

Finally at Calvi it is worth noting that other butterflies can be trapped in the same manner and on our last day we secured specimens of *V. atalanta, P. c-album* and *Hipparchia aristaeus aristaeus* (the only one we saw near Calvi) in the trap at the camp site.

At St. Florent we collected on both the 9th and 10th of August at two principal localities, one along a road leading from our sea-side camp site towards the town, the other by the bank of the River Aliso at the end of that road. In the high hedge bordering the south side of the road we took our only specimen (a male) of *Gonepteryx cleopatra cleopatra* in freshly emerged condition. We also took a male *Pontia daplidice*, two *Coenonympha corinna* and a pair of *M. jurtina hispulla*.

The riverside locality consisted of an area near sea level forming a "towpath" with thickets next to the river backed by a high bank. Here we took a female *P. daplidice* as well

as *L. sinapis, P. aegeria* and *P. icarus* as at Calvi. *P. rapi, P. brassicae* and *Pyrontia tithonus* were also in evidence. We saw but failed to catch several specimens of *Papilio machaon* on flowers at the base of the high bank. When pursued they flew up the face of the bank and disappeared.

Two other species are to be noted from St. Florent. A specimen of *Limenitis reducta* was seen flying at high speed in the very hot midday sun along the edge of the narrow beach of the bay east of the town and a large but very tattered *Iphiclides podalirius* was taken a few yards inland by a stream opening into the same bay.

In the mountain localities our stay near Corte was much more profitable than the short visit of Bretherton and De Worms, our stay in Vizzavona less so. En route for Corte we took our only specimen of *Issoria lathonia* at noon on August 11th by the roadside near the river Golo. This was at an altitude of less than 200 km., but the roadside with shrubs and small trees was still green. We may have seen a second specimen at camp level in the Restonica valley.

In the valley we took single specimens of *Gonepteryx rhamni, Vanessa cardui, Pararge aegeria, Lasiommata megera paramegaera, Hipparchia neomiris, Plebejus argus corsicus* and *Aricia agestis f. calida.* The last looked very like the Iberian species *A. cramera* with a complete series of bright orange lunules around the wings.

As at the two lowland localities *Pyronia tithonus* and *Polyommatus icarus* were common but we saw no specimens of *M. jurtina* anywhere in the mountains. *Hipparchia aristaeus* and *Coenonympha corinna* were also present in some numbers.

Three species of fritillary were present in the Gorge de la Restonica and their distribution is of some interest. We camped by an auberge on the banks of the river and most of our collecting was done there on the hills rising on either side of the river which were open shrub. The altitude was little above that of Corte, perhaps 500-600 m. All the species noted above, with the exception of *L. megera* were taken here. *Argynnis paphia immaculata* was very common and we were able to corroborate Bretherton and De Worms, observations on the habits of the f. *valesina* females, which tended to settle on mossy stones and were not seen feeding, whereas the normal females and the males were particularly attracted to the low yellow thistles mentioned by these authors. We did not, however, see sufficient numbers to be able to estimate the percentages of *valesina* females composing the polymorphism.

Pandoriana pandora (*P. maja* Cramer in B. & De W.) was fairly common but on the opposite (S.E. facing) bank to *A. paphia.* It was similarly attracted to thistles but difficult to catch: flying fast over open ground rather than in tall trees as we saw it at Calvi.

(to be continued)

Editorial

In taking over the editorship from Mr S. N. A. Jacobs, I wish to say how very much we all appreciate the admirable way he has conducted *The Record* over the past seventeen years, and to extend to him our heart-felt thanks for all the good work that he has done. Happily, Mr Jacobs has consented to remain on the editorial panel and so his valued assistance will be available whenever needed.

In discharging the duties of my new position, it is gratifying to know that I retain the confidence and shall have the esteemed help of my former colleagues on the editorial panel. —J. M. Chalmers-Hunt.

Notes and Observations

A Wingless Moth at Light.—On examining the Heath Trap on the morning of 20th February 1973, a female, *Agriopis marginaria* Fab. was found sitting on the outside of the trap. Since the trap is situated on a raised concrete patio some five metres from any suitable foodplans, it would appear that this moth had crawled a substantial distance towards the light. No ova were forthcoming, and males of this common species were not seen until 3rd March.—P. A. Sokoloff, 26 Pinchbeck Road, Green Street Green, Orpington, Kent. 19.iv.1973.

Hypena crassalis Fabricius (Lep.: Hypeninae) in Kent.—I thought it would be worth recording that I saw a specimen of the "Beautiful Snout" (*H. crassalis*) on 11th July 1972 on the chalk at Trottiscliffe, Kent. It came to m.v. light.—R. R. Cook, Donna, Blackmore Road, Hookend, near Brentwood, Essex. 14.iii.1973. (This is a local and scarce species in Kent, and on this occasion doubtless a casual from the bilberry some 6 or more miles away.—Ed.)

DENZIL'S DREADFUL DISAPPOINTMENT.—On 19th January 1973 I received from a Winchester greengrocer a small noctuid larva which had been found on opening a box of South African white grapes of which it was devouring the skins. It continued slowly to do this until the supply of white grapes came to an end and I could only give it red ones. These it spurned, and I noticed it on more than one occasion eating the damp sphagnum moss which had been provided for its pupation.

Meanwhile on 2nd February, a second larva which was found walking on the floor of the shop, was put in a polythene bag with some white grapes—which it skinned—and was forgotten until I happened to call in the shop a week later. Both were exactly the colour of the grapes, with very faint diagonal lateral stripes on each segment and a thin interrupted white dorsal line. They did not look like *Helicoverpa armigera* Hübn., but their feeding habits so much resembled that species that I thought perhaps I had another of the Heliothidinae.

Accordingly, since they did not seem to like red grapes, I gave them a yellow plum which they skinned with avidity; then a red one, yellow being no longer available, and this they not only skinned but bored into, reducing it to a shapeless mass just about the time they became full fed and pupated in flimsily spun cocoons in the sphagnum moss. I kept them in high humidity and a temperature of 65°-70°F, and on 12th March and 17th March they emerged. They were small, pale but otherwise normal specimens of *Phlogophora meticulosa* L.

I have not met anybody who has known this species to behave in such a way. Perhaps the larvae had been feeding on the vine leaves, before finding themselves in a box which contained none; but even so, the versatility which they displayed in reaching the adult state goes far towards explaining the abundance of *P. meticulosa* in this and other countries.—DENZIL W. H. FFENNELL, Martyr Worthy Place, near Winchester, Hants. 21.iii.1973.

DIORYCTRIA ABIETELLA D. & S. (LEP.: PHYCITINAE) IN WEST SOMERSET.—I was interested in Dr Harper's account of the above species (in *Ent. Rec.*, **85**: 68). *D. abietella* is recorded as being very rare in Somerset although I do see it on occasions in the district around Minehead.

In 1972 I had seven examples at light in July and August and, what is perhaps more curious, three of these turned up on the night of July 20th/21st which was the night on which Dr Harper recorded his six.

This fact seems to support the possibility of migration although I hesitate to suggest this in a year that has, in West Somerset, been the worst for migrants that I have experienced in the last 17 years of running a regular light trap.—H. M. CHAPPEL, M.B., B.Ch., The Old Rectory, Selworthy, Minehead, Somerset. 17.iv.1973. (It would be interesting to hear of any other records of *D. abietella* for these dates in 1972—Ed.)

Obituaries

COMMANDER GEOFFREY WITHINGTON HARPER, R.N. (1902-1973)

The spring of 1973 has sadly taken toll of yet another eminent field entomologist, Geoffrey Harper whom so many collectors knew and must have visited at his home at Newtonmore in Inverness-shire where he had lived for just over 20 years and had doubtless acquired an unrivalled knowledge of the Macrolepidoptera of that rich region. In the summer of 1972 he had undergone a severe operation from which he made a remarkable recovery and his friends were delighted to see him at the Centenary celebrations of the British Entomological Society. They all hoped he would be restored to full health, but a relapse set in in early March and he passed away on 10th April, aged just over 70. It is indeed fitting that his last resting place should have been the small church at Rothiemurchus where he attended so regularly and often conducted a large part of the service himself.

He was born in August 1902 and at an early age seems to have had an eagerness to enter the Navy. After passing through the former College at Osborne, he went on to Dartmouth, becoming a Sub-Lieutenant at the outbreak of war in 1914. He served with distinction through these hostilities and again in the war of 1939-45 on several famous ships, including the ill-fated *Hood* and was also on *H.M.S. Furious*. It was on naval cruises between the wars that he was able to do some collecting in a good many ports of call, chiefly in West Africa. After 1945 he was posted to the land establishment, *H.M.S. Vernon* where he was in charge of special underwater weapons. In 1947 his continued asthmatic condition forced his early retirement from the Service.

It was during the years immediately after the war that he resumed his early flair for collecting the British lepidoptera, especially when he was living at Rustingtom on the Sussex coast. He soon built up a very comprehensive series of most of the species in that area and was lucky enough to find that a row of small poplars adjoining his house, harboured the two Hornet Clearwings. In September 1949 he was equally fortunate in discovering a garden frequented at dusk and dawn by an influx of the Striped Hawk (*Celerio livornica* Esp.). But in 1950 he was involved in a serious road accident near his home, which crippled him for some time and he was medically advised to migrate to the better air of the Highlands to alleviate his asthma. Geoffrey Harper already knew the region of the Cairngorms well from several visits and he seemed all the more delighted to make his home there. In 1952 he eventually settled in Newtonmore in a very pleasant house on the edge of the moorland where he was able to run his mercury-vapour trap to great advantage so that over the years he in

due course recorded virtually all the species of moths existing around there. During the subsequent 21 years his collection from that area must be the most comprehensive and remarkable ever made of Scottish macrolepidoptera, since it contained some amazing aberrations and superb series of local forms. He made a number of local discoveries including that the Northern Rustic (*Ammagrotis lucernea* L.), usually a coastal insect, flew freely on the nearby mountain-top, while the Portland Moth (*Actebia praecox* L.), another denizen of our coasts, frequented the sandbanks of the River Spey. In 1954 he published in this journal a very full and informative list for the Badenoch area with several supplements and almost annual accounts of the seasons round Newtonmore. He also on occasions used to broadcast about the natural history of that mountainous region. He made a good many trips to other parts of the Highlands and others often to southern England. On nearly all of them he reaped a good harvest and especially in August 1958 when he accompanied the writer to Unst at the time when the dark form *edda* of the Autumnal Rustic (*Amathes glareosa* Esp.) was at its zenith.

He was a great supporter of the former *South London Entomological Society* which he joined in 1943 and even when living in Scotland, he seldom missed attending the Annual Dinner and Exhibition at which his exhibits from those parts were often the feast for many eyes.

He and his wife Betty used to keep open house to the many entomological visitors to the Cairngorms, but in the early 1960's her health began to deteriorate and she eventually became a permanent invalid in a hospital in Inverness till her death in 1970. This grievous state of affairs greatly saddened and clouded the last years of Geoffrey Harper's life and there must be many who will indeed miss his happy presence at Newtonmore with his cheerful and breezy disposition, born of the Navy. In spite of being himself continually dogged by ill-health he was above all a great enthusiast, always eager for the chase. All who knew him, will remember him with much affection, and with the feeling that a great entomological link has been broken. He is survived by his son Dr Michael Harper and his daughter to whom all sympathy goes forth in their loss shared by so many others.

C.G.M.deW.

GEOFFREY ALFRED COLE
(1902-1973)

It was indeed with a great sense of relief and of real loss that his friends received the news of the passing in his 71st year of Geoffrey Cole on 15th February 1973. Many of them had seen him at the Centenary celebrations in early November 1972 of the British Entomological and Natural History Society and had remarked on his usual zest and cheeriness. But just after Christmas a grave illness overtook him and within a few

weeks he succumbed in a hospital at Torquay. So yet another of the most erudite and enthusiastic field naturalists and entomologists has been prematurely taken from us.

Born in July 1902, the second son of Samuel Barrett Cole, it was a local missionary living near the family home at old Swindon who first fired him with the spark and flair for collecting our butterflies and moths. As early as 1908 he had the thrill of finding his first Convolvulus Hawk and by 1912, when his family moved to Bournemouth, he already knew most of the butterfly species. When at Leighton Park School he had further opportunity of studying them, especially in Pamber Forest which was to remain one of his happiest and most rewarding hunting grounds. Later at St John's College, Cambridge, immediately after the 1914-18 war he was able to continue his pursuit in such well-known localities as Wicken Fen and other rich spots in that vicinity. After the University he became a chartered accountant, entering a firm in the City of London. In 1930 he married Margaret Puckeridge who was to be a wonderful companion to him for almost forty years till her untimely death in 1969. It was in 1931 that the writer first met them both in the New Forest and has had the closest associations ever since.

Though Geoffrey Cole travelled abroad in Europe a good deal in the 1920's, he virtually confined his collecting of lepidoptera to the British Isles and during the prolific 1930's travelled annually to most of the best-known localities, mainly in England, whence he was able to lay the foundation of an exceptionally fine collection with many superb bred species. It was during this period that he had the good fortune to take at sugar a grand specimen of *Apamea zollikoferi* Freyer on the North Devon coast. It was one of less than ten taken in Great Britain in that remarkable year. In 1938 he captured a *Catocala fraxini* L. (Clifden Nonpareil), also at sugar, on the cliffs near Swanage, a most unusual site for this fine insect.

Throughout the Second War from 1940 he was stationed in Northern Ireland where he was able to do a certain amount of collecting. Here he found a new locality for *Entephria flavicinctata* Hübn. This wartime appointment under the Ministry of Pensions brought him into the Health Service in 1948 in which year he became Treasurer of the South Eastern Metropolitan Area with original headquarters at Guy's Hospital. This exacting post he held for 20 years till his retirement in 1968. Just after the war he and Margaret went to live at Burford Bridge near Box Hill, a very prolific area for lepidoptera with the downs at Ranmore and Gomshall nearby which he used to delight to visit in high summer, and throughout the years these yielded for him some remarkable aberrations of the Chalkhill Blue. In the early 1960's they moved to Abinger Common, another very rewarding area. Nearly every year during the post-war period he used to take his holidays in some rich locality, but apparently only once in 1962, went north of the Border as far as Unst in Shetland. He does not

seem to have revisited Ireland. In 1968 he and Margaret went to live near their daughter at Slapton in South Devon where they built a charming home with a view on to the famous Lee. It was an ideal resort and a very strategic spot for choice migrants. In 1969 his light-trap was graced by two *Plusia aurifera* Hübn., as well as *Cosymbia puppillaria* Hübn. from which he bred a fine series, while another rare visitor was *Diasemia ramburialis* Dup. But in that year the loss of Margaret was a most grievous blow. However, in 1971, he became most happily married to Mrs "Smudge" Gilbert, an old family friend, but their time together was all too short. On one of his last expeditions in South Devon he was delighted to see the large Blue in some numbers.

Geoffrey Cole was an indefatigable, yet a most discriminating collector. His beautifully displayed insects are well remembered at many Annual Exhibitions of the former South London Entomological Society which he joined in 1934 and attended its meetings frequently, mainly before the war when he lived in London. It is fitting that his most outstanding captures should find a final haven in the National Collection at South Kensington. He was indeed of the most kindly nature in every way, always ready to give help and advice and he was above all an ideal companion. British field entomology is the poorer with his passing. To his widow and family goes out the whole-hearted sympathy of his wide circle of friends.

C.G.M.deW.

Current Literature

What Butterfly is that? by **C. G. C. Dickson.** 86 pp including 18 coloured plates. Purnell & Sons (South Africa) (Pty) Ltd. R.1.95.

As one would expect from this author, we have what may be considered as near perfection in a pocket guide. To begin with, its dimensions, $5'' \times 5\frac{1}{2}'' \times \frac{1}{2}''$ may, without any fear of contradiction, be considered admirably suitable for the pocket. Beside explaining the purpose of the book, which illustrates 76 species of the 10 families, the Author gives a concise account of the history of the study of South African butterflies.

Pages 1-10 make mention of the 10 families referred to, a family to a page. The heading is followed by the serial numbers of species illustrated (the figures in the plates being numbered consecutively throughout the book) and then a succinct account of the main characteristics of the family. From page 11 to 82, the space is given to descriptions and illustrations of the species, the descriptions being standardised under the headings of foodplants, appearance, distribution and remarks. The plates are interspersed at convenient intervals so that reference from the figure number to that number in the text only involves the turning of two or three pages.

The plates, from coloured photographs by **Mr H. N.**

Wykeham are magnificent, and reflect the greatest credit due to him, the blockmakers and the printers. One can well imagine the work put in by Mr Wykeham to produce photographs to satisfy both Mr Dickson and himself, for I know both to be devotees of perfection.

Pages 83 and 84 give a short bibliography and the final pages carry an index with reference to figures and descriptions. The book is well printed on good paper and bound in imitation cloth boards. There is a strong protecting plastic wrapper which should stand up well to pocket use. Altogether, the book should appeal to all kinds of lepidopterists, whether they are contemplating a visit to South Africa in the near future or not. Beautiful colour printing is seldom out of place!—S.N.A.J.

New Zealand Insects and their study by Richard Sharell: 4to. 268 pp. plus 42 col. plates: Collins, £5.50.

The present book is a collection of accounts of various insects which have been studied by the author. These follow the style of Henri Fabre, to whom the book is dedicated, but the author has had the advantage of colour photography to assist his word pictures, and this has been used with considerable skill, the resulting plates being both interesting and beautiful. Beside his own photographs, many have been reprinted by permission of various organisations, notably D.S.I.R., and the long list of acknowledgements bear witness to the goodwill of fellow entomologists.

In the preface, the Author is at pains to make it clear that any study must include creatures and plants involved in the life of the subject. In the last paragraph he says: "Looking at Nature with the eye of a scientist and the heart of a lover is my credo. If this book is enjoyed by the widest circle of nature lovers, it will give me great satisfaction".

The first eight chapters are headed: The praying Mantis; Butterflies and Moths; Beetles and Bugs; Stick insects; Grasshoppers and Wetas; some acquatic insects; Cockroaches and Earwigs; the New Zealand glow worm and other flies; Bees, Ants and Wasps; and the Origin and Evolution of insects. There follow four pages giving what the Author describes as "A modern family tree of insects". Two tables are included, the first (reprinted with the permission of Sir Vincent B. Wigglesworth) is in columns representing the periods from the Devonian to the Tertiary. These are named at the top, and at the bottom are notes on the other forms of life existing at the time of each column, and below this the ages are indicated in millions of years. The various insect orders are mentioned on the right hand side and the period of each order's existence, evidenced by the finding of fossil remains, is indicated by a thick horizontal line through the columns. The fourth page gives a table illustrating the geographical time scale, with explanatory notes on the names of the various periods.

A very clear exposition of the 28 orders of insects occupies pages 221-249, some with line drawings illustrating typical

insects. Pages 250 and 251 carry an outline of the use of photography in the study of insects. A Glossary, Bibliography and an Index complete the book.

The printing and paper are good, and the book is bound in imitation cloth boards in a strong paper jacket. The book is one which will find a welcome in the libraries of many entomologists as a general guide to the insect possibilities of the antipodes, from which much interesting reading may be gathered.—S.N.A.J.

The Pollination of Flowers by **M. Proctor** and **P. Yeo.** pp. 418, 4 coloured and 56 other plates, 134 text figs., 8vo. London, Collins, New Naturalist, 1973. £4.

This book by two botanists with a wide knowledge of insects, "is a clear and thorough account of all the ways in which pollination is effected—by wind, water, even bats; but principally, in many curious ways, by diversity of insect species".

After an historical introduction, there are chapters on insect pollinated flowers, insect visitors (classified under the various orders) with a section on the senses and behaviour of insects, British wild orchids, pollination by wind and water, self-pollination and apomixis, pollination in plant-breeding and commerce, and the evolution and ecology of pollination. The work concludes with a useful bibliography (22pp.), and a subject index.

Insects of the World by **Walter Linsmaier**, illustrated by the author. Translation from the German by Leigh E. Chadwick. 392 pp. 4to. McGraw-Hill Book Company, £6.50.

There is little of systematics in this book, but it deals with a very large amount of interesting aspects of the insect world. The author combines the offices of Author, Artist and Photographer, and fills all three admirably: he seems to have found a solution to the problem which has vexed me for years: how to find thirty six hours in a twenty hour day! He has travelled to many distant parts of the world to see for himself, and he has illustrated his findings, it would seem, on the spot. Probably this was done in a veritable library of sketch books, finishing the drawings in rare periods of less physical activity. From time to time he has made use of coloured photographs of collected specimens where these serve his points, but there are also photographs taken in the wild, but I say again, that much of his work MUST have been done on the spot.

The contents of the book are set out in eleven chapters, starting with "Insects and their Ways" which he commences with a short account of pre-historic insects, and then goes on to point out the vast diversity of form in three double page "insect landscapes", each with an outline key on previous pages. The next chapter, "The Insect Body" is a short one, illustrating general insect anatomy followed by general details

of external organs, eyes and vision, and the optics of the compound eye, illustrated by a full page plate showing the compound eyes of a Tabanid and a Cerambycid, and a diagrammatic sectional view of a compound eye. The insect's ability to appreciate polarized light is mentioned, and also insect instruments developed from various organs for use as tools. Communication and reproduction also have short paragraphs.

"From Egg to Adult" is the heading of the next chapter and needs no explanation. This is followed by "Living Works of Art" in which there is a section on Mimicry and Camouflage which cites many interesting cases of both, but although natural selection is mentioned, I am afraid that we are no nearer to finding out how complicated designs such as eye-spots and other mimetic patterns originated! Examples are illustrated in colour and there are an insect landscape of cryptic coloration and several coloured illustrations explaining active and passive concealment, warning colours and a wide range of the use of eye-spots. Two pages illustrate insect-bird and insect-mammal confrontations.

"The Classification of Insects" is briefly covered in two pages with a list of the insect orders together with their vernacular names. This is followed by a considerable part of the book in which striking and extraordinary developments of a number of orders are mentioned and many of them illustrated. Most of the illustrations are from drawings although colour photography has also been used in this section. There is a very striking drawing of a bat in pursuit of *fraxini,* which, one feels, must have been developed from a wonderful electronic flash photograph. The life of the large blue has a page of colour to itself and two plates illustrate striking lepidopterous larvae. Parasites of both insects and vertebrates also have a wide treatment. "Social Insects" have a chapter, as do "Aquatic Insects", and finally there is an index of plates and a species index.

Many of the plates have reduced monochrome reproductions in the margin at the place in the text where they are dealt with, and the text is divided into two columns, mercifully sparing the reader the difficult task of reading full width lines on a quarto page. The book is bound in cloth boards and is printed on strong paper, interspersed by sections of art paper carrying the colour work.

The book is one which should appeal to everyone, entomologist or not, and is likely to turn the thoughts of many towards a closer study of some section or another of the extensive world of insects.—S.N.A.J.

Invertebrate Types—Drosophila by **Bryan Shorrocks.** 144 pp. Ginn & Company Limited, London, 1972.

This is an excellent introduction to the study of the Fruit Flies (*Drosophila* species) occuring in the British Isles. While the emphasis is of necessity placed on genetics, the chief labo-

ratory application to which these flies have been put, considerable attention is also paid to the ecological relationship of the insects with their environment outside the laboratory and encouragement is given to the student to pursue this line of study.

The basic laws of genetics as applied to *Drosophila* are simply explained in Chapter 4, while the structure and function of the chromosomes is dealt with in more detail in the following chapter. In Appendices examples are given of genetic experiments using *Drosophila* and a list is provided of the commoner mutants of *D. melanogaster,* the species which has been used most widely in experimental work.

The external and internal structure of the flies is covered well in Chapter 1 and the function of each organ is described. In this connection, it would possibly have been advisable to have restricted the term 'cardia' to the heart instead of using it also for the fore-gut (proventriculus). Chapter 2 deals with the life cycle as it is observed in the laboratory and an account is given of the population dynamics of both intra- and inter-specific cultures.

The chapters on Field Ecology and Behaviour are particularly interesting and usefully indicate the directions in which future research into *Drosophila* biology may lead. In relation to field ecology, work already attempted, especially regarding the distribution of the flies both spatially and seasonally within a given habitat is described while predation and parasitism are also briefly mentioned; the need for more observation is stressed and this could be no doubt also be said in respect of behaviour. The work discussed in the latter chapter on courtship, orientation to external stimuli and food preferences is based on laboratory observations. The recent work which has elucidated the courtship mechanisms involving the production of specifically characteristic sound pulses by wing vibration of the males is of special interest. Suggestions as to how field work can be extended are made in the Appendix, while Chapter 8 is concerned with advice on the methods used in baiting, collecting, culturing and breeding the flies.

The author's endeavour to concentrate the student's attention on the species of *Drosophila* occurring in the wild state in the British Isles is highlighted by the very comprehensive Chapter 7. This includes both a key to the twenty-two 'commonest' species of the genus *Drosophila* (30+2 casual species occur in Britain) and detailed comments on the distribution, relative abundance, habits and habitats of each of them. The key is, for the species it includes, accurate and easy to use, being enhanced by many good line drawings (those of the abdominal colour patterns in the *phalerata* group are noteworthy) while the coloured plates of nine common species are especially useful as an aid to recognition of the insects. The choice of which species to include in the key was no doubt based on the author's experience and

it does contain all of the seventeen species I have personally taken; reference is in any case made to the more comprehensive (although unillustrated) key to all the British species by Fonseca. One nomenclatural change from the latter key should be noted, i.e. *D. silvestris* Basden becomes *D. subsilvestris* Hardy & Kaneshiro. This chapter is concluded by a table showing the European distribution of the 22 species covered and a complete check-list of the British species of the genus.

The views expressed on the abundance or scarcity of some species, however, show clearly how much bearing the use of different collecting techniques have on one's ideas of which are the common species. The author has evidently done little work with fungi as he regards *D. confusa,* second only to *D. phalerata* in abundance in this habitat, as a rarity and does not mention the frequent occurrence of *D. funebris* in rotting fungi (certainly as often as it is found indoors). Also *D. andalusiaca* and *D. fenestrarum* are often among the commonest insects to be swept from low vegetation in woods but apparently come rarely to the usual fruit-fly baits. On the other hand, some species regarded by Shorrocks as the commonest of all—*D. obscura, D. subsilvestris* and *D. immigrans*—I have found but rarely and then only in the vicinity of oozing sap; the first two of these may be commoner in the north. Of *D. deflexa,* however, he refers to work indicating it to be common in Southern England although he has not found it himself; nor have I.

To summarise, the text is well presented and liberally illustrated with drawings and diagrams of a high degree of clarity and accuracy, although the order of subjects dealt with is perhaps rather arbitrary. The book is remarkably free from printing errors, the only noteworthy ones being the omission of one letter from 'tarsus' in Fig. 7 and the lengths quoted for sperms of two species on page 27 are given in mm. when μm. is clearly meant. Also, in the Table on page 37 two of the species dealt with in the book (*D. confusa* and *D. histrio*) are omitted while the inclusion of *D. ananassae* is difficult to account for as no data are presented for it. Further reading on the subject is provided for by the Bibliography of 47 items concerning all aspects of *Drosophila* biology, mainly of recent publication.—P. J. CHANDLER.

CORRECTION

Reference "Montenegro, July 1972" by R. F. Bretherton (antea: 1-12):—

p. 3 line 13 for "*Iolaniolas*" read "*Iolana iolas*".
p. 7 line 15 for "*trivia*" read "*didyma*".
p. 8 line 29 for "*pales*" read "*graeca*".
p. 8 line 34 delete "*M. trivia* Schiff." and transfer to the end of the previous line "B., K., fresh gen. II, 21/22.7".

The moth which seems to be chiefly a garden insect, often occurs at light and is occasionally found at rest on fences. Although the various published local lists refer to it as being common to abundant, it is apaparently seldom observed in large numbers. A. R. Kidner (*Diary*) states that at Sidcup at the end of May 1910, it "swarmed at light etc." but this seems to have been exceptional, and there are indications that the species has become generally less numerous since. A. M. Morley (*in litt.*, 16.xii.1959) says that in the Folkestone area although he has noted it annually there since 1925, he has never seen many in a year, the most he has had in one season being 15 and the most in one night 4. More recently and from the opposite side of the county, we have D. R. M. Long's m.v. trap counts from his garden at Bromley as follows: 1959 (7), 1960 (7), 1961 (14), 1962 (13), 1963 (9), 1964 (24), 1965 (10), 1966 (14), with earliest recorded appearance on April 18, 1961 and latest July 25, 1962.

D. R. M. Long records finding the larva on *H. sphondylium* and yarrow at Bromley, on *S. virgaurea* at Ham Street, and on hawthorn at Shoreham.

VARIATION.—I have specimens approximating to ab. *atropicta* Dietze from West Wickham where this appears to be the prevalent form (C.-H.) In RCK is an ab. with 'pale median area", one, Bexley, June 1907.

FIRST RECORD, 1858: Tenterden, common (Stainton, *Man.*, **2**: 89).

E. tripunctaria Herrich-Schaffer: **albipunctata** Haworth: White-spotted Pug.

Native. Woods, wet places; on *Angelica sylvestris, Pastinaca sativa.*

Obs.—Hammond & Smith (*Ent. Gaz.*, **8**: 188) record *Litomastix* sp. bred from a larvae of *E. tripunctaria* found on wild parsnip, Folkstone, 1951.

1. Lee, August 23, September 5, 1862, August 26, 1864, August 14, 1885, September 15, 1891 (Fenn, *Diary*); Halfway Street (Fenn, in *Wool. Surv.*, 1909), may refer. Eltham (*V.C.H.* 1908). Farnborough, 1890 (H. Alderson, in *Wool Surv.*, 1909). Petts Wood, larvae common on *A. sylvestris* (S. F. P. Blyth); two or three imagines (E. Evans). Sidcup, August 3, 1911, May 19, 1912, June 21, 1921, July 16, 1936 (Kidner, *Diary*). Bexley (L. T. Ford). Crofton, larvae numerous from mid-September to mid-October 1963 in umbels of *A. sylvestris*, moths reared 1964; two moths beaten out of rough herbage, April 29, (1965) (F. A. & Swain). Bromley, 1960 (2), 1961 (1), 1963 (4), 1964 (5), 1965 (4), 1966 (1), with earliest date May 13, 1964, latest date August 28, 1965 and maximum daily total (2) August 2, 1964 (D. R. M. Long). West Wickham, occasionally at light (C.-H.).

3. Blean, larva (H. C. Huggins). Whitstable, one or two annually (P. F. Harris). Broad Oak, one, August 5, 1951, one, August 13, 1955 (C.-H.).

5. Chevening, August 12, 1913 (Gillett, *Diary*). Westerham (R. C. Edwards).

6. Birling Downs (F. T. Grant).

7. Westwell (Scott, 1950).

8. Folkestone* (Ullyett, 1880). Ewell Minnis; St. Radigund's; Bettshanger; Eastry; Whitfield (E. & Y., 1949).

10. Sevenoaks, August 19, 1922 (Gillett, *Diary*).

11. Mid Kent [Wateringbury]*, one bred July 1910, in E. Goodwin coll. (C.-H.).

12. Kingsnorth; Little Chart (Scott, 1936). Ham Street, larvae, August 30, 1947 (H. King); 1954 (E. J. Hare). Brook (C. A. W. Duffield); about 40 larvae on *A. sylvestris*, September 9, 1961, many of which parasitized (G. M. Haggett and C.-H.). Ashford, larva in garden on *A. sylvestris* (P. Cue MS.). Chartham, one, August 15, 1954, one, August 16, 1955 (P. B. Wacher). Wye, one August 7, 1953, two, August 11, 1956 (W. L. Rudland).

13. Tunbridge Wells (Moore, *Entomologist*, **5**: 31). Penshurst (R. E. E. Frampton *teste* S. Wakely).

14. Sandhurst, at light (G. V. Bull).

16. Folkestone (Morley, 1931); not rare in the town (A. M. Morley).

First Record, 1862: "I have taken it (the larva) in Kent" (Crewe, *Ent. Ann.*, **1862**: 39).

E. denotata Hübner: Campanula Pug.

Native. Woods, field borders, hedgebanks; on *Campanula trachelium*.

2. Stone*, three, "Stone, Kent, 9.1895", in my coll. (C.-H.). [Sheppey, one, April (Walker, *Ent. mon. Mag.*, **9**: 163), would appear to be erroneous (C.-H.)]

5. Mildmay Forest, Shoreham, four ova and one larva on *C. trachelium* August 5, 1962 (D. R. M. Long).

6. Kemsing (Carrington, *Entomologist*, **13**: 77). Greenhithe (Farm MS.) Wrotham, larvae, August 1947 and 1950 (W. A. Cope); several hundred larvae in seed-heads of *C. trachelium*, September 20, 1953 (C.-H.). Trottiscliffe, August 25, 1962, small larvae on *C. trachelium* (Massee, *Proc. S. Lond. Ent. nat. Hist. Soc.*, **1962**: 100).

6a. Darenth Wood, larva, September 22, 1888 (Fenn, *Diary*).

7. Wigmore Wood, rare (Chaney, 1884-87). Westwell, one bred, July 17, 1907, J. E. Gardner, in BMNH (C.-H.); (Scott, 1936); larvae, 1961 (P. Cue).

8. Folkestone Warren, the "larva feeds in Canterbury Bell" (Knaggs, 1870). Betteshanger (Webb, 1891). Folkestone, five, bred 1905, in BMNH (C.-H.). Lower Hardres, larvae 1952, reared June 4-6, 1953 (D. G. Marsh).

First Record, 1870: Folkestone Warren (Knaggs, *loc cit.*)

E. subfuscata Haworth: **castigata** Hübner: Grey Pug.

Native. Woods, gardens, waste places, etc.; on *Senecio jacobaea, Solidago virgaurea, Galeopsis tetrahit.* Frequent and recorded from all divisions except 15 (probably occurs).

Gillett (*Diary*) and S. F. P. Blyth took the larva on *S. jacobaea* at Chevening and Chislehurst respectively and reared them; Jacobs (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1954-55**: 95) records the larva at Westerham on *G. tetrahit;* and at West Blean Wood, on September 20, 1953, I swept many *Eupithecia larvae* from *S. virgaurea*, most of which were *E. subfuscata* and reared them (C.-H.).

Variation.—One that I have taken, West Wickham, 1949, and another taken Ham Street, 1951, appear referable to ab. *obscurissima* Prout (C.-H.).

First Record, 1859: West Wickham (Barrett, *Ent. week. Int.*, **7**: 75).

E. icterata Villers ssp. **subfulvata** Haworth: Tawny-speckled Pug.

Native. Waysides, commons, railway banks, waste places, etc., on *Achillea millefolium.*

1. Birch Wood (Stephens, *Haust.*, **3**: 288). Darford Heath (Jenner, *Week. Ent.*, **2**: 197). Plumstead; Charlton; Lee; Eltham; Bexley dist. (*Wool. Surv.*, 1909). Chislehurst, common (S. F. P. Blyth). Sidcup, 1909 (2), July 31, 1910 (1), 1911 (2), 1912 (1), October 3, 1920 (2 larvae), August 8, 1921 (1), October 7, 1923 (2 larvae), October 5, 1924 (2 larvae), July 19, 1925 (1), September 1925 (several larvae) September 1927 (larvae fairly plentiful), August 3, 1929 (1), August 2, 1931 (1), August 5, 1938 (1), August 24, 1939 (1) (A. R. Kidner, *Diary*). Bexley (L. T. Ford). Petts Wood, one or two annually, c. 1946 (E. Evans), 1949, frequent (A. M. & F. A. Swain). Orpington, 1948-53 (L. W. Siggs). West Wickham, 1951 (E. E. J. Trundell). Dartford, common (B. K. West). Abbey Wood, 1951-52 (A. J. Showler). Blackheath, 1959, at m.v.l. and mint flowers at night (A. A. Allen). Bromley, 1959 (5), 1960 (14), 1961 (15), 1962 (15), 1963, (16), 1964 (43), 1965 (34), 1966 (13), with earliest date July 3, 1963, latest date October 3, 1962 (D. R. M. Long).

2. Gillingham, uncommon; New Brompton (Chaney, 1883-87). Faversham (H. C. Huggins). Abbey Wood and Plumstead Marshes, larva common on yarrow, October 21, 1951 (J. F. Burton).

3. Herne Bay, at light August 11, 1935, August 12, 1939 (A. J. L. Bowes).

4, Sandwich, larva on yarrow, September 24, 1949 (C.-H.).

5. Farnborough*, not common, 1904 (Barnes, in *Wool. Surv.*, 1909). Chevening, July 22, 1914 August 10, 1918 (Gillet, *Diary*). Westerham (R. C. Edwards).

6. Gravesend (H. C. Huggins); two at street lamps (F. T. Grant). Pinden (E. J. Hare).

6a. Darenth (Stephens, *loc. cit.*).

7. Faversham (H. C. Huggins). Westwell (Scott, 1936); at light (G. V. Bull).

8. Folkestone Warren (Knaggs, 1870). St Margaret's Bay, 1890 (Fenn, *Ent. Rec.*, **1**: 204). Elham (W. E. Busbridge). Brook* (C. A. W. Duffield). Wye* (Scott, 1950). Betteshanger; Ewell Minnis; St. Radigund's; Whitfield (E. & Y., 1949). Waltham, 1951 (J. W. C. Hunt).

9. Birchington, occasionally at light, 1926-33 (C.-H.). Margate (H. C. Huggins); one, July 28, 1951 (W. D. Bowden).

10. Sevenoaks, July 23, 1920, August 8, 1922 (Gillett, *Diary*); (W. E. Busbridge).

11. Tonbridge (Raynor, *Entomologist*, **6**: 79). Yalding (*V.C.H.*, 1908). Edenbridge, 1930 (F. D. Greenwood).

12 Near Hothfield (Scott, 1936). Ashford, frequent at light in garden (P. Cue MS.). Willesborough, four, July 21-August 22, 1954, ten July 20-August 27, 1955, eleven, July 21-August 20, 1956; Wye, seven, August 4-12, 1953, five, July 24-September 4, 1956 (W. L. Rudland).

13. Tunbridge Wells* (M. M. Phipps, in Knipe, 1916). [Pembury (Stainton, *Man.*, **2**: 85), may refer to *E. succenturiata* L. (*q.v.*)]

14. Sandhurst (G. V. Bull).

16. Folkestone (A. M. Morley).

First Record 1831: Darenth and Birch Woods, occasionally (Stephens, *Haust.*, **3**: 208)

E. succenturiata L.: Bordered Pug.

Native. Waysides, waste places, etc.; on *Artemisia vulgaris, A. absinthium.*

1. Lee (C. Fenn, in *Wool. Surv.*, 1909). Eltham (A. H. Jones, in *Wool. Surv.*, 1909). Bexley district, common (L. W. Newman, in *Wool. Surv.*, 1909). Brockley (W. West, in *Wool. Surv.*, 1909). Sidcup, July 8, 1915, larva, September 1925, two, June 23-July 12, 1927, one on fence, June 17, 1933, three at light, June 1935, two at light, June 1936, one on fence, July 9, 1936, one on fence, July 5, 1938 (Kidner, *Diary*). Petts Wood, several annually, c. 1950 (E. Evans). Dartford (B. K. West). Orpington, 1949, 1953 (L. W. Siggs); (R. G. Chatelain). Petts Wood, 1950 (A. M. & F. A. Swain). West Wickham, 1951 (E. E. J. Trundell). Abbey Wood, 1952; Woolwich, 1954 (A. J. Showler). Blackheath, street lamps and at m.v.l., 1959; Charlton, a pair amongst mugwort (A. A. Allen).

2. Sheppey, 1872 (Walker, *Ent. mon. Mag.*, **8**: 163). Faversham (H. C. Huggins). Dartford Marshes, a larva on *A. absinthium*, September 15, 1963 (C.-H.).

3. Ridgway, August 4, 1929 (A. J. L. Bowes). Herne Bay, occasionally (D. G. Marsh). Broad Oak, at light, June 5 (1), July 1 (2), 20 (3), 30 (2), 1946, July 22 (1), 1949 (C.-H.).

4. Sandwich Bay, July 24, 1967, one at m.v.l., August 9, 1969 (T. W. Harman).

5. Farnborough* (W. Barnes, in *Wool. Surv.*, 1909). Westerham (R. C. Edwards). Chelsfield*, 1950 (A. M. & F. A. Swain).

6. Gravesend (H. C. Huggins); July 14, 1914, June 30, 1926 (F. T. Grant). Pinden, uncommon (E. J. Hare). Eynsford, larvae (S. F. P. Blyth).

6a. Darenth Wood (Stephens, *Haust.*, **3**: 288); 1870 (Standish, *Entomologist*, **5**: 147).

7. Sittingbourne (H. C. Huggins). Westwell, one, July 22, 1946 (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1946-47**: 168); annually since 1946 (Scott, 1946).

8. Folkestone Warren, not common (Knaggs, 1870). Brook* (C. A. W. Duffield). Betteshanger, July 6, 1957 (R. F. Bretherton).

9. Birchington, occasionally at light, 1926-32 (C.-H.). Margate (H. C. Huggins).

11. Yalding (*V.C.H.*, 1908). Sevenoaks Weald, four at m.v.l., July 31, August 1, 6, 1959, one, June 30, 1960 (E. A. Sadler).

12. Ashford, frequent at light in garden (P. Cue). Vauxhall, Canterbury, larvae beaten from *A. vulgaris*, August 30, 1959 (C.-H.). W. Ashford, common (M. Enfield). Willesborough, 1959 (3), 1960 (1) (M. Singleton).

13. [Pembury (Stainton, *Man.*, **2**: 85), may refer to *E. icterata* ssp. *subfulvata* or to *E. succenturiata*, or to both, since Stainton (*loc. cit.*) included both species under *succenturiata*]. Goudhurst, two, 1957 (W. V. D. Bolt).

15. Dymchurch, one, July 24, 1933 (R. C. Crewdson *teste* A. M. Morley); one, 1952 (Wakely, *Ent. Rec.*, **65**: 43). Lydd, larvae, September 30, 1956 (R. F. Bretherton); August 1965 (D. W. H. ffennell). Boulderwall, Dungeness, July 16, 1966 (R. E. Scott).

16. Folkestone Town, plentiful (A. M. Morley).

VARIATION.—In RCK are the following abs.:—*piperata* Steph., one,

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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

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Wanted to Purchase—A high quality 40 drawer solid mahogany insect cabinet. Any offers please to *Dr J. V. Dacie*, 10 Alan Road, Wimbledon, S.W. 19.

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WANTED URGENTLY—For illustration, half dozen late instar larvae of the Transparent Burnet moth, *Zygaena purpuralis*, from Ireland or Scotland. Postage etc. refunded.—*W. G. Tremewan*, 16 Orchard Ave. Woodham, Weybridge, Surrey KT15 3EB.

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 must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

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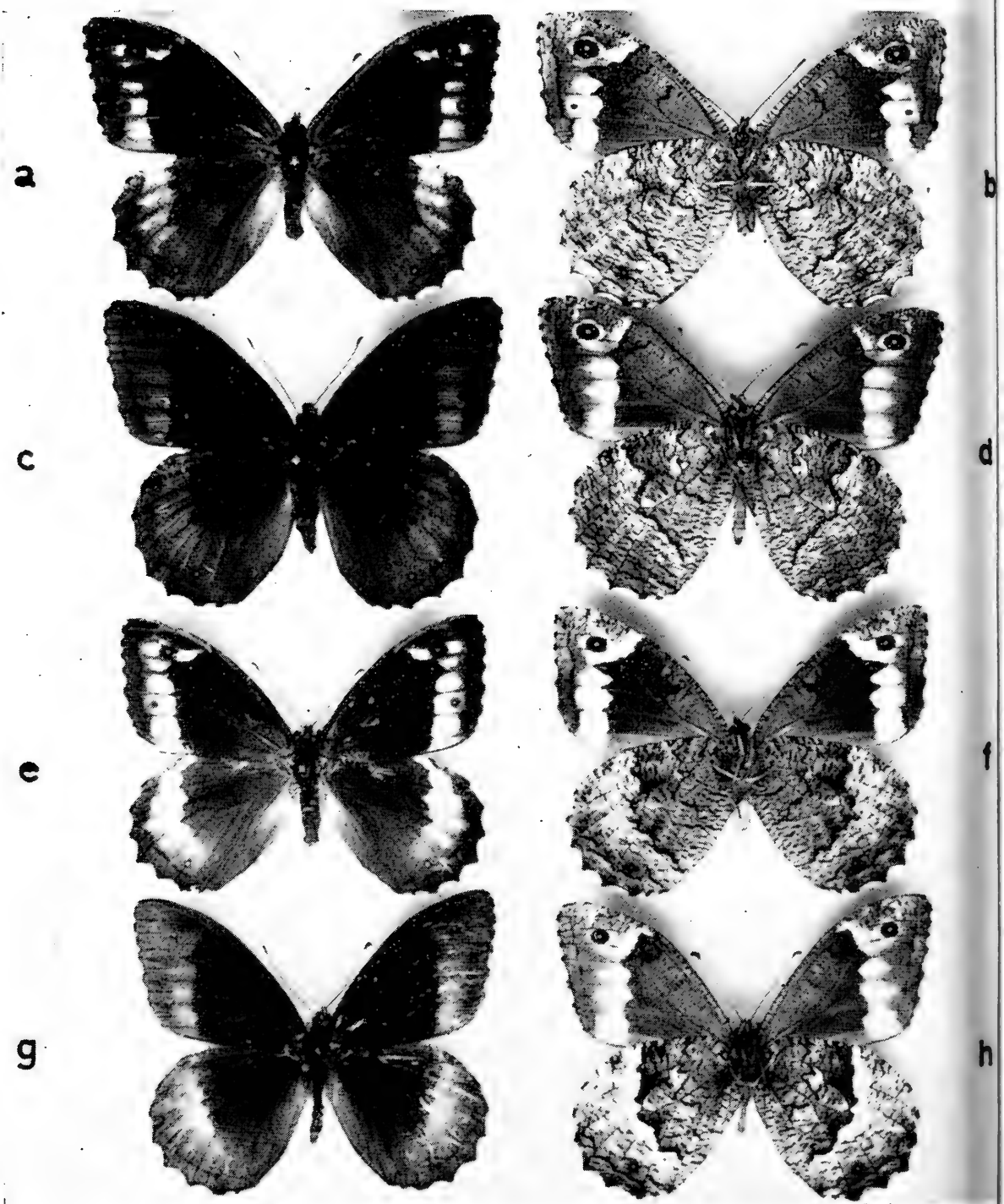
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List of Grecian Butterflies, Additional Records, 1972

By John G. Coutsis, B.A., M.ARCH.

The following species and subspecies, obtained during 1972, constitute new additions to my hitherto published personal records of butterflies from Greece:

PIERIDAE

1. *Gonepteryx cleopatra fiorii* Trti & Fiori.

   Southern and south-western flanks of Mt Ataviros, island of Rhodes, c. 500 m, late May. Both sexes (Fig. m, n) with more rounded wings than the form from mainland Greece. (Fig. o, p). Female ground colour above yellow, almost as intense as male *G. rhamni* L. The whitish-green female phase which is predominant in mainland Greece, is apparently absent from Rhodes.

SATYRIDAE

2. *Erebia ottomana* H.-S.

   Mt Tymphristos, central Greece, c. 1900 m, early July. Two males and a female captured over rocky ground with sparse vegetation, in company with *Erebia melas* Herbst.

3. *Hipparchia syriaca ghigii* Trti.

   South-western flanks of Mt Ataviros, island of Rhodes, c. 500 m, early June. Several specimens of both sexes captured on pine tree trunks. Male (Fig. c, d) characterized by poorly defined post-discal fuscous bands on wings upperside and by the almost unicolourous grey ground colour of hindwings underside.
   Female (Fig. a, b) characterized above by reduced post-discal pale band on forewings and by obscured post-discal pale band on hindwings. Hindwings below with unicolourous light grey ground colour. Forewings below with a rather well defined black line separating the post-discal pale band from the dark grey-brown discal and basal area. Female Allotype, now designated and labelled as such, in author's collection.
   Specimens of *syriaca* from mainland Greece (Fig. e-h) exhibit relatively well defined post-discal bands in both sexes upperside. Hindwing ground colour underside less uniform grey than *ghigii*. The male genitalia of *ghigii* are similar to those of the mainland form.

4. *Pseudochazara anthelea* **atavirensis** spp. nov. (Fig. i, j).

   Southern flanks of Mt Ataviros, island of Rhodes, c. 500 m, late May. Captured over rocky and bare terrain.
   Male: Forewing length 25 mm. Post-discal white band of both wings above wide, as in ssp. *anthelea* Huebner,

from Asia Minor, to which it bears a general superficial resemblance.

Female: Forewing length 28 mm. Post-discal band of forewing above light orange-brown, with well defined proximal border and with a whitish-brown area in s5, proximally to the black ocellus. Post-discal band of hindwing above restricted, with a poorly defined distal edge and coloured light grey with a faint light orange-brown wash. Forewing underside ground colour orange-brown. Hindwing underside ground colour grey with confused irrorations and mottling and without pale post-discal area. The ssp. from mainland Greece, *amalthea* Frivaldsky (Fig. k, 1), has the post-discal bands coloured white in both sexes and relatively narrow.

The female of *atavirensis* is intermediate between ssp. *anthelea* and *amalthea,* in that it combines the colour of the post-discal bands of the former, with the well defined proximal edge of the post-discal band of the forewing of the latter; in ssp. *anthelea* this band has a poorly defined proximal edge and it also tends to invade the cell.

Male Holotype, female Allotype and five male Paratypes in author's collection.

It appears that this species has not been previously recorded from Rhodes.

NYMPHALIDAE

5. *Boloria graeca* Stgr.

Mt Tymphristos, central Greece, c. 1850 m, early July. A single male and female captured over rather dry, rocky ground, flying in company with *Colias aurorina heldreichi* Stgr.

LYCAENIDAE

6. *Polyommatus loewii robusta* Trti.

South-western flanks of Mt Ataviros, island of Rhodes, c. 500 m, end May, early June. Very common where found. Habitat typical maquis, with sparse trees and a rich undergrowth of xerophytic bushes. A series of specimens of both sexes taken, while feeding, on thyme.

In concluding I would like to express my gratitude to Dr L. G. Higgins for his invaluable advice.

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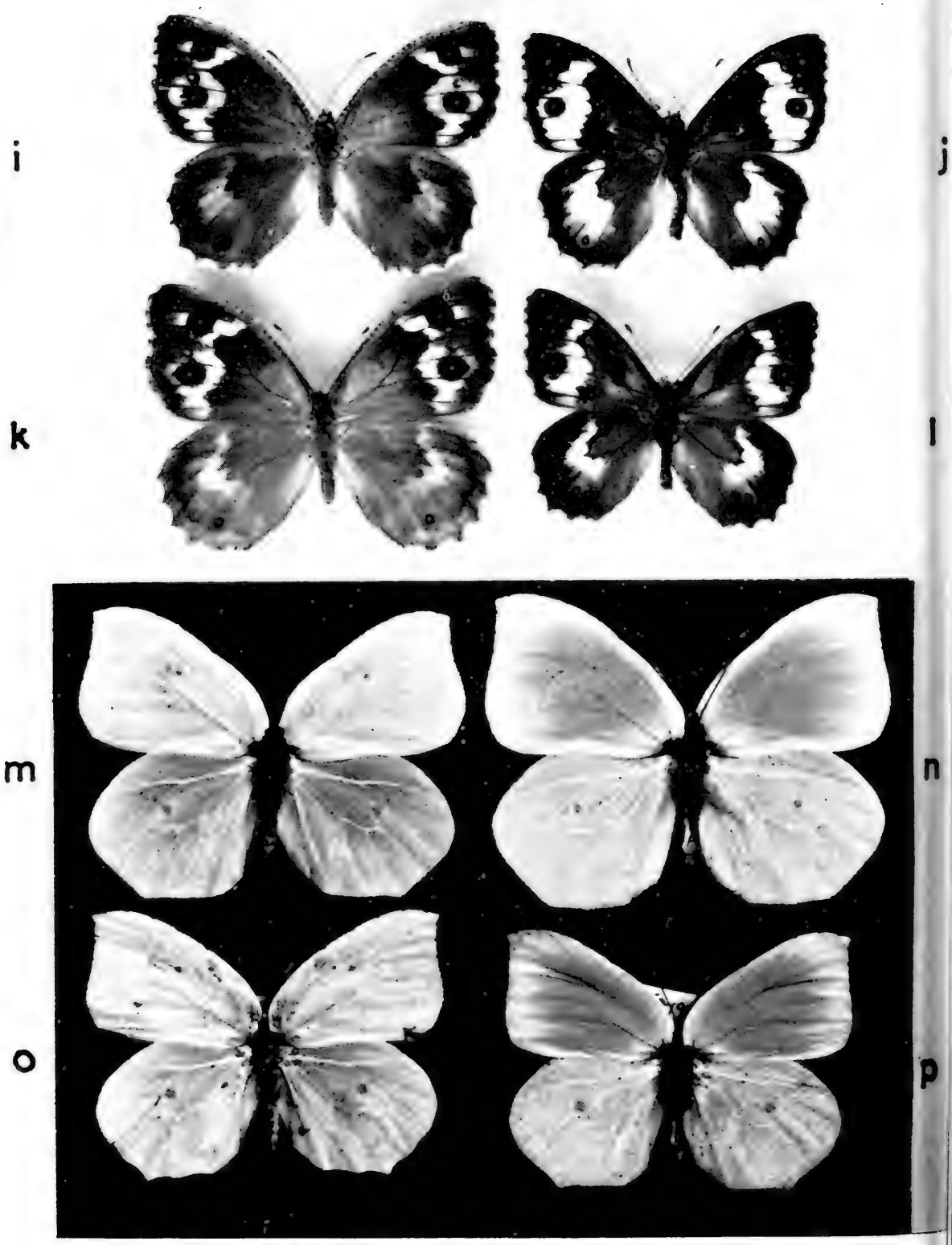
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PLATES XII and XIII

Figs. a-l×6/7 Figs. m-p×1

a. *Hipparchia syriaca ghigii* Trti. Female. Allotype. Upperside. Mt Ataviros, Rhodes, c.500m, 8th June.

b. *Hipparchia syriaca ghigii* Trti. Female. Underside. Mt Ataviros, Rhodes, c.500m, 8th June.

c. *Hipparchia syriaca ghigii* Trti. Male. Upperside. Mt Ataviros, Rhodes, c.500m, 8th June.

d. *Hipparchia syriaca ghigii* Trti. Male. Underside. Mt Ataviros, Rhodes, c.500m, 8th June.

e. *Hipparchia syriaca* Stgr. Female. Upperside. Ekali, Attica, Central Greece, 8th July.

f. *Hipparchia syriaca* Stgr. Female. Underside. Ekali, Attica, Central Greece, 21st July.

g. *Hipparchia syriaca* Stgr. Male. Upperside. Ekali, Attica, Central Greece, 21st July.

h. *Hipparachia syriaca* Stgr. Male. Underside. Ekali, Attica, Central Greece, 8th July.

i. *Pseudochazara anthelea atavirensis* ssp. nov. Female. Allotype. Upperside. Mt Ataviros, Rhodes, c.500m, 27th May.

j. *Pseudochazara anthelea atavirensis* ssp. nov. Male. Holotype. Upperside. Mt Ataviros, Rhodes, c.500m, 27th May.

k. *Pseudochazara anthelea amalthea* Friv. Female. Upperside. Mt Chelmos, Peloponnesus, 1300m, 24th July.

l. *Pseudochazara anthelea amalthea* Friv. Male. Upperside. Mt Taygetus, Peloponnesus, 1500m, 14th June.

m. *Gonepteryx cleopatra fiorii* Trti & Fiori. Female. Upperside. Mt Ataviros, Rhodes, c.500m, 27th May.

n. *Gonepteryx cleopatra fiorii* Trti & Fiori. Male. Upperside. Mt Ataviros, Rhodes, c.500m, 27th May.

o. *Gonepteryx cleopatra* L. Female. Upperside. Ekali, Attica, Central Greece, 4th August.

p. *Gonepteryx cleopatra* L. Male. Upperside. Mt Taygetus, Peloponnesus, c.800m, 15th June.

My Experiences with the Macrolepidoptera, 1972

By B. G. Withers B.S.c

It may seem rather incongruous that, as a lepidopterist of fifteen or more years standing, I should choose the 'abysmal' 1972 season as the subject of my first publication of this type. However my reasons for doing this are two fold. Firstly, I having married a secretary in the Spring, the matter of typing out monumental manuscripts is greatly facilitated. Secondly, although the Spring and early Summer weather was so atrocious, sheer perseverence on my part has made this season my best yet! I trust this will provide a few crumbs of comfort to my many colleagues who have almost unanimously referred to the past season with virtually apocalyptic gloom and foreboding.

The year's collecting started quite propitiously on 26th February with an excursion to Nomansland Common, only two miles from my home in Harpenden; on this warm, misty evening moths flocked to my portable m.v. between 6.00 and 7.15 p.m. These included large numbers of *Erannis leucophaearia* Schiff. (mostly melancs), *Phigalia pedaria* F. (mostly type but with two melanic specimens) and *Alsophila aescularia* Schiff., a few *Erannis marginaria* F. and one *Eupsilia transversa* Hufn. Two subsequent trips to this area on 27th February and 14th March produced little of interest.

In mid-March very warm weather occurred, and good conditions continued until the end of the month. On the 16th ten species of moths came to m.v. light at Ashridge, Herts., seven *Achlya flavicornis* L., one *Apocheima hispidaria* Schiff. and one *Biston strataria* Hufn. being the best catches. *A. flavicornis* was much commoner in the same locality two nights later, but the total number of species was only six. Spring butterflies were numerous around Harpenden during this period especially *Aglais urticae* L. and *Gonepteryx rhamni* L. Two trips to the Marlow area in late March produced little of interest except for a single *A. hispidaria* at m.v. light on the 25th.

The break in the fine warm weather more or less coincided with the beginning of our honeymoon in Dorset, unsettled weather prevailing during our ten days' stay in the Weymouth area. Even so, several evenings were suitable for the operation of portable m.v. light (even the nuptials do not completely

eclipse the activities of the enthusiastic entomologist), and five specimens of *Dasycampa rubiginea* Schiff. were taken in woodlands between Wool and Wareham between the 5th and the 8th of April. Three daytime visits to the New Forest during the holiday produced numerous moths of interest, almost all of which were found at rest on the walls of the strip-lit toilet blocks in Hollands Wood camp site near Brockenhurst; these included *B. strataria* (common and variable), *Orthosia miniosa* Schiff. (several), *Panolis flammea* Schiff. (one), *Lithophane ornitopus* Hufn. (two), *Polyploca ridens* F. (several), *Eupithecia irriguata* Hufn. (four), *Lithophane socia* Hufn. (one) and *Bapta distinctata* H-S. (two). These lights have often been productive in previous years, particularly in Spring and Autumn, a clear illustration of how even carrying out a natural function can reap considerable entomological rewards!

Colder weather marked our return from Dorset on 15th April and it was not until 1st May that I ventured forth with portable m.v. light to Symondshyde Great Wood, not far from Hatfield. Only four species of moth appeared in two hours owing to clearing skies—this meagre total did however include *Clostera curtula* L., a species I seldom meet with. The following night in the same locality was much better, twelve species being noted including melanic specimens of *P. ridens* and *Colocasia coryli* L. and a specimen of *Cerura vinula* L. with dark grey hindwings. The incidence of melanism in our area of Hertfordshire seems to be very high. I hope to investigate this at a later date.

The weather continued unpredictable and on 5th May, the first evening of a weekend in Monmouthshire, was very damp and misty; a static m:v: trap run from a friend's mains supply at Llandogo on the very edge of Tintern Forest produced fifty-eight moths of fifteen species, the most notable of which were three *Odontosia carmelita* Esp. and one *Cucullia verbasci* L. The following day dawned bright and sunny, and a number of *Euchloë cardamines* L., including one female, were seen on the wing in the Wye valley. The portable m.v. equipment operated in the Forest of Dean between 9.30 and midnight, produced a good haul of moths of twenty-three species, including *Chesias rufata* F. (five), *Notodonta trepida* Esp. (common), *Celama confusalis* H-S (several), *Ectropis biundularia* Borkh. (several including melanic forms) and *Ectropis consonaria* Hubn. (a few including one of the form *waiensis*).

Our departure from the area on the morning of the 7th was greeted by more hideous meteorological manifestations which were repeated sporadically for over a week. A camping weekend in the New Forest, during the 13th and 14th was almost entirely unsuccessful as regards m.v. light, and the beating of larvae of several common species of Geometrid moths from oak and sallow at Whiteparish, Wilts. was small consolation. Our newly acquired frame tent, however, passed its weathering test with flying colours, coping admirably with cold winds and heavy showers. On the 17th a large female *Saturnia*

pavonia L. was the best of nine species noted at m.v. light at Symondshyde Great Wood; *C. coryli* was fairly frequent, and a boxed female produced large numbers of ova, from which a good number of pupae were eventually obtained. The rare phenomenon known as sunshine on the 19th prompted us to take off on another weekend excursion to the New Forest area. Clear, rather cool conditions prevailed on that evening when, at Whiteparish Wood, twenty-three species of Macro were recorded, which included three *C. curtula,* two *Stauropus fagi* L. and numbers of *Drymonia dodonaea* Schiff. and *N. trepida.* The morning of the 20th produced cloud and some rain, but a bright spell during the afternoon showed *Clossiana euphrosyne* L. in small numbers at Whiteparish. One specimen of *Cepphis advenaria* Hübn. was also flushed from the herbage. The skies fortunately clouded over in the evening and the m.v. light attracted twenty-two species, the most notable being four specimens of *Drepana cultraria* F. along with several *Drepana binaria* Hufn., a few *Eilema sororcula* Hufn., and a relative abundance of *Lampropteryx otregiata* Metc. A worn specimen of *E. irriguata* also put in an appearance. Rain set in shortly after midnight, but fortunately just after we had packed up the equipment. Back in Hertfordshire, four melanic specimens of *C. coryli* came to m.v. in Symondshyde Great Wood on the 21st along with sixteen other species.

The Spring Bank Holiday will be long remembered for its wet and windy weather, but a quick overnight trip to the Ranmore area of Surrey produced a number of interesting moths at m.v. Twenty-four species in all were recorded, including several *Horisme vitalbata* Schiff., one *D. cultraria,* one *Ligdia adustata* Schiff. and, to round off a relatively good evening's sport, two mint specimens of *Agrotis denticulatus* Haw. arrived just before midnight. This being the best night of the year so far, it was ironic that it was clear and moonlit. The end of May was mainly taken up in the beating of trees and bushes of various types on Nomansland Common, dislodging larvae of *Episemia caeruleocephala* L. and *Nola cucullatella* L. in some numbers from blackthorn and *Erannis aurantiaria* Hübn. and *E. defoliaria* Clerck. from oak and sallow. Many of these subsequently produced fine moths.

June opened in a similar fashion to that in which May had gone out and it was not until the evening of the 8th that anything of interest occurred. On this occasion, two specimens of *Abaraxas sylvata* Scop., my first ever, came to m.v. light at Symondshyde along with twenty-one other species. Several trips were made to this locality during June, and my efforts were rewarded by three more *A. sylvata* and a few melanic *Pseudoboarmia punctinalis* Scop. among a good number of commoners. An evening spent at Ranmore on 9th June was virtually a complete failure owing to clear skies and a cold mist after heavy rain all day. ,

On the 15th a considerable improvement in the weather prompted us to take two days' hurriedly arranged leave and

embark on a long weekend in Sussex and Kent. Having pitched camp in a field at Turners Hill, we drove the four miles to the Balcombe Tunnel area and set up the m.v. lamp just off the road beneath a number of large beech trees. The evening was overcast and warm with a very slight drizzle and moths arrived in numbers between 9.30 and 12.30. Eight specimens of *Tethea fluctuosa* Hübn. and one *Hapalotis venustula* Hübn. were the best of forty species which also included *Dasychira pudibunda* L. in great abundance and variety, several lightly marked *P. punctinalis*, one *Eupithecia pulchellata* Steph., several large *Electrophäes corylata* Thunb., *Cybosia mesomella* L., *Laothoë populi* L. and *Deilephila elpenor* L. It was regrettable that no *Harpyia bicuspis* Borkh. were seen, as this is a species which has eluded me now for several years. On the morning of the 16th we drove on to Dungeness where we found plenty of larvae on the sallows near the Long Pond; these comprised *Euproctis chrysorrhoea* L., *Euproctis similis* Fuessl., *Malacosoma neustria* L. and *Leucoma salicis* L.; several of the last-mentioned were collected. The males of *Macrothylacia rubi* L. were active and *Polyommatus icarus* Roth . and *Coenonympha pamphilus* L. were also noted in small numbers. The portable m.v. was run in the same locality that evening, where, despite clearing skies and fairly low temperatures, thirty-six species of macro were recorded including *Hada nana* Hufn. (common), *Hadena lepida* Esp. (common, including some very white specimens), *Hadena albimacula* Borkh. (common), *Sterrha subsericeata* Haw. (five), *Pyrrhia umbra* Hufn. (one), *Spilosoma urticae* Esp. (two including one completely spotless specimen) and several each of *Smerinthus ocellata* L., *Deilephila elpenor* L. and *D. porcellus* L. On the 17th in Orlestone Woods in bright sunshine, a sprinkling of butterflies was observed including both *Clossiana selene* Schiff. and *C. euphrosyne*, but m.v. light that night produced relatively little, the only moth of real interest being a yellow male *C. mesomella*. Three other lights were in evidence in the area and their operators reported a similar lack of moths. The following morning the weather broke and we returned home in pouring rain. The following weekend saw us at Orlestone Woods again, and this time we were more fortunate, with overcast skies and slight drizzle. The night of the 23rd produced thirty-five species including two *Euphyia luctuata* Schiff., one at dusk and one at m.v. at midnight, two *T. fluctuosa* and many commoners. On this occasion our light was one of five! During the daytime on the 24th further *L. salicis* larvae were collected from Dungeness, along with one fine larva of *Dasychira fascelina* L. which was, alas, parasitized. Moving back to Orlestone, we were fortunate enough to net five specimens of *Aegeria vespiformis* L. from the stool oaks, but we failed to flush any *Colobochyla salicalis* Schiff. from the adjacent scrub aspen. There was considerable evidence of herbicide spraying on the scrub aspens—when will the Forestry Commission stop preaching conservation and start

practising it? *Maniola jurtina* L. and *C. pamphilus* were present in some numbers and males of *M. rubi* were very active and quite common. The evening was somewhat spoilt by a stiff breeze which forced us to move our m.v. light from one ride and set it up in another more sheltered one. Despite this, a good number of moths of thirty-four species arrived between 9.30 and midnight; these included one *Herminia barbalis* Clerck., one *T. fluctuosa,* a few *S. subsericeata,* and a rather late *Gonodontis bidentata* Clerk. On this occasion we had the whole area to ourselves ,a rare event in these parts.

On the last day of June we set out for our second weekend of the year in the Wye valleys. The bright sunshine which had blessed our departure from Harpenden slowly gave way to grey conditions, and on our arrival at Llandogo drizzle was falling. Our noble friends once again allowed the operation of a Robinson trap in their splendid garden. My wife decided on this occasion to stay in and baby-sit, but I in my usual foolhardy fashion braved the elements and set up a portable m.v. light in the forest above Tintern. Amazingly the night turned out to be an excellent one for moths, forty-five species being noted between 10 p.m. and midnight. These included four *Hydrelia testaceata* Don., two *Discoloxia blomeri* Curt., five *Bomolocha crassalis* Treits., two *A. sylvata,* and one *Anaplectoides prasina* Schiff., the first three of these species being completely new to me. On the following morning, July 1st, the trap at Llandogo was found to have produced forty-four species of macro among which were three more *A. prasina,* three *Xanthorhoë designata* Hufn. and singletons of *H. testaceata, B. crassalis, D. blomeri, Perizoma affinitata* Steph. and *Perizoma flavofasciata* Thunb. Daytime operations in the Forest of Dean found *C. selene* common and mostly fresh, an indication of the lateness of the season. *Eoirrhoë tristata* L. was also common and a specimen of *Ortholitha mucronata* Scop. was taken. Clear, cooler conditions prevailed that evening when portable m.v. was operated once again near Tintern. In the two hours between 10 p.m. and midnight thirty-five species of macro appeared and included *Tethea* or Schiff., *T. fluctuosa* and further examples of *H. testaceata, B. crassalis* and *A. prasina,* the last of which was netted by my wife just *inside* the rear door of our estate car. The following morning we left the Wye valley, after inspecting the static trap which produced two further *A. prasina,* three *X. designata* and one *P. affinitata* among thirty species. On our arrival in Hertfordshire, we almost immediately changed into formal gear to take part in a performance of Beethoven's Choral Symphony — from the ridiculous to the sublime!

On July 3rd I was astounded to find that my garden in Harpenden harboured *Aegeria tipuliformis* Clerck., three specimens, two of which were *in cop.* being taken from red currant bushes at 1.30 p.m. That evening, in fairly mild but

breezy conditions, I made the first of a series of trips to a wood in the Chilterns not far from Marlow where portable m.v. attracted thirty-seven species between 10 p.m. and midnight, including five *A. sylvata,* one *D. blomeri,* and one *L. adustata* along with an abundance of *Cosymbia linearia* Hübn. and a few very late *D. dodonaea* for good measure. Two nights later, portable m.v. at Ashridge produced twenty-four species; little of interest was noted due to clear, cool conditions.

Bad weather at the weekend prevented any worthwhile activities, but on July 6th I began operating a static Robinson trap in my garden and was rewarded with a dark grey *Polia nebulosa* Hufn. This trap was operated for the rest of the season. The 10th saw me in the Chilterns once again where, on a fairly clear night with a light breeze, a number of *A. sylvata,* one *D. blomeri* and several *S. fagi* of the dark form were the best of twenty eight species. The static trap in the garden at Harpenden produced a fine melanic *Tethea ocularis* on the 10th, and on the 11th the first of a number of *Hadena compta* Schiff. was noted; this insect is fairly common in this area of Hertfordshire, and over the four years I have been here it appears to have become commoner. On the 12th yet another trip was made to the Chiltern, where, under clearing skies, thirty-five species were attracted to my m.v. light between 10 p.m. and 11.45 p.m., these including three *D. blomeri* and three *Hydrelia flammeolaria* Hufn. *A. sylvata* was common, as was *C. linearia.* Four other m.v. lights were being operated in the same ride by Messrs Rogers and Sadler, but none of us took *Trisateles emortualis* Schiff., the principal prize of this area. The following morning the garden trap at Harpenden produced a specimen of *Plemyria rubiginata* Schiff.

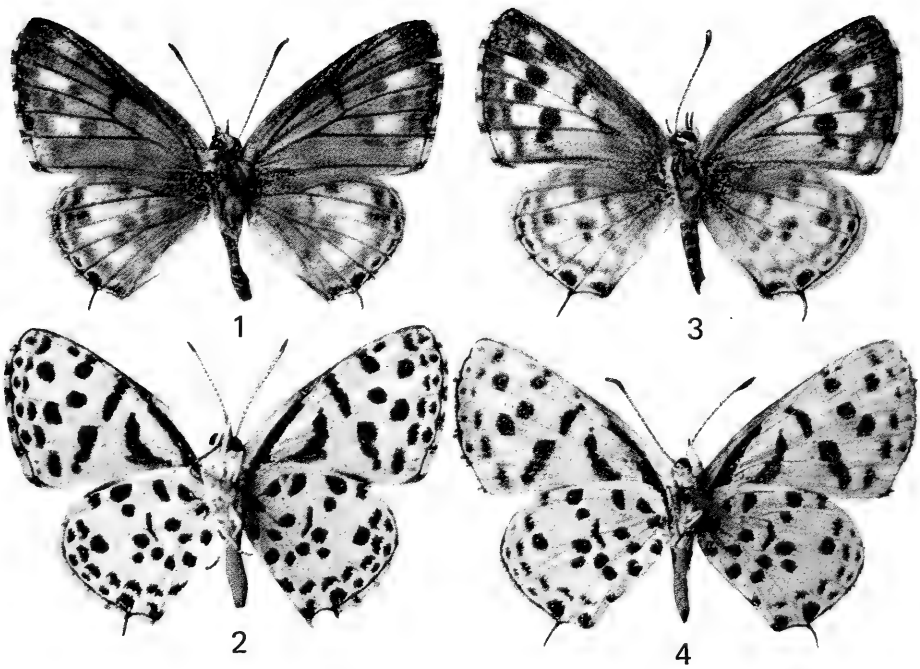
A marked improvement in the weather prompted my wife and myself to snatch a hasty week's holiday, and we departed for Surrey on the afternoon of July 14th, arriving at Box Hill at about 6 p.m. The farmer in whose field we camped very kindly let me plug in a Robinson trap for a minimal sum, and we departed for Ranmore with portable m.v. equipment, setting up at 9.45 in a sheltered spot on the chalk at the edge of woodland. In warm conditions hosts of moths comprising seventy-nine species flocked to the light. These included an abundance of *Melanthia procellata* Schiff., several each of *Horisme tersata* Schiff., *Sterrha straminata* Borkh., *Apamea sublustris* Esp. and *Agrotis clavis* Hufn.; four *Euphyia cuculata* Hufn., two *L. adustata,* and single specimens of *P. rubiginata, H. testaceata, H. vitalbata, Thera firmata* Hübn. and *Nola albula* Schiff. Thus commenced the best week's collecting that I have ever experienced. The following morning fifty-six species were recorded from the Box Hill static trap, the most outstanding being two specimens of *Setina irrorella* L.; three each of *A. clavis* and *A. sublustris* and a singleton *Sphinx ligustri* L. were also worthy of note.

We then motored on to East Kent, pitching camp on a site not far from Orlestone Woods. Here the wind was noticeably stronger than it had been in Surrey, and at Dungeness a young gale was blowing. However we decided to run the static trap at the Bird Observatory, while we went back inland to find a sheltered spot to operate the portable light. We found this on the Downs near Wye, where between 10 p.m. and midnight fifty-four species were attracted, the most notable among these being one *Lophopteryx cucullina* Schiff., four *Xanthorhoë quadrifasiata* Clerck., three *Philereme transversata* Hufn., one *P. vetulata* Schiff. and several each of *A. sublustris, A. clavis* and *L. adustata.* The static trap at Dungeness produced little of interest as the wind persisted all night. As there seemed little hope of calmer conditions in this area we decided next day to return to Box Hill for a further night and then travel on to the New Forest. The day of the 16th was very warm and the night was similar when two lights were run at Box Hill, the Robinson trap at the farm and the portable m.v. at the very foot of the hill. The portable light produced seventy-three species in three hours and a number of good moths were noted, including several *L. adustata,* three *P. transversata,* two *Eupithecia haworthiata* Doubl., one *Scopula ornata* Scop., two *E. cuculata,* two *Sterrha trigeminata* Haw., *Deileptenia ribeata* Clerck. of a melanic form and one *Hadena contigua* Schiff. The static trap at the farm produced fifty-five species but with nothing outstanding.

Thundery showers were threatening on our arrival in the New Forest, but the fine, hot weather held and we tried Whiteparish in the afternoon where there were large numbers of butterflies especially *M. jurtina, Melanargia galatea* L. and *Aphantopus hyperantus* L., two 'blind' specimens of the last named being taken. The numbers of *Argynnis paphia* L. and *Limenitis camilla* L. were, however, very disappointing and it seems likely that these species have suffered greatly from this season's adverse weather. We stayed on at Whiteparish for our nocturnal activities and fifty-two species came to m.v. light between 9.30 p.m. and midnight. Among these were three females of *Hepialus hecta* L., three each of *Mesoleuca albicillata* L., *Angerona prunaria* L. and *T. or,* several *Boarmia roboraria* and single specimens of *S. trigeminata, Craniophora ligustri* Schiff., *Pseudoips bicolorana* Fuessl., *Tethea duplaris* L. and *E. sororcula,* the last mentioned being a very late specimen. Single specimens of *P. bicolorana* and *M. albicillata* were taken from the toilet block lights in the New Forest on our return to camp. The 18th dawned thundery and by early afternoon rain had set in along the South Coast—this prompted us to head North-West towards the Wye valley where we camped in a field on the very bank of the river, having arrived in the late afternoon. Our friends

(to be continued)

PLATE IX



CASTALIUS HINTZA (TRIMEN) SSP. KROONI

Fig. 1 ♂ Holotype (upperside).
Fig. 2 ♂ Paratype (underside). Tyger Valley, S.W.A.
Fig. 3 ♀ Allotype (upperside).
Fig. 4 ♀ Paratype (underside). Otavi, S.W.A.

Figures twice natural size (Photo: H. N. Wykeham)

The Social and Solitary Wasp and Solitary Bee Distribution Maps Scheme

A scheme to map the distribution of social and solitary wasps and solitary bees has recently been started under the guidance of the Biological Records Centre at Monks Wood Experimental Station. Maps will eventually be prepared showing the occurrence of each species in each of the 10-km. squares of the National Grid from which a positive record has been received. One map will be prepared for each species of wasp or bee.

Records of all species of aculeate bees and wasps (except the Dryinidae, Bethylidae and social bees (*Bombus, Psithyrus*)) are required from all parts of the British Isles, the Channel Islands and the whole of Ireland. At first, attention will be concentrated on the social wasps (*Vespa, Vespula*). The completion and value of the distribution maps will depend to a great extent upon the help that is obtained, and we hope that a large number of people interested in bees and wasps will be able to provide information, so that detailed and up-to-date maps can be made.

If you are able and willing to participate in the scheme, participation is possible as either a Recorder, Collector or Abstractor. If you are able to identify some of the species concerned, in particular the social wasps, you become a Recorder and will be given a supply of record cards and instructions on how to fill them up. If you cannot identify the different species, you become a Collector and will be sent instructions on how to record the date and locality of each capture (with a Grid reference) and will forward the specimens in a matchbox to the Organiser for identification. If you have access to distributional records or museum collections, you become an Abstractor and will be given a supply of record cards and instructions on how to fill them up. If you know of the existence of unpublished distributional records or museum specimens labelled with at least dates and localities of capture and are unable to become an abstractor, please inform the organiser of this information so that other arrangements can be made to gather the information.

If you are willing to participate in the scheme please write to the organiser, Mr M. E. Archer, Department of Biology, Heworth Croft, York, YO3 7SZ, stating whether you will act as a Recorder, Collector or Abstractor and the organiser will send you the appropriate instructions.

Correction Note: A new race of *Castalius hintza* (Trimen) by C. G. C. Dickson (*antea* 137-139

The author was unaware at the time of the above publication that the colour printers were producing a revised plate following his complaint of excessive red. We are pleased therefore to include the revised plate opposite.

Notes on some of the British Nepticulidae II

By A. M. Emmet

(*continued from page 80*)

Work may have been done on these lines with other metallic scaled lepidoptera such as the *Amblypodia* (Lycaenidae) which could be applied to the group under discussion.

In conclusion my estimate, for what it is worth, is that there are certainly four species, *aurella, nitens, fragariella* and *dulcella.* Possibly *gei,* too, is a good species; or it may be the same as *nitens* (the senior name) or; it may just be the name given to any of the group when they happen to feed on *Geum*!

(2) *poterii Stainton*
**tengstroemi* Nolken
**serella* Stainton

It would not surprise me at all if *serella* was found to be synonymous with *poterii.* On the other hand *tengstroemi,* which I only know from mines in the herbaria of Hering and Waters, must surely be different. The mine more closely resembles that of *ulmariae* Wocke.

(3) *ulmivora Fologne*
**ulmicola* Hering
ulmifoliae Hering

I include *ulmifoliae* under this head, though it is accepted by Johansson. The three will be dealt with comprehensively under the heading *Ulmus* below, where it is demonstrated that they constitute a single species.

(4) *oxyacanthella* Stainton
**aeneella* Heinemann

What I shall say here is provisional and I hope that readers both in this country and on the continent, will proffer their comments and opinions. My view is that *aeneella* is a distinct species but that it has become confused with *oxyacanthella* when the latter feeds on apple.

Heinemann (1862) describes *aeneella* as follows (my translation):—"Forewings slightly metallic brownish with a faint violet gloss at the apex. Head ochreous yellow. Eyecaps and collar yellowish". He adds that the larva feeds in October in the leaves of apple. Now this does not sound like *oxyacanthella* which has deep purple-fuscous wings, the purple deepest towards the apex. Heinemann places the insects in different groups, *aeneella* in the group characterised by possessing long antennae, and *oxyacanthella* in that with short antennae.

There is a series labelled *aeneella* in the general collection at the British Museum (Natural History); all the specimens were bred or captured in Germany. The series is made up of three species as follows — (a) Two specimens answering exactly to Heinemann's description, except that the antennae

are missing so that their length cannot be gauged. These are from Stainton's collection and were received by him from Staudinger. The forewings are pale golden brown without any hint of purple; one specimen has a noticeable violet gloss at the apex, but the wings as a whole are not glossy. (b) Two specimens named *aeneella* by Staudinger in 1897 but with purple-fuscous forewings, and resembling *oxyacanthella* in all respects. They had not been included in Stainton's collection and from the data it appears they were received in this country after Stainton's death. (c) About ten specimens of a species unknown to me. They are from the Paravicini collection and are dated 1906, 1923 and 1926. They were evidently bred, as they are accompanied by their cocoons, though the foodplant is not stated on the labels. The forewings are glossy metallic golden, the apical reflections being golden, not violet. They also differ from Heinemann's description of *aeneella,* and from the specimens from Stainton's collection, in respect of the strikingly brilliant golden gloss of the forewings.

This suggests to me that before the end of the nineteenth century continental entomologists were confusing *aeneella* and *oxyacanthella.* It could well happen if the former is a scarce and unfamiliar insect and its mine and that of *oxyacanthella* when on apple became confused. Adults reared from such mines would then be assigned to *aeneella,* even if their superficial characters were those of *oxyacanthella.*

I find support for my theory in Hering (1957). He describes the mine of *oxyacanthella* on *Crataegus, Mespilus* and *Prunus,* but not on *Malus.* But under *aeneella* on *Malus* he writes (my translation):—"It is not yet certain whether this species is specifically distinct from *S. oxyacanthella* Stainton, which lives in similar mines on *Crataegus*". The species described as *aeneella* by Heinemann and the specimens from Stainton's collection are totally different in appearance from *oxyacanthella* and must surely be specifically distinct.

Stigmella aeneella Heinemann was introduced to the British list by Mr S. C. S. Brown (1964) after mines in apple-leaves from his garden in Bournemouth had been identified as belonging to that species by the late Mr A. G. Carolsfeld-Krausé of Denmark. Mr Brown (*l.c.*) refers to similar mines in the herbarium compiled by Professor E. G. R. Waters and preserved in the Hope Department of Entomology at the University Museum, Oxford. I have seen the specimens reared from these mines; they answer to the description of *oxyacanthella* and were determined as such by Waters. References to *oxyacanthella* feeding on apple are to be found *passim* in our literature and no one used to question the identity of the resulting adults. Mines of the *oxyacanthella* type are common both on wild and cultivated apple in all the counties in which I have collected during the autumn in south-east England. Yet I have never heard of or seen a

specimen bred from apple in this country which answered to the description of *aeneella*.

So I conclude as I began by suggesting that *aeneella* is a good species but one that has been lost, and that *oxyacanthella* when it feeds on apple has been made to do duty for it.

(5) *anguilifasciella* Stainton.
**atricollis* Stainton.

The eight British species of *Ectoedemia* with black forewings bearing a central silver fascia are very similar and present problems of determination. Moths of this group bred from larvae feeding in leaves of hawthorn, apple, and (less commonly) other rosaceous trees have been referred to *atricollis*, while those bred from rose and (less commonly) salad burnet have been referred to *angulifasciella*. In this context Beirne (1945) writes as follows: "A number of [genitalia] preparations of *angulifasciella* and *atricollis* were examined but no reliable difference could be found. The differences figured by Petersen (1930) can be attributed to distortions of genitalia and differences in mounting. The two forms are probably biological races of the one species and are here included as being synonymous." Johansson (1971) may be following Beirne's lead. However, Meyrick (1928), Ford (1949), Hering (1957), Heslop (1965) who was advised by the late A. G. Carolsfield-Krausé, and the new edition of Kloet and Hinck's check-list all show the two as separate species. Which view is correct?

First let us assess the degree of weight which should be accorded to Beirne's opinion when he pronounces on the Nepticulidae. His purpose in describing the genitalia of that family was to complete the work of F. N. Pierce, with whom he had already collaborated in *The Genitalia of the British Rhopalocera and the Larger Moths* (1941). After Pierce's death, the Nepticulidae remained with the genitalia still undescribed, so Beirne described them. In doing so he fulfilled a valuable service. His approach, however, was that of a museum worker, examining dead imagines collected by other persons. He himself had no special knowledge of the group as is shown by the fact that in *A List of the Micro-lepidoptera of Ireland* (1941) he gives personal records of only four species of *Nepticula*! These did not include either *angulifasciella* or *atricollis* and he may well have been completely ignorant of their biology. He therefore had no right to make a dogmatic pronouncement in a field where his knowledge was so one-sided.

Let us now compare the biology of *angulifasciella* and *atricollis* and see what conclusions can be drawn.

	angulifasciella	*atricollis*
Foodplants	*Rosa* spp. and *Poterium sanguisorba*	*Crataegus, Malus* spp. *Pyrus communis, Prunus avium.*
Larval season	Mid-October till early November.	September till mid-October.
Egg	Laid on the underside of the leaf, usually touching the midrib.	Laid on the underside of the leaf, usually about 1 mm from the margin.
Mine	At first a highly contorted gallery filled with light purplish brown frass deposited in a more or less coiled formation. The uneaten areas of leaf between the contortions of the gallery also turn purplish, making the early mine appear like a mottled purplish spot. Later the mine may assume a somewhat straighter course, often directed towards the leaf-margin, which it then follows closely. The gallery usually widens gradually into a blotch, but in some cases the transition is abrupt. In this stage the frass is at first black and almost solid, but later it is more dispersed. In some examples the mine stays in the centre of the leaf and the larva advances in a series of tight 'S' turns which may merge into a blotch.	The early gallery almost always follows the margin of the leaf and so is relatively straight in its course. It is filled with irregularly disposed brown frass which does not stain the leaf. The gallery phase is shorter and the blotch is larger than in most examples of *angulifasciella.*
Larva (a) young	Ochreous yellow with a chain of large oval dark spots on the venter, their broader axis in the lateral plane.	Whitish, with less conspicuous dark spots on the venter.
(b) Full grown	Greenish white, with dorsal vessel darker green. Head reddish brown, prothoracic plate somewhat darker, a chain of small oval dark spots on the venter, their broader axis in the longitudinal plane.	Whitish, with dorsal vessel often reddish. Head and prothoracic plate black. A chain of ventral dark spots which are pear-shaped on the thoracic segments and linear in the abdominal segments.

Cocoon	Dark greenish brown, spun (in captivity) amongst moss as soon as the larva has vacated the mine. In this cocoon the larva remains unchanged for a considerable period, perhaps throughout the winter". Stainton (1855).	Black, spun on or just below the surface of the soil. In captivity none was spun in the moss covering the earth in their container. According to Tutt (1899. p. 171) *atricollis* and several other Nepticulidae "hybernate in the larval stage, but appear to leave their hybernacula to spin their cocoons in the spring". See also Ent Record 83: 171.
Imaginal season	July	June.

Added to the differences noted above are discrepancies in distribution. I am not considering the range of each insect, since information here is still inadequate: I am considering examples of their distribution in south-east England where both are locally common. In a garden at Biggin Hill in Kent, *atricollis* is plentiful on the apple-trees and hawthorns, but *angulifasciella* is absent from the roses: whereas in a wood at Debden near my house in north Essex *angulifasciella* was plentiful in the roses last autumn, but there was no sign of *atricollis* on the hawthorns.

Thus we see that *angulifasciella* and *atricollis* fly in different months, lay their eggs in different positions on different foodplants, have differently marked larvae feeding in different formed mines, have differently coloured cocoons spun in different environments at a different season, overwintering in a different manner and in some cases frequent different localities. The male genitalia, however, appear alike. If for this reason we are to say that *atricollis* is a form of *angulifasciella,* then Ted Heath is a form of the heath fritillary.

(6) *arcuatella* Herrich-Schäffer
**rubivora* Wocke

All British entomologists have regarded the two as distinct and Beirne in (as far as I know) authentic drawings shows clear differences in the genitalia. Consequently Johansson's view that they are one and the same species comes as a surprise. I do not know the grounds on which he bases his opinion. During last autumn I made two independent descriptions of the larvae and mines, based on material from two different localities for each species. The similarities and differences I observed are tabulated below.

	arcuatella	*rubivora*
Foodplant	*Fragaria*	*Rubus*, especially *R. caesius*
Larval season	Late August to early October.	Late September to early November.

(*to be continued*)

Observations on British Butterflies in 1972

By Dr C. J. Luckens

Sunny weather in mid-February brought out our first butterfly, *Aglais urticae* L., which was seen by my wife and eldest son in the garden on Valentine's Day. I personally had to wait almost another month for the pleasure of seeing a 1972 Tortoiseshell—this on 9th March. The next few days however brought both *A. urticae* and *Gonepteryx rhamni* L. out into the vibrant spring sunshine. The sight of several of the latter butterfly on 15th March fluttering round the edge of Southampton Common made even city driving a pleasure.

Late March and early April weather tended to be sunny but rather cool, with few butterflies on the move apart from the two mentioned above and the first *Nymphalis io* L. The cold winds softened in the latter half of the month however, and on 25th April we went out to a woodland area near Romsey where *Nymphalis polychloros* L. has been recorded more than once over the last four or five years. No glimpses of this fine insect unfortunately, but it was a real pleasure to see a variety of other species. *Celestrina argiolus* L., surely the bluest of blues on the wing, flitted around the hollies, the yellow-dappled Spring form of *Pararge aegeria* L. were sunning themselves along the paths, and flowering laurel attracted several *N. io*, *A. urticae*, and *Polygonia c-album* L. I was pleased to be able to show these live butterflies to my three-year-old son, who during the winter had learned to name most of the British species, but was rather taken aback when, as we were about to leave, he said, "Let's see some Large Coppers now, shall we"?

Early May started with changeable though mainly sunny weather, and on the 4th *Antocharis cardamines* L. was flying commonly in the Whiteparish woods. *Pieris napi* L. and *Pieris rapae* L. put in an appearance during the day, and the three common hibernating *Nymphalids*, with *G. rhamni*, and *P. aegeria* were also about.

C. argiolus was fairly abundant in the garden during late April and the first half of May, and on the 14th my wife spotted a pair of these butterflies *in cop*, resting in a holly bush. I managed to photograph the event, and while doing so found an ovum laid by another female *argiolus* on the same bush. Incidentally we saw no specimens at all of the Holly Blue's second brood.

May 19 was beautifully warm and sunny, and in the afternoon we all went over to a grassy hillside near Alton. Fair numbers of *Hamearis lucina* L. were seen, the males darting restlessly about while the females spent most of their time basking on the warm ground or on cowslip leaves. A few *Erynnis tages* L. and *Coenonympha pamphilus* L. were also in evidence.

The next butterfly expedition was on the Spring Bank Holiday when we went to the West Sussex woods. The weather started promisingly, and by a wide detour we took in a locality for *Euphydryas aurinia* Rott. near Guildford on the way. To my horror I found the area had been scorched by a heath fire, and in spite of strong sunshine saw no trace of *E. aurinia.* I fear that this most attractive butterfly may have been destroyed here, in exactly the same manner as it was only last year in a similar habitat on the edge of Woolmer Forest.

Later on in one of the West Sussex woods *Leptidea sinapis* L. were flying in fair numbers in spite of somewhat cloudier conditions, but many specimens were already showing signs of age: We watched a female lay two yellow ova on a minute piece of trefoil—the pupae are at present overwintering in my breeding cages for projected release next Spring in this wood. *Clossiana euphrosyne* L. also appeared whenever the sun came out for a spell.

The weather in early June was appalling, and changeable, mainly cold and dull conditions continued right up until the end of the month. A single female *L. sinapis* was the only butterfly seen at Chiddingfold on 3rd June, though on the way over I obtained a few larvae of *Thecla quercus* L. on the oaks in Alice Holt. A quick look at a locality on the fringe of Woolmer Forest revealed *Polyommatus icarus* Rott., *Lycaena phlaeas* L., *C. pamphilus* and *G. rhamni* flying in the sunny spells on 10th June, but there was no sign of *E. aurinia* which formerly occurred there.

June 15 was fairly sunny and there were quite a few butterflies on the wing on the down near Winchester. *P. icarus* was fairly abundant, with the first *Maniola jurtina* L., and I saw single specimens of *Aricia agestis* Schiff., *Cupido minimus* Fuess. and *P. megera.*

We started a fortnight's holiday on June 24, and reached South Devon that evening driving through a fine drizzle of rain. The following day was even wetter, but on June 26, after a bad start in the morning, the sun started to break through. I explored a locality on the fringe of Dartmoor during these two or three hours of sunshine, and was delighted to see four out of the five native small fritillaries flying together. *Mellicta athalia* Rott., in one of its few remaining West Country haunts, was fresh and in good numbers; the one or two *E. aurinia* seen were still in fair condition; and so was *Clossiana selene* Schiff.; but *C. euphrosyne,* represented by a lone survivor, had probably been flying for about a fortnight—and looked it!

I saw a good selection of other species also, including plenty of *P. aegeria* and *Pyrgus malvae* L., a few *L. phlaeas Callophrys rubi* L. and *P. napi,* one female *P. icarus,* and very late specimens of *G. rhamni* and *A. cardamines.* The first *Ochlodes venata* Br. and Grey were emerging here. It was startling to see butterflies on the wing a month and more after

their usual dates.

We were given examples of the extreme localisation of weather in this area in the two following days, when we spent some time near Plymouth in hot continuous sunlight while in Tavistock the skies opened and a thunderstorm raged. We could see all this happening over the dark highlands of Dartmoor about fifteen miles away. However June 29 started fairly well, and Captain A. P. Gainsford and I planned to go to the aforementioned Devon locality for *M. athalia.* Almost as soon as we met at the entrance to the path more rain blew up from the south-west, and we were on the point of cancelling the expedition, when, almost as suddenly as it had begun, the rain stopped and the skies lightened. *M. athalia* flew rather reluctantly in these dull conditions but was nevertheless the only butterfly seen when we arrived at the site. As the clouds dispersed further, *C. selene* appeared with a few *P. malvae,* and we saw another battered *C. euphrosyne* before leaving at about 4.30 p.m.

After a day of pouring rain to conclude the month of June, July 1 showed marked lack of promise also, but unpredictably as always, sunny spells developed in between showers, and taking advantage of these I went to a small field near Mary Tavy. Here, at this incredibly late date, I saw male *E. aurinia,* which judging by their condition couldn't have been on the wing more than a day or two.

Another very wet day intervened, and though the morning of 3rd July was only marginally better, *Argnnis aglaia* L. was seen near Grenofen, and the odd specimen of *C. selene* also flew at intervals.

In the early afternoon the sun came out quite strongly for a while, and this coincided with our visit to a rather secluded Cornish Naturalists Trust Reserve near Callington. Here, on a rough bushy hillside, *M. athalia* was out in good numbers, but seemed to be rather more worn than those we had seen in Devon a few days previously. *C. rubi, C. selene* and plenty of *M. jurtina* were also flying in this reserve. Several miles away we had discovered another smaller colony of Cornish *athalia* last year, but the weather broke up again before we could see how it was faring.

The following day we had to travel up to Bath and for the first time in weeks the weather started to settle. It was a beautiful day on the 5th when we drove north to Tewkesbury, touching some of the old Gloucestershire localities for *Maculinea arion* L. en route. I cannot help feeling that this ill-starred insect may yet survive in some of these lovely Cotswold valleys, and I intend to return sometime soon for an intensive exploration. The following day we looked around Langport in Somerset, again at possible *M. arion* habitat, but failed to see even a single clump of Thyme all day. One site in the area, where I believe *M. arion* once occurred, looked completely unsuitable; but possibly it flew over what is now ploughed fields surrounding the remaining scrubland.

We returned to Southampton at the weekend, and the next outing was on 13th July when I went by myself to Alice Holt Forest. I was surprised to see that *Limenitis camilla* L. was only just emerging—a few males in mint condition were flying, and there was no sign of *Apatura iris* L. or *T. quercus,* both usually to the fore by that date. *Aphantopus hyperanthus* L. and *M. jurtina* were in their usual abundance.

Bentley Woods in Wiltshire on 15th July produced a few fresh *Argynnis paphia* L., in addition to *L. camilla, O. venata,* and plenty of woodland *Satyrids,* but again no *iris* were spotted.

The fine weather continued, and I revisited Alice Holt several times during the following week, seeing *Thymelicus sylvestris* Poda. and adding *Vanessa cardui* L. to my 1972 list. At the weekend we visited my parents near Haywards Heath, and, leaving the children with them, my wife and I wandered through the West Sussex Woods. It was a glorious day and *A. paphia* and *L. camilla* were out in strength, with a few *P. c-album,* and the first *M. tithonus* L. on the wing. *G. rhamni* was represented by both imagines and half grown larvae. We walked quietly up to within thirty yards of a Roedeer feeding in a ride, and netted a peculiar assymetrically bleached aberration of *L. camilla* and altogether we enjoyed one of the most idyllic days of the summer. The complete absence of *T. quercus* over one of its favourite oaks was remarkabe however, and once again *A. iris* failed to appear in one of its strongholds. However, Dr A. H. B. Rydon saw *iris* at his favourite spot in the same wood a few days later, as I discovered when I met him and Dr J. Holmes in Alice Holt on 26th July.

In the New Forest *Eumenis semele* L. was just emerging on 27th July, but *A. paphia* and *L. camilla* seemed much scarcer than usual, only about a score of each of the latter were seen throughout the afternoon.

The following evening I looked in at Alice Holt and found that *T. quercus* was flying at last. It was rather cloudy, but these little butterflies were in good numbers around the tops of several oaks.

Weather in early August was again rather changeable, but numbers of *Melanargia galathea* L. and second brood *P. icarus* were flying in Whiteparish Common on the 5th, and *E. semele* and *Plebejus argus* L. were out in strength in the New Forest heaths on the 11th. Thereafter fairly sunny weather commenced, and continued generally for the remainder of the month. I drove down to Swanage on 12th August to see *Thymelicus actaeon* Rott. for the first time. These little butterflies were flying everywhere in one of the coastal valleys nearby, and most of them appeared fairly fresh. *M. galathea* were also in excellent condition, and *N. io* and *Lysandra coridon* Poda newly emerged.

In the West Sussex woods on the 15th, second brood *L. sinapis* were flying, but not surprisingly in this wet summer they

were by no means up to normal strength. *L. camilla* and *A. paphia* were also on the wing, but so worn as to be barely recognisable.

August 22nd was a beautiful sunny day, and we made our first visit to a locality near Stockbridge where some years ago Mr T. Jefferson had found a strong population of *Hesperia comma* L. Having never previously seen this butterfly in anything more than sparse numbers I could hardly believe my eyes when we arrived at this stretch of downland. *H. comma* was flying everywhere over a wide area, and I kept coming across little groups of three or four males laying siege to females resting on the short turf. *T. sylvestris, P. megera, L. coridon* and *P. icarus* were also fairly common; but it was a real pleasure to see the downland skipper in such plenty since I note it is listed among the rare and endangered species of British butterflies.

Another downland species included in this list (put out by the Joint Committee for the Conservation of British Insects) is *Lysandra bellargus* Rott. In early September my wife and I always like to look for this delightful butterfly, and in the last three seasons we have managed to find it in good numbers in half a dozen different localities in East Sussex and Kent. This year however we failed completely, after searching locally on St. Catherine's Hill, Winchester, and on the downs around Westbury and Alton Barnes, Wiltshire.

At the end of September we all travelled north for a visit to Skye. En route we stayed a few days in our old hunting grounds in Argyll. Inspection of several localities for *E. aurinia* in this area revealed healthy populations of larvae; except in one not far from Cill an Inbhir where I could find very little scabious, let alone any webs. However, in past years this colony has often been notoriously lacking in larvae, but still manages to produce a good number of imagines in June. I had had little or no experience of the *aurinia* colonies north of the Firth of Lorne, and a pleasant surprise was in store when we found one of these thick with larval webs over quite a wide area. We had glorious weather while in Argyll, and the scabious flowers provided nectar for plenty of *N. io, A. urticae* and *P. napi.* A lone delapidated *Erebia aethiops* Esp. was seen spending its last days in one of these scabious patches.

On our return I saw my first *Vanessa atalanta* L. of 1972 on buddleia near Winchester on 30th September. I visited this wild buddleia patch once or twice during early October, and saw a few more *V. atalanta* and several fresh *V. cardui*, but both these butterflies were generally quite scarce again this year. In fact after the disastrous June several species were rather low—it was a poor year for *A. iris, C. argiolus* failed to appear in the second brood, and *A. paphia* and *L. camilla* were definitely down on numbers in the New Forest. For the third year running we saw no *Colias croceus* Fourc. On the credit side however, *T. actaeon* seemed to be doing well in Dorset,

and *A. cardamines* was more abundant than usual in the spring.

The high spots of the season for us however were seeing four species of the small fritillaries flying together in Devon, and the fine showing of *H. comma* on a Hampshire down.

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A Guide to Sending Insects for Identification

By V. C. KAPOOR

(Department of Zoology-Entomology, Punjab Agricultural University, Ludhiana).

The identification of insects is fundamental to all research and extension activities in entomology. It can be done easily provided the insect is in a good shape. The observance of the following points will ensure the delivery of the insects in their proper conditions to the insect taxonomist.

1. The insects should be kept in a wooden box (size according to requirement) (fig. 1). Care should be taken that the cork sheet is firmly attached to the bottom of the box. The pins should be firmly fixed on the cork sheet. The bigger speci-

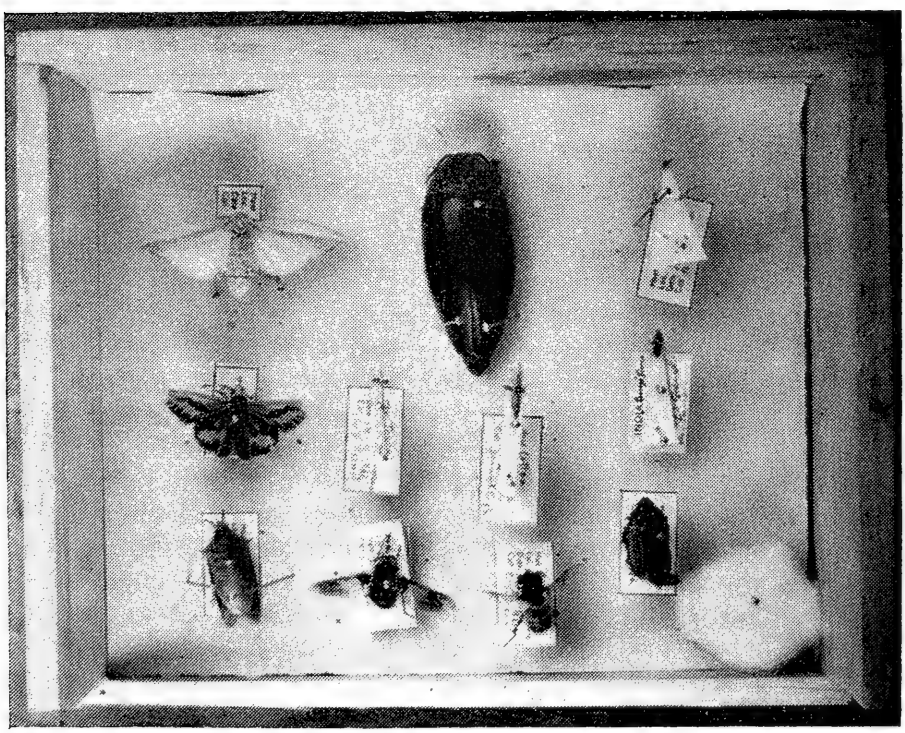

Fig. 1 shows the correct way of pinning the insects in the insect container.

mens should be supported on either side with big pins. This will save these large specimens and also other specimens from being damaged due to swinging. The specimens with "double mounts" should have one additional supporting pin through the tip of pitch a little behind the specimen and in case of specimens mounted with "pointing process" two supporting pins, one on either of the triangle, should be fixed to prevent circular motion. This saves the insects from damage due to swinging of the triangle, or pitch on the supporting pin.

2. A sheet of cardboard cut to fit the inside of the box should be kept over the top of the pinned specimens and the space between this and the lid of the box should be filled with cotton.

3. At least 5-7 cm space should be left in between the insect box and outer container of thick cardboard. The space should be filled up with packing material like wood shavings, crumpled newspaper, etc. The packing should be a little loose to minimise the risk of external shocks from being transmitted directly to the insect box.

4. If there are 2 or more such boxes they all should be tied together and then put in the outer container. This will avoid them from getting damaged due to jarring.

5. The address of the sender should be written on the insect box as well as on the outer container.

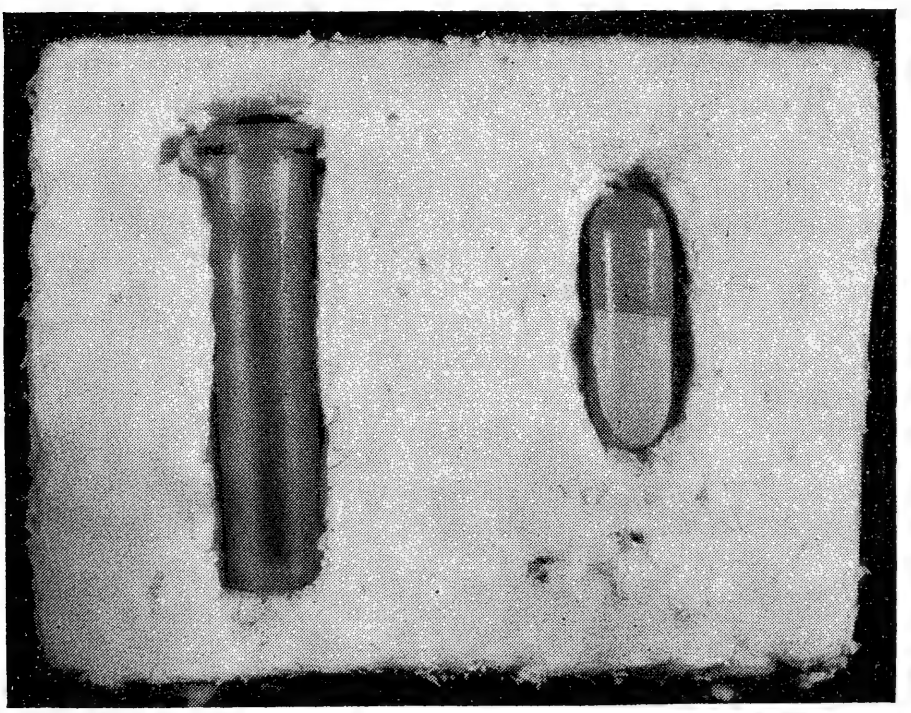

Fig. 2 shows the plastic tube and gelatin capsule placed in the thermocole piece.

6. Instead of directly pinning in the insect box, the specimens can also be sent in gelatin capsules which are easily available at medical shops, and in plastic vials (fig. 2). Small dry insects like jassids and small beetles can be sent in capsules of 2-3 mm length. The capsules are then placed in between the thermocole sheets. Some insects like termites, aphids and small diptera can be sent in 70 per cent. alcohol in small plastic vials (fig. 2). Moths and butterflies should not be sent in alcohol.

Small to medium-sized insects can also be sent in large glass or plastic vials normally of 8 mm length and 3 mm diameter (fig. 3). One or two insects are first pinned to the small cork sheet which is fixed to the cork of the glass vial by two ordinary pins. The cork with the cork sheet is then put in the vial. A narrow passage should be made on one side of the cork and should be plugged with cotton for aeration to avoid growth of mould. A pin is fixed to the end of the cork sheet in such a way that it touches the opposite walls of the glass tube by both of its ends. This keeps the cork sheet in fixed position.

The vials should be arranged flat in a row with enough packing material in between and also the vials and sides of the box. Presence of enough packing material will minimise the risk of breakage of the glass vials due to their striking with each other or with the box. If there are now more vials, second row should be arranged similarly with enough packing materials in order to avoid direct contact with each other.

7. The packing must be labelled as "Fragile", "Handle with Care" to minimize the risk of mishandling by postal services.

8. The insect boxes before packing must be fumigated. The most effective fumigant can be prepared as below:

10 gm napthalene powder+50 ml petrol+0.1 ml carbolic acid.

Loose napthalene crystals should not be kept, as they may spoil the specimens.

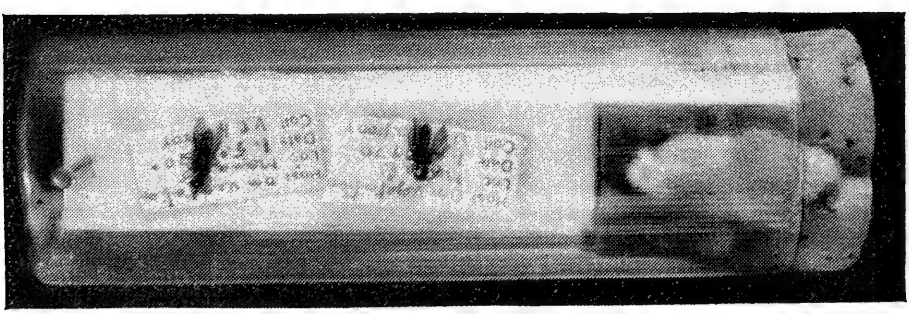

Fig. 3 shows the method of sending insects in glass vials.

9. The vials should not be placed alongwith insects. If this is absolutely necessary, the vial should be fixed with tape on the outside of the box. It is better to put the vial in a separate package.

10. "Parcel post": When sending abroad, it is advantageeous to make a small packet and send it by air mail. Do write "Dried insects for scientific study". On top of the envelope write the following "please don't stamp here", in order to avoid damage due to hard stamping on the position of the envelope exactly below which the specimens lie. By air the parcels go as first class mail usually along with similar small packets and thus will be saved from bumps which would be more when sent by surface mail due to heavy weight. To facilitate quick service from customs, the statement "No commercial value" should be written on the top of the box.

The methods for pinning, setting and labelling have not been discussed here. For this the book entitled "Collecting, Preserving and Studying Insects", by Harold Oldrod may be consulted. For addresses of taxonomists, the book entitled "Zoological Taxonomists of the World", by E. Richard and R. M. Blackwelder, is very useful. For pinning wet dipterous specimens the method of Sabrowsky (1966, *Bull. Ent. Soc. Am.*, **12** (3): 349), may be consulted.

Collecting Again in South Australia

By Rev. P. C. Hawker, F.S.A.

I arrived in Sydney a few days before War began in 1939 and was advised to train for the Anglican Ministry in Adelaide and arrived there in February 1940. During the next 3 years I did some collecting but lack of time and transport did not make this easy.

This year I am again out in South Australia, this time on exchange. The Rector of Brighton has become the Vicar of S. Botolph's Lincoln, and the Lincolnshire Vicar Rector of the seaside suburb some 7 miles from the centre of Adelaide.

Again time is rather against me and these notes are mainly about collecting in the Rectory Garden. Perhaps here it should be noted that Dr Waterhouse's What butterfly is that? (1932) has been my handbook.

The only swallowtail seen has been *Papilio anactus* (Macleay). This I had never seen in South Australia before but Waterhouse notes that it was spreading along the Murray River from the Eastern States and he had seen one in the street of Adelaide. I have seen several in our garden. First seen 25.3.73.

The English *Pieris rapae* is now abundant (alas). It is not mentioned in my edition of Waterhouse. As far as I can recall (having lost my notes made at the time) the first one I saw during my last visit was in 1943. After that it got increasingly more plentiful: or so I remember on my brief visit from Kal-

goorlie, Western Australia, where I was curate at the Cathedral. This species has been flying ever since I arrived in February.

Anaphaeis java teutonia (Fab.) was caught in the garden on 15th April. I had seen one other. I had been expecting it as I had seen quite a number in the City Botanic gardens some days before.

Terias smilax (Donovan). I saw and caught this one specimen on 27th March. Waterhouse says it is common in the North east of Australia but much rarer in South Australia. But it is strange out here (except for a few species) how very few of each species one sees in a day's collecting.

Danaida plexippus L. This is known locally as the 'Wanderer' and both sexes are common. In early March we went up Morialta valley to the falls. My wife and I had previously visited Cudlee Creek . . . a delightful name but very dry at that time. And so at Morialta there was no water coming down the falls. But there were myriads of *plexippus* and now and then they could be caught with the fingers. Also flying with *plexippus* was *Danaida chrysippus petilia* (Stoll). Waterhouse says that very few specimens have been taken in South Australia and I certainly had never seen it in this State before. But it is almost as common as the larger Wanderer. On 4th April I paid a short visit to Hallett's cove which is at the end of our railway line a mile or two from Brighton. There just above the High Water mark *petilia* and *plexippus* swarmed. During my wartime visit to Australia I had seen many of the larvae of *plexippus* and one had seen the male using its abdominal brushes to get scent from the androcina. But so far no luck in this.

Precis vallida calybe (Godart) was first seen in the garden on 27th March and since has been seen quite a number of times but always singly.

Purameis itea (Fab) was seen in the Mount Lofty ranges on 11th April and one specimen was seen sunning itself on the wall of the Rectory a few days later.

Heteronympha merope merope (Fab.) is said by Waterhouse to be very common at the coast and rarer at altitudes. But in the ranges at Crafers we have found it flying even in rain but only one specimen has been seen in our garden.

Zizeeria labradus labradus (Godart) seems common in our garden and everywhere else throughout our visit.

Lampides boeticus damoetes (Fab.) Just one specimen taken in the garden, its blueness and speed making a contrast to *labradus*. 15.4.73.

Padraona flavovittata hypochlora (Latreile). First seen in the garden on 25th March. Very common and alas the only Hesperid seen. I say this because I had had great hopes of taking again *Motasingha atralba atralba* (Tepper) of which I had taken three specimens (now in the Natural History Museum, London) on my previous visit at Port Noarlunga. It

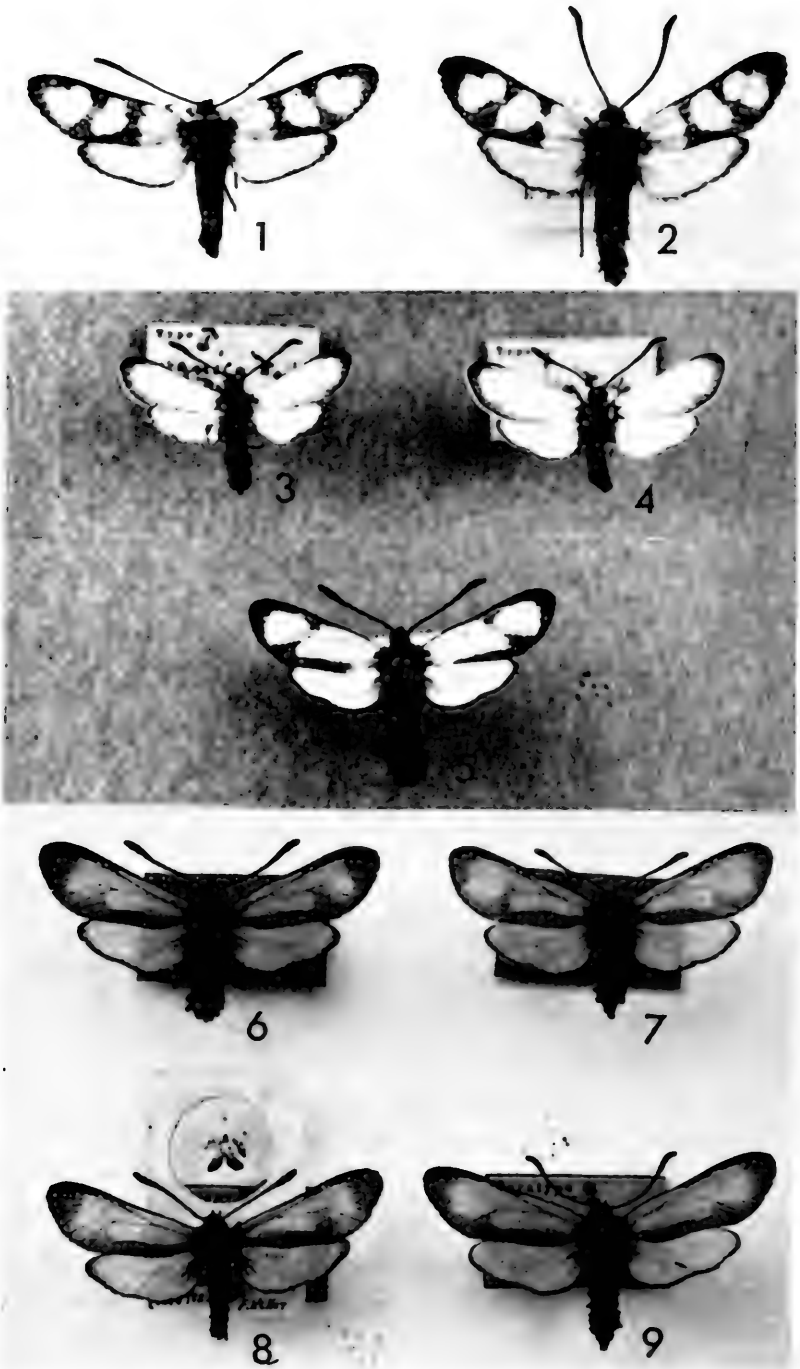

Fig. 1. *Zygaena cuvieri* Boisduval ♂, Tatvan, wing span 35 mm.
Fig. 2. *Z. cuvieri* Boisduval ♂, Haj Omran, wing span 36 mm.
Fig. 3. *Z. punctum vanica* n. ssp., holotype ♂, wing span 24 mm.
Fig. 4. *Z. punctum vanica* n. ssp., allotype ♀, wing span 27 mm.
Fig. 5. *Z. cambysea rosacea* Romanoff ♂ (near), wing span 32 mm.
Fig. 6. *Z. smirnovi tatvanica* n. ssp., holotype ♂, wing span 31 mm.
Fig. 7. *Z. smirnovi tatvanica* n. ssp., allotype ♀, wing span 31 mm.
Fig. 8. *Z. smirnovi tatvanica* n. ssp., paratype ♂, wingspan 31 mm
Fig. 9. *Z. smirnovi tatvanica* n. ssp., paratype ♀, wing span 33 mm

was there that Dr Waterhouse and Brigadier Evans caught, on a barren cliff overlooking the sea, more specimens than in all the world collections. But alas it has become a seaside resort and the barren cliff is now all built over. And though I have looked for Motasingha in other bleak places it does not seem to be there. Twelve species in a South Australian back garden does not sound a lot but the changes in 30 years are worth recording.

St. Judes Rectory, 14 Beach Road, Brighton 5048,
South Australia.

On the *Zygaena* Fauna of the Neighbourhood of Lake Van in Asia Minor (Lep., Zygaenidae)*

By Hugo Reiss and Günther Reiss

In 1970 and 1971 Mr F. Schubert collected in Asia Minor around the neighbourhood of Lake Van and sent us the *Zygaena* which he found. We thank him here for his kindness.

1. *Zygaena* (*Mesembrynus*) *cuvieri* Boisduval.

H. Reiss wrote on *cuvieri* in the year 1932 and enlarged on Boisduval's original description. The probable type locality of the species, Amadia (Environs d'Amaden), Iraq, lies about 190 km (as the crow flies) south of Lake Van. Tremewan (1961) figured the type ♂ of *cuvieri* Boisduval with a wing span of 40 mm. We have before us: 1 ♂, Tatvan, Lake Van, 1800 m, 1-13.6.1970, leg. Schubert, wing span 35 mm, and 2 ♀♀ from the same locality, 6.1971, leg. Schubert, wing span 30 mm, 33 mm.

These specimens could stay next to the type population, likewise 1 ♂ labelled Haj Omran, Rayat, Iraq, 5000-6000 ft., 12-13.6.1956, leg. Wiltshire, wing span 36 mm, in coll. Reiss. Rayat lies about 140 km (as the crow flies) east of Amadia. 1 ♂ from Tatvan and 1 ♂ from Haj Omran are illustrated (figs. 1, 2).

2. *Zygaena* (*Mesembrynus*) *punctum* Ochsenheimer ssp. **vanica** n. ssp.

We have before us: 1 ♂, Bitlis, Lake Van, 1700 m, 6.6.1970, leg. Schubert, and 2 ♀♀, Tatvan, Lake Van, 1800 m, 6.1971, leg. Schubert.

In facies these specimens differ from all races of *punctum*. As far as is known it is the most easterly locality for the species in Asia Minor. The wing span in the ♂ is 24 mm, in the ♀♀, 26 and 27 mm. The antennae and body are blue-black, with a slight sheen. The normally whitish patagia are almost

*The order follows the Systematic Catalogue of the Genus *Zygaena* Fabricius (Lepidoptera: Zygaenidae) by Hugo Reiss and W. Gerald Tremewan (1967).

black. the thorax is not whitish haired an dthe tegulae are only tipped with white at their apices. The warm yellowish red of the forewings covers almost the whole of the forewings in the spot area. the apex, termen and inner margin remaining blue-black. with a slight sheen. The fringes are yellow. The red of the hindwings is somewhat less mixed with yellow. The blue-black hindwing border is only distinct at the apex. Underside as upperside, only somewhat matter.

We name this race ssp. **vanica** n. ssp. after the area where it occurs. The illustrations (fig. 3, 4) show especially the size, the wing shape, the length of the antennae, the form of the red spot area and the hindwing border.

Holotype ♂. wingspan 24 mm, allotype ♀, wingspan 27 mm, and paratype ♀ in coll. Reiss.

Z. punctum anatoliensis Reiss from Ak-Schehir. 1000-1500 m. Asia Minor. and *punctum malatina* Dziurzynski from Malatia. Taurus. Asia Minor. are on average smaller. and show. especially in the ♀ distinct white patagia and distinct whitish hairing on the thorax. The wing shape is mostly pointed.

3. *Zygaena* (*Mesembrynus*) *cambusea* (Lederer) ssp. *rosacea* Romanoff.

This subspecies was described from Istissou near Erivan, Armenia. The specimens before us, 1 ♂, Tatvan, 1800 m, Lake Van, 1-13.6.1970, wing span 32 mm, 1 ♀ with same data, wing span 30 mm (worn) and 1 ♂ with same data, 6.1971, wing span 25 mm (worn), all leg. Schubert, stay next to ssp. *rosacea*. The ♂ from Tatvan, 1-13-6.1970, wing span 32 mm, is illustrated (fig. 5). Further material is awaited.

4. *Zygaena* (*Mesembrynus*) *smirnovi* Christoph ssp. **tatvanica** n. ssp.

H. Reiss (1933) has enlarged upon the original description of *Zygaena smirnovi* Christoph and figured 1 ♂ from Achal Tekke, Aschabad, wing span 30 mm, coll. Reiss. The likewise illustrated ♂ of ssp. *persica* Burgeff (Cotype), from North Persia, wing span 34 mm, coll. Reiss, that was acquired from the firm of Staudinger and Bang-Haas, does not quite agree with the description of *persica* Burgeff (1926), because the spots 5-6 of the forewings are not completely isolated from the remaining spots. The locality of ssp. *persica* Burgeff (collector Tancré) is not exactly known. Kuldsar, north-east Persia, is likewise given as a locality. The typical *Z smirnovi* from Achal Tekke, Nuchur, and ssp. *persica* from north Persia, are described and figured by Reiss (1930) in Seitz: The Macrolepidoptera of the World, Supplement 2. Haaf (1952) figured the ♂ genitalia of *smirnovi persica* Burgeff from Kuldsar, Persia, ex Bavarian State collection. H. Reiss & W. G. Tremewan (1960) illustrate typical *smirnovi* from Nuchur, cotype ♂, ex coll. Christoph, a *smirnovi* ♂ from Aschabad, ex coll. Reiss, and the genitalia of both these specimens. A further locality

of *smirnovi* from near Hasankif, in the Tacht i Suleiman group of the Elburz Mountains was recorded by H. Reiss (1937).

Mr Schubert sent us 3 ♂♂, 3 ♀♀, labelled: Tatvan, 1800 m, 1-13.6.1970, Lake Van region, Asia Minor, and 14 ♂♂, 11 ♀♀ from the same locality, 6.1971. The genitalia preparations and photographs of same 3 ♂♂, 1 ♀, kindly prepared by Mr F. Heller, Natural History Museum, Stuttgart, show that the specimens belong to *Zygaena smirnovi* Christoph and represent an undescribed subspecies of that species. Wing span: 1 ♂ 26 mm; 3 ♂♂ 27 mm, 1 ♂ 28 mm, 2 ♂♂ 29 mm, 2 ♂♂ 30 mm, 7 ♂♂ 31 mm, 1 ♂ 32 mm; 2 ♀♀ 27 mm, 1 ♀ 29 mm, 3 ♀♀ 30 mm, 5 ♀♀ 31 mm, 3 ♀♀ 33 mm.

The ground colour of the body and the antennae is black with a light blue sheen. The hairing of the body is thin. The strong antennae are heavily clubbed in the ♂♂; in the ♀♀ the antennae are weaker and less heavily clubbed. The legs are black with a bluish sheen. The wing shape is sometimes pointed. The dark ground colour of the forewings has a blue sheen in the ♂♂; in the ♀♀ it is more inclined to a bluish green sheen. The red of the forewing streaks is a delicate warm light carmine, the red of the hindwings is even more delicate, almost translucent; the basal area of the hindwings is more strongly scaled. The forewing streaks are confluent. Spot 1 runs along the costa as far as spot 3, the lower streak (spots 2-4) is joined to spot 1 by red scaling, likewise the streak consisting of spots 3-5-6. The veins are dusted with red scaling. The axe-shaped spots 5-6 generally show the dilated characteristics of *smirnovi*. The pale blue-black hindwing border is more or less strong only at the apex; in 1 ♂, 1 ♀ it runs to the tornus. In 4 ♀♀ the hindwing border is lacking. The fringes are black and always darker than the ground colour of the wings; in 1 ♀ the fringes are shaded with yellow The underside of the wings is as the upperside, only somewhat matter. We name this good race ssp. **tatvanica** n. ssp. after the locality. Holotype ♂, wingspan 31 mm, allotype ♀, wingspan 31 mm, and all the paratypes in coll. Reiss.

The illustrations (figs. 6-9) show especially the size, wingshape, form of the antennae, the forewing streaks and the hindwing border.

Zygaena smirnovi smirnovi Christoph and *smirnovi persica* Burgeff differ from *tatvanica* through the size, wingshape, and the somewhat different streak formation of the forewings. *Zygaena purpuralis* Brünnich and its races, likewise *Zygaena diaphana* Staudinger and its races, show different genital structure. Biological data on *smirnovi* Christoph and its races are desirable to confirm its specific status.

5. *Zygaena* (*Agrumenia*) *loti* Denis & Schiffermüller ssp. **tatvanensis** n. ssp.

We received 4 ♂♂, 3 ♀♀, labelled Asia Minor, Lake Van

region, Tatvan, 1800, 6.1971, leg. Schubert. Wingspan: 1 ♂, 27 mm, 3 ♂♂ 28 mm; 1 ♀ 27 mm; 1 ♀ 28 mm; 1 ♀ 29 m.

The ground colour of the body and antennae is black with a slight blue-green sheen. The hairing of the body is weak. The double yellowish patagia is indicated. The tegulae are tipped with yellowish. The antennae are more strongly clubbed in the ♂♂ than in the ♀♀. The legs are yellow on the outer sides. The wing shape is generally pointed. The blue-black ground colour of the forewings is present only at the apex on both the upper and underside. The red of the forewing spots is a very delicate carmine-rose, the red of the hindwings is even more delicate, almost translucent. Spot 1 of the forewings runs along the costa, which in the ♀♀ is dusted with yellow, as far as the small spot 3 with which it is joined by red scaling. The larger, almost square spot 4 is separate from spot 3 and has the tendency to be lightly connected to spot 2 in the male. The large almost triangular spot (5-6) is always free and has no connection with spots 3 and 4. The forewings are, with the exception of the blue-black apex, dusted with yellowish scaling. The hindwing border is absent. The fringes are darker than the ground colour of the apex of the forewings, outwardly tipped with yellow. The underside is as the upperside but somewhat matter.

We name this race ssp. **tatvanensis** n. ssp. after the locality. Holotype ♂, wingspan 28 mm, allotype ♀, wingspan 28 mm, and all paratypes in coll. Reiss.

The illustrations (figs. 10, 11) show especially the size, the form of the wings, the antennae and the spot pattern.

Zygaena loti antiochena Staudinger from Antiochia, Asia Minor, and *loti phoenicea* Staudinger from Malatia, Taurus, Asia Minor, are thickly scaled and show very strong dusting of scales in the confluent forewing spots.

Zygaena loti anatolica Burgeff from Eski-Shehir, southern Anatolia, Asia Minor, is on average smaller, and has above all a somewhat warmer red and smaller forewing spots, especially spots 5-6. It shows a stronger inclination to confluence of the forewing spots. The yellowish scaling of the forewings is lacking in the ♂ or is only slightly represented. A narrow blueblack hindwing border is also present.

Zygaena loti eriwanensis Reiss from the vicinity of Erivan, Armenia, and *loti aktashi* Koch from Khashkhash Dagh, Aktash, Kars, West Armenia are above all more strongly scaled, show a warmer red and reduced spots 5-6 on the forewings. The yellowish scaling of the forewing is lacking in the ♂ or is only lightly represented.

Zygaena loti suleimanica Reiss from Tacht i Suleiman, Hasankif, Elburz Mountains, Northern Iran, 1000 m, is larger with more pointed wings. It has smaller forewing spots, especially spots 5-6. The red of the forewings is a warm, more mixed with yellow, carmine-red and the hindwings show a dark rose-red. The yellowish scaling of the forewings is lacking and is replaced by the yellowish edging of the spots.

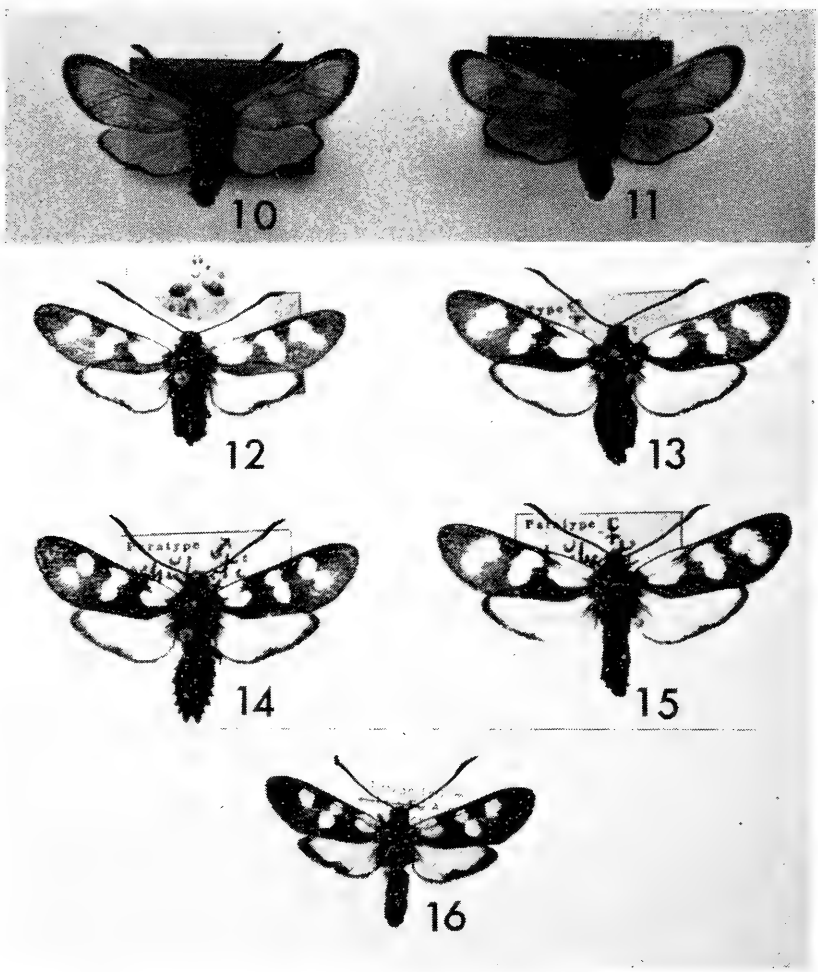

Fig. 10. *Z. loti tatvanensis* n. ssp., holotype ♂, wing span 28 mm.
Fig. 11. *Z. loti tatvanensis* n. ssp., allotype ♀, wing span 28 mm.
Fig. 12. *Z. filipendulae schuberti* n. ssp., holotype ♂, wing span 31 mm.
Fig. 13. *Z. filipendulae schuberti* n. ssp., allotype ♀, wing span 35 mm.
Fig. 14. *Z. filipendulae schuberti* n. ssp., paratype ♂, wing span 36 mm.
Fig. 15. *Z. filipendulae schuberti* n. ssp., paratype ♀, wing span 36 mm.
Fig. 16. *Z. lonicerae* Scheven ssp. ♂ Tatvan, wing span 27 mm.

A narrow blue-black hindwing border is present.

6. *Zygaena (Zygaena) filipendulae* Linnè ssp. **schuberti** n. ssp.

We received 1 ♂ 1 ♀, labelled Asia Minor, Lake Van region, Bitlis, 1700 m, 6.1970, leg. Schubert, and 6 ♂♂ 6 ♀♀ labelled Asia Minor, Lake Van region, Tatvan, 1800 m, 6.1971, leg. Schubert.

Wingspan: 1♂ 30 mm, 2 ♂♂ 31 mm, 2 ♂♂ 32 mm, 2 ♂♂ 33 mm; 1 ♀ 31 mm, 5 ♀♀ 35 mm, 1 ♂ 36 mm. The dark ground colour of the body, the antennae and the legs is shining blue-black. The hairs of the body are short. The antennae are more lightly clubbed in the ♀♀ than in the ♂♂. The wing shape is pointed. The black ground colour of the forewing shows a blue sheen; in some ♀♀ a blue-green sheen. The red of the forewing spots, which are confluent in pairs—1-2, 3-4, 5-6, and the hindwings, is a light warm carmine-red. Spot 1 runs along the costa, spot 2 likewise shows an inclination to confluence, so that both almost reach spots 3 and 4 but are separated by the dark ground colour. Spot 3, which is confluent with spot 4, sometimes inclines to be enlarged towards spots 1-2. The largest spot of the forewings is the rounded spot 5, which is connected to the generally smaller but likewise rounded spot 6. In 3 ♀♀ spot 5 is so strongly enlarged, that spots 5 and 6 form a broad band. Only in 1 ♂ with reduced forewing spots is spot 6 so small that it is separated from spot 5 by the dark ground colour. In 1 ♀, spot 2 narrowly reaches spots 3-4. The blue-black hindwing border is narrow, being strongest at the apex and reaching the tornus. Towards the tornus a small blue-black indentation is found, especially in the ♂♂. The fringes are black. The underside of the forewings is somewhat matt, and in the spot area is covered with thick red scaling which is so dense in the ♀♀ that the spots are indiscernible.

We name this characteristic race ssp. **schuberti** n. ssp. after its collector. Holotype ♂, Tatvan, wing span 31 mm, allotype ♀, Tatvan, wing span 35 mm, and all paratypes in coll. Reiss.

The genitalia preparation and photograph of 1 ♂ of ssp. *schuberti* kindly prepared by Mr F. Heller, Natural Museum, Stuttgart, are identical with the genitalia of *filipendulae*.

The illustrations (figs. 12-15) show the size, wing span, the form of the antennae, forewing spots and hindwing border.

Zygaena filipendulae syriaca Oberthür from the region of Akbès, Syria, and *filipendulae hadjina* Rebel from Hadjin, Taurus, Asia Minor, are larger and more robust. The sheen on the body and forewings is weaker. The red is duller. The forewing spots 3 and 4, likewise 5 and 6, are separate. The red streak on the underside of the forewing is lacking. The blue-black hindwing border is broader.

Zygaena filipendulae anodolitia Reiss from Ak-Schehir

shows a weaker sheen on the body and forewings. The red is brilliant. The hindwing border is narrow. The forewing spots are smaller, spots 5 and 6 are just about separate.

Zygaena filipendulae kulpiensis Reiss from Kulp, West Armenia, Asia Minor, is smaller. The sheen on the body and forewings is weaker. The red is rose coloured, hardly light. The hindwing border is quite narrow.

Zygaena filipendulae zangezurica Holik & Sheljuzhko from the village of Ochtshi near Kafan Zangezur Mountains, Nachitshevan, Russian Armenia, 2,300-2,500 m is, according to the description, more strongly haired on the body and without any sheen. The red is darker. The forewing spots are smaller. The hindwing border is broader. On the underside the red dusted spot area is scarcely noticeable.

7. *Zygaena* (*Zygaena*) *lonicerae* Scheven ssp.

We have before us 1 ♂, labelled Asia Minor, Lake Van region, Tatvan, 1800 m, 6.1971, leg. Schubert. Wingspan 27 mm. This specimen is illustrated (fig. 16). Biological studies should follow and further material must be obtained.

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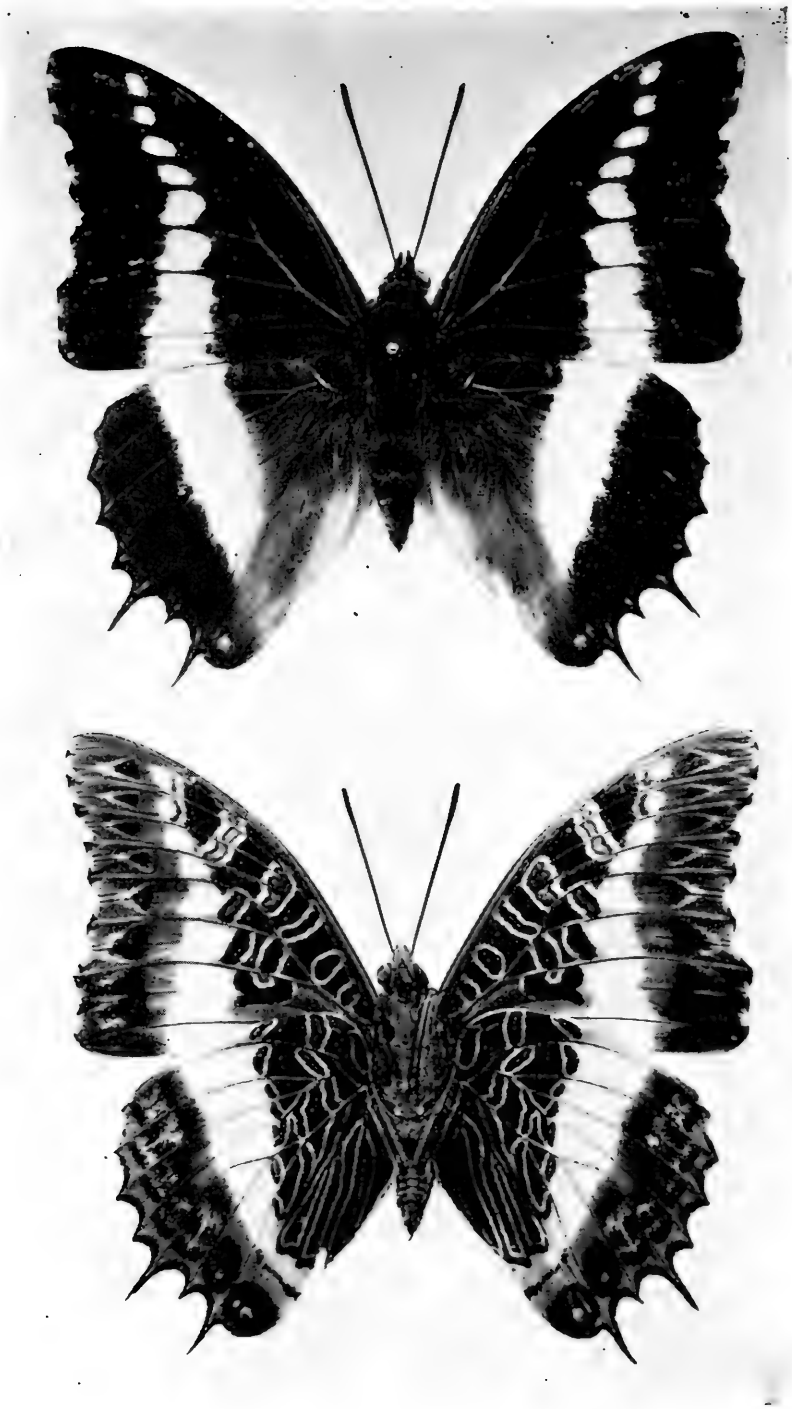
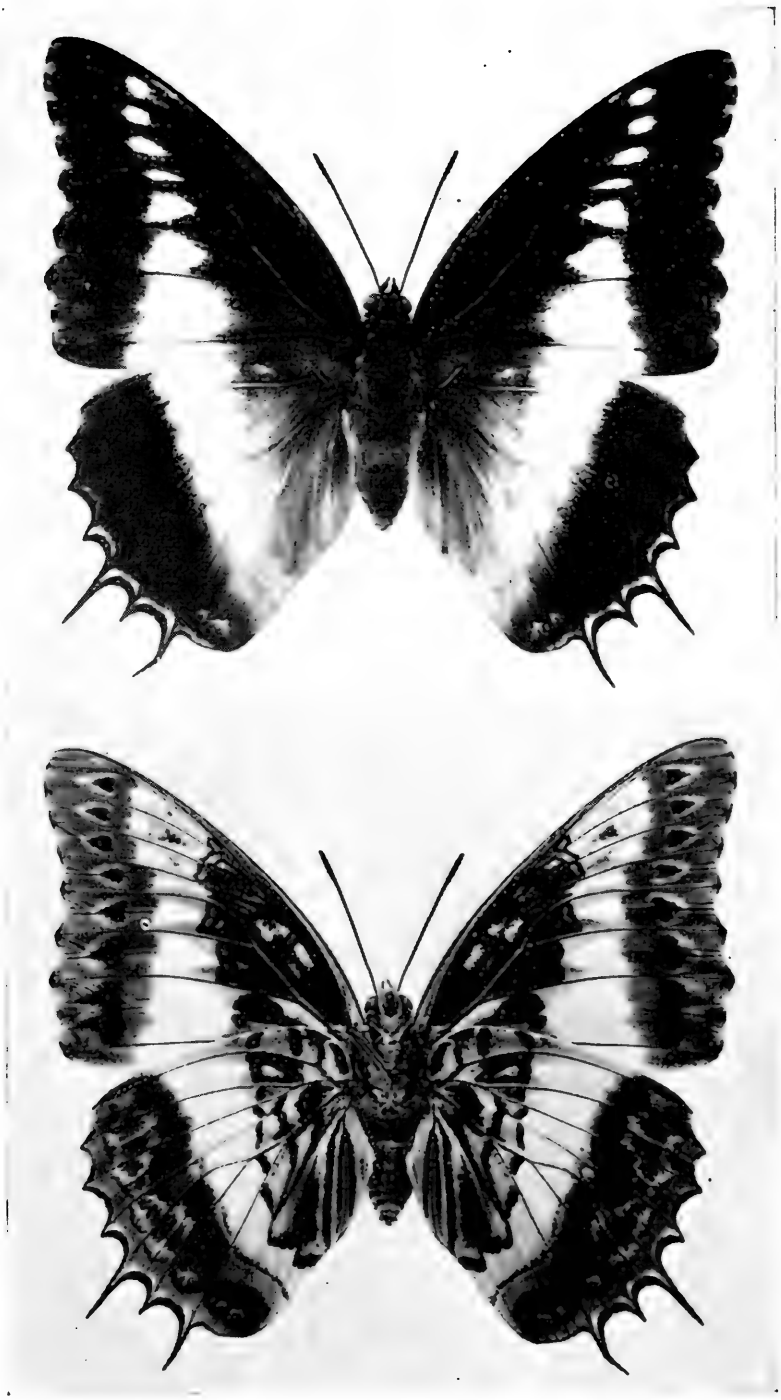
Hugo Reiss, 7 *Stuttgart* 1, *Traubenstrasse* 15 Bl.
Dr Günther Reiss, 7 *Stuttgart* 1, *Fritz-Elsas Strasse* 26.



Charaxes brutus alcyone Stoneham
(typical) upper and under side.
Photo. by Robert Smiles.



Charaxes brutus alcyone f. *nigribasalis* f. nov.
upper and under side.
Photo. by Robert Smiles.

Charaxes brutus Cr., *alcyone* Stoneham, f. *nigri-basalis* f. nov. (Lepidoptera, Nymphalidae)

By D. G. Sevastopulo, F.R.E.S.

Upper surface of both wings similar to the normal.

Under surface:—Area external to the transverse discal white band normal, the white band itself appearing slightly wider than normal on the forewing due to the disappearance of the uppermost brown markings external to the last white-bordered black mark in the normal, and with faint streaks of chestnut scaling in interspaces 4, 5 and 6.

Basal markings of the forewing entirely black and white. The cell black with two short paired longitudinal white streaks, with a very faint white line transversely above and below the lower pair. The bases of interspaces 2, 3, 4, 5, 6 and 7 filled in with black with a faint whitish submarginal line, and a white speck in 2 and 3. Interspace 1 with a large black spot surrounded by white.

Basal markings of hindwing with the normal brown markings reduced to a slight patch of scaling on either side of the pre-costal vein, a faint streak parallel to the inner margin in interspace 1a and a more prominent streak in interspace 1. Otherwise the normal black markings slightly broader and the white extended to replace the normal brown.

The markings are extremely intricate and are probably best understood by studying the figure.

Three specimens, all females, of this very striking form were caught in fermented fruit traps in August 1972 at Nyali, a residential estate on the North Mainland immediately adjacent to Mombasa Island, by Commander W. A. E. Hall, R.N., at that time commanding the Kenya Navy, and his son Nigel. Two of the specimens were perfect and were preserved, one subsequently being very kindly presented to me, and which I designate as holotype. It is being presented to the British Museum (Natural History) and bears a hand written label 'Beach Rd., Nyali. August 1972'. The second specimen is retained in the Halls' collection.

The third specimen was in a very ragged condition and was, most unfortunately, released instead of being kept for eggs, which might have given some clue to the genetics of this form. Seeing that all three specimens were caught in the same small area and at approximately the same time, there can be little doubt that they were all members of the same family. Trapping has been continued in the area in the hope that the same gene combination may occur, but so far without success.

Mombasa, 9.xii.72.

Notes on the Butterflies of Corsica, 1972

By A. L. PANCHEN, M.A., Ph.D., and M. N. PANCHEN

(Concluded from page 153)

Further up the valley, where a stream from Monte Rotondo joins the Restonica, we saw many specimens of *Fabriciana elisa*, which is endemic to Corsica and Sardinia. The altitude was perhaps over 1000 m and the habit of the butterfly much more than that of a woodland form as one would expect of *A. paphia* at home. Bretherton and De Worms noted that *F. elisa* was beginning to decline in numbers by August 2nd but the specimens we took on August 12th were very fresh in appearance. We followed the stream up a little way from the road and there *F. elisa* and *A. paphia* were flying together and settling on rocks in the stream, being particularly attracted to large dark-centred daisy-like Compositae. Thus *F. elisa* was apparently absent from the lower more open part of the valley and we saw no *P. pandora* higher up.

In the nearby Gorges du Tavignano just out of Corte we again encountered *Limenitis reducta* flying in the partially dried-out river bed and also *Brintesia circe*.

Vizzavona was disappointing. The tiny hamlet, consisting mostly of hotels, is situated in a clearing in the forest and the station yard is noted by Bretherton and De Worms as being particularly good collecting. We took only one very worn *P. c-album* although *Pyronia tithonus* was present. Another worn *P. c-album* was taken in a small roadside clearing near our camp in the pine and chestnut forest. The two specimens seem to have been representative of the first brood unlike those seen at Calvi (see below).

Pararge aegeria was also present in the forest, but the only numerous species we saw was *A. paphia*. One group of bramble thickets bordering a woodland path had many specimens including one or two f. *valesina*.

More profitable than Vizzavona itself was a trip on August 16th to the village of Bocognano, some 10 km. SW of Vizzavona. There in a field adjoining an abandoned orchard *A. paphia* was again common and we took a good *valesina* specimen. *Brintesia circe* was also very numerous and *Hipparchia aristaeus* was common. We took one specimen of *Colias crocea* f. *helice* (again as at Calvi the only specimen of the species we saw) and *Hipparchia neomiris*. We also took two specimens of *Iphiclides podalirius*, a badly worn and tattered female and a male in fresh condition. They must surely have represented different generations, but the female, like that from St. Florent, was too worn to confirm the characteristic pale yellow colour of the first brood.

We were disappointed that we did not knowingly see *Papilio hospiton* Gene during our stay on Corsica. We saw several *Papilio* swallowtails from the car but usually at low altitudes and it is almost certain that they were *P. machaon*.

We looked for *P. hospiton* on open slopes with fennel near Corte but in vain. We also did not see two other notable endemic forms *Pieris napi dubiosa* Rober and *Aglais urticae ichnusa* Hb. In the case of the latter we were almost certainly between broods, but like Bretherton and De Worms, we failed to find any larvae or pupae on nettles (or these of *Inachis io*).

Our list of species taken or seen is as follows:

Papilio machaon L.
Iphiclides podalirius (L.)
Leptidea sinapis (L.)
Pontia daplidice (L.)
Pieris rapae (L.)
Pieris brassicae (L.)
Gonepteryx cleopatra (L.)
Gonepteryx rhamni (L.)
Colias crocea (Geoffrey) f. *helice*
Charaxes jasius (L.)
Limenitis reducta Staudinger
Issoria lathonia (L.)
Fabriciana elisa (Godart)
Argynnis paphia immaculata Bellier
Pandoriana pandora (Schiff.)
Vanessa cardui (L.)
Vanessa atalanta (L.)
Polygonia c-album (L.)
Pararge aegeria (L.)
Lasiomatta megera paramegaera (Hb.)
Coenonympha corinna (Hb.)
Coenonympha pamphilus (L.)
Pyronia tithonus (L.)
Maniola jurtina hispulla Esper.
Brintesia circe (Fabr.)
Hipparchia aristaeus aristaeus (Bonelli)
Hipparchia neomiris (Godart)
Lycaena phlaeas (L.)
Syntarucus pirithous (L.)
Celastrina argiolus (L.)
Plebejus argus corsicus Bellier
Aricia agestis (Schiff.) f *calida*
Polyommatus icarus (Rott.)
Carcharodus alceae (Esper)

Discussion

Two characteristic features of the Corsican butterfly fauna are emphasised by Bretherton and de Worms, the paucity of species and the high proportion of endemic species and sub-species. The endemic forms are generally not confined to Corsica but are endemic to the land surrounding the Tyrrhenian Sea, i.e., Corsica, Sardinia, Elba and the lesser islands and occasionally mainland Italy and Sicily.

Argynnis paphia immaculata Bellier is a very characteristic endemic sub-species differing from *A. paphia paphia* in the reduction of the "silver-washing" in the females and its virtual loss in the males (Bretherton and De Worms, 1963), a general reduction in the upper hind wing pattern but a golden suffusion and often a somewhat darker postdiscal area with better defined spots. It is endemic to Corsica, Sardinia, Elba and Giglio with transitional forms reported from Sicily and elsewhere (Higgins & Riley, 1970).

There was considerable variation in the few specimens we took. Of three males, all from Corte, two lack the silver wash but differ from one another in the distinctness of the under hindwing lines and post-discal spots; the third has the silver wash developed to some extent but not to the degree seen

in typical English specimens. Found elsewhere, it would probably be regarded as transitional. The same type of variation is visible in the females. One fine large normal female from Vizzavona has the silver washing as well developed on the discal and postdiscal stripes as most English females. Three other normal females (all from Corte) continue as a graded series, the last having virtually no silver. Three *valesina* females show a similar range. However, all the Corsican specimens of both sexes lack the pale lilac background in the postdiscal and marginal areas seen in English specimens and have a general greenish-gold background over the underside of the hindwings.

We noted, as did Bretherton and De Worms, that the commas, *Polygonia c-album,* appeared rather like the British spring brood form *hutchinsoni.* This applied particularly to the two probably first brood specimens from Vizzavona which had even more reduced upper markings than *hutchinsoni.* However, even 5 fresh specimens from Calvi, while varying in their fulvous colour from almost as pale as the Vizzavona specimens to a colour approaching that of English summer forms, had pale *hutchinsoni*-like underwings. Only the specimen caught in the trap at Calvi had the very dark brown undersurfaces seen in second brood English forms.

Like Bretherton and De Worms, we could see little difference between the *Pararge aegeria* of Corsica, listed by them as *P. a. sardoa* Verity, and typical *P. argeria aegeria* from southern France. Our Corsican specimens are perhaps more heavily marked. However, our one female *L. megera paramaegera* is very distinct from the type subspecies, with the forewing postdiscal striae absent behind the middle S2.

Our specimen of *Coenonympha pamphilus* seem to accord better with form *latecana* Verity (*vide* Higgins & Riley) than with the western Mediterranean *C. pamphilus lyllus* Esper of Bretherton and De Worms, Corsican list.

By far the most interesting case of intraspecific variation concerns our specimens of the Corsican Heath *Coenonympha corinna* Hb. Unfortunately we did not appreciate the significance of this until we had left Corsica, and we collected only half a dozen specimens. The species is normally divided into two subspecies, *C. corinna corinna* (Hb.), endemic to Corsica and Sardinia, and *C. corinna elbana* Staudinger from Elba and the Italian mainland.

The difference between the two subspecies parallels that between the extremes of the related *C. tullia* whose three indigenous subspecies form a stepped N.-S. cline in Great Britain (Ford,1957, Higgins & Riley, 1970). Typical *C. c. elbana* is distinguished from *C. c. corinna* by the number and development of the postdiscal ocelli, particularly on both sides of the hindwing. Typical *elbana* have 3 blind ocelli on the upper hindwing of which two are very poorly developed. On the under surface there are open ocelli in S1, s2, s3, s4 and a large one in s6. There is usually also one in s5.

In *C. c. corinna* the spot pattern is much reduced. There is rarely more than one spot on the upper hind wing. The ocelli on the lower hind wing are very variable but if developed usually confined to s2, 3, 4 and 6. Occasionally,however, specimens occur from Corsica with ocelli in s1 and s5.

Our specimens from Corsica have one ocellus or none on each upper hindwing together with the irregular pale post-discal band characteristic of *C. c. corinna* below, but in the pattern of under hindwing ocelli they fall clearly into two groups. The three highland specimens, all from the Restonica valley, are typical Corsican forms, with minute ocelli confined to s2, s3, s4. The lowland specimens on the other hand (2 from St. Florent, 1 from near Calvi) approach the *elbana* condition. A large male from St. Florent has under hindwing ocelli at all six sites (including s1b and s5), although these are not so large as in typical *elbana*. There is also a second ocellus anterior to that on the under forewing, often found in *elbana*. The other two, both females, lack the s5 spot and the second forewing ocellus, but have a vestigial s1 spot.

One of us (A.L.P.) recently had the opportunity to inspect all the specimens of *Coenonympha corinna* in the British Museum (Natural History) in both the national and Rothschild collections. Of some sixty specimens from Corsica only two specimens had ocelli on unh. s1 and s5. Both unfortunately were unlocalised. The only specimen bearing 3 spots on each up.h. was from Ajaccio and thus probably a relatively lowland specimen.

No other specimen in the Museum has data indicating that it was from a lowland locality but many came from the central mountain regions.

Our sample is obviously ridiculously small, but systematic collection over the whole island might establish that the lowland specimens approach the *elbana* condition whereas those from the central mountains are typical or extreme *corinna*.

We have also, of course, sampled only one of the two annual broods and many other explanations of the differences between our tiny samples are possible, but the idea of an altitude-dependant cline is appealing. We hope to return to Corsica in the not too distant future to investigate this problem fully.

Acknowledgements

We are indebted to Mr R. Vane-Wright of the Department of Entomology, British Museum (Natural History) for making available the Museum's specimen of *C. corinna* to us. We should also like to thank the members of our family who helped us. Mrs Rosemary Panchen made the *Charxes* trap and typed this manuscript. Julian, Harriet and Joanna Panchen caught some specimens.

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Notes and Observations

FLIGHT HABITS OF HYDRIOMENA FURCATA THUNB. (LEP.: LARENTIINAE).—I have just re-read an appeal by W. C. Minnion (in *Ent. Rec.*, **71**: 87), for records of the daylight flight of "The July High-flier" (*Hydriomena furcata* Thunb.) which appears to have different flight-habits depending on the locality and to fly by day in West England but only by night in East England.

Here, about midway along the North French coast, it does both, and in some spots is very active by day. It is a common woodland species here; there are some woods on level plateau, but most are on valley slopes too steep for cultivation. These steeply sloping, very shady woods, are often coppiced and have very scanty undergrowth; the trees are of many deciduous species, but where the following observation was made were *Salix, Betula, Fraxinus, Quercus* and *Fagus*, mostly tall, close-growing, with a high leafy canopy and few lower branches. On 13th July 1969, on a hot summer's day, in the deepest shade of such a wood, on a steep north-west facing slope, large numbers of this moth were seen flying and samples were caught for identification; they were commonest on the lower half of the slope. The moth also comes commonly to light in July in all woodland habitats, whether flat or sloping, in this region—E. P. WILTSHIRE, 23, av. Foch, 76600, Le Havre, France. 20.iii.1973.

HYLES EUPHORBIAE L.: SPURGE HAWK IN SURREY.—I had the great good fortune to take a perfect male of *Hyles euphorbiae* L. in my garden trap this morning. Following a very warm day the wind was S.E. light and the sky clear. Minimum night temp. 52°F.—E. H. WILD, 112 Foxearth Road, Selsdon, Surrey. 27.v.1973.

PHAEOMYIA FUSCIPENNIS MG. (DIPTERAH SCIMYZIDAE) IN NOTTINGHAMSHIRE.—A small dark-winged Sciomyzid, new to me, that alighted on our living room window at Stapleford during lunch on 12.vii.1972, traces to *fuscipennis* Mg. in Knutson & Lyneborg (1965), Danish Acalypterate Flies, **3**: Sciomyzidae, and apparently was not previously known from Notts. It is a female. — O. M. WHITE, 6 Northwood Street, Stapleford, Nottingham. 22.v.1973.

HEMARIS FUCIFORMIS LINN. IN HANTS. — On 12.v.73 Mr Robin Fletcher saw and photographed a specimen of *fuciformis* on Honesty (*Lunaria annua* L.) at Linwood in the New Forest. As the Provisional Atlas of the Insects of the British Isles, Part 2, (Lepidoptera Part 1.) 1973 published by the Nature Conservancy shows records for 1961 onwards in only fifteen 10 km. squares in the whole of the British Isles, this sighting seems worthy of record. Other specimens were seen and one photographed in the same place in May 1972.—L. W. SIGGS.

EGIRA CONSPICILLARIS L. (LEP.: NOCTUIDAE) IN MONMOUTHSHIRE.—The night of 18th/19th May proved the warmest so far this year and, for the first time, the number of species of lepidoptera in my garden m.v. trap reached 25. They included a single specimen of *Egira conspicillaris* L., a female in fresh condition and referable to var. *melaleuca* View.

This is, I believe, the first time this species has been recorded in Monmouthshire although, geographically, its appearance here is not wholly surprising as it is known from the adjacent countries of Gloucestershire, Herefordshire, and Glamorgan, and across the Bristol Channel from Somerset.—Dr G. A. NEIL HORTON, Plas Newydd, Usk, Mon. 20.v.1973.

Current Literature

South's British Butterflies by **T. G. Howarth**, 48 coloured plates, 27 text figures and 57 maps, 4to., pp. xiv+210. Warne, London, 1973. £10.50.

Mr Howarth of the Department of Entomology, British Museum (Nat. Hist.) needs no introduction here, as he has the reputation of being one of the foremost authorities on the butterflies not only of this country but of the World; and, in collaboration with the talented artists Mr **A. D. A. Russwurm** and Mr **R. B. Davis** has produced here the best book on the butterflies of Britain since the publication in 1924 of Frohawk's monumental *Natural History of British Butterflies.* We are told the book is a revised edition of South's classic, yet this rich quarto is so unlike the 'South' we know — that inexpensive pocket wonder with the outstanding coloured plates — that we must consider it as a distinct work.

The book falls fairly readily into four main parts. The first (pp. 1-20) treats o fthe life cycle of a buttefly, describes methods of collecting and includes appropriately a note on conservation.

We particularly like the general system of presentation

in the next section (pp. 21-160), which deals with each species in accordance with the nomenclature and in most cases the classification of the new edition of Kloet and Hincks, *A Check List of British Insects* (1972). Here we have a Description of the Imago, followed by Details of Variation, Time of Appearance, Habits, History, Ovum, Larva, Pupa, and Distribution; with each subject separate by headed so that the facts are readily accessible. It is open to criticism that though the foodplants are given fairly fully, we are sometimes left in doubt as to whether or not they are the natural ones, and so infer that the subject of feral pabula continues to be a neglected one (who for example can specify the natural foodplants in Britain of the various races of *Plebejus argus* L.?). On the other hand, unlike many of his predecessors, Mr Howarth cites numerous references to the published literature thus adding much to the importance of the work, and also introduces an interesting feature by including species that are suspected casuals, escapes or introductions, with in each case giving adequate documentation of the sources of his information. Many of these curiosities are illustrated here for the first time in a book on British butterflies, Mr Russwurm having admirably figured in the text these and a number of other unusual forms.

The third part entitled "Colour Plate Section" consists of 24 plates of the adults reproduced from Mr Russwurm's paintings, and 24 plates of the early stages copied by Mr R. B. Davis from the originals of F. W. Frohawk. This section is an especially attractive feature of the book, and we greatly admire the enlarged larval segments which are better than any we have yet seen. We are also delighted with the many illustrations of butterfly aberrations that have occurred comparatively recently and including some which we suspect are figured here for the first time. A very serious criticism, however, is the deliberate enlargement of the figures of the perfect insects. This was a grave mistake, as it has had the effect of making these illustrations noticeably less realistic, and of creating a further disadvantage in that the additional space occupied could well have been used to include many more examples of unusual forms.

Finally, there follow the provisional distribution maps of the resident species prepared by Mr John Heath at the Biological Records Centre, Monks Wood, with two maps to each page; a classified list of all the species with an indication of the status of each; a key to identification based mainly on wing colouration and structure; and lastly, a short bibliography, index and glossary.

The text is well and clearly printed on good paper, the numbered plates gathered together in one section is a boon for ease of reference, and the whole volume is attractively produced in strong dark blue buckram enclosed in a slip case.—J. M. C.-H.

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs,* 54 Hayes Lane, Bromley BR2 9EE, Kent.

BACK NUMBERS—Prof. T. C. R. White of the newly established University of the South Pacific, has appealed for back numbers of the Ent. Rec. and any other entomological journals to help stock the biology section of their library. The University caters mainly for the South Pacific islands (Tonga, Samoa, Fiji, etc.) and although receiving financial aid from many countries including Britain, it will be many years before the essentials of a library are built up. Any help will therefore be greatly appreciated. Please contact Prof. White at School of Natural Resources, University of South Pacific, SUVA, Fiji; mentioning *Entomologist's Record.*

WANTED URGENTLY—For illustration, half dozen late instar larvae of the Transparent Burnet moth, *Zygaena purpuralis,* from Ireland or Scotland. Postage etc. refunded.—*W. G. Tremewan,* 16 Orchard Ave., Woodham, Weybridge, Surrey KT15 3EB.

FOR SALE —MV moth trap, all fittings, new 1972. — *J. C. Sutton,* 157 Belper Road, Bargate, Derbyshire.

SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

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AND JOURNAL OF VARIATION

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

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A Brief Collecting Tour in Malaya, August 1972

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

The Malay Peninsula is indeed possibly the richest region in south-east Asia for its lepidoptera and in particular for providing some of the most spectacular butterflies that exist. Much has been written about them by various collectors and general naturalists over the years. The most recent account has been that of Mr A. G. Batten in his paper "A month in Malaysia in the footsteps of Corbet and Pendlebury", giving illuminating details of his exploits in February and March 1968 in various parts of the Malayan jungle and other types of terrain (*Ent. Rec.*, **82**: seq.). Fired by this colourful narrative I felt that this wonderful region would be a good stepping stone on my way to attend the 14th International Congress of Entomology to take place in Canberra in August 1972. When Mr Henry Barlow heard of my possible plans, he most kindly invited me to stay a few days with him in Kuala Lumpur where he had been based for some two years.

Accordingly I set out by air on the afternoon of 3rd August and after stops at Damascus, Djoubai and Dacca, I landed just twenty-four hours later local time in this lovely capital of the Federated Malay States. I had a most cordial and warm welcome from my host who motored me through the main parts of this fine city to this villa on the outskirts where I was most lavishly entertained that evening. He expounded to me his ideas for the few days collecting at my disposal and where we were likely to see the choicest species. Early on the morning of the 4th in the cool of the day we set out by car to cover the 40 miles to the capital of the adjoining state of Negri Sembilan. This was Seremban, quite a large town with a distinct colonial appearance about most of its wide streets. After fixing up at the very well-appointed Carlton Hotel run by a Chinese proprietor we joined forces at the local club with Mr Giles Roche who had motored that morning the 250 miles from Singapore. After a break for refreshments we set off in very sultry conditions to a spot in the nearby hills following a very winding route which ended at the Pantai Reservoir where we got permission to collect. As this was the end of the road, we collected up our equipment and went on foot into the edge of the large forest which continued uninterruptedly up the slopes. It was not easy to file along the rather rough path bordering the torrent above the small reservoir. Shortly after we had started along it, we caught sight of our first birdwing, the magnificent black and yellow *Troides helena cerberus* C. & R. Felder, sailing about high up and always somehow just out of reach, even of a long-handled net. We next came across a pair of that shade-loving group of the speckled Danaiids, the large floppy and quite scarce species *Ideopsis hypermnestra* Westwood with its semitransparent winks, having an expanse of almost 7 inches. Various

members of the Graphium group of Swallow-tails were dashing about when we returned to the upper end of the reservoir where we saw three *T. helena* flying together and just got a glimpse of a female of Rajah Brooke's birdwing *Trogonoptera brookiana* Wallace with its distinct white streaks on the forewings dashing through the forest canopy. It was a great thrill seeing this monarch of Malayan butterflies for the first time. Later that afternoon we halted by a local river where there were plenty of small Satyrids flying along its banks, mostly Ypthimas and a number of skipper species. We returned to Seremban at dusk where we sampled a very good Chinese meal. The next morning of the 6th, a Sunday, Henry Barlow and I again joined forces with Giles Roche and this time went back towards Kuala Lumpur again through groves of rubber plantations. We once more turned up towards the mountainous area along a valley known as Ulu Langat where there was a large parking space, already filled with many cars of the populace, making the most of the fine and hot week-end. We walked up the winding path skirting the river-bed and it was not long before we met a galaxy of lepidopterous life. Two large Pierids were the dominant feature of the lower end of the Valley. These were *Appias lyncida* Cramer with its brilliant yellow underside, while around high bushes was flying the giant Orange-tip *Hebomoia glaucippe* L. The damp parts of the paths were buzzing with innumerable minute Blues mostly of the genus Nacaduba and of species very difficult to distinguish. Henry Barlow had brought a tinful of prawns which had been allowed to putrefy. The aroma was almost overpowering, but they certainly did their work with batches placed at intervals along the path, in attracting many fine species. The Graphium were easily lured, in particular *G. sarpedon* L. Some splendid members of the Nymphalidae were equally attracted. Among these was the grand red-brown *Charaxes polyxena* L. and its near relatives *Polyura athamas* Drury and *P. hebe* Butler. The long grass was in some place dancing with several species of the bright yellow *Euremas*. But we were much disturbed at seeing groups of students with long nets catching birdwings and other spectacular species which were eventually to be sold for ornamental purposes, a most reprehensible trade which the authorities are doing their best to suppress. On our way back down the valley we had our first sighting of several male *T. brookiana* with their wonderful flash of iridescent green markings, as they sailed past, occasionally only some six feet from the ground, but always extremely difficult to catch. We motored back to the capital that evening.

My host had invited to dinner Mr "Wickie" Fleming and his wife Alix, both extremely ardent collectors and now undoubtedly the leading residents on Malayan butterflies. Later that evening I motored with them to their home some forty miles to the north at Bukit Rotan where I was able to view

their fine collection comprising some 900 out of the thousand species of butterflies now recorded in Malaya. The following morning their garden was alive with insects, including a large number of the Daniids, especially *Danaus vulgaris* Butler and *Euploea mulciber* Cramer. We left their residence about 8.30 a.m. on the 7th and drove some 35 miles in a north-westerly direction through some grand country till we reached a strip of virgin forest at a spot called Bukit Tarek. A former army road had been driven through this forest tract which still at times harbours tiger and the small Sumatran Rhino. But by an unfortunate oversight the decomposed prawns had been left behind. In spite of this omission we were kept busy stalking the many species that were flying up and down this grand forest road. Some of the most interesting were several species of the Euthalias, a large genus of Nymphalines. Among these were two commoner species *Euthalia iapis* Godart and *E. monina* F. The chief feature of this genus is the marked sexual dimorphism. The males are most handsome with their black forewings and hindwings with a bright blue border. The more sombre females are nearly twice the size of the males and mainly dull grey or brown with a mottling of white flecks. Gliding round much of the undergrowth were several species of Neptis, chiefly *N. hylas* L. which occurs also in Eastern Europe. Another spectacular Nymphaline was *Moduza procris* Cramer looking very like our White Admiral. Two other members of this family worth noting were *Hypolimnas antilope* Cramer which mimics an Euploea. My hosts were also most interested in my capture of a female of *Idrusia nyctelius euploeoides* C. & R. Felder which mimics *Euploea diocletianus* F. It is apparently quite a rare form. Several species of Graphium were on the wing, especially *G. evemon* Bdv.

On our way home from this delightful collecting locality we called on Harry Traill at his home on the banks of the local river. I had already met him at the home of Henry Barlow. He showed us his collection, mainly of moths which he was amassing, all taken in the vicinity of his house, and probably with many unknown species among them. Early on the next morning of 8th August the Flemings drove me again from Bukit Rotan under very sultry conditions up to the Gombak Valley, one of the best known collecting grounds in that region, somewhat to the north-east of Kuala Lumpur. The winding road rises steadily to 2,000 ft. We halted by a small villa where we went through the garden leading down to the fast flowing river which ran along the bottom of the forest-clad slopes. Our beat was by the shaded banks of this stream along which my host had placed batches of very aromatic prawns at intervals. It was not long before we saw a *T. brookiana* sailing high above, along the route of the river to be followed by several others, all males. Also skulking among the undergrowth was the Amathusiid *Discophora timora* Westwood. But only a few *Graphium* and *Nacadubas* patron-

ised the prawn patches, which was disappointing. However, as we were about to leave in the afternoon we caught sight of the superb large Nymphaline *Prothoë calydonia* Hewitson of the *Charaxes* group, basking near a tree in the garden of the villa, but it eluded our efforts to catch it. We then made our way a few more miles up the Gombak Valley to the hilly country on the Selangor-Pahang border where there was rather an ancient-looking wayside café, well patronised by the local populace and also by a galaxy of moths that were settled all over the walls and ceilings attracted to strong lights after dark. We spent quite a time boxing and netting as many as possible which included some huge Cossids measuring quite 5 inches in expanse.

Towards evening we made our way a short distance further to the Genting Sempah Tea Estate which had just been acquired by Henry Barlow. It was approached by a grassy track and consisted of a large mansion surrounded by the remains of what were once the tea ridges on the side of a steep hillside, now well overgrown, and the home of many kinds of choice lepidoptera. At dusk we could hear the gibbons crying in the thick forest on the local mountainside. Later that evening we were all treated to a sumptuous meal which Mr Barlow had brought up from his city home, but it was not till the next morning, 9th August, a very hot one, that we were able to appreciate the richness of this spot for butterflies. The grassy herbage in the immediate vicinity of the house was alive with Lycaemids, mostly the sky blue *Jamides celeno* Cramer. The whole garden seemed to harbour a choice selection of this family. At intervals would appear the very elusive *Arhopala* with their cryptic undersides but superb purple or green uppersides. They usually flew singly and were by no means easy to net. We took several species of this big genus, the most local being *Arhopala opalina,* only found so far in that small area of Malaya. The Nymphalines were well to the fore, in particular the Neptis and their close relatives the Parathyma of which *P. nefte* Cramer was the most numerous species. Near a waterfall we took a male of the magnificent *Polyura delphis* Doubleday, a very large insect with a white upperside, black tips to the wings and six tails. During the morning I walked down the grassy ride and sheltered under a tree to avoid the extreme heat when a *Troides helena* just eluded me to be followed by a *T. brookiana* which came from behind at shoulder height. Among species flying in this wonderful spot was the larger female of *Euthalia dirtea* Fab., black with yellow flecks, also the large Satyrid *Neorina loewii* Doubleday with a large white patch on the hindwings. When I returned to the waterfall, I found the Flemings had had an equally good harvest with their long-handled nets. As I approached them, a huge butterfly swooped low and was easily taken. It was a perfect male of *T. brookiana.*

During the afternoon we repaired to the house for a late

lunch and then began the home journey to Kuala Lumpur, well pleased with our catch. On the way we stopped again at the wayside café and took a lot more moths at rest round the walls. Henry Barlow once more entertained me at his home that night, and early next morning took me to the main railway station where I caught the daytime train on the 250-mile run to Singapore, which I reached in the afternoon of 10th August. Here I was met by Giles Roche and Tom Parker of whose fine collection I saw a portion. We then went on to dine at a local club, after which my hosts drove me to the airport, where I took a plane late that night, which landed me early on the 11th at Darwin, in the Northern Territory of Australia, and its most northerly city.

So ended a most delightful and profitable five days in these wonderful Malayan surroundings. I must express my extreme gratitude to my hosts, Henry Barlow and the Flemings for all their kindness in conducting me to some of the best localities round the capital where we saw nearly a hundred species of butterflies and a large selection of moths of great diversity, as will be noted in the ensuing list of records and observations.

The list that follows embraces almost all the species of butterflies we captured or definitely observed on the wing. It includes a good many names that appear in Mr Batten's list for his visit in 1968, but in it he did not enumerate any Lycaenidae or Hesperidae: Localities are given where known. Subspecific names are added in most instances, taken mainly from Corbet and Pendlebury's "Butterflies of the Malay Peninsula" (1956 edition).

PAPILIONIDAE

Trogonoptera brookiana albescens Rothschild. Female seen at Pantai reservoir. Males at Ulu Langat, Gombak Valley and at the Genting Sempah Tea Estate.

Troides helena cerberus C. & R. Felder. At Pantai, Ulu Langat and Tea Estate.

Atrophaneura neptunus Guèrin Hènévilla. A scarce species seen only at Bukit Tardi.

Papilio polytes romulus Cramer. Pantai Reservoir.

Papilio memnon agenor L. Only seen at Pantai.

Graphium sarpedon luctatius Fruhstorfer. Seen in all localities.

Graphium evemon eventus Fruhstorfer. Bukit Tarek, Ulu Langat and Gombak.

Graphium bathycles bathycloides Honrath.

PIERIDAE

Leptosia nina malayana Fruhstorfer. Bukit Rotan and Gombak Valley.

Appias lyncida vasava Fruhstorfer. Ulu Langat, Bukit Tarek.

Appias indra plana Butler. Tea Estate only.

Saletara liberia distanti Butler.

Hebomoia glaucippe aturia Fruhstorfer. Ulu Langat, many

seen but not captured.
Valeria valeria lutescens Butler. Bukit Tarek.
Eurema hecabe contubernalis Moore. Generally distributed.
Eurema andersomii Moore. Ulu Langat and Bukit Tarek.
Eurema sari sodalis Moore.
Eurema simulatrix tecmessa Nicéville. Ulu Langat.
Gandaca harina distanti Moore. Panati Reservoir.

DANAIDAE
Danaus aspasia Fab.
Danaus vulgaris macrina Fruhstorfer. Ulu Langat and Bukit Rotan.
Danaus menelaus sinopion Fruhstorfer.
Euploea mulciber Cramer. Pantai, Bukit Rotan, Ulu Langat.
Ideopsis hypermnestra linteata Butler. Pair only seen at Pantai Reservoir.

SATYRIDAE
Neorina lowii neophyta Fruhstorfer. Gentang Sempah Tea Estate.
Ypthima fasciata torone Fruhstorfer. Near Seremban.
Ypthima baldus newbaldi Distant. Tea Estate.
Mycalesis anapita Moore.
Mycalesis fuscum C. & R. Felder.

AMATHUSIIDAE
Discophora timora perakensis STICHEL. Gombank Valley.
Discophora timora perakensis STICHEL. Gombak Valley.

NYMPHALIDAE
Ariadne ariadne L. Bukit Tarek.
Cupha erymanthis lotis Sulzer.
Precis atlites L. Bukit Tarek.
Precis iphita horsfieldi Moore. Ulu Langat.
Symbrenthia anna selangoraha Corbet.
Rhinopalpa polynice eudoxia Guérin-Ménéville. Tea Estate.
Hypolimnas antilope anomala Wallace. Bukit Tarek.
Doleschallia bisaltide pratipa C. & R. Felder. Bukit Tarek.
Cyrestis nivea nivalis C. & R. Felder. Bukit Tarek.
Vindula arsinoe erotella Butler. Bukit Tarek.
Phalantha alcippe alcesta Corbet.
Cethosia hypsea hypsina C. & R. Felder. Ulu Langat.
Neptis hylas mamaja Butler. Ulu Langat and Bukit Tarek.
Neptis nata cresina Fruhstorfer. Bukit Tarek and Tea Estate.
Neptis duryodana nesia Fruhstorfer. Bukit Tarek and Tea Estate.
Parathyma kanwa Moore. Tea Estate.
Parathyma nefte subrata Moore. Tea Estate.
Moduza procris milonia Fruhstorfer. Ulu Langat.
Lebadea martha malayana Fruhstorfer. Bukit Tarek.
Euthalia iapis puseda Moore. Bukit Tarek.
Euthalia monina Fab. Bukit Tarek.
Euthalia dirtea dirteana Corbet. Tea Estate, female only.
Idrusia nyctelius euploeoides C. & R. Felder. Bukit Tarek, female only.

(to be continued)

Mont Ventoux, 1972

By L. McLeod, B.Sc., F.R.E.S.

The very mild winter weather in England during the 1971-72 winter was also experienced throughout France. My first visit to Vaucluse in 1972 was in January when I motored down to search for suitable accommodation to inhabit later in the year. The sun was shining brightly and once in Vaucluse I had to drive the car with the windows open, because it was so warm. While visiting small villages in the Carpentras region I was surprised to observe *Vanessa atalanta* L. flying on three separate occasions in Carpentras, Crillon-le-Brave and Caromb. On the Mediterranean coast *atalanta* can be found flying throughout winter months (Elliot 1953, Tutt 1897) but this is unusual for Vaucluse.

While working in northern France during February and March I observed on several occasions *Gonopteryx rhamni* L. and *Vanessa atalanta* traversing the autoroute north of Paris. In normal years one would not expect to see these butterflies emerge from hibernation until April.

I settled in Vaucluse with my wife and daughter on 24th April. The house I had chosen for the season was in the village of St. Pierre de Vassols, some 10 Km. from Carpentras, near to Bedoin and to Mont Ventoux. The season was well underway when we arrived and insects were already fairly numerous. I was already too late to collect *Erebia epistygne* Hb. which is on the wing during late March and early April.

As usual in this area, butterflies were abundant throughout the season and the majority of species recorded in previous years were to be found in the same localities (McLeod 1972). I will therefore confine my account to items of special interest.

There were some noticeable reductions in numbers of certain species. *Gonopteryx cleopatra* L. was not nearly as common as in previous years. I collected some larvae but these were parasitised by Ophionine Ichneumonids, perhaps accounting for this year's decline in numbers.

In contrast *Parnassius apollo* L. had greatly increased in numbers and many were to be seen throughout the summer months with a wider distribution than in the previous five years.

My species list for the Ventoux region was increased by six bringing the total to 122. The main capture of interest was a single *Pandoriana pandora* Schiff. taken while feeding at flowers of Red Valerian at Les Valettes on 2nd July. At first I thought it was a very dark *Argynnis paphia* ♀ but on capture, it was seen to be a *pandora* ♂.

Vanessa io L. was noted on two occasions on Ventoux. I also recorded this species in the Luberon Mountains 25 Km. to the south. It is not usually found in either area. (Dufay 1965).

Several species to be found in the Luberons do not occur

on Ventoux but occasionally a species will spread when conditions allow it. This was obviously the case with *Chazara briseis meridionalis* Stg. This season I recorded this Satyrid for the first time on Ventoux. Normally it is quite common in parts of the Luberon Mountains but not in the Ventoux area. Although several males were seen, the only female taken was of form *pirata* Esper.

Libithea celtis Laich was also added to my list. It appeared widespread throughout the region and I took specimens at Mazan (600 ft.) in May, Gorges de la Nesque (1650 ft.) in early July and on Mont Ventoux (4300 ft.) in late July.

In past years I have found part of the V8 road from Le Barroux to Suzette to be a fairly profitable area for collecting certain species of Lycaenids and Hesperiids. During May I found a nice colony of *Glaucopsyche melanops* Boisduval, just off this road near to a stone bridge. Several of the specimens which I examined lacked spots on the h/w underside.

Adjacent to an apple orchard and vineyards where I work near Mazan, there are some pleasant grassy meadows bordering a stream. I often spend my lunch break photographing and collecting insects in these meadows. It was here that I collected *Lampides boeticus* L. and *Everes argiades* Pall. in past years. During June of 1972 I collected some *Everes alcetas* Hffgg. the Provencale short-tailed blue flying together with *E. argiades*. I also managed to breed some *L. boeticus* which I found as larvae in some garden peas purchased in a local market.

The rather rare Lycaenid *Iolana iolas* Beth-Baker is reputed to occur in a localised area near to Ventoux (Dufay 1965). I have not yet discovered the exact whereabouts of the breeding site of this butterfly but intend to search again during 1973. One of my ambitions is to photograph the life-cycle of this large Lycaenid. During May 1972 I encountered Monsieur M. Leenhardt of Montpellier who was also searching for the breeding site.

Again the marbled white *Melanargia galathea* L. which occured over 4000 ft. on Ventoux during June were of the dark form *procida*. Later in the season the percentage of this form fell, indicating that this very dark form is not a racial character or a direct result of altitude. Low temperature is probably the inducing factor.

Previously I had noted the occurence of several species of Burnet Moths on the mountain (McLeod 1972). During this season I decided to collect samples of as many species as I could find without going out of my way to search for them.

During late June and July these moths were extremely abundant on flowers especially in the lavender fields of the Toulerenc Valley and on wild lavender up to 4500 ft.

On my return to England in the autumn, Mr W. Tremewan kindly confirmed identification of the following thirteen species.

Zygaena occitanica arida Dujardin
Z. lavandulae consobrina Germar
Z. carniolica diniensis Herrich-Schäffer
Z. loti achillalpina Burgeff
Z. hilaris chrysophaea Le Charles
Z. fausta apocrypha Le Charles
Z. gallica gallica Oberthür
Z. romeo parvorion Holik
Z. purpuralis hyporea Dujardin
Z. transalpina dufayi Dujardin
Z. ephialtes lurica Dujardin
Z. filipendulae oberthueriana Burgeff
Z. lonicerae Scheven

I collected several specimens which had greatly reduced spotting on the forewings. Unfortunately these were not an additional species but an aberrant form of *Z. filipendulae.*

My wife and I had a rather unusual experience while collecting in gorges near to the Forêt de St. Lambert on 9th July. We heard a rustling coming from dead leaves and twigs at the base of a tree. Suspecting a snake to be the cause of the disturbance we approached carefully and were very surprised to find a tortoise. Its condition was such that it was obviously doing very well for itself, and it was most annoyed to be picked up and examined. I took some photographs before letting the tortoise depart rapidly across rocky scree. Is it possible that tortoises live in these mountainous areas? This individual was found many miles from any habitation and it is not likely that an escapee would ever arrive at this location.

There were one or two events of entomological interest during the season.

During May the BBC Natural History Unit were resident at Beaumes de Venise, with the object of filming a documentary tribute to J. H. Fabre. Unfortunately my work kept me very busy at this time, but I did manage to meet some members of the team. The film was shown on the BBC "World About Us" series on 8th October.

Local entomologists arranged a small exhibition at Brantes, a very picturesque provençale village facing Mont Ventoux from the north. The exhibition, although small, depicted many of the unusual insects of the area, and was open to the public throughout August.

As well as the entomologists, the majority of local people are greatly disturbed by the fact that the summit of Ventoux is to become a military base. The entry restrictions that this will incur will be very inconvenient to everyone. As usual in such cases, little or nothing can be done to prevent this happening despite the enormous opposition in the area. Already military roads cut their way up the mountainside and armoured cars are not an uncommon sight. Various posters can be seen in Carpentras denouncing the project with head-

ing such as "Ventoux en danger" and "Provence Occupée". Undoubtedly parts of the summit which are now well known for their *Erebia* species will be restricted areas at some future date. At present Mont Ventoux is renowned for the rare *Erebia scipio* Boisduval. It has to be seen whether this military take-over will be detrimental to the insects of Ventoux or help conserve them.

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A Note on Chrysoteuchia culmella (L) (Lep.: Crambinae) — There has been much discussion in the literature of insect migration concerning the ability of lepidoptera and other insects, to alight on water and take off again. There are now numerous records of this ability, well authenticated, but most records refer to rather large species of butterflies or moths. A day or two ago I was by the side of the small swimming pool in my garden here taking the water temperature. I disturbed a small grass moth (*Chrysoteuchia culmella* (L)) which alighted on the water of the pool about three feet away from me. When on the surface I noticed that the wings of one side were outspread and I felt sure it would be trapped by the surface film. However, after a few seconds and to my considerable surprise the specimen took off without any apparent difficulty. The water at the time was completely calm and I believe this condition is a prerequisite for this performance, certainly for smaller species.

I suspect however, that this ability to take flight from a water surface to be not rare. My mercury vapour trap operates within 15 yards of the pool and it is only the odd moth that I find caught on the surface of the pool. I feel that many more specimens must get into the pool when approaching the light but are able to get out again. Usually the specimens found in the pool are delicate ones — waves and the like. I rarely find any of the more robust noctuids. It is possible that these larger species are able to flutter across the surface until they reach the side and climb out. Years ago, when working sallows bordering a stream I remember disturbing a specimen of *Orthosia gracilis* (D. & S.) which fell into the edge of the stream under the sallow I had tapped. This moth fluttered, on its back, across the surface of the water until it came to the bank of the pool, climbed out and flew off!—Dr Neville L. Birkett, Kendal Wood, New Hutton, .2viii.1973.

A Beginner's Guide to Elementary Genitalic Slide Preparations

By Dr D. M. Kroon

With identification of species becoming steadily more subtle even in the larger Southern African butterflies such as Satyridae, it has now become a necessity either to prepare elementary genitalic slides oneself, or have ready access to someone willing and able to prepare specimens for identification. In some Genera this is the only method available at present for separation. Males are separated with greater ease than females but the association of the two often establishes the identity of the latter.

Excellent accounts of various methods, their merits and drawbacks, are discussed in detail in Cotterell's Monograph of the *Lepidochrysop Methymna* Group, 1965. Janse, in *The Moths of South Africa,* Vol. 1 (1932) similarly outlines the actual method of slide preparation and taxonomic nomenclature. The 1970 Edition of the *Encyclopaedia Britannica* features an excellent schematic diagram of the male and female genitalia.

Such detail is less important for the beginner, but with practice details tend to fall into place and become second nature when comparing slides later. Outlined below are some notes and a simple method of making slides which I hope beginners will find useful. For refinements, and more detail, readers are referred to the above mentioned works.

The MOST IMPORTANT requirement is to adopt a system of labelling the preparations and specimens so that no confusion is possible, and also to preserve both. Specimens and slides thus labelled are of scientific value whereas if one is lost the other's value is considerably decreased.

Certain minimum requirements are essential before commencing work on genitalia. Some sharp needles and hooks (fine crochet needles do well), fine pointed forceps (No. 4 or 5 obtainable from any jeweller's suppliers), and a watch glass form the first essentials. Chemicals required are fresh 10% caustic potash, xylene and Canada balsam which can be thinned with xylene to the required consistency. Clear mountants are also commercially available. Glass slides and cover slips complete the ordinary requirements.

The most expensive item is of course a microscope. One recent model, The SWIFT, has a stereozoom lens system, with direct or transmitted light. Several other features such as depth of field, width of field, and a comfortable working distance are features of this instrument. This sturdy instrument, manufactured in Japan under American licence, is far cheaper than Continental models. Staining of butterfly slides is usually

unnecessary, and successive dehydrating alcohol solutions can also be dispensed with but for permanent slides I recommend their use.

Method of slide preparation:

The hinder portion, or the complete abdomen, is broken off and submerged in fresh cold caustic potash solution for 24 hours. For more rapid treatments the specimen may be boiled in the caustic potash for ½ hour. The now limp abdomen is transferred to a watch glass containing water or 50% alcohol. With needles, forceps or tiny brushes the abdomen is now cleared of debris and scales and the genital armature dislocated. For the further dissection of the armature finer needles and forceps are used. The ventral aspects of the uncus and subuncal structures are of importance as is the actual relation of the various parts to each other. The left valve is now gently dislocated from the main portion of the mount where it forms a joint or pseudo-joint with its right counterpart and the sternite to which it is attached. Once separated these structures are dehydrated either by exposure to air, or passing them through successive concentrations of alcohol from 50% to absolute. After removal from the absolute alcohol the specimen is cleared by immersing it in xylene. From here the structures are transferred to a drop of medium-thick balsam on a slide and their position arranged as required. To prevent crushing of the specimen, broken cover slips, or pieces of celluloid of appropriate thickness are inserted between the slide and the cover slip to support the latter. Filling of deficiencies under the cover slip is achieved by placing thin balsam at the edge, when it is drawn in by capillary action. To prevent confusion with slides, specimens should all bear similar identification numbers.

Dissection of dried specimens of, for instance, *Syntarucus* without damaging the abdomen by breaking it off is also possible. Correct species identification is possible in this group in which the valvular structures differ so markedly. What I do is place the mounted specimen in the vertical "end-on" position on a vertical piece of cork. The exposed hinder end can then be cleared of debris, scales and other matter with fine forceps or a brush, exposing the valve and making identification possible.

HYLES GALLII ROTTEMBURG IN HAMPSHIRE.—I wish to record that I took a ♀ *H. gallii* in my m.v. trap at Boldre on 1st August 1973. — H. G. M. MIDDLETON, Anns Cottage, Sandy Down, Hants., SO4 8PP.

Some Nottinghamshire Diptera (Dolichopodidae)

By O. M. White

I had the pleasure of finding three species of *Argyra* in my net after sweeping over a metre or two of damp earth where dense sallow canopy threw heavy shade. Only males of *A. argyria* Mg. were caught, but both sexes of *A. atriceps* Lw., the latter, I believe, not previously noted in Notts., and *A. confinis* Ztt. Site, Attenborough gravels, at $13\frac{1}{2}$ hrs., 20.vii. 1971.

A. leucocephala Mg. now seems to be commonest of the genus in Notts., frequenting marls almost to valley floor levels, but I have not yet found *A. diaphana* Fabr., nor *A. argentina* Mg., which were common enough in Carr's time and found in about a dozen sites.

The next two species are also from Attenborough, included because I see no other Notts. records: *Hercostomus nanus* Macq. ♂♂, 29.vi.1971, just after noon, *communis* foliage, and *Porphyrops nasuta* Fln. one ♂, 17.viii.1971, at noon, by sweeping over a muddy footpath shaded by sallows.

In the same area, males of *Gymnopternus chalybeus* Wied. were perching on *Glyceria maxima* foliage during the afternoon of 15.viii.1972. The species is known from other Notts. localities, e.g., Bulwell, and its absence from several county lists, such as those of Cheshire and Lincolnshire, puzzles me.

I am grateful to Mr E. C. M. d'Assis-Fonseca for drawing my attention to Collin's paper on the British species of *Argyra* (*Ent. mon. Mag.*, **79**: 114-117), from which mine were identified, and the Staff of Stapleford Library for their trouble in obtaining that paper during the postal strike.

6 Northwood Street, Stapleford, Nottingham.

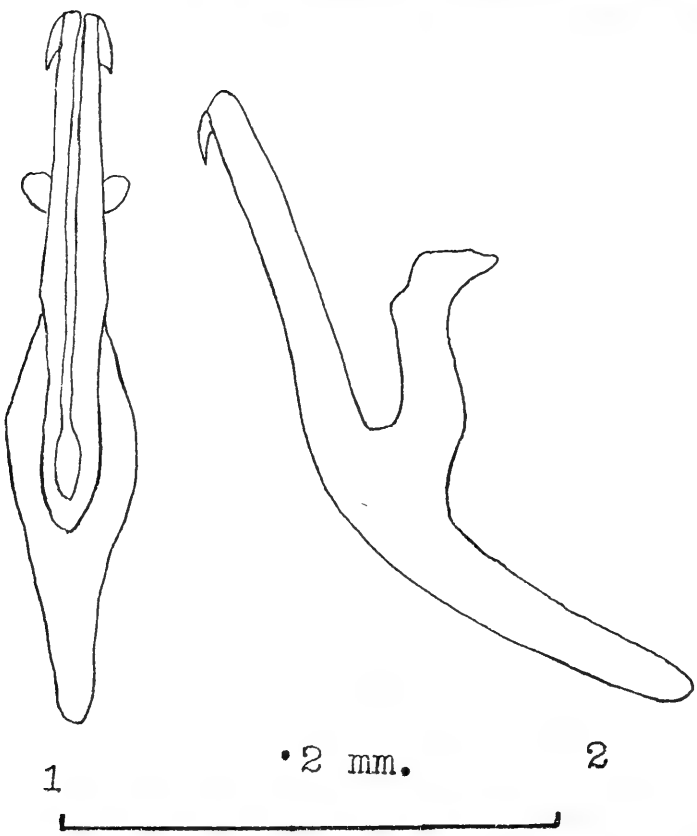
A note on the Cicadellid, *Erythroneura cassiae* Ahmed

By A. S. Sohi and V. C. Kapoor

A number of specimens belonging to both the sexes of *E. cassiae* were collected from Ludhiana in the months of September and October, 1971. Adults of this are greenish yellow and the immature forms are milky white covered with waxy material. It is interesting to note that the cicedellid breeds heavily during these months on *Cassia fistula* Linn. (Amaltas).

Ahmed (1970, Pakistan J. Zool. **2** (1): 29-42) described this species from Pakistan on *Amaltas*. In taxonomic description he stated that the aedeagus lacks processes. After comparing with this species, we thought ours as a new species due to the

presence of apical aedeagal processes. Later, Dworakowska of Warszawa, Poland, suggested that ours is the same as that of Ahmed, and this character might have been missed by him. Dr Anufriev of USSR after studying the paratypes of Ahmed's species also came to the same conclusion that aedeagal processes are also present in *E. cassiae* (Fig. 1—dorsal view and Fig. 2—lateral view of aedeagus showing apical processes).



Thus the presence of apical processes in aedeagus is an important additional character in *E. cassiae*.

We express our sincere thanks to Professors and Heads of Zoology and Entomology Departments for the facilities provided.

Punjab Agricultural University, Ludhiana (India)

LYONETIA CLERKELLA L. (LEP.: LYONETIIDAE).—With reference to Mr John L. Gregory's note (*Ent. Record* **85**:68)I took an example of this species similar to the one described by him on 16th October 1968 in Needwood Forest, Staffordshire. I also have a specimen from Danbury, Essex taken in 1950 which is heavily marked with fuscous, giving the appearance of a dark insect rather than a white one.—R. G. WARREN, 32 Whitmore Road, Trentham, Stoke-on-Trent, Staffs.

My Experiences with the Macrolepidoptera, 1972

By B. G. Withers, B.Sc.

(*Concluded from page 174*)

in Llandogo again kindly permitted the running of a Robinson trap in their garden while we headed for the area between Tintern and Chepstow where we found a sheltered spot surrounded by high cliffs and forest in which we could operate portable m.v. The light was lit at 10 p.m. and soon moths began to arrive freely. *D. blomeri* and *A. sylvata* were both fairly common and mostly fresh. *B. crassalis* was still in evidence, but very worn, and a specimen of *Atolmis rubricollis* L., also rather past its prime, showed fairly early. Then I netted a geometer which at first I took to be *Xanthorhoë ferrugata* Clerck and almost threw away. However, some sixth sense caused me to give the insect a second glance, and I saw to my delight that it was *Perizoma taeniata* Steph.; this specimen was quickly followed by two others. South records *taeniata* as occurring in the Tintern area, but it has seemingly not been recorded there for many years. Then at 11.45 I remarked to my wife that, although we had been very successful in this locality, it was a pity that we had not taken *Drepana harpagula* Esp., a species for which this area is renowned. I had hardly uttered the words when a fine specimen of *harpagula* fluttered on to the sheet, to be followed ten minutes later by a second. We packed up the equipment at 12.30 a.m., having recorded fifty-eight species of macro—a really outstanding night. The following morning the Robinson trap at Llandogo contained over a thousand moths of ninety-one different species. *L. populi* and *A. prasina* were usually abundant, about fifty of each being noted. *L. populi* were sitting all round on the vegetation making a most charming sight. Among the other moths were *Apatele alni* L., *A. sylvata, D. blomeri, Apeira syringaria* L., *Cosymbia porata* L., *C. punctaria* L., *H. testaceata, T. firmata, Apamea scolopacina* Esp., and a heavily marked *Spilosoma lubricipeda* L. We left Llandogo at 10 a.m. to begin a long and rather harrowing journey to the Derbyshire moors near Matlock. This joruney was undertaken principally to evade possible thunderstorms which had been forecast for most southern counties. The freshness of the moors in the Beeley area was a pleasant change from the sultry woodlands of the South, and when we lit up at 9.30 it was pleasantly cool — mist formed soon after dark and moths flocked in once again. *Hepialus fusconebulosa* Deg. was very common and variable and both *Entephria caesiata* Schiff. and *Epirrhoë galiata* Schiff. were in fair numbers. *Notodonta dromedarius* L. was present as a fine melanic form, and later in the evening *Lycophotia varia* Vill. was abundant. Then, just before midnight, I noticed a large moth on the sheet whose arrival

I had not observed. I recognised it instantly, albeit incredulously, as *Celerio galii* Rott. I was later to learn that there had been a substantial immigration of this species, but surely none could have been recorded in a more incongruous locality than a high Derbyshire moor!

The following morning, 20th July, we journeyed back down the M1 to Harpenden, where we had a welcome night's rest. On the evening of the 21st, we hied to Ashridge, where the best moth to m.v. light among 40 species was a fresh specimen of *L. cucullina.*

A Breckland fen between Lakenheath and Brandon was our venue on the evening of the 22nd. Conditions were ideal, the evening being very warm and cloudy with little breeze, and from 9.30 when the m.v. light was lit up until we departed at 1 a.m. moths appeared in prodigious numbers. *L. populi, D. elpenor, Philudoria potatoria* L., *Agrotis vestigialis* Hufn., *Scopula immutata* L. and *Pelurga comitata* L. were all abundant and *Zanclognatha cribrumalis* Hübn., *Perizoma flavofasciata* Thunb., *Leucoma salicis* L., *Apamea ypsillon* Schiff., *Lygephila pastinum* Treits. and *Eupithecia linariata* Schiff. were common. Among the other species of interest to us, the following occurred: *Euphyia unangulata* Haw. (a few), *Earias clorana* L., (one), *Comacla senex* Hübn. (a few), *Eupithecia subumbrata* Schiff. (two), *Eustrotia uncula* Clerck. (one), *Plusia festucae* L. (three), *Bena prasinana* L. (one), *Epirrhoe rivata* Hübn. (one), *Heliothis viriplaca* Hufn. (one), *Apamea ophiogramma* Esp. (one), *P. vetulata* (one), *Sterrha muricata* Hufn. (one), *Leucania pudorina* Schiff. (one) and at 12.45 the best prize of all, a single *Perizoma sagittata* F. This last specimen was avidly pursued through the the seething melée of moths on the sheet and finally cornered. By this time moths were everywhere; the several square yards of sheet were almost obliterated from view, while the surrounding vegetation and the air above us were both seething with moths. Our clothing was smothered with insects (notably several large *L. populi* each!) and the cups of coffee we poured out from a vacuum flask were soon invaded by the winged hordes. Pill boxes and killing bottles were soon full to overflowing, and with moths still as abundant as ever we reluctanly decided to call it a night, having recorded a phenomenal 117 species of Macrolepidoptera. We switched off the generator and packed up the equipment amid the purring of innumerable wings, bringing to an end a most outstanding ten days of which this last night was the undoubted climax.

During the next few days little entomological activity was undertaken apart from the operation of the garden trap at Harpenden; this produced several more *H. compta* and *P. umbra,* a single specimen of *P. rubiginata* and four *Sterrha interjectaria* Boisd., all of the last named species being taken on the 23rd. A further evening on the Breck on the

28th in rather cloudy, damp conditions produced sixty-nine species to m.v. light, comprising many of the species taken the previous week, but in smaller numbers, and in addition two specimens of *Apatele tridens* Schiff. and a large *T. ocularis* were noted. A trip to Ashbridge on the following night produced forty-six species to m.v. light despite rather cool, clear conditions, of which an abundance of *Biston betularia* L., almost entirely of the form *carbonaria,* and singletons of *M. albicillata, T. duplaris* and *Zeuzera pyrina* L. were the most noteworthy. Conditions were again cool and clear on 4th August when we arrived in the Buckinghamshire Chilterns at 9.15. The moths, however, seemed oblivious of this and arrived at the m.v. lamp in large numbers. The air was full of *C. linearia,* and *A. sylvata,* together with a fair number of *Hydriomena furcata* Thunb. At 10 p.m. I netted a moth which on closed scrutiny proved to be *Trisateles emortualis* Schiff., a late specimen in very fair condition. Also noted were a few *D. blomeri,* several *X. quadrifasiata,* a few *Procus versicolor* Borkh., a good number of *Eilema deplana* Esp. and singletons of *D. cultraria, C. ligustri* (a melanic specimen) and *D. ribeata* (a female). Fifty-six species were noted in all, contributing to another really excellent night's sport. The Robinson trap at Harpenden produced my third specimen of *L. cucullina* on the same night. As the previous night in the Chilterns had been so good, we returned on the 5th in similar conditions to those of the 4th. Forty-seven species were noted on this occasion; *E. deplana* appeared in good numbers. *A. sylvata* was a positive plague and *P. versicolor, D. blomeri* and a very distinctly marked female *H. furcata* were also notable captures. The last insect to be taken on this occasion was an *Apatele leporina* L. of very pale ground colour.

Weather conditions deteriorated on the following day and it was not until 14th August that I was able to make another trip to the Chilterns. The evening was warm, rather misty and calm; the generator was started at dusk and run until 11 p.m. In this time sixty-seven species were recorded. *A. sylvata* was still abundant and *D. cultraria* was, to my delight, fairly common. Other notable species were *P. versicolor, D. blomeri, E. deplana, Cosmia pyralina* Schiff., and late, worn specimens of both *P. bicolorana* and *P. transversata.* Light at Symondshyde the following night produced females of *L. populi* and *Notodonta ziczac* L., the latter of which provided me with a healthy crop of ova. *Eilema complana* L., *Eremobia ochroleuca* Schiff. and *Pseutoterpna pruinata* Hufn. were also noted. Strong moonlight on the 24th was responsible for a very poor turnout of moths near Maidenhead.

On the 26th we once again made the journey via the M1 to Derbyshire; here, on the moors near Matlock a persistent moderate wind was blowing from an easterly direction and

very little came to m.v. light at first. The wind abated somewhat at 10 p.m. and in a short period five *Amathes castanea* Esp., including four fine red specimens, arrived. Searching the heather and bilberry produced large numbers of *Lygris populata* L., *Colostygia didymata* L., the small moorland form of *H. furcata,* and a fully fed larva of *S. pavonia* which spun up two days later. A few *Oporinia filigrammaria* H-S were found at rest on the stone walls also a fully fed larva of *Lasiocampa quercus* L. var. *callunae,* which was crawling across the road. We returned home on the 27th and made our final trip to the Chilterns on the 29th where a number of *D. cultraria,* including several females, one worn *P. transversata* and one *E. pulchellata* were the most interesting of forty species attracted to m.v. between 8.30 and 11 p.m.

September opened with fine weather with warm days but cool, misty nights. Such was the case when I motored over to my very productive Breckland fen on the first of the month. Despite fairly low temperatures fifty-three species were attracted to the m.v. between 8.30 and 10.45; among these were two *Tholera cespitis* Schiff., two *Scotogramma trifolii* Hufn., of the pale Breckland form, large numbers of *Arenostola phragmitidis* Hübn., two *A. pygmina* Haw. and singletons of *Gortyna flavago* Schiff., *C. senex, E. linariata, Aspitates ochrearia* Rossi. and *P. comitata.* The following night, at Ranmore, despite a moderate breeze, forty-one species were noted; these including five *Atethmia xerampelina* Esp., one each of *A. scolopacina* and *E. deplana,* a few *H. vitalbata* and two *Paradiarsia glareosa* Esp. A further specimen of *A. xerampelina* and a worn *Amathes stigmatica* Hübn. were among twenty-seven species taken in the Robinson trap operating at Box Hill on the same night. On the following day *Vanessa cardui* L. was noted at Box Hill and *Polyommatus icarus* Rott. and *Lysandra coridon* Poda. were still in fair numbers; two *Aspitates gilvaria* Schiff., well past their prime, were also observed.

On 10th September my wife began a short period of 'entomological widowhood' when I departed for three days in Dorset with my parents, who were caravanning near Weymouth. The weather had been particularly foul on the previous day but it improved somewhat on my journey, although a strong wind persisted for most of the time. I made a brief stop in the New Forest to inspect the Hollands Wood camp site where several moths of interest, including *Asphalia diluta* Schiff., *A. castanea, T. cespitis* and *Citria lutea* Stroem., were taken from the walls of the toilet blocks. I arrived in Weymouth at about 4 p.m. and, although the wind was still high, I operated portable m.v. for a short time in a spot sheltered by cliffs near Church Ope Cove, Portland; my main quarry on this occasion was *Leucochlaena oditis* Hubn. and just before I left at 9.30 p.m. found one at rest in the grass near the m.v. lamp; it was a male in fresh condition. Other species of interest were *E.*

galiata, *A. ochrearia* and *Gnophos obscurata* Schiff. During the following day a number of butterflies were seen in the Portland area, including *V. atalanta*, *P. icarus*, *L. coridon*, *Pararge megera* L., *Lycaena phlaeas* L., *M. jurtina* and *Thymelicus sylvestris* Poda. That evening the m.v. was run in the same locality as on the night previous, this time from 8 p.m. to 10.45. The wind was still boisterous at the cliff top but in the shelter of the cliffs it was hardly noticeable. Moths arrived in fair numbers, but it was quite late before *L. oditis* began to arrive; by the time I left, however, I had recorded over a dozen, all males, and mostly fresh. *Scopula promutata* Guen. and a further *G. obscurata* were also worthy of mention among twenty-two species. A daytime trip to the New Forest on the following day produced little apart from some second brood specimens of *Campaea margaritata* L., but on my return journey, I stopped at a camping site near Ferndown to inspect the illuminated 'loo' there, and was rewarded with my first ever specimen of *Stilbia anomala* Haw. That evening operations with m.v. light were carried out in the area not far from Wool where I had had considerable success on several previous occasions. The evening was much warmer than of late with little wind and a good cloud cover. One of the first moths to arrive was a specimen of *Mormo maura* L., an insect I have rarely met with before. The abundance of *Deuteronomos alniaria* L. and *Opisthograptis luteolata* L. provided a very attractive spectacle, the moths landing in dozens on and around the sheet like drops of gold. Among these were also *P. glareosa* (two of a pink form), *A. diluta*, *Amphipyra pyramidea* L., *T. firmata* and many commoners, making a total of forty-one species between 8 and 11 p.m. On the following day, the weather showed signs of breaking again and I decided to return home, with a brief stop in the New Forest to examine the now renowned Hollands Wood Ablutions blocks. These were very productive, three *Amathes agathina* Dup., one *A. castanea*, two *A. diluta* and two *T. cespitis* being taken from among a host of commoner species. Just as I had finished my rounds, it began to rain heavily and this continued for the rest of my journey.

A cold spell set in for the next week and apart from a few *T. cespitis* and one *M. maura*, very little of interest appeared in the garden trap at Harpenden. A week-end in the New Forest from the 22nd to the 24th of September was somewhat spoilt by clear, moonlight nights, with poor attendance at m.v. light. A number of interesting species were noted however, and these included two further *A. agathina*, one *A. castanea* and one *L. ornitopus*. Late butterflies were fairly numerous on the sunny afternoon of the 23rd, the most noteworthy of which were one *Vanessa atalanta* L. and late specimens of *Eumenis semele* L. Back in Hertfordshire the usual autumn species were just beginning to emerge, a further indication of the lateness of the season here. A trip to Symondshyde Great

Wood on the 29th produced my first ever *Dryobotodes eremita* F. and a fine female *Aporophyla lutulenta* Schiff. Ranmore on the following night produced *A. diluta, T. cespitis, Tiliacea aurago* Schiff. and *Aporphyla lunula* Stroem. despite a cold easterly wind.

October opened with sunny days but cold nights. A brief stop at Ashridge on the way home from visiting relatives in Oxfordshire on the 2nd was notable only for the very large number of *D. alniaria* which descended from the surrounding birch trees to the sheet in swarms. During the first week of the month a spate of *T. aurago* came to light in Harpenden, and other notable October moths in our area were single specimens of *Rhizedra lutosa* Hübn. (on the 11th), *Griposia aprilina* L. (on the 17th), and *Thera juniperata* L. (on the 24th).

The last trip of the year was made to Ranmore on 5th November in mild but very misty conditions. The main quarry was *Ptilophora plumigera* Schiff. and although no males came to the light between 4.45 and 7.15, I had the good fortune to pick up a female from the grass under a maple tree very near the site of the m.v. light. Female *plumigera,* I am reliably informed, do not fly until midnight and so I consider this find a considerable stroke of fortune. (Unpredictability in the female obviously extends to the moth world!). I regrettably did not keep the specimen for eggs, as I suspected that she was a virgin and did not wish to risk a good specimen (my only one to date). Besides this specimen, several *Conistra vaccinii* L. and three specimens of *Eupsilia transversa* Hufn. were taken among ten species.

My season ended with the emergence in late November and early December of several specimens each of *Erannis durantiaria* and *E. defoliaria,* including females of both species.

In retrospect, I can say that the past season was an extremely productive and enjoyable one, even though the elements did their worst. Most of my efforts were admirably rewarded, and I must acknowledge the considerable help of innumerable friends and acquaintances, whose contributions to the making of such a season, whether as advisors or as kindly hosts, have been much appreciated. However, I feel I owe the most to my wife who, although a novice to the sport, has been my almost constant companion in the field. Her stoicism in the face of climatic vicissitudes and her practical help in sustaining me, both gastronomically and spiritually, even during my most difficult forays, have been remarkable. Moreover she is actually looking forward to the coming season as much as I am! On this note, I bring to a close this success story with great hopes for 1973.

'Onaway', 66 Cravells Road, Harpenden, Herts.

Notes and Observations

NYMPHALIS POLYCHLOROS L. IN SOUTH ESSEX.—On 3rd August I was very surprised to see a specimen of this butterfly on a buddleia in my front garden. Although not fresh it did not appear to be damaged it was there for about half an hour and I could easily have captured it had I so wished, but as it appeared to be a female and there are still a good many elms near, I left it in hopes.

There were several other insects of the group on my three buddleias, 2 *Vanessa atalanta* L. and 3 *Nymphalis io* L. all freshly emerged, and about half a dozen *Aglais urticae* L.

The last time I have any record of *polychloros* in this district was in 1950, when one or two were seen on buddleias in this road on the grass verge opposite my house. The butterfly had before that been seen every year since 1942.—H. C. HUGGINS, 65 Eastwood Boulevard, Westcliff on Sea.

AUTOGRAPHA BRACTEA D. & S. AND HYLES GALLII ROTTEMBURG IN THE NEW FOREST.—On the night of July 26th-27th 1973 a male *A. bractea* (Gold Spangle) came to my m.v. trap here. One wonders where he came from. On the night of August 1st-2nd 1973 a male *H. gallii* appeared in the trap.—L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

AUTOGRAPHA BRACTEA D. & S. IN GLOUCESTERSHIRE IN 1972 AND 1973.—During the twenty odd years in which I have run a m.v. trap in Gloucestershire I have never seen *A. bractea*, which is a very rare wanderer so far south, but last year single specimens appeared in the trap on July 20th, 21st (a female) and 31st. I left for Orkney on 3rd August, so there could have been more. This year there were two on 19th July and a few since then, so they are obviously breeding in the immediate neighbourhood. Our garden, between Stroud and Cirencester, is surrounded by rough open woodland which, further north, would be considered an ideal locality for *bractea*.—R. P. DEMUTH, Watercombe House, Oakridge, Glos., 25.vii.73. (In view of these occurrences and Mr Siggs' record for Hampshire, it would be most interesting to hear if *bractea* has appeared elsewhere in the south.—Ed.).

EUHYPONOMEUTA STANNELLA (THUNBERG) (LEP.: YPONOMEUTIDAE) IN DOVEDALE.—It may be of interest to record that this species is still to be found in a very restricted area on the Staffordshire side of Dovedale, where it was discovered by the late H. W. Daltry in 1926 (*Entomologist*, January 1929). On 6th June 1973 the moths were found in numbers. It seems strange that although the food plant, *Sedum telephium*, occurs in several of the Derbyshire dales and no doubt in similar places elsewhere, the moth has never been found in any other locality in the British Isles. — R. G. WARREN, 32 Whitmore Road, Trentham, Stoke-on-Trent, Staffs.

HYLES GALLII ROTTEMBURG IN ARGYLLSHIRE.—My friend Alan Harding, of East Tilbury, captured a fine specimen of

H. gallii at Loch Eck, Argyllshire on the morning of 16th July 1973. It had presumably been attracted by some neon strip lights at the caravan site there. — R. TOMLINSON, 51 King Street, Stanford-le-Hope, Essex, SS17 OHJ.

EXTENSION OF RANGE OF PARARGE AEGERIA (L.) IN SCOTLAND.—On 20.viii.1972 I observed a few individuals of this species in a garden at North Strome, W. Ross, an area well outside the range shown by Heath (1970, *Provisional Atlas of the Insects of the British Isles, Part 1, Lepidoptera Rhopalocera.* Biological Records Centre). My belief that I had found the most northerly colony on the west coast was shattered when soon afterwards I received a letter from Mr J. M. C. Fenton stating that he had seen a Speckled Wood in the Scottish National Trust garden of which he is Warden at Inverewe, W. Ross, about 35 miles further north. At almost the same time I received from Dr R. Richter of Burghead, Moray, a record of Speckled Woods seen in Culbin Forest, Nairn, two specimens of which were collected and presented to the Royal Scottish Museum. This is not the first record from the Moray Firth area: in 1956 Davison recorded *P. aegeria* from the north-east end of Loch Ness (*Entomologist* **89**: 15) and in 1969 Hulme published a record from the Black Isle (*Entomologist's Rec. J. Var.* **81**:284). However Dr Richter tells me he has collected in the Culbin area for many years and has never seen the species there before. In view of the complete absence of records before 1956 it seems probable that *P. aegeria* has colonized the Moray Firth area within the last 20 years. — E. C. PELHAM-CLINTON, The Royal Scottish Museum, Edinburgh, 14.vi.1973.

STENOPTILIA SAXIFRAGAE FLETCHER (LEP.: PTEROPHORIDAE) IN STAFFORDSHIRE.—Mr F. Harrison of the Derbyshire Entomological Society recently mentioned to me that *S. saxifragae* had been found in gardens in that county and suggested that it might well be found in Staffordshire also. I looked for it on plants of mossy saxifrage in my own garden but could find no trace of it. However, on 23rd June 1972 I visited Mr G. A. Lovenbury at Wall Grange, near Leek, Staffs. and he told me that he had seen a plume moth in the garden which was unfamiliar to him. On looking round we soon found a plume moth sitting on a clump of mossy saxifrage and this proved to be *S. saxifragae*. More have been seen since.

It would be interesting to know if this species is becoming introduced to gardens in other parts of the country.—R. G. WARREN, 32 Whitmore Road, Trentham, Stoke-on-Trent, Staffs.

HYLES GALLII ROTTEMBURG AND OTHER LEPIDOPTERA IN NORTH WALES.—A specimen of *H. gallii* came to flowers of phlox in my garden on 28th July; this is an unusual migrant for the north Wales coast. Other migrants for this year are

Autographa gamma (L.), plentiful from 27th June to present date; *Plutella xylostella* (L.) (*maculipennis Curt.*) from 2nd July being abundant 12th to 23rd; from faded condition, I suspect an incoming of *Autographa pulchrina* (Haw.) at the end of June. All above noted at Glan Conway. Butterflies appear to have recovered from the scarcity of the past two years in the region of the Conway Valley. *Boloria selene* (D. & S.) was common on appropriate high ground in late June and early July; *Aglais urticae* (L.) after a period of relative scarcity, has become plentiful again and a good number of *Celastrina argiolus* (L) were seen in May. The portable light trap has been well attended compared with 1972. A feature has been *Autographa bractea* (D. & S.) for 36 have been noted instead of the usual odd specimens. *Tetheella fluctuosa* (Hubn.) has been plentiful in the woods from early June and was still found in good condition on 31st July. *Mompha ochraceella* (Curt.) has been bred from *Epilobium* and I have clearly overlooked this species. Though the moth has not yet emerged and the identification is made from its long case, the most interesting find has been *Coleophora inulae* Wocke in numbers on *Pulicaria dysenterica* L. near Llandudno. Is Meyrick's distribution "Surrey, Hereford, local" still good?—H. N. Michaelis, 5 Glan-y-Mor, Glan Conway, 6.viii.1973.

Wingless Moths and a Frog at the Light-trap.—I was interested in Mr Sokoloff's account of finding a wingless female *Agriopis marginaria* Fab. on the outside of his light-trap; but I think the conclusion that it had crawled towards the light is non-proven. At various times I have had the wingless females of that species and also of *A. leucophaearia* D. & S. and *Operopthera brumata* Linn. inside my trap. These were, however, all paired with males, which had presumably carried them into the trap from wherever the pairings began. It is at least possible that Mr Sokoloff's lady *marginaria* was similarly carried to the outside of the trap and there abandoned by her lover.

Two nights ago, when I was surveying my trap before going to bed, I was startled by a series of loud thumps on its cellaphane collar. These were caused by a large frog, which was trying to jump from the ground to the bulb. Perhaps fortunately both for the frog and the bulb, it could not quite make it, and after about a dozen jumps it abandoned the attempt. When last seen it appeared to be stalking some of the moths which had settled on the surrounding grass. It is an open question whether its frantic leaps were occasioned by attraction to the bulb or by a desire to catch the moths which were buzzing round it.—R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Surrey.—6.7.73.

An Immigration of the Diamond-Back Moth?—During the weekend of 14th to 16th July this year we had a very strong and persistent wind from the north east associated with a low

pressure system in south east England. At the time I wondered whether or not some interesting species might occur in the subsequent week. On the 19th, a few specimens of the diamond-back moth (*Plutella xylostella* (L.)=*maculipennis* (Curtis)) appeared in my trap here on the outskirts of Kendal. On the night of 21st/22nd July there were well over one hundred specimens of this moth in the trap. On subsequent nights numbers dropped to just the occasional specimen and in the last few days no more have occurred. It would appear that an immigration occurred over the week-end of the 14th to 16th in association with the easterly wind.

It will be recalled that a vast immigration of this species occurred in 1958 and was again associated with a period of persistent winds from the north east. It would be of much interest if other observers found a similar influx of this species at the same time.—Dr NEVILLE L. BIRKETT, Kendal Wood, New Hutton, near Kendal, 26th July 1973.

APHANTOPUS HYPERANTUS L. OVIPOSITING — There are two butterfly species in Britain which some books say drop their eggs "haphazardly as they fly along". I commented on one, *Melanargia galathea* L. (Marbled White) last year in *Ent Rec.* **84**: "93"(125). This afternoon I saw four eggs laid by the other, *A. hyperantus* L. (Ringlet), all during sunny intervals while the insect was at rest on grass blades. Shortly before the sun appeared she opened her wings flat. Soon after it appeared a few very slight heaves of the abdomen were followed by the extrusion of the pale greenish egg, which dropped on to the corner of a hindwing and stayed there until she flew to a nearby *Centaurea* flower. After drinking, she flew to another blade of grass and the routine was repeated, but the next egg fell to the ground immediately. The third egg followed after about a minute and fell, while a fourth egg, after a similar interval, again lodged on the hindwing until proceedings were interrupted by the attentions of an importunate male.—C. F. COWAN, Little Gaddesden House, Berkhamstead, Herts., HP4 1PL. 11.vii.1973.

Current Literature

British Butterflies, Series 1 and 2, text and photographs by **George E. Hyde.** Jarrold Colour Publications, Norwich, 1973. Price 20p each.

These two reasonably priced little books form an illustrated introduction to all the butterfly species found in the British Isles. They consist of 32 pages each and include altogether 80 illustrations of which 50 are in colour. Except that the insects are not shown natural size (though the true measurements are given), and some are considerably larger than that, e.g. the Marbled White is here the size of the Purple Emperor, these are on the whole remarkably good reproductions of the work of a master photographer. The text is lucidly written in a pleasant style and by someone who obviously knows his subject well.—J.M.C.-H.

EXHIBITION

of hard-paste porcelain original sculptures by

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depicting

British Wild Flowers and Butterflies

(and other insects)

3rd-25th October 1973

This is probably the first time in the last 100 years that original porcelain sculptures of this delicacy have been made and exhibited in England. The artist is a dedicated conservationist, as well as being a sculptor and naturalist, and many rare and endangered species will be depicted in this show. Amongst the butterflies are:—

Polygonia c-album, Nymphalis polychloros, Gonepteryx rhamni, Callophrys rubi, Argynnis euphrosyne and Hamearis lucina. Other insects included in sculptures are Dytiscus beetle, Pyrochroa coccinea and Hydrometra stagnorum.

Further information may be obtained from either:— Moorland Gallery, 23 Cork Street, London W1. *(Tel.* 01-734-6961) *or Brookside Studio, Longdon, Tewkesbury, Glos. (Tel.* 068-46-2761). *(A percentage of sale price is being donated to County Conservation Trusts).*

OF INTEREST TO COLLECTORS

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OF THE AMATEUR ENTOMOLOGISTS' SOCIETY

will be held at

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Request for Information — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), **72**, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) **2**), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton ,20 Gore Court Road, Sittingbourne, Kent, ME10 1QN

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Butterflies (including rare specimens, moths and other insects—*on stamps* —Sale or exchange.—A. Grainger, 42 Lee Lane East, Horsforth, Nr. Leeds.

For Sale—MV moth trap, all fittings, new 1972.—J. C. Sutton, 157 Belper Road, Bargate, Derbyshire.

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 must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

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VOL. 85, No. 10 October 1973

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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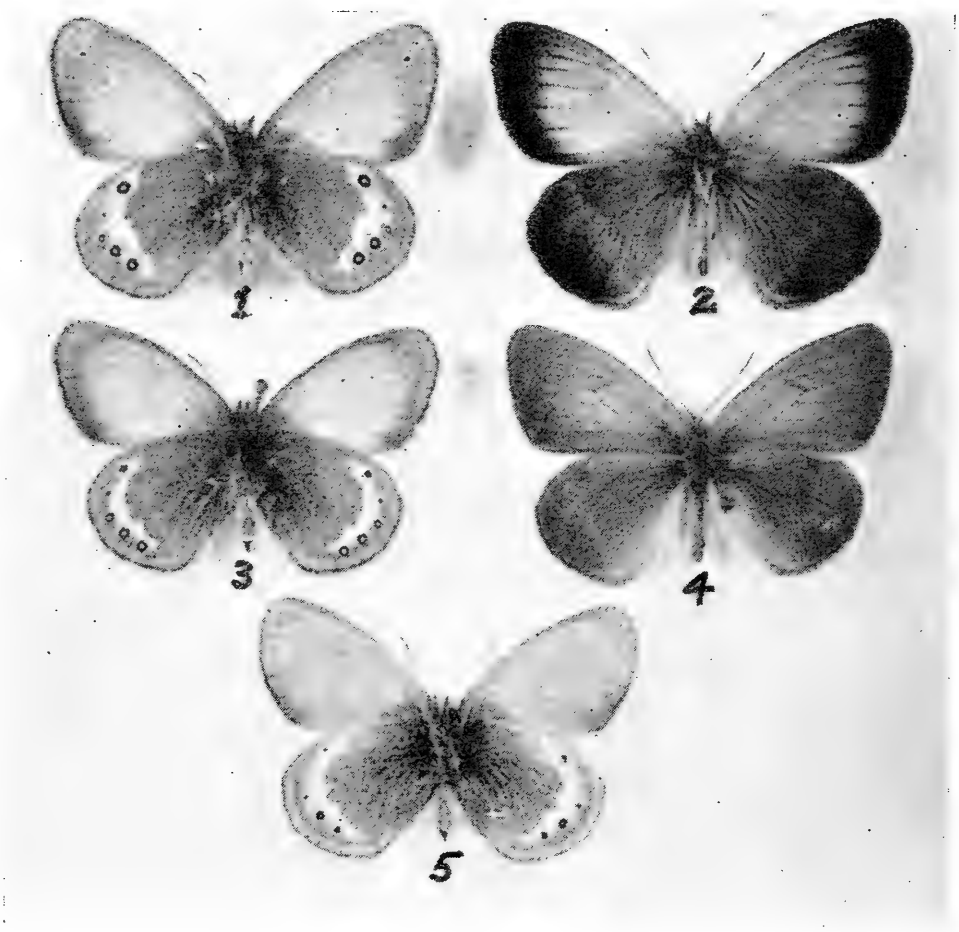

Coenonympha males

Top left—1. Up is normal *arcania;* Un is like *darwiniana,* and the H ocelli are yellow-ringed, with outer brown rings.

Top right—2. Normal *arcania,* Up and Un.

Mid. left—3. Up is normal *arcania;* Un is like *darwiniana,* but the H ocelli, although faintly yellow-ringed, lack the outer brown ring.

Mid. right—4. Up is like *darwiniana,* or even *gardetta;* Un is nearly *arcania,* but the inner edge of the white band H is rather regular, as in *darwiniana.*

Bottom—5. Up is similar to No. 4; the Un H ocelli are yellow-ringed, and have faint outer brown rings. The Un F margins are rather like *gardetta.*

Coenonympha: A Mixed Population of *arcania, darwiniana* and *gardetta*

By Major A. Bedford Russell

During a pause near Grenoble (Isère) on the way to the South of France last summer, I found fresh *C. arcania* and *C. gardetta* sharing some clearings in the conifer forest at about 5000 feet, on 31st July. With them were a few insects having the facies characteristics of *darwiniana,* in varying degrees. The four examples taken were all fresh males (see plate). Unfortunately—or even inexcusably—I was not thinking about *darwiniana* at the time, and was merely collecting a sample series of the two species in this locality; I don't doubt that I could have found more examples, and females.

The data on distribution, habitat and time of flight given in two recent works (Bretherton 1966, and Higgins and Riley 1970) show that *arcania* and *gardetta* can fly together, in July and between 900 and 1500 metres, "though this rarely happens". Hoffman, 1946, wrote of the "Zusammenfliegung" of these two species near Salzburg.

It appears that *darwiniana* has at some time been regarded as a separate species; Bretherton calls it a form of *arcania,* as did Lang in 1884, and Higgins and Riley place it firmly as a supspecies thereof. Bretherton writes of it as being found above 1500 metres, and Higgins and Riley place it in sub-alpine meadows at 5000 ft or more, rarely lower.

The presence of *darwiniana* individuals in one of the rare, mixed *arcania-gardetta* populations, on 31st July at around the 5000 ft level, seems to indicate the possibility of some interbreeding. These insects were found near the lower limit for *gardetta* and *darwiniana,* and at a high altitude for *arcania.* They were flying very late for *arcania* (unless the latter were representatives of a second brood), but at about the peak period for *gardetta* and *darwiniana.* Both for date and altitude, *arcania* was the outsider. If interbreeding between *gardetta* and *arcania* were physiologically feasible, it would be tempting to regard *darwiniana* as the result. If interbreeding be ruled out, then it seems that the "*darwiniana*" were either aberrations of *arcania,* which I doubt, or representatives of some variational trend that affects *arcania* colonies at high altitudes. There are a few Malayan butterflies whose montane representatives differ to some extent from their lowland ones. Perhaps, in time, that locality will hold no more *arcania,* and even no more *gardetta,*—only *darwiniana.*

It would be most interesting to know whether *darwiniana* has been recorded elsewhere flying together with either of the species, or both.

Hydrillula palustris (Hübner) in Lincolnshire

By R. E. M. Pilcher

Since several people have now visited the Lincolnshire coast in order to obtain a series of that normally elusive insect *Hydrillula palustris* and generally with considerable success, it may be of interest to describe the stages which have led to its discovery in a number of sites in this County.

My interest in the moth began when I was up at Cambridge and used to join my father in Wicken Fen in the days when old Barnes, the keeper, allotted one a length of drove in the fen, a number of sugaring posts, a vertical sheet and a lamp, and left one to it. We never found *palustris* but one day we joined a group of collectors who were listening with every evidence of distress to the tale of how someone the previous night had killed a female *palustris*. We knew it was a rare moth but I do not think we had appreciated the extreme rarity for we knew that twenty years previously, in 1902, a male had been taken in Lincolnshire but we did not know where.

Having the type of habitat at Wicken in mind, and later that of Woodwalton, we worked assiduously, as opportunity offered, those areas of fenland which still persisted at that time between the wars. We turned up many interesting species but no *palustris*. My father died in 1942 and when, after the war, it was possible to resume collecting again, I was joined by two younger friends who without any special interest in my quarry were only too pleased to collect the other species my father and I had discovered. No *palustris* appeared and we decided that if it occurred at all in the Lincolnshire fens, it must have a very low population density.

In 1968 I retired and left the fens to go and live in the Lincolnshire Wolds. Although I ran a Robinson trap all the following year my main occupation was the recovery of a rather neglected garden. In the winter of 1969 I reduced the height of ten foot hawthorn hedge at the bottom of my paddock to about three feet so that the following year my light trap overlooked an area of pasture and a freshwater marsh. On 20th June 1970 a male *palustris* appeared in the trap. It seemed certain that the moth had come from Calceby Beck marsh, the marsh my paddock overlooks, and in the following year, 1971, I placed two Heath traps in the marsh. On the 6th June a second male appeared. I was joined a few days later by two friends but in spite of using five traps of both Robinson and Heath varieties, no more *palustris* appeared. Calceby Beck marsh presents certain problems from the moth trapping point of view. It can only be worked with the co-operation of the farmer for he grazes rather more than a hundred bullocks in the marsh and surrounding pasture. These beasts have been hand-reared since the first few days of their existence and have nothing but extreme friendly feelings for human beings. If a man walks into the field, the beasts rush to him with every

evidence of pleasure, they crowd round him and refuse to be parted from him, following him wherever he goes. This well-meaning behaviour of the beasts makes trapping impossible unless the farmer agrees to confine the beasts to a small field while trapping is in progress. The farmer did this willingly enough for two weeks but after that the beasts were short of grazing and he had to let them out. I therefore moved to a second site about half a mile away, Swaby Beck marsh, where two male *palustris* appeared on two successive nights.

That same year, 1971, I also ran a static trap at the Gibraltar Point Nature Reserve and on the 5th June a male *palustris* appeared in it with a second specimen on 15th June. This was not as surprising as one might have imagined for the capture of my first specimen the previous year had stimulated me to make a more thorough investigation of that 1902 specimen, and as I recorded in E.R. 83, p.23, when I reported the capture of my first specimen, it had been taken by Messrs Musham and Arnold on the 21st June 1902 in the coastal sandhills at Theddlethorpe. After I had learnt of this coastal capture I had regarded Gibraltar Point Reserve as a likely habitat, rather better than Theddlethorpe, but I felt that if I was going to look for *palustris* on the coast, Saltfleetby must be the first choice. Here a marshy area of freshwater dune slacks gradually tails off at either end into dry juncus-fringed coarse grassland.

I had now in 1972 two large areas to explore, Gibraltar Nature Reserve, an area of more than 1500 acres with one area almost as likely as another to produce *palustris,* and the Theddlethorpe-Saltfleetby Nature Reserve of about 1200 acres, differing from Gibraltar Point in that one small area appeared to be so much better than any other. This seemed rather a big task for one person to achieve within the period of no more than three weeks during which *palustris* might be expected to fly. When, therefore, Bernard Skinner wrote to me and asked if he could help, I welcomed the opportunity of having someone at a site I could virtually pin-point while I worked the wide and more uncertain area of Gibraltar Point. I expected that we should have many blank nights but in the event I was very wrong. On his first night at Saltfleetby, 10th June, Skinner found *palustris* the commonest moth in his traps, some twenty-five being present in the morning. On the next night we saw only seven—how quickly one drops to the word "only" when one describes what such a short time previously would have been a record night. On the next night, 12th June, at 9.50 B.S.T. I found a male on a stem of *Agrostis* with a little *Equisetum* for several yards around. I did not stay longer at Saltfleetby that night but went on to Gibraltar Point where seven more *palustris* appeared in my trap and five more on a second visit later in the week. Meanwhile O'Keefe had paid a most successful visit to the Saltfleetby site (see E.R. 85, p.55).

The first *palustris* appeared at Saltfleetby on 10th June and the last on 26th. At Gibraltar Point the first appeared on the 9th and the last also on the 26th. Only males were seen although prolonged searches were made in the hopes of finding a female at rest or a pair *in cop.*

This year, 1973, there appeared to be no useful purpose to be served in visiting Saltfleetby where the moth was known to occur in what amounts to abundance in this normally rare species. On 14th June, because it had been named as the site of capture of the first specimen, I made a single visit to Theddlethorpe and a single male appeared as if to vindicate the honour of those two original recorders. I also visited the extremities of Gibraltar Point and was surprised to find how widespread the moth is there. Meanwhile, as if to remind me of the site that started it all, a male *palustris* appeared on 17th June in the trap in my garden.

I have no doubt that *H. palustris* is at present enjoying a period of exceptional plenty in Lincolnshire but it must have always been there, possibly at a low level of population density for anyone who looked assiduously for it. I searched too long in the fens and the wrong sort of habitat. The cause of the periodic fluctuation in numbers of a species is generally complex, but I believe one favourable factor can be found here, the gradual drying out of its habitat. When I first knew Saltfleetby, over fifty years ago, the area was knee-deep in water in winter and ankle-deep throughout the summer. Now in summer one can walk over almost all the area dry shod and much of it remains dry throughout the winter. It was very noticeable how the moth favoured the dry areas and avoided the marshy (but still not water-logged) parts.

It had been hoped to include a note on the larval habitats and the foodplant but this has not been possible. Both Calceby Beck and Swaby Beck marshes have a very rich flora with abundant Meadowsweet, and this is presumably the foodplant. It has been impossible to examine litter from mowing because the bullocks eat the litter as fast as one grows. Nor has it been possible to examine litter at either Gibraltar Point or at Saltfleetby. In these reserves we have a mowing programme carried out as a means of assessing methods of grass land management. A fly-mow has been used which does not provide satisfactory litter. More orthodox mowing with the scythe or Allen scythe has not been permitted until the results of other methods have been assessed. This year I shall, however, be able to mow as I wish and some information may be obtained. A single larva was found, rather late in the year, at Saltfleetby in litter and this larva nibbled with no great enthusiasm at *Rubus caesius* (which I think is the natural foodplant here), *Lycopus europaeus*, a likely alternative, and Meadowsweet. Meadowsweet is virtually absent from Gibraltar Point and cannot be the food plant; there is very little at Saltfleetby and

none near what appears to be the metropolis of the insect there. The larva seemed unlikely to thrive and was released.

Palustris must be widespread in Lincolnshire. It cannot be due to any exceptional insight on my part that I have found it in all the five sites in which I have looked for it since the capture of my first specimen. There are still several coastal areas between Gibraltar Point and Cleethorpes where I would expect it to occur. There are also many inland marshes, notably around Lincoln and Gainsborough, which would, I am sure, repay a visit. I hope it is not being too naive to hope that some collectors at least will see the greater credit to be obtained by taking a series from a hitherto unknown locality rather than from a site bearing the imprints of innumerable moth traps.

A Melanic Larva of *Lasiocampa quercus* L. ssp. *callunae* Palmer in Caithness, Scotland

By Bernard Kettlewell

Black eggar larvae are found regularly only in two areas of Britain, the Lancashire and Cheshire sand-hills (where such melanic larvae always produce black moths referred to as "*olivacea*") and the Yorkshire moors around Ilkley. Here there are two forms of melanic larvae, "black silky" which always produces melanic imagines, and "chocolate" which give rise to a proportion of these as well as f. *typica*. We have demonstrated that this is the result of "crossing-over" which D. R. Lees showed was 8·9 per cent in one brood and 25·6 per cent in another. The inheritance of all melanic forms, both larval and imaginal is recessive.

Though the frequency of the f. *olivacea* phenotype forms up to 70 per cent of the population in Caithness, no melanic larva has been found in the many thousands we have collected until 1972, when my wife found a solitary one at Breamore in which the ground colour was jet black with lateral white markings. There was a deficiency of the longer hairs. It was highly cryptic as it sat on a heather stem in flower bud. In my opinion this larva was different from both the Yorkshire melanic larvae, chocolate and black silky. Unfortunately it died as a pupa just prior to hatching. I have reproduced a colour print of it in *The Evolution of Melanism* (1973, Clarendon Press). A further point of interest is that the Yorkshire, Lancashire and Caithness "*olivacea*" are each controlled by different genes, though phenotypically they appear similar. On the continent such melanism has been found to exist in Denmark, and also in Eastern Germany.

Genetics Unit, Department of Zoology,
University of Oxford.

"They were Irish Gannets"

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

Several years ago when I was staying at Dingle, one of the waitresses was a student physiotherapist from Dublin, on holiday work. As her home was Westport, Co. Mayo, we had many talks about that county, which I had not visited for fifty years.

The Skelligs are two rocky islets off the Kerry coast, which may be seen from any high position in the Dingle area. There is a lighthouse on Great Skellig (Skellig Michael) where there are also some tenth century monastic ruins; Little Skellig, which is uninhabited, contains the second largest gannet colony in the world, the largest being at St Kilda.

At the last count there were 20,000 pairs and the island is much over-full, yet not one pair will nest on Great Skellig, only a few miles away, and surplus pairs have filled the Bull, near Dursey, and have now worked right round to the Saltees off Wexford.

There would appear to be no reason for this boycotting of Great Skellig, and a friend and I discussed it over lunch without finding a solution. When the conversation flagged my little physiotherapist touched my shoulder and said "Excuse me, Sir, but they are Irish gannets".

In the course of the last fifty odd years I have noticed a similar anomaly amongst Irish insects, I am not referring particularly to dates, but divergences from British habits.

Before going into these, however, I will conclude the story of my Dingle *Celerio galii* Rott. mentioned in my note in the *Record* 85/65. The pupa was beginning to colour up on 10th June, so as I was leaving for a fortnight in Ireland on 16th June, Mr Donald Down kindly took charge of it. On the 19th, a beautiful male emerged, which he photographed, killed, and set for me. I have bred *galii* before, some four specimens in 1914, but those were from pupae L. W. Newman obtained from eggs laid by a female G. B. Oliver caught in Cornwall, whereas this one was from the only egg that hatched from half a dozen laid by a female caught at Dingle on 21st July 1972. It is the largest male I have, as big as any of my females although its mother, which ruined herself in the moth-trap was far larger, the biggest I have ever seen.

I reared the moth from the egg in a glass-topped metal box, 3^1_2 inches in diameter $\times^2$ in depth. When the larva stopped feeding, I put in about half an inch of earth and the same depth of dried sphagnum. It began to race round the box and kept this up for over 24 hours and then spun a flimsy cocoon in the sphagnum.

I was interested in this racing, which reminded me of the newly hatched larva of *Catocala fraxini* L., which does the same on leaving the egg before beginning to feed. I discussed this with Cockayne who had also noticed it and he suggested

it was because the larva is a big food-consumer in its later stages, so the young ones scatter to avoid clearing the tree of leaves. I expect he was right, he usually was, but surely *galii* would not need to go more than three or four yards before pupating.

I will now go on to my "gannets".

Clossiana euphrosyne L. In Ireland only found in the Burren. Usually it flies wildly over the rough country and is difficult to catch, though I have occasionally seen it by the roadside. Although Burren insects are usually as early as those of Southern England I have never seen *euphrosyne* before the first week in June and in 1964 Baynes and I took and released two very fair specimens in the first week in August.

Hepialus lupulina L. In May 1956 I saw an abundant flight of this moth in full sunshine on three occasions in the middle of the afternoon on the side of the coastal road from Ballynalacken to Ballyvaughan. On the other hand I have never seen the dusk flight (universal in Southern England) in Ireland, although I have found *lupulina* commonly in my moth-trap wherever I have set it at Dingle, Inch, Ballynalacken and Bantry. Donovan (p. 19) describes it as rare and in small numbers: this is probably due to the absence of the dusk flight as he did little collecting with a light, and I have often had a score in a night.

Sterrha muricata Hufn. Various times are given for its natural flight, at the only locality where I found it commonly in Ireland it flew freely of its own accord about 4 p.m. G.M.T. on sunny afternoons. This was in two swamps in the Leigh-White demesne at Glengarriff, the only place where more than an odd specimen has been found. I regret to say that this is now Glengarriff State Forest and the swamps drained and planted with firs.

Euphyia bilineata L. This moth follows no rule in Ireland. On many of the swampy bogs it is quite normal, on other similar ones it grades to a dark ribbed form like *Calocalpe undulata* L. On most cliff sides it is the ordinary yellow, but for no apparent reason in others varies from *hibernica* Prout to nearly unicolourous dark brown. On these cliffs it lives in any kind of grass or vegetation, down to the clumps of ragwort at the foot, yet the s.sp. *isolata* Kane lives only in the clefts in the rocks on the cliff side and is never found hiding in vegetation. So far, this form has only been found on Tearaght and Inishvickilaun in the Blaskets, where no other appears.

Abraxas grossulariata L. About two miles down the coastal road from Ballynalacken the larva of this insect feeds literally in thousands on hazel. Of course several insects feed on hazel in the Burren where their usual food-plant does not grow, such as *Tethea duplaris* L. and *Epinotia solandriana* L. where there is no birch, but in this case of *grossulariata* there is as much blackthorn in the hedge as hazel, yet only the hazel, which is almost defoliated, seems chosen.

Pseudopanthera macularia L. On the bare higher ground in the Burren this moth, which is usually associated with woodland glades flies wildly about in the company of *Ematurga atomara* L., from which it is difficult to distinguish when seen against the skyline.

Pyrausta funebris Stroem. In the south of England I have always seen this moth in wide rides in woods, or more especially in the second and third years after felling in clearings where coppicing (now unfortunately becoming rarer) is practiced. In the Burren it may be seen anywhere amongst the rocks and terraces, which is not perhaps so remarkable as there are few woods. But at Glengarriff in West Cork I have never seen it in the extensive woodlands, where there is plenty of goldenrod, but have found a good number buzzing along the sides of rocky streams on dry bogs with no vegetation except the foodplant, some clumps of heather, and an occasional bramble.

Pempelia dilutella Hübn. This moth runs to a large size in the West of Ireland, often exceeding *P. ornatella* D. & S. in size, for which it is easily mistaken in the Burren. The curious point, however, is that in Ireland I have never been able to put it up in the afternoon or evening. I have on the chalk in Kent, Surrey, Sussex and Hants., never failed to do so. In 1961, Baynes and I took a pressure lamp to the top of the cliff above Coomenoole beach. It was not a good night, we saw only eight insects, 3 *Agrotis trux* Hübn., 2 *Hepialus humuli* L. and 3 *dilutella.* These were very large, of a deep crimson colour with white markings. Naturally I was anxious for more and have visited the place, where there are extensive beds of thyme, on at least a dozen occasions in the afternoon and early evening without result. When I was staying at Ballynalacken Castle early in August 1964 the large brown form, so like *ornatella,* came into my moth trap nearly every night, but although I worked the surrounding grounds every day and at all hours I never saw one fly.

Platyptilia calodactyla D. & S. In England I have always found this moth in woodlands, similar to those of *funebris* with which it often co-exists. After my wife took the first authenticated Irish specimen in a grassy bohireen in 1962, Baynes visited Dingle with me in the followng year to find out more. We found it locally common but always on road-banks, except on two occasions in gardens, one at Miltown and the other at Benners Hotel in Dingle itself. Here part of the garden was then overgrown with weeds and amongst these were *calodactyla* and *Perizoma blandiata* D. & S. Subsequently the garden was entirely cleared up and "made a perfect picture" with no more rare moths.

A reported occurrence of Maculinea arion L. in South West Ireland.

Some twenty-five years ago a report was in general circulation that *arion* had been discovered on an island in the Heb-

rides. So far as I am aware this never appeared in print[1] and subsequent searching has produced no confirmation.

A similar record was made eleven years ago to Mr E. S. A. Baynes which was investigated by him, my wife and myself. Baynes did not write on the subject, and as I am unhappily the sole survivor of the investigators and rumours may still circulate in Dublin, it seems to me desirable to put the facts on record.

In 1962, a youth called at the National Museum at Dublin and asked to see the "Blues". After examining them he told the curator of the insects that he had discovered the Large Blue at Dunboy, in West Cork. He was very sensibly referred to Mr Baynes to whom he gave further details, though he had no specimens.

Baynes did not know Dunboy and as he knew I had been over most of that part of Ireland wrote to me for an opinion. I replied that from the soil it seemed a most unlikely place (I knew Dunboy well) and we left it at that.

In 1963, my wife and I went as usual to Dingle for the summer and Baynes joined us there. He had come chiefly to find the local distribution of *calodactyla* which my wife had discovered the previous year, but he was still interested in this *arion* record and after repeating the story, produced a sketch-map of the place in which there was a large space marked as covered with wild thyme. I still said the soil was not suitable and we agreed that this record, like the Hebridean one was "very Rhum".

However, at the end of the week as the time was right and the weather splendid we agreed to make the trip. On arriving at Dunboy we parked the car just in front of the ruins of the fine house of the Puxleys, burnt out in the "troubles".

My wife got out first and whilst Baynes and I were unpacking the boot went along with her net. In a couple of minutes she returned and said. "There's your Large Blue, Ted" and showed a very fine male *icarus*, like those that occur at Belmullet. Baynes however insisted we must look at the thyme-bed, so we went through a squashy farm path to the place marked on the map at the back of the ruin. Here, exactly where the thyme-bed was marked, was a big patch of dwarf lousewort, it was growing on a wet acid bog in which thyme if planted would have been dead in a month. A number of the big *icarus* were flying about, which gave a final answer to the supposed record.

[1] J. W. Heslop Harrison, The Passing of the Ice Age (in *The New Naturalist: A Journal of British Natural History*, p. 89, pub. Collins, 1948) refers to the "presence on Rhum of such species as the Large Blue . . . " However, we have never had confirmation of this record. —Ed.

A Brief Collecting Tour in Malaya, August 1972

By C. G. M. De Worms, M.A., PH.D., F.R.E.S.

(*concluded from page* 210)

Prothoë calydonia Hewitson. Gombak Valley.
Polyura athamas samatha Moore. Ulu Langat and Bukit Tarek.
Polyura hebe chersonesus Fruhstorfer. Bukit Tarek.
Polyura delphis concha Vollenhoeven. Tea Estate.
Charaxes polyxena crepax Fruhstorfer. Ulu Langat.

LYCAENIDAE
Pithecops corvus Fruhstorfer. Gombak Valley.
Allotinus subviolaceus alkamah Distant.
Castalius roxus pothus Fruhstorfer. Ulu Langat and Bukit Tarek.
Jamides celeno aelianus Fab. Plentiful at the Tea Estate.
Athene emolus goberus Fruhstorfer.
Athene lycaenoides miya Fruhstorfer.
Nacaduba nora superdates Fruhstorfer. Ulu Langat and Gombak Valley.
Nacaduba helicon merguiana Moore. Ulu Langat.
Nacaduba dubiosa lumpura Corbet. Gombak Valley.
Curetis santana malayica C. & R. Felder. Ulu Langat.
Arhopala centaurus nakula C. & R. Felder. Bukit Tarek.
Arhopala eumolphus maxwelli Distant. Tea Estate.
Arhopala opalina azata Nicéville. Tea Estate.
Arhopala zambria Swinhoe. Tea Estate.
Arhopala buddha cooperi Evans. Tea Estate.
Spindasis lohita senana Fruhstorfer. Pantai Reservoir and Ulan Langat.
Eoöxylides tharis distanti Riley. Bukit Tarek.
Catapaecilma major emas Fruhstorfer. Ulu Langat.
Remelana jangula travana Hewitson. Tea Estate.
Loxura atymnus fuconius Fruhstorfer. Ulu Langat and Bukit Tarek.
Sithon nedymond Cramer. Bukit Tarek.

RIODINIDAE
Zemeros flegyas albipunctata Butler. Bukit Tarek.

HESPERIDAE
Ampittia discorides camertes Hewitson.
Iambrix salsala Moore. Seremban district.
Iambrix obliquans Mabille.
Koruthaialos sindu C. & R. Felder. Bukit Tarek.
Isma protoclea iapis Nicéville. Seremban district.
Hidari irava Moore. Bukit Tarek.
Potanthus trochala tytleri Evans.
Telicota augias L. near Seremban.
Notocrypta paralysos asawa Fruhstorfer. Bukit Tarek.
Pelopidas conjuncta Herrich-Schäffer.

The following species of Moths were, except for the Zygaenidae those identified from captures at the wayside cafè at the top of the Gombak Valley, almost on the Pahang-Selangor border.

SPHINGIDAE
Daphnusa ocellaris Walker.

COSSIDAE
Xyleutes strix L. *Xyleutes leuconotus* Walker.

ZYGAENIDAE
Artona fulvida Butler.

NOTODONTIDAE
Gangarides rosea Walker.

LYMANTRIIDAE
Euproctis xanthomela Walker, *Euproctis digramma* Boisduval, *E. azela* Collenette.

ARCTIIDAE
Asura interserta Morse, *Creatonatus transiens* Walker.

AGARISTIDAE
Longicella mollis Walker.

NOCTUIDAE
Heliothis assulta Guenée, *Anua trapezium* Guenée, *Thyas dotata* Fab., *Episparis tortuosalis* Moore.

GEOMETRIDAE
Thalassoides spec., *Agathia laetata* Fab., *Plutodes discigeria* Butler, *Fascelina albiscata* Walker, *Boarmia lioptilaria* Swinhoe, *Carecomotis biclavata* Fletcher, *Sarcinodes restitutaria* Walker.

In the identification of the 89 species of Malayan butterflies listed above I was greatly helped on the spot by Mr and Mrs Wickham Fleming and by Mr Henry Barlow and later by reference to that classic work, "The Butterflies of the Malay Peninsula" by Steven Corbet and H. M. Pendlebury (1956 edition) kindly lent me by Mr A. G. Batten as also was a smaller but equally helpful work "Common Malayan Butterflies" by Prof. R. Morrell. I must also express my warmest thanks to Mr T. G. Howarth of the British Museum (Natural History) for much help and advice in indentifying some of the smaller species, especially among the Lycaenidae, while to Col. J. N. Eliot I am extremely indebted for his assistance with the difficult genus Arhopala. My final gratitude goes to Mr Alan Hayes and to Mr W. H. Tams, both of the Museum, for naming

a diversity of moths belonging to several families, among which there was at least one small unknown Lasiocampid and a diminutive Euproctis also undescribed.

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Amathes (*Paradiarsia*) *glareosa* (Esper) f. *edda* Staudinger on the Mainland of Scotland

By Bernard Kettlewell and Charles Gibson

Last year (1972), as anticipated, we found the melanic form of this species in northern Caithness. Of 45 *glareosa* taken in three localities, 20 were f. *edda* and from this small sample, it appears that, away from sand dunes, the frequency is about 50 per cent. Previously, over the past few years, one of us (H.B.D.K.) had sampled over 30,000 specimens from 22 localities in Shetland. Here, 97 per cent were f. *edda* on the northern-most island of Unst. Southwards, there was a cline over the 54 miles length of Shetland to Dunrossness, where the frequency is under 2 per cent. Lorimer and Ffennell have recorded this form in Orkney and Fair Isle, 37 and 15 per cent respectively. The majority of f. *edda* from Unst are extremely dark, less so from Dunrossness. Orkney *edda* are substantially paler. The new Caithness specimens are silvery grey but nevertheless quite distinct.

I (H.B.D.K.) have recently figured the Shetland and Orkney *edda* in *The Evolution of Melanism* (1973), and given details of how the frequency of this form may be largely influenced by the predation of migrating birds on their landfall. The Common Gull (*Larus canus*) appears to be one of the main predators. f. *edda* is likely therefore to be found in limited coastal areas of heather peat in Caithness and not in the mountains of Sutherland. Abroad it is found locally on the coasts of Denmark. f. *edda* is dominant to f. *typica* but not completely so, as except in Unst, the majority of heterozygotes are somewhat paler.

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University of Oxford.

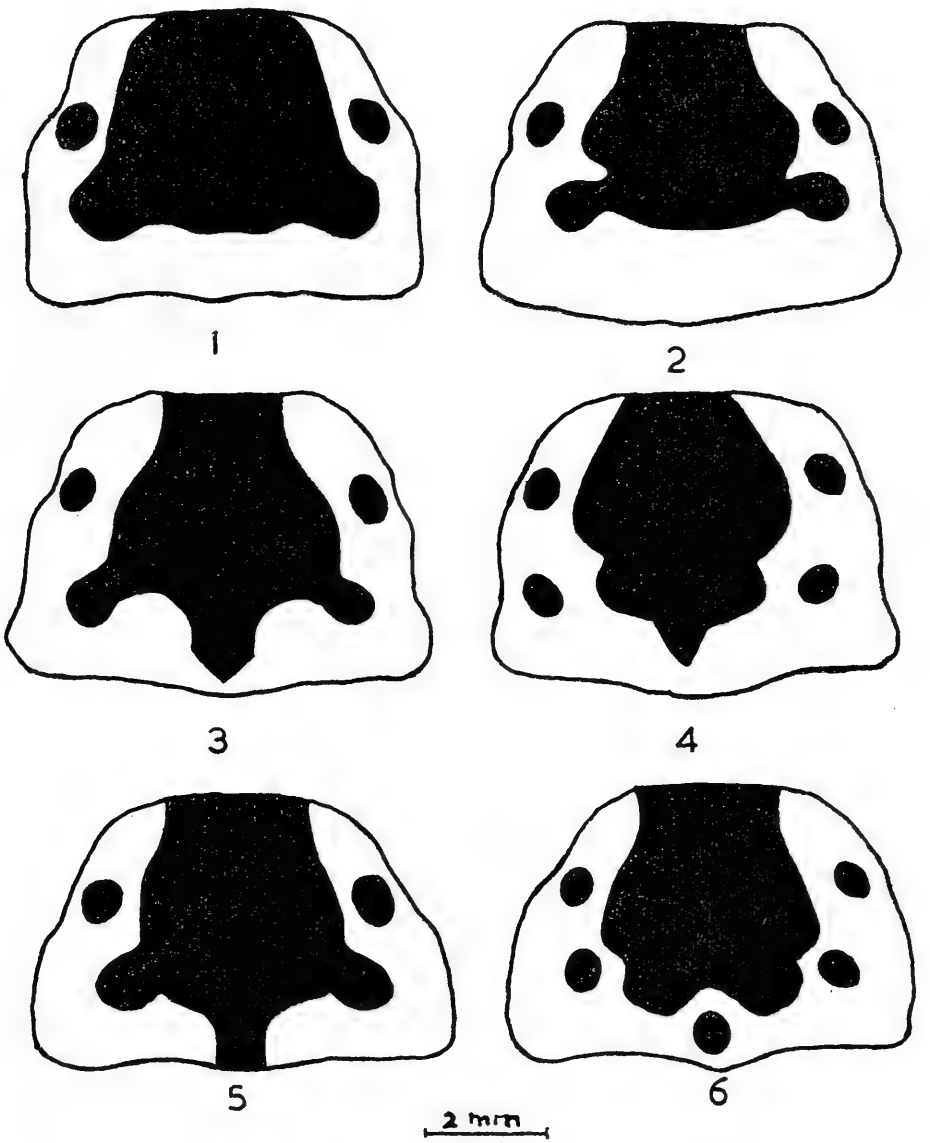
Hypena obesalis Treitschke in Warwickshire. — On the night of 26th August 1973, I took here in my m.v. trap a good ♀ specimen of *Hypena obesalis*. This appears to be only the third record of this species in Britain (cf. *Ent. Rec.*, **81**: 336).— David Brown, Charlecote, near Warwick.

Variation in the Pronotal Spots in *Macroma melanopus* Shaum (Coleoptera : Scarabaeoidae: Cetoniidae)

By R. K. KACKER

Zoological Survey of India, Calcutta-12

While studying a small collection of 9 examples of the Cetonine beetles, *Macroma melanopus* Shaum, from Shillong (Meghalaya), I came across an interesting instance of pronotal variation.



Figs. 1-5. Pronotum of *M. melanopus* showing variation.
Fig. 6. Hypothetical type of pronotum.

Originally this species was described by Hope (1841) as *M. nigripennis,* but subsequently Shaum (1848) also described the same species as *M. melanopus.* Arrow (1910) has preferred to retain the latter name as valid. This species is distributed over north-east India (Khasi Hills, Jantia Hill, Manipur, Assam), Bangla Desh (Sylhet), Burma (N. Khayen Hills) and Siam.

Identity of this species can be made by its black elytra with clypeus, angular basal prolongation between the eyes, lateral and hind margins of pronotum except a black spot in the middle of lateral borders, sides of the metasternum, hind coxae and antennal club yellow (Fig. 1).

In the present series of specimens an interesting case of variation in the pronotal spots has been observed. There is evident prolongation of the middle black patch, towards the basal angles of the pronotum (Fig. 2), which ultimately tends to give rise to two small spots (Fig. 4). In another specimen a distinct downward extention of middle black patch towards the base of pronotum has been observed which joins the base of the pronotum (Figs. 3, 4 and 5). There is a strong presumption that the species with 5 spots, four lateral and one basal, may be found in nature if intensive survey is made (Fig. 6).

There is no evidence whether this type of variation in the pronotal spots is due to geographical distribution since all these specimens are collected from the same locality in Shillong. However, their genetical significance cannot be ruled out for the reason that they are from the same population sample.

I am grateful to Dr A. P. Kapur, Director, Zoological Survey of India, for kind facilities and Shri K. S. Pradhan, Superintending Zoologist, for various help.

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Argema kuhnei Pinhey and *A. mimosae* (Bsd.) (Lepidoptera, Saturniidae) – A Comparison

By D. G. Sevastopulo, F.R.E.S.

Mr Kuhne's detailed notes on *A. kuhnei* (1973, *Entomologist's Record,* **85**: 27-30) reveal a number of differences between it and the better known *A. mimosae.*

There is a considerable difference in the appearance of the full grown larvae, the scoli of *mimosae* are fleshy cones, the base extending to both margins of the somite and meeting that of the opposite scolus mid-dorsally, whilst that of *kuhnei,* judging from the figure, is an erect Eiffel Tower

affair. Generally the larva of *mimosae* is a far stouter and more compact larva than that figured for *kuhnei*. The colour is much the same, *mimosae* being a beautiful green with the intersegmental divisions whitish, spiracles greenish yellow with a white dot at each end. Thoracic legs reddish purple, prolegs green with yellow feet. Head brown. The fourth instar larva is very similar to the adult. The first instar larva is orange tinged with blackish with a black head and a subdorsal, lateral and sublateral series of small fleshy scoli. The second instar larva is at first scarlet, gradually becoming green as the instar progresses, the scoli of the first instar being replaced by fleshy cones. The third instar is intermediate between the second and fourth.

All my larvae have been reared from ova laid by captive females, so that I am not in a position to comment on their habits in the wild.

The only food-plant recorded for *mimosae* is *Sclerocarya caffra* Sond. (Anacardiaceae). The family Dipterocarpaceae, to which *Monotes* belongs, does not appear to grow in East Africa.

The cocoon of *mimosae*, as noted in a short paper (1973, *Entomologist's Record*, **85**: 67) appears to have more perforations than that of *kuhnei*. I cannot agree with the suggestion that these perforations are for drainage or ventilation; the normal Saturniid cocoon is fully waterproof. It appears more likely that these holes may give vertebrate predators the impression that the pupa has been parasitised and the parasites have emerged. Some Lasiocampids, *Dollmannia purpurascens* (Auriv.) for example, produce a similar effect by incorporating small tufts of very short black setae in the fabric of the cocoon. The Arctiid *Nyctemera apicalis* Wlk. covers its cocoon with numerous multi-celled pellets of white froth, produced from the anus, and containing an oily liquid with a strong Cocinellid-like smell, which gives the appearance of a mass of ichneumon cocoons.

The pupa of *kuhnei* appears to be stouter and more contracted than that of *mimosae*.

I cannot comment on the duration of the pupal stage as all my pupae have died, if sprinkled they rot and if left unsprinkled they dry up, and it would appear that they have a very narrow tolerance of humidity.

Unlike *kuhnei*, with its comparatively short flight period, *mimosae* flies all through the year. I have not noticed that *mimosae* is particularly subject to damage, an occasional tail is broken off but that is to be expected given the shape of the moth, and I wonder if the reason for the greater apparent damage to *kuhnei* is due to its being caught in traps. My mercury vapour lamp stands against a rough-cast wall, on which the moths attracted settle. Bats do capture *mimosae*, as I frequently find severed wings near the lamp.

As regards the natural camouflage of these moths, I cannot do better than quote Seitz, *Indo-Australian Bombyces*,

p. 497:—"In fact it is rather difficult to discover an *Actias* sitting amongst the leaves of bushes. Only freshly hatched specimens resting on trunks or posts to stretch their wings are more easily found. In a valley of Ceylon, where I daily collected without ever seeing any *Actias,* one day after the leaves of the small trees had been singed black by a plantation fire, I was surprised to see the great number of *Actias selene* which sat in the burnt foliage, now visible from afar as so many green spots, their protective colour rendered ineffective."

Mombasa, 13.v.73.

Notes and Observations

NYMPHALIS ANTIOPA L. IN CORNWALL IN 1973.—Mr Alexander Gray, of Treswithian near Camborne, phoned me to say that he and his wife had seen a Camberwell Beauty (*N. antiopa* L.) in their garden on 17th August. They immediately recognised the butterfly, as they had both seen it previously on the Continent, and I am therefore quite sure that this is a reliable report. As far as I am able to ascertain, this is the first record of the species for Cornwall since 1949, when one was mentioned in *Entomologist,* **83**: 130, but without date, locality or name of observer. — Dr F. H. N. Smith, Turnstones, Perrancoombe, Perranporth, Cornwall. 20.viii.-1973.

ANTHOCHARIS CARDAMINES L. AB. DECOLORATA CARUEL IN SUSSEX.—On 12th May 1973, I took a remarkable ♀ ab. of this butterfly which Mr D. Carter of the Brit. Mus. (Nat. Hist) has kindly identified as an extreme form of ab. *decolorata* Caruel. My specimen is characterised particularly by the yellow coloration of the normally dark green markings on the underside hindwings, and the replacement of the normal blackish markings on the upperside forewings and hindwings by those of a very pale grey. I should be interested to hear from anyone who may have knowledge of this unusual form. — COLIN PRATT, Oleander, 5 View Road, Peacehaven, Newhaven, Sussex.

HYLES GALLII ROTT. IN YORKSHIRE.—On the morning of 2nd August 1973, my friend Mr P. Gunson found a rather worn specimen of this moth in his m.v. trap at Emley. It was a ♀, and after feeding on honey it laid a few ova during the following days. This is the second *gallii* to have occurred here, Mr Gunson having taken one in excellent condition in his m.v. trap on the night of 9th July 1971. — N. GILL, 26 Mount Pleasant, Emley, near Huddersfield, Yorkshire, HD8 9RY.

HYLES GALLII ROTTEMBURG IN NORTHUMBERLAND AND DURHAM.—On 18.7.1973 a fine specimen of this probable migrant was brought into the Hancock Museum having been captured in the bathroom of a house in High Heaton, Newcastle upon Tyne (NZ 26). A second specimen was also brought to this Museum soon after the previous one. It was captured on 19.7.1973 in another part of the city (near Walker Gate) on the windowsill of an upstairs window. A third specimen was seen (but not captured) by two lepidopterists on 23.7.1973. It was feeding in flight at flowers of Rose-bay Willow-herb about 9.45 p.m. B.S.T. at Plessey Woods not far from the railway bridge over the River Blythe between Stannington and Bedlington, north of Newcastle upon Tyne (NZ 27). A fourth specimen was reported as caught in Stanley, County Durham, (NZ 15), on 23.7.1973. It was given to a young collector who set it and sent us the information.

The immigration would seem to have taken place at its earliest on the night of 17/18 July when the wind was south-easterly and the weather broken.—A. G. LONG, Deputy Curator, Hancock Museum, Newcastle upon Tyne.

ARGYNNIS PAPHIA L. ARRIVES.— The Silver Washed Fritillary appears never before to have been recorded from this 10-km square (TL 01) although noted before 1960 from five of the eight adjacent squares. On 13th August 1973, a fairly fresh male visited the flowers of *Buddleia* and *Phlox* here for ten minutes at midday. Rather late in the season, perhaps he was a tourist exploring the green belt. Let us hope the females do likewise. This is the 22nd butterfly species seen in my small garden here since 1965. — C. F. COWAN, Little Gaddesden House, Berkamsted, Herts., HP4 1PL. 1.ix.1973.

AGDISTIS BENNETII (CURTIS) AWAY FROM SALTMARSHES.—On the night of 11th-12th August 1973, I took in my m.v. trap at Woodstock Farm south of Sittingbourne, a perfect specimen of *Agdistis bennetii.* I have subsequently taken two further specimens in the same trap. This year also I have noted a specimen in a garage at Ospringe near Faversham, and a colleague has taken one in his trap at Newington, both south of the A2. All these records are several miles from the nearest growth of *Limonium,* perhaps confirming the record of C. A. W. Duffield when he took the moth high on the North Downs at Brook (27.6.51).

It is interesting however that for two years I operated a trap nightly in South Hampshire only 200 yds. from extensive salt marshes yet I never took the moth then. Are these Kent specimens more prone to travel than their Hampshire cousins?

Other salt marsh species recorded at Woodstock Farm are: *Spilosoma urticae* Esp. (26.6.73), *Leucania favicolor* Barr. (27.6.73) and *Amphipoea paludis* Tutt. (29.8.73).—I. A. WATKINSON, 2 Fairleas, Sittingbourne, Kent.

MACROGLOSSUM STELLATARUM L. IN DORSET AND HYLES GALLII ROTT. IN DEVON.—I should like to report the capture of *M. stellatarum* at Worth Maltravers near Swanage, Dorset, on the afternoon of 28th July 1973; and that I took a ♀ of *H. gallii* on 30th July 1973, in an m.v. trap at Axminster, Devon. The *gallii* laid about 100 ova, the larva from which are at present thriving. Many *Vanessa atalanta* and *Cynthia cardui* were noted in this part of Devon during the fortnight that we were there.—P. J. RENSHAW, 53 Links Road, West Wickham, Kent. 12.viii.1973.

SCOLIOPTERYX LIBATRIX LINNAEUS (LEP. OPHIDERINAE) ON POPULUS.—A neighbour, having brought to me a female poplar hawk moth (*Laothoe populi* Linnaeus), which had laid some 70 eggs, I thought that I might as well do something to boost the local population of that species. I put most of the larvae out on local trees when they were about half grown but kept about a dozen for the amusement and instruction of my grandchildren.

On two occasions I unknowingly brought in a larva of *S. libatrix* (Herald Moth) with food collected for the *populi* larvae, once on *Populus niger* and once on *P. italica* both gathered in the Bromley, Kent, neighbourhood.

P. B. M. Allan (*Larval Foodplants*: **81**) definitely mentions *P. nigra* but South (*Moths of the British Isles* (1961) Vol. I: 385) only mentions it as a possibility, on the strengh of a pupa of *S. libatrix* having been found spun in poplar leaves. Both my larvae have now "spun up in poplar leaves".—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent, BR2 9EE.

PACHYCNEMIA HIPPOCASTANARIA HÜBNER IN KENT.—I took a specimen of this moth from the m.v. trap in my garden at West Wickham on the morning of 19th August 1973.—D. BURROWS, 22 Lime Tree Walk, West Wickham, Kent, BR4 9ED. (This is only the third record of occurrence of this species in Kent to our knowledge for more than fifty years.—Ed.).

THYMELICUS SYLVESTRIS PODA (SMALL SKIPPER) IN NUMBERS IN DEVON AT DAMP SAND. — On July 27th, 1973, at mid-day, whilst picnicking with my family by the River Webburn, in a deciduous wood near Ashburton, we noticed several small butterflies on a patch of damp sand at the water's edge. Closer investigation showed there to be as many as six Small Skippers (*T. sylvestris* Poda) drinking on the sandy margin which was only a few yards square.

Although the usual woodland butterflies were flying strongly in the same area, including *paphia, cydippe* and *venata* (the latter being as numerous as *sylvestris*), and the day was exceptionally hot and sunny after a number of wet cloudy days, only *sylvestris* was seen quenching its thirst in this fashion. — D. BURROWS, 22 Lime Tree Walk, West Wickham, Kent, BR4 9ED.

INTER-SPECIFIC COMPETITION IN BUTTERFLIES.—In his recent paper on collecting in Jamaica (1972, *Entomologist's Record,* **84**: 219-223) Baron de Worms writes with reference to *Papilio andraemon* Hbn. "a species which apparently invaded Jamaica from Cuba as recently as about 1945 and has now displaced several other species of Papilio in some regions of the island, as the larvae infest citrus trees". How exactly does Baron de Worms visualise this displacement being effected? Surely there is citrus enough for all.

I put exactly the same question to Dr Luckens with regard to a similar remark concerning *Argnnis aglaia* L. and *A. cydippe* L. (1972, *Entomologist's Record,* **84**: 76) but have received no reply. — D. G. SEVASTOPULO, F.R.E.S., Mombasa. 15.v.1973.

HYLES GALLII ROTT. IN SUSSEX.—I took a single female Bedstraw Hawk moth in good condition from my experimental m.v. trap (see *Ent. Rec.,* **85**: 120) here on the night of 27th July. This specimen was carrying many eggs but unfortunately these proved infertile. I also took a ♂ *gallii* here on 30th July. — COLIN PRATT, "Oleander", 5 View Road, Peacehaven, Newhaven, Sussex 23.viii.1973.

HYLES GALLII ROTT. IN WORCESTERSHIRE.—On the night of 14-15th July 1973, a specimen of *H. gallii* was taken in my son's light trap. It had been a wet night and the specimen, a well worn female, subsequently laid eggs of which 101 were fertile. Nearly all these have been successfully reared to the pupal state mainly on willowherb, although bedstraw and fuchsia were accepted though not so available. This capture I believe constitutes a new County Record. — G. J. JAMES, 97 Evendene Road, Evesham, Worcs, WR11 6QA.

HYLES GALLII ROTT. IN SOUTH WESTMORLAND. — At about 3.30 a.m. on 21st July 1973, while checking the insects on the house wall overlooking my m.v. trap, I found a female Bedstraw Hawk with a slightly damaged forewing. While boxing this, a male of the same species flew in and alighted only a few feet away, and was easily secured. Placed in a large larval cage the pair appeared to be *in cop.* the next day. On 23rd July, again at about 3.30 a.m., I discovered a third *gallii* — a female — in approximately the same place, but this managed to escape later after I had photographed it.

I gave the captive female fresh supplies of *Galium verum* and *Epilobium angustifolium* in an attempt to induce her to lay, but without success, finally sleeving her out on a fuschia bush, but she died on 29th July without having laid any ova. None of the three specimens was in perfect condition, and last year Mr A. Watson and I found two fully grown *gallii* larvae about $1\frac{1}{2}$ miles from here (see *Ent. Rec.,* **84**: 290) which suggests the species had survived the very mild winter. — J. BRIGGS, Frimley House, Deepdale Close, Beetham, near Milnthorpe, Westmorland, 3.ix.1973.

Current Literature

Provisional Atlas of the Insects of the British Isles, Part 2. Lepidoptera (Moths—part one) edited by **John Heath** and **Michael J. Skelton**: The Biological Records Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, 1973. £1.

This second part of the Provisional Atlas deals with the Lasiocampidae: Saturniidae: Endromidae: Drepanidae: Thyatiridae: Sphingidae: Notodontidae: Lymantriidae: Arctiidae: Nolidae. It contains the first 101 species of moths and is based on the observations of some 800 recorders spread over the country whose reports, together with some additional data abstracted from the literature, have been collated by Messrs Heath and Skelton and the staff of the B.R.C.

Broadly speaking, migrant and extinct species have been omitted, but some such as *Lithosia quadra* L. (which may be a temporary resident dependant upon periodic immigration) have been included. The publication follows the nomenclature and arrangement of the second edition of Kloet and Hincks, *A Check List of British Insects*, Part 2: *Lepidoptera*.

In general, the format is the same as that of Part 1 (Butterflies), except that in Part 2 the Irish Grid has been used for all records from Ireland. Consequently, the change in format necessitated by this new map will be the standard for all future parts.

In order that the final atlas may be as accurate and as comprehensive as possible, we hope that those who notice any errors of omission or commission in these provisional maps will accordingly notify the B.R.C. at Monks Wood Experimental Station, Abbots Ripton, Huntingdon. The editors and their staff at the B.R.C. would also welcome enquiries from prospective recorders who should write to them at that address.—J.M.C.-H

The Horse Flies of Europe (Diptera, Tabanidae) by **Milan Chvála, Leif Lyneborg & Josef Moucha**. 1972 Entomological Society of Copenhagen.

These three authors have collaborated to produce what will be for many years the standard work on European Horse Flies. The presentation of information has been well planned and is always concise. Although the English is sometimes idiomatically inaccurate this does not seem to have led to any serious errors of meaning.

There are several short introductory chapters which deal in general terms with various aspects of the family. The systematic and faunistic works which have been published on the Tabanidae are historically reviewed. It is stated that no work on the Tabanid fauna of Ireland is known, but this is not strictly correct as there was a paper by O'Rourke (1969, *Irish*

Nat's Journal, **16**: 230-1.) dealing with the Irish records of the genus *Tabanus* (*s.l.*). The systematic tables of the distribution by country of the 176 European species demonstrate the increase in species number from north to south and from west to east, the highest totals being from European Russia and the Mediterranean countries. In the following chapter the types of distribution displayed by each species group is discussed in turn and the species are arranged under twelve headings according to their apparent distribution patterns. About 30% of the European speces are known from one country only and the need for more intensive collecting in some areas is stressed.

There are general chapters on the life history, morphology of the adult fly, economic importance with special reference to transmission of diseases and techniques for collecting and rearing. The curious adaptability of the larvae, which can vary the number of instars according to nutrition, is discussed. All larvae are carnivorous from the third instar but can be classified into three types by habitat, ranging from aquatic through mud to dry soil, a few species being xerophilous. On p. 43 referring to larval food it is said that they never attack the larvae of Coleoptera but although possibly true in the field it is apparently contradicted on p. 47 when mealworms are said to be suitable food for larvae when rearing in the laboratory. In the chapter on morphology the distinctive characters of Tabanid structure are dealt with, drawing attention to the features used most frequently for identificaton of species; the method of sucking blood is also described here. Some interesting methods for collecting or trapping both adults and larvae are briefly described in Chapter 6.

The keys to the genera and species are straightforward and easy to use. The bulk of the text consists of descriptions of each species by which they are fully characterised and the accurate illustration provided of the important diagnostic features of practically all species are useful for confirmatory purposes. Illustrations concentrate on the structure of the frons (especially in the female), the antennae and palpi of both sexes and in the Chrysopsinae the characters of the abdominal pattern are well covered. Following the description of each species brief notes are given on the variation, synonymy, dates of occurrence and distribution.

This descriptive portion is followed by a full list of references to the literature on world Tabanidae and an index to the species and genera dealt with in the text. The book is completed with eight excellent plates, five of them in colour. The latter include whole insect drawings of twenty-four representative species, the abdomens of three further species, a larva from each of the major groups and a typical pupa. The three black and white plates depict wing patterns of *Chrysops* and *Haematopota.*

As this work will no doubt be widely used to determine

British material a number of changes in the constitution of the British Fauna as compared with the recent Handbook on the British species by Oldroyd should be noted. *Hybomitra expollicata* Pand. had already been added to the British List by Lyneborg (1972, *Ent. mon. Mag.*, **108**: 33-4). Another addition has been made by the separation of *Haematopota grandis* Mg. from *H. italica* Mg., both of them occurring in Britain, but this is balanced out by the sinking of *Tabanus verralli* Old, (=*perplexus* Verr.) as a synonym of *T. sudeticus* Zell., there being a complete intergradation of characters between these forms. Characters additional to those given by Oldroyd for the separation of the females of this species from those of the other large British species *T. bovinus* L. are provided. A few name changes might also be mentioned. *Chrysops pictus* Mg. of Oldroyd (=*quadratus* Mg. of most British authors) becomes *C. viduatus* F.; *Hybomitra schineri* Lyneborg of Oldroyd becomes *H. ciureai* Séguy, while the formerly accepted name of *latistriatus* Brauer is restored to Oldroyd's *Atylotus nigrifacies* Gobert.

Although the accuracy of the text is very high a few errors have crept in with respect to distribution, especially referring to the Irish List. On p. 224 *Hybomitra tropica* L. is wrongly recorded from England although not so in the table on p. 22; on the other hand according to the table it occurs in Holland, Sweden, Norway and Finland, countries which are omitted in the text. According to the tables in Chapter 3, eight species are recorded from Ireland. Two of these, i.e. *Hybomitra distinguenda* Verr. and *Haematopota bigoti* Gob. as far as I am aware have never been collected there. On the contrary however, three species for which there are fully authenticated Irish records are omitted. These are *Hybomitra muehlfeldi* Brauer (upon which the record of *H. distinguenda* was probably based), *Tabanus bromius* L. and *Chrysops caecutiens* L. The Irish List at present therefore stands at nine species.

The value of this work to all interested in the Dipterous Fauna of Britain and Europe cannot be overemphasised. The only comparable work in recent years was Collin's volume on the Empididae. One could wish that time were available to taxonomists to treat other groups of flies to a similar standard.

P. J. Chandler.

Emperor Moths of South and South-Central Africa by **Elliot Pinhey:** 4to; xii+150 pp+43 pl. (14 in colour): C. Strick (PTY) Ltd. Cape Town. U.K. Distributor E. W. Classey Ltd. £3.50.

In compiling this book, the author has been at some pains to ensure that it should be useful to a wide range of readers from hobby rearers to collecters, amateur entomologists and even professional entomologists.

In his preface he gives a rough idea of the family Saturniidae and their interest to the public, and he makes a plea for the insect fauna to be included with big game as part of

the African heritage of nature (certain pest species excluded). The list of acknowledgements contains many well-known names and shows that, as usual nowadays, entomologists both professional and amateur work together in a harmony which might well be copied in other walks of life.

Of the eleven chapters, Chapter 1, headed Introduction, very truly lives up to its name, opening with a few words on the Emperor Moths and continuing under sub-headings of Scientific Description, covering head, legs, wings and veins in both simple and a little more technical language. This is followed by Sex Differences, Parallels (where some families are mentioned as being close to families in other faunal areas), Habits of the Moths, Life Cycles and Rearing, Caterpillar Groups, Protective Devices and Economics and The Silkworms.

Chapter 2, headed Structure, has text figures illustrative of various anatomical details, including neuration and other wing features. Chapter 3, on collecting and preserving gives the customary instructions.

Chapter 4, Classification, gives simplified keys to the subfamilies and a list of sub-families, tribes and genera.

The chapters which follow are devoted each to a subfamily, and headed by a vernacular name for the group, sometimes with genitalia figures. The species are keyed and then dealt with in detail with scientific and vernacular name, reference to text figures and plate numbers; description, genitalia, larva and distribution.

The plates occupy a section in the middle of the book (with the exception of the frontispiece) and illustrate many species, both in colour and half tone. The colour work is exceedingly good, but the coloured plates exhibit a standard error throughout: they are said to be reduced *by* two thirds instead of *to* two thirds natural size. The half tone plates illustrate the species concerned at natural size.

After the descriptive chapters there follow a page of literature references, a list of derivations of scientific names, a glossary of scientific terms, a list of species with larval food plants, a host plant index giving plants, each with a list of attached species, and a general index.

The book is well bound in cloth boards with gilt lettering: the paper is good and the printing both good and clear. It should make a handsome addition to the library of any lepidopterist, and, having in mind the popularty of rearing purchased larvae of this family, it should be very welcome to those who follow this hobby, possibly bringing their interest into more scientific lines.—S.N.A.J.

The Principles of Insect Physiology by **V. B. Wigglesworth, F.R.S.** Seventh edition (1972); viii+872 pp; Chapman & Hall, £7.50. U.K. only.

In the preface it is pointed out that the major advances of the past seven years, amounting to some ten per cent of

the text, are printed under appropriate captions in an addenda section at the end of each chapter, where the many new references may also be found. This system has the double advantage of keeping the price far below what would have been the cost of a totally re-written book of this size, and the additions, printed as separate addenda for each chapter makes them obvious to the student without his having to work through the whole book again. For the new student, these addenda are readily available close to the pages on which he is working.

The addenda are printed with a page reference and a sub-title, and there is a cross reference in the text printed in square brackets, [see p. 20], at the appropriate place, so there is no excuse for missing any of the addenda. The addenda are printed before the bibliographical references, and new references occasioned by the addenda are listed after the references to the original text.

It would be presumptuous on my part to review this book, on which so many professional entomologists and physiologists have been weaned, but as an amateur, there is no harm in my stating that the book is packed with marvels both in insect structure and in the ingenuity of research workers in devising the experiments from which so much knowledge has been gained, and one's mind boggles at the thought of these delicate experiments being performed on so small subjects as insects.

Since the publication of the first edition in 1939, the book has retained its place as a standard textbook on its subject, and has been kept up to date by the publication of revised editions since then, and today it is an absolute must to the student of insect physiology.

The book is very well printed on excellent paper, and is strongly bound in cloth boards with a strong paper jacket. The text is amply illustrated by means of charts and beautifully executed line drawings. No institution teaching physiology can afford to be without a copy in its library, and this could well be extended to every student of the subject, for the volume would be a proud possession for life, nothwithstanding the fact that one can foresee a series of new editions as more and more work is done. Public libraries, too, will doubtless find this a welcome addition to their scientific sections.—S.N.A.J.

Proceedings and Transactions of the British Entomological and Natural History Society; Vol. 5, Part 4. (February 1973).

This part contains the paper, read by Mr T. G. Howarth, on the Conservation of the Large Blue Butterfly (*Maculinea arion* L.) in West Devon and Cornwall. The Proceedings cover indoor meetings from 10th February 1972 to 9th November 1972, and Field Meetings from 21st May 1972 until 8th July 1972.—S.N.A.J.

NOTICE TO ENTOMOLOGISTS

The Board of Directors of the Sociedad Hispano-Luso-Americana de Lepidopterología (SHILAP) (Entomology Room, Esc. Tec. Superior de Ingenieros Agrónomos, Ciudad Universitaria, Madrid-3, Spain) has evidence that *Vol. 26* (1970) of the Iberian Entomologist Review "Graellsia" has been really published after April 13, 1973, and not on March 15, 1971 as is printed on its covers. In consequence, and in accordance with the International Code of Zoological Nomenclature, no priority rights on descriptions of nov. ssp. and/or f. of Iberian lepidoptera can be claimed by two papers included in said *Vol. 26*, signed by R. Agenjo (who is in turn Director of the Review) taking March 15, 1971 as "date of publication", because the exact, correct, and proven one is April 13, 1973.

The International Commission of Zoological Nomenclature and the Zoological Records staff have already been warned of the above subject; but the rectification requested by SHILAP last June from the GRAELLSIA Secretariat has not been satisfied by any acknowledgement to date. "GRAELLSIA" subscribers can verify this statement, as distribution of *Vol. 26* (1970) took place during June-July 1973.

Madrid, September 1st, 1973.

SOCIEDAD HISPANO-LUSO-AMERICANA
DE LEPIDOPTEROLOGIA (SHILAP)

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley BR2 9EE, Kent.

Request for Information — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), **72**, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) 2), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton, 20 Gore Court Road, Sittingbourne, Kent, ME10 1QN.

Back numbers—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

Butterflies (including rare specimens, moths and other insects—*on stamps* —Sale or exchange.—A. Grainger, 42 Lee Lane East, Horsforth, Nr. Leeds.

For Sale—MV moth trap, all fittings, new 1972.—J. C. Sutton, 157 Belper Road, Bargate, Derbyshire.

Celerio galii—The Bedstraw Hawkmoth—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

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 must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

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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.

SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

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AND JOURNAL OF VARIATION

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PUBLISHED MONTHLY PRICE 40p

Collecting mainly Diptera in France during May and early June 1971

By P. J. Chandler

I spent the period from 22nd May to 5th June 1971 in France, when I had my first experience of collecting on the continent. In view of the rarity of accounts of excursions abroad by dipterists in the British journals and the lack of any, as far as I am aware, from France, it would perhaps be of interest to British collectors to comment on some of the results of my activities there.

The majority of the species seen or collected were found to belong to the British fauna, this probably being due to the earliness of the visit, but many of these were nevertheless new to me and some insects very rarely taken in this country were found to be common. A sprinkling of exotic species was present in most of the localities visited which added to the interest of the fauna; all such species (i.e. those not on the British list) mentioned below are marked *. The following account is in no way intended to be exhaustive of the species collected, allusion being made only to those of special interest.

Upon ariving at Dieppe to be greeted by rain on the afternoon of 22nd May, I made rapidly for the Pyrenees with the intention of spending most of the time in that district. Brief stops were made en route, the first on 23rd May being in a roadside wood to the north of Saintes in Charente-Maritime. Insects were numerous there as they were in most localities sampled in France. Captures included *Parallelomma paridis* Her. (Scatophagidae), which as a larva mines the leaves of Herb Paris (*Paris quadrifolia* L.) and the Shield Bug parasite *Gymnosoma rotundatum* L. (Tachinidae), which was to prove of frequent occurrence in the Pyrenees and Auvergne; the latter species used to occur locally in the London area twenty years ago, but has not been found in the last decade probably due to climatic changes. A brief stop was made the following morning near Gorlin in the Basses-Pyrenées but as at Saintes most insects seen were common British species.

Several localities in the Basses-Pyrenées were sampled on 25th May. In a flowery field under plane trees at Lurbe St. Cristau the tiny *Sympycnus annulipes* Mg.* (Dolichopodidae) was among the captures; this was formerly on the British list but all our specimens are apparently *S. dessouteri* Par., differing in its shorter antenna. A male of *Chyliza vittata* Mg. (Psilidae) was walking about on plane foliage; it has been reared from the Bird's nest Orchid (*Neottia nidus-avis* L.) but occurs in localities in Britain where this plant is absent. *Rhingia rostrata* L. (Syrphidae) was equally common here and at the next locality visited with *R. campestris* Mg.; they were smaller with darker abdominal sutures than British *rostrata* (for notes on the British status of *R. rostrata* see Chandler, 1969).

At the Bois du Bager, visited later in the morning, Syrphids were abundant on various flowers in the rides, mostly 'British' species but two males of the beautiful little golden-haired bulb fly *Merodon aeneus* Mg.* were taken at the flowers of Ox-eye Daisy (*Chrysanthemum leucanthemum* L.) as were *Gymnosoma rotundatum* and a *Clytiomyia* species* (Tachinidae). Other flies swept included the Trypetid *Chaetorellia jaceae* R.-D. In the afternoon, I ascended the Col d' Aubisque; as the road was blocked by snow I descended again, stopping just below the village where the slope was clothed by beech woods containing a variety of mountain flowers. Diptera were sparse there apart from a few small Nematocera but these included the Mycetophilid *Leia beckeri* Land.*, known only from the mountains of North Africa until recorded recently from the French Pyrenees by Matile (1967).

On the following day the weather had deteriorated, heavy rain preventing further collecting in this area so I moved east in the hope of escaping it. The rain stopped briefly at about 5.0 p.m. when I took the opportunity to investigate a meadow in the valley floor near Ussat-les-Bains by the road to Ax-les-Thermes (Ariége). Beating the ivy growing on the rock face at the rear of the field produced a lot of small Diptera and also the comparatively large yellowish grey crane-fly like insect *Liponeura cinerascens* Lw.* (Blepharoceridae), belonging to a distinctive family not represented in the British Isles; they have aquatic larvae, living only in running water. The rather *Beris*-like metallic blue green Stratiomyid *Actina nitens* Latr.*, the Empid *Platypalpus major* Zett. (females only) and a *Weberia* species (Tachinidae) were numerous in the meadow.

The day ended with heavy rain while I stopped overnight at Ax-les-Thermes and it was showery again on the morning of 27th May. Having approached Andorra as far as Mérens-les-Vals I turned back as the vegetation was too wet to collect and decided to ascend the road over the hills to Quillan. Bright periods during the day gave good collecting at several places in the department of Aude. Near the village of Espezel a meadow containing the small white and yellow flowered daffodil *Narcissus poeticus* L. was investigated. I was delighted to find that this plant was frequented by the Scatophagid fly *Norellia spinipes* Mg., recently added to the British list by Mr A. E. Stubbs and myself (1969) on material collected in part on *Narcissi*, in the leaf bases of which the larvae probably develop. It was of particular interest that *spinipes* rather than the southern European species *tipularia* F. should occur at this mountain locality. Also swept up in this meadow were several teneral *Pegomya silacea* Mg., an entirely pale yellow Anthomyiid fly, a male of *Orellia distans* Lw.* (Trypetidae) and a very small dark male of *Alophora obesa* F. (Tachinidae).

During a sunny period in the afternoon, immediately following a brief but heavy shower, a productive time was spent in the Forêt du Pays de Sault near the Col de Coudon

at the beginning of the descent to Quillan. The brightly coloured little *Paragus bicolor* F.* (Syrphidae) was swept up from sparse vegetation on a stony path near the road; this species has been on the British list but our species is apparently *P. finitimus* Goeldl. (see Pedersen, 1972). Descending along a tree-lined track, males of *Bombylius venosus* Mikan* (Bombyliidae) and *Chrysotoxum elegans* Lw. (Syrphidae) were flying in the sunshine. Then, in the lower parts where shady conditions prevailed, the attractively marked Muscid *Lispocephala brachialis* Rdi., scarce in Britain and the tiny hover fly *Chamaesyrphus lusitanicus* Mik.* were swept. Several of the large striking Otitid fly *Otites formosa* Pz.* were sitting on the vegetation in a ditch. On a nearby large clump of *Myrrhis odorata* L. flowers, bordering a meadow surrounded by coniferous forest, the large striking saw-flies *Tenthredo albicornis* F.* and *Macrophya montana* Sch., the large red-bodied wasp *Priocnemis perturbator* Harris* and many common Diptera were present; one female of the dark Rhagionid fly *Rhagio maculatus* De Geer* was taken on the foliage of this plant. In a small meadow enclosed in the woods various flies taken included the large black Empid *Empis* (*Pachymeria*) *ciliata* F.*, more robust than our largest species of the family *E.* (*P.*) *tessellata* F. which also occurred here and with coarsely pennate legs in the female.

Taking the Perpignan road from Quillan, a brief evening visit was paid to the Forêt de Gesse, where a rich locality, consisting of woodland and riverside field in the deep valley, was found. That evening, captures included *Dactylolabis transversa* Mg. and a large intensely marked *Nephrotoma* species* (Tipulidae). The yellow and black saw-fly *Tenthredo koehleri* Klug* was numerous, usually lying motionless on its side within the flowers of buttercups, stitchwort and *Geranium nodosum* L. Two other striking saw-flies were taken on *Myrrhis* flowers, i.e., a male of the purple winged black *Tenthredo vidua* Rossi* and both sexes of the red *Dolerus germanicus* F.*. On the following morning some more time was spent in the same spot when the large striking flat-bodied female of the Tachinid *Phasia crassipennis* F.*, superficially similar to our *Alophora hemiptera* F. turned up on *Myrrhis* flowers. Among other insects taken on this occasion, were *Bombylius venosus**, *Priocnemis perturbator**, and my first specimen of the distinctive black Tachinid with yellow wing-bases, *Zophomyia temula* Scop., which is of very sporadic occurrence in the British Isles.

Leaving the Forêt de Gesse I travelled on to the vicinity of Vernet-les-Bains, stopping first in wooded meadows by the river near Escouloubre (Aude), where *Liponeura cinerascens** was again taken on riverside vegetation and several saw-flies swept in shade included *Arge rustica* L., *Tenthredo albicornis** and a male of the *Rhogogaster picta* Klug group, presumably belonging to one of the two species whose males were unknown

to Benson (1952). On the opposite side of the road where conditions were more sunny, the abundant insects feeding at the *Myrrhis* flowers included the Tachinids *Phasia crassipennis**, a *Clytiomyia* species*, *Zophomyia temula, Gymnosoma rotundatum, Voria trepida* Mg. and *Eriothrix rufomaculatus* Deg. (the typical form of the latter*), also the saw-flies *Macrophya annulata* Geoff. and *Tenthredo vidua** (one female). *Rhaphium albomaculatum* Beck. (Dolichopodidae) and *Plesioclythia dorsalis* Mg. (Platypezidae) were also captured at this locality.

After the ascent through conifer plantations an open landscape of grassland with occasional patches of coniferous forest and villages dotted about was reached. A collection was made in open mountain grassland, marshy in places, near Puyvalador (Pyrenées-Orientales) where *Norellia spinipes* was found to be numerous on *Narcissus poeticus* and the smaller black Scatophagid *Delina nigrita* F., a leaf-miner of Orchids, was also taken. The tiny short-winged black Tipulid *Molophilus ater* Mg. was abundant. Upon reaching Vernet-les-Bains, a brief evening visit was paid to the orchards above Casteil, but little of note other than *Bombylius venosus** and *Gymnosoma rotundatum* was found. On the following morning, 29th May, some insects were swept from a scrubby slope just north of the town when one male of *Neurigona pallida* Fall. (Dolichopodidae), normally a woodland insect, was surprisingly among the captures and several females of the attractive small green and black saw-fly *Rhogogaster picta* Klug were beaten from dog-wood (*Cornus* species).

Several other localities in the Pyrenées-Orientales were sampled on that day. Although the weather was now fine as it was to be for the remainder of my stay in France, this district proved disappointing as it is so intensively cultivated on the lower slopes. The best results were obtained on derelict fields now grown up with scrub on a hillside near Llauro. Apart from *Chyliza vittata* and the ubiquitous *G. rotundatum* a number of species not previously seen in France were obtained, including *Ptiolina obscura* Fall (Rhagionidae), *Hercostomus nigrilamellatus* Macq. (Dolichopodidae), *Eustalomyia histrio* Zett. (Anthomyiidae) and one male of the Stratiomyid *Chloromyia melampogon* Zell.*, a little larger and paler than our common British species *C. formosa* Scop. Also found was one female of a *Phasia* looking rather different from the typical *P. crassipennis* found at other French localities in having the disc of the abdomen black leaving only a narrow yellow margin (instead of a narrow black-stripe on a yellow ground) and in the wing markings being less intense and more discrete; this specimen agrees with material labelled as *P. magnifica* Girschn.* (=*leucoptera* Rdi.) in the British Museum (Nat. Hist.) collection but this species is doubtfully distinct and the genus apparently requires revision. In a small area of cork oak woodland near St. Ferréol, insects were sparse but included a single female of the orange Rhagionid *Chrysopilus laetus* Zett. and one male of the small yellowish brown *Dioctria rufa* Strobl*

(Asilidae). The latter species (determined by Mr H. Oldroyd) is not included in the key to the French Asilidae by Séguy (1927), being previously recorded as far as can be ascertained only from Spain. Finally, in a chestnut coppice near Lamanère, *Myopa buccata* L. (Conopidae) was caught at hawthorn blossom, *Bombylius venosus** again occurred and one female of the saw-fly *Rhogogaster genistae* Benson, closely related to *R. picta* mentioned above, was also taken.

After an overnight stop at Canet Plage, I proceeded along the coast road, briefly investigating an area of rather arid thorn scrub near Miréval, midway between Seté and Montpellier (Hérault). Here Bombyliids were in evidence, including *Systoechus ctenopterous* Mikan*, *Bombylius ater* Scop.* and *Hemipenthes morio* L.*. Little else was about here but *Eristalis aeneus* Scop. (Syrphidae), the saw-fly *Aprosthema peletieri* Vill.* and the bees *Prosopis pictipes* Nyl. and *Anthidium 6-dentatum* Latr.* were also taken.

I arrived in the vicinity of the Camargue that evening when a brief stop was made in fields near Astouin (Bouches-du-Rhône). Here large numbers of small black *Dioctria* and several *Leptogaster cylindrica* De Geer (Asilidae) were sitting on the stems of long grass and reeds. The *Dioctria* comprised black legged males which ran to *D. claripennis* Vill.* and red legged females which ran to *D. wiedemanni* Mg.* in the keys provided by Séguy (*op. cit.*); he only described these sexes respectively of these species and I am inclined to regard them as being the two sexes of the same species; this hypothesis was further suggested by my finding the same two forms together on the following day at Salin-de-Giraud. Confirmation of this is, however, required as a sexual difference in the colour of the legs is not normally found in this genus.

On 31st May the whole of the day was spent visiting localities in the Camargue district (all in Bouches-du-Rhône). A feature of most stops, including that at Astouin on the previous day, was the attraction of large Tabanidae to the car, frequently trapping them inside it; most of those coming were *Tabanus autumnalis* L. and *Hybomitra expollicata* Pand. although the smaller species of *Haematopota* also came, especially *H. pluvialis* L. but also one female of *H. bigoti* Gob. at Salin-de-Giraud. The first stop near Mas-Thibert produced a few insects, swept from rough grassland near dykes and a wasp of the genus *Polistes** was found sitting on its small paper nest attached to a reed stem. The best find at this spot was a single male of the small rather Conopid-like Tachinid *Plesiocyptera rufipes* Mg.*, a Mediterranean species of which there are specimens in the British Museum (Nat. Hist.) collection from Portugal and Crete; these differ, however, from my specimen in having rather darker legs and genitalia.

Then a few miles further down the road (on the east bank of the Rhône) a strip of reeds and marsh plants bordering rice beds was very productive of insects especially Hymenoptera. The beautiful iridescent purple Ruby-Wasp *Tetrachry-*

sis viridula Rossi* was among the many Aculeates. Diptera were less exciting here but among them were *Eristalis aeneus* (Syrphidae), *Odontomyia ornata* Mg. and *O. argentata* F. (Stratiomyidae), *Dorycera graminum* F. (Otitidae), *Lipara lucens* Mg. and *L. similis* Schin. (Chloropidae). Having crossed the ferry over the Rhône a brief stop was made on scrubby ground near Salin-de-Giraud, where in addition to some of the species mentioned above the elegant Dolichopodid *Poecilobothrus ducalis* Lw. was captured.

Marshy ground and saltmarsh sampled near the Etang de Vaccares produced few insects and little novelty, but during the afternoon very good collecting was had on a narrow strip of marshy ground bordered by elm trees near Albaron. Stratiomyids were very numerous on the elm foliage, especially the pale greenish yellow *Oxycera trilineata* F., also several *Odontomyia ornata* and *Stratiomys furcata* F. Tabanids, including *T. autumnalis* and males of *Hybomitra ciureai* Séguy (= *schineri* Lyneborg of Oldroyd, 1969) and *H. tropica* L.* were settling on elm branches and, resting on the foliage of one tree was a single example of the large striking wasp-like Syrphid *Ceriana conopoides* L.*; the larvae of the latter fly, which was once reputedly British (see Verrall, 1901) develop in rotten elm wood. *Ceriana* is rather reminiscent of our very scarce *Doros conopseus* F. but differs most noticeably in its remarkable prolongation of the head on which the antennae are borne. Sweeping low vegetation produced many of the shining tessellated Muscid *Lispe melaleuca* Lw.* and at rest on reed stems under the elms were two of the large light grey Tachinid *Macrophthalma europaea* Egger*, a good deal larger fly than its close relative with which we are more familiar in Britain, i.e., *Dexiosoma caninum* F.

Finally in the Camargue area, I visited one of the large salt lakes to the south of Salin-de-Giraud, where sweeping the very windswept coarse vegetation on the embankment produced a remarkable variety of small fry, among them *Microphorus anomalus* Mg. (Empididae), *Orchisia costata* Mg. and *Lispocephala mikii* Strobl* (Muscidae), *Homoneura notata* Fall. and *Minettia subvittata* Lw.* (Lauxaniidae) and the rather elegant slender bodied Tachinid *Mintho rufiventris* Fall. In view of the difficulty of access to most of the Camargue, however, I decided not to spend longer but to begin my journey northwards at a more leisurely pace than originally intended.

On 1st June, therefore, I started via Nîmes to Alès and thence to Villefort. Shortly before reaching the latter town, I did some collecting on a grassy hillside partly covered with gorse and hawthorn scrub grading into bracken. One female each of *Phasia crassipennis** (Tachinidae) and *Chyliza extenuata* Rossi (Psilidae) were found sheltering amongst the bracken in the heat of the day; *C. extenuata* develops in the root-stock of broom-rapes (*Orobanche* species). Among other insects taken here were one male of the small grey brown Asilid *Dysmachus hamalatus* Lw.* and one female of the saw-fly

Rhogogaster genistae. Taking the road to Mende, I stopped on the ascent to the Col de Tribes to collect in a steep meadow below woodland, through which a little stream was trickling. Plenty of *Narcissus poeticus* was present and *Norellia spinipes* was again found; this plant was later seen to be abundant in all the meadows around Mende. The large black Empid *Empis ciliata**, first seen at the Col de Coudon was abundant, feeding at various flowers. Other insects taken here included both sexes of the Syrphid *Tropidia fasciata* Mg.* a rather larger duller fly than our *T. scita* Harris; *Delina nigrita* (Scatophagidae); *Callomyia elegans* Mg. (Platypezidae); *Urytalpa ochracea* Mg. (Mycetophilidae); *Orellia distans** (Trypetidae); *Merodon equestris* F. (Syrphidae); *Actia frontalis* Macq. and *Zophomyia temula* (Tachinidae); *Bombylius venosus** (Bombyliidae) and the saw-flies *Arge thoracica* Spin.*, *Tenthredo obsoleta* Klug. and *T. zonula* Klug.*.

Collecting for that day was then curtailed as I proceeded to Ardes-sur-Couze in the Auvergne (Puy-de-Dôme) where I stayed the night. Then, on the bright sunny morning of 2nd June a few hours were spent in the marvellously flowery meadows of that area, where insects were exceedingly numerous and various. Here Hogweed, Meadow Clary (*Salvia pratensis* L.) and ox-eye daisy were the most attractive elements of the flora to the Diptera. Many species of Syrphids were about and here the fine insect *Merodon clavipes* F.*, formerly thought to be British, was found as were *Microdon mutabilis* L. and *Cheilosia coerulescens* Mg.*, a species with lightly maculated wings. As at Miréval, Bombyliids were much in evidence. *Bombylius discolor* Mikan and *B. venosus** were taken at *Salvia* flowers, while *B. ater** was rapidly flitting about, pairs *in copula* of the latter being seen and several *Hemipenthes morio** were sitting on the mud of a dried up stream. The orange females of *Bibio hortulanus* L. (Bibionidae) were abundant on hogweed flowers and a female of *Eustalomyia hilaris* Mg. (Anthomyiidae) was taken from a tree-trunk. Also caught here were the Phasiine Tachinids *Gymnosoma rotundatum, Phasia crassipennis** and *Alophora obesa;* the Calliphorids *Sarcophaga ebrachiata* Pand. and *Pachyophthalmus signatus* Mg; the Conopid *Myopa buccata;* one female each of the hairy-eyed grey *Tabanus* species, *T. quatuornotatus* Mg.* and *T. nemoralis* Mg.*; the saw-flies *Arge thoracica** and *A. melanochroa* Gmel. and the wasp *Clypeocrabro clypeata* Sch.*.

During the afternoon of that day I passed through Clermont Ferrand on to the Chatel-Guyon road, stopping briefly at a roadside pond between Chateauneuf-le-Briand and St. Gervais d' Auvergne (Puy-de-Dôme). Sweeping the marsh vegetation around the pond produced a variety of common saw-flies but Diptera were strangely scarce, only *Zophomyia temula* being worthy of note. I then continued rapidly to the Forêt de Tronçais (Allier) where about an hour was spent. This consists of high oak forest with bracken bordering the rides but a lack of flowers which no doubt accounted for the paucity

of Diptera. One worker of the Hornet, *Vespa crabo* L. was, however, seen. I stopped for the night at St. Amand-Mont-Rond (Cher), where *Xylomyia marginata* Mg. (Xylomyiidae) and *Scaeva selenitica* Mg. (Syrphidae) were caught rather surprisingly that evening, both sitting on low grass.

On 3rd June I proceeded northwards with the intention of reaching the Forêt de Rambouillet near Paris. For this reason, I made only two brief stops en route, firstly at St. Hilaire (Eure-et-Loir), where a short time was had sweeping in rough grassland and scrub adjacent to orchards. Here several of the small black and white Stratiomyid *Nemotelus pantherinus* L. were taken, in an unlikely situation for the marsh-loving flies of that genus; *Ulidia erythrophthalma* Mg. (Ulidiidae) was also captured. Then in the middle of the very warm afternoon a good catch was made of smaller Diptera by sweeping in the shadier parts of an oakwood situated between Dangeau and Illiers (Eure-et-Loir). Here the fauna was almost entirely British but one male of the slender little Asilid *Dioctria longicornis* Mg.* was obtained and also worth noting are *Pyratula zonata* Zett. (Mycetophilidae) and *Homoneura interstincta* Fall. (Lauxaniidae). Having accomplished my intention, the opportunity was taken that evening to sample the insects of the Forêt de Rambouillet (Seine-et-Oise), when results were similar although slightly better than the woodland sampled earlier in the day. Species of *Hilara* (Empididae) were abundant along the shaded woodland streams, including *H. thoracica* Macq., *H. lurida* Fall., *H. anglodanica* Lund. and *H. angustifrons* Strobl.; *Hercostomus celer* Mg. was among the Dolichopodids taken.

On the following day, 4th June, the morning was spent at Rambouillet, several distinct areas within that large forest being investigated. The high woodland areas visited again gave similar results, although *Apemon marginata* Mg., *Pyratula zonata* (Mycetophilidae) and *Eustalomyia hilaris* also occurred. The banks of a canal at La Cerisaie, however, proved very productive. Sweeping the marginal vegetation gave *Diaphorus nigrcans* Mg. and *Rhaphium longicorne* Fall. (Dolichopodidae), *Eccoptomera longiseta* Mg. (Heleomyzidae), *Cerodontha henniqi* Now. (Agromyzidae), *Coenosia trilineella* Zett. (Muscidae), *Lipara lucens* and *Chlorops gracilis* Mg. (Chloropidae), while several *Dioctria atricapilla* Mg. (Asilidae) were about. A curious assemblage of species normally associated, in the British Isles at least, with coastal sand-dunes and not found inland, was present on a small area of white sand bearing sparse vegetation, which had been deposited near the canal and by the side of a road bridging it. These were *Sciapus maritimus* Beck. (Dolichopodidae), *Trichoscelis obscurella* Fall. (Trichoscelidae) and *Thereva annulata* F. (Therevidae). Also present on the sand were *Delia cilicrura* Rdi. (Anthomyiidae), *Hercostomus angustifrons* Staeg. and *Chrysotus femoratus*

Zett. (Dolichopodidae) and *Senotainia conica* Fall. (Calliphoridae).

Starting northward again in the afternoon I stopped by some flooded gravel pits described as the Étang de St. Ouen (Eure). Insects were sparse in the coarse herbage around the pits but via a causeway between them I followed a track, which crossed a railway into a shady wood. Small Diptera were numerous amongst the shady vegetation in the wood, these including such species as the Empids *Microphorus crassipes* Macq. and *Leptopeza flavipes* Mg. and the Psilid *Chyliza leptogaster* Mg. Upon re-crossing the railway, however, it was noticed that sunlit ash and hazel foliage overhanging the track on the pit side, i.e., facing the wood, was attracting a number of flies. The best part of an hour was spent at this spot, catching insects as they alighted on the foliage. The presence of a rotten hazel trunk in the immediate vicinity probably accounted for the appearance of *Xylomyia marginata* and the Syrphids *Xylota segnis* L., *Ferdinandea cuprea* Scop. and *Criorrhina floccosa* Mg., also perhaps for some of the Sphecids taken there. Among the many insects found in this situation were *Neurigona pallida*, one female (Dolichopodidae); *Plesiocluthia dorsalis* and *Paraplatypeza atra* Mg., a few of each (Platypezidae): *Cnemodon vitripennis* Mg. (Syrphidae); *Phorocera obscura* Fall. (Tachinidae); the Pompilid wasps *Anoplius nigerrimus* Scop. and *Pompilus spissus* Schiödte and the Sphecids *Pemphredon lugubris* Latr.. *Trypoxylon figulus* L. and *T. attenuatum* Smith; also one female of the Tabanid *Chrysops caecutiens* L. which alighted on me. Perhaps most remarkable of all was the appearance in quick succession of one female each of the large flat-bodied saw-flies *Pamphilius vafer* L. and *P. hortorum* Klug.; insects of the genus *Pamphilius* very rarely come my way and then only as single individuals. These captures were then a fitting conclusion to this trip, which apart from a brief sojourn at Elbeuf (Seine-Maritime) in the evening, when little other than *Clusia flava* Mg. (Clusiidae) settling on a tree stump was seen, was now brought to a close. When I returned to Dieppe the following morning it was again raining as it had been a fortnight before.

Identifications of species have been made as far as possible from the most recent works available; the majority are my own but some aid was kindly given by Mr H. Oldroyd for some Brachycera and by Mr A. C. Pont for some Muscidae. The Aculeate Hymenoptera were named in entirety by Mr K. M. Guichard to whom my thanks are due.

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Plemyria rubiginata (Denis & Schiffermüller) ab. *egregia* ab. nov

By G. H. Marillier

This aberration is characterized by the dark medial area of the forewing being broadened at the posterior margin reducing the area of white distad of the basal area, as illustrated.

Holotype ♂. Scotland: Aberdeen, Aug. 1925 (G. H. Marillier) in R. C. K. collection, British Museum (Natural History).

I would like to thank Mr D. S. Fletcher for having arranged for the photograph to be taken and for helping me with the description.

The Butterflies of the Shimba Hills

By D. G. Sevastopulo, F.R.E.S.

The Shimba Hills National Reserve occupies an area of 74 square miles (192 square kilometres) some twenty five miles south west of Mombasa and some ten miles inland from the sea. The coastline here runs from roughly south-west to north-east, the seaward side of the Reserve itself being more or less parallel to the coast and fairly regular in outline, whilst the landward side has two irregular projections running inland. The maximum height is about 1,500 feet. The area consists of grassy scrub with patches of forest and large isolated trees; on the seaward side the forest is rain forest in type although the actual rainfall is far short of the accepted minimum for this type of forest, the deficiency appears to be made good by the heavy condensation from the clouds blown inland from the sea. On the landward side the patches of forest are more of the dry, Brachystegia type, not unlike parts of the Arabuku-Sekoke Forest. My principal collecting areas have been the Makardara Forest (rain type) and the Marere Forest (dry Brachystegia). A very little collecting has been done in the Lower Shimba Forest, but this is difficult of access and has only been visited very rarely.

Names in the following list are in accordance with Peters' *A Provisional Check-List of the Butterflies of the Ethiopian Region* (1952).

Where known, I have added the names of the larval food-plants.

PAPILIONIDAE

Papilio dardanus Brown, *tibullus* Kirby — Common all through the year in all areas. Main female form *hippocoon* F., with occasional f. *salaami* Suff.

P. constantinus Ward, *constantinus* — Fairly common all through the year in all areas.

P. nireus L., *lyaeus Dbl* — Common all through the year in all areas.

P. demodocus Esp. — Common all through the year in all areas.

P. ophidicephalus Ob., *ophidicephalus* — Fairly common all through the year in all areas.

The larvae of the preceding all feed on various species of Rutaceae, *Clausena, Fagara, Teclea* and *Toddalia* spp., also on *Citrus* presumably from pips dropped by picnickers.

The larvae of the following species, which constitute the subgenus *Graphium,* all feed on Annonaceae — *Annona, Artabotrys, Monodora* and *Uvaria* spp.

P. pylades F., *angolanus* Goeze — Common all through the year in all areas.

P. leonidas F., *leonidas* — Not uncommon all through the year in all areas. It is a good mimic of *Danaus limnicae* Cr., and Dr The Hon. Miriam Rothschild suspects that it may be

a Mullerian mimic, in the same way that *Papilio antimachus* Drury is, and contains poisonous alkaloids.

P. philonoe Ward, *philonoe* — Common all through the year in all areas, usually keeping to the edges of forest.

P. evombar Bsd., *antheus* Cr — Common in all areas, I have no records for July and August.

P. policenes Cr., *policenes* — Probably the least common of the group. No record from the Marere Forest and no records for January, June to August and November and December.

P. polistratus Gr. Sm., *sisenna* Mab — Common in all areas, no record for September.

P. porthaon Hew. — Probably the most common of the group in all areas, but no record for July.

P. colona Ward — Common in all areas all through the year.

P. kirbyi Hew., *kirbyi* — Not really common anywhere. No records for July and August, probably more seasonal than any of the other species, being commonest at the start of the long rains.

PIERIDAE

Appias lasti Gr. Sm., *lasti* — Common all through the year in all areas. Larvae on *Ritchiea* and other Capparidaceae.

A. epaphia Cr., *epaphia* — Common all through the year in all areas. The female varies considerably. Larvae on *Ritchiea* and other Capparidaceae.

A. sabina Feld., *undei* Suff —Not common at Makardara, not recorded from Marere. Records for February, April, May September and December. Larvae on *Drypetes* sp. (Euphorbiaceae).

Anaphaeis gidica Godt., *westwoodi* Wallgrn — Not common anywhere. Records for all months of the year except March.

A. creona Cr., *severina* Stoll. — Records for all areas all through the year. Sometimes present in enormous numbers, sometimes completely absent. Does not appear to be resident, its presence being due to migration. Larvae on Capparidaceae but not found in this area.

A. aurota F. — The remarks against the preceding species apply to this also, but I have no record of its occurring in September.

Belenois thysa Hpffr., *thysa* — Common in all areas all through the year. The female varies from white to ochreous. Larvae on *Ritchiea* (Capparidaceae).

Dixeia spilleri Spiller — Uncommon at Makardara, no record for Marere. No records for March, October or November.

D. doxo Godt., *Iiliana* Gr. Sm — Present in all areas, but not common. Recorded in all months of the year except April.

Mylothris chloris F., *agathina* Cr — Common in all areas throughout the year. All larvae found have been feeding on

Osyris abyssinica (Santalaceae), but presumably also feeds on the several species of *Loranthus* (Loranthaceae).

M. poppea Cr., *rhodesiana* Riley — Uncommon in the scrub surrounding the Makardara Forest. Recorded for all months except January, March, May and December.

Leptosia alcesta Stoll., *alcesta* — Common in all areas all through the year. The larva feeds on *Capparis* spp. (Capparidaceae) but I have not found it in the Shimba Hills.

Pontia glauconome Klug, *glauconome* — A single specimen on the outskirts of the Makadara Forest in December.

Pinacopteryx eriphia Godt., *lacteipennis* Btlr. — Occurs all through the year in all areas but always rarely, probably a wanderer from the lower, surrounding areas. Does not appear to breed in the Shimba Hills.

Colotis calais Cr., *calais* — Occurs all through the year, uncommonly in the Makardara Forest area but more commonly in the more open parts of the Marere Forest. Larvae feed on *Salvadora persica* (Salvadoraceae), which is not recorded from the Shimba Hills.

C. protomedia Klug — Recorded from January to June and also in August from the more open parts of the Marere Forest, not seen around Makardara.

C. ione Godt. — Recorded from all areas all through the year, but more common in the grassy parts of the Marere Forest. Larvae on *Capparis* spp. (Capparidaceae), but not found in the Shimba Hills.

C. regina Trim. — A single example on the outskirts of the Makardara Forest in June.

C. hetaera Gerst., *hetaera* — Not uncommon in the open parts of the Marere Forest all through the year, no records from Makardara. What were, presumably, larvae of this species found on *Capparis* sp. (Capparidaceae).

C. danae F., *pseudacaste* Btlr. — Fairly common all through the year in the grassy parts of the Marere Forest. The larva on *Cadaba* sp. (Capparidaceae), which has not been recorded in the Shimba Hills.

C. eucharis F., *evarne* Klug — Fairly common all through the year in the grassy parts of the Marere Forest. The larvae of this, and of the next species, also feed on *Cadaba* sp.

C. auxo Luc., *incretus* Btlr. — Recorded all through the year from the grassy areas in and around both the Makardara and Marere Forests. Sometimes considered a form of *C. eucharis,* but this is one of the rare cases where I have found them to be sympatric.

C. antevippe Bsd., *zera* Lucas — Found in the more open parts of both the Makardara and Marere Forests throughout the year. Larvae on *Maerua* sp. (Capparidaceae).

C. evippe L., *omphale* Godt. — Found in all areas throughout the year, one of the few *Colotis* species to be found in moderately thick forest. Larvae on *Maerua* sp.

C. daira Klug, *jacksoni* Sharpe — Recorded in the more open parts of the Marere Forest in February, July and Sep-

tember. Rare.

C. evagore Klug, *antigone* Bsd. — Uncommon all through year in the more open areas. Food plant *Maerua angolensis* (Capparidaceae).

C. eris Klug, *eris* — Fairly common in the more open parts of the Marere Forest but rare around the Makardara. Food-plant *Capparis* sp.

Eronia cleodora Hbn., *dilatata* Btlr. — Not uncommon in all areas all the year.

E. leda Bsd. — Rare in all areas. Records for all months except September.

Nepheronia thalassina Bsd. — Not uncommon all through the year in the Makardara Forest, no records from Marere.

N. argia F., *varia* Trim. — Not uncommon in all areas throughout the year.

N. buqueti Bsd., *buqueti* — Not uncommon throughout the year in the Marere Forest, no Makardara records. Larvae feed on *Salvadora persica.*

Catopsilia florella F.—Very common throughout the year in all areas. Larvae on *Cassia* spp. (Papilionaceae). Migrates frequently in vast numbers.

Eurema hecabe L., *senegalensis* Bsd. — Very common throughout the year in all areas. Larvae on *Albizzia* spp. and occasionally on *Dichrostachys glomerata* (all Mimosaceae).

E. brigitta Cr., *brigitta* — Common in all areas all through the year. Both seasonal forms, *brigitta* Cr and *zoe* Hppfr., occur.

DANAIDAE

Danaus chrysippus L. — Common all through the year in all areas. Mostly f. *dorippus* Klug, f. *chrysippus* much less common and f. *albinus* Lanz the rarest of all. Larvae on various Asclepiads.

D. limniace Cr., *petiverana* Dbl. & Hew — Fairly common all through the year in all areas. Larvae on various Asclepiads.

Amauris niavius L., *dominicanus* Trim. — Common throughout the year in all areas. The male imagines are attracted to bunches of dried *Heliotropium indicum* (Boraginaceae). Larvae on various Asclepiad creepers.

A. ochlea Bsd., *ochlea* — Occurs all through the year in the Makardara Forest, sometimes in very large numbers. No record from Marere.

SATYRIDAE

Melanitis leda L., *africana* Fruhs. — Common throughout the year in all areas. Attracted to fermenting fruit bait. Larvae on grasses (Gramineae).

Gnophodes parmeno Dbl., *diversa* Btlr. — Uncommon in the Makardara Forest. Recorded for all months except March and May. Attracted to fruit bait. Larvae on Grasses.

(*to be continued*)

Notes and Observations

ANARTA MYRTILLI (L.) (LEP.: NOCTUIDAE) ATTRACTED TO M.V. LIGHT.—At Studland, Dorset, on August 15th, 1973, an m.v. light was operated at the edge of heathland from 11 p.m. B.S.T. until nearly 1 a.m. It was a warm, calm, slightly hazy night with a full moon. The light was well patronized throughout the two hours, especially by four species each of which contributed more than a dozen individuals — *Noctua pronuba* L., *Actebia praecox* L., *Eilema griseola* Hübn. (mainly ab. *flava* Haw.) and surprisingly *Anarta myrtilli* L. a day-flying species active normally only under sunny conditions. No butterflies or other day-flying moths appeared.—B. K. WEST, 36 Briar Road, Bexley, Kent.

NOTES ON THE PUPATION AND EMERGENCE OF ZYGAENA LONICERAE SCHEVEN. — The newly-made cocoon is thin and transparent and soon after its completion the larva turns round within the cocoon and collects with its mouthparts a drop of yellow fluid exuded at the hind end and proceeds to rub this into the cocoon. This process is repeated several times. It would seem that this fluid gives the cocoon its papery texture and that the amount used determines the colour of the cocoon which varies from almost white to yellow. The larva then rests for about three days before it pupates.

Some larvae attempt to build a cocoon, twice making a silken pad and then apparently giving up and merely pupating on the ground. The adult moths emerge no worse for the lack of a protective cocoon.

A few days after pupation the pupa stridulates intermittently for about a day, curving its head and thorax violently from side to side and producing a sound exactly like that of a grasshopper.

After about two weeks the pupa bursts through the cocoon and the adult moth emerges. Climbing up to a suitable support it hangs upside down and folds its wings over its back in the manner of most butterflies, until in about fifteen minutes they are fully expanded. The moth then lowers them into the normal resting posture. — I. C. BEAVIS, 104 St James Road, Tunbridge Wells, Kent. 14.vii.1973.

ERYNNIS TAGES L. IN LANCASHIRE. — According to the *Provisional Atlas of the Insects of the British Isles,* Part 1: *Butterflies* (1970), this butterfly is apparently absent from a vast area of Lancashire. We therefore think it of interest to record that we found it commonly from 1969 to 1973 in a railway cutting near Blackpool, which locality we first visited in 1969. One of us (K.B.) has been observing and collecting Lepidoptera in West Lancashire for 40 years, but until 1969 had never before seen *tages* in the County. — K. BEVAN and D. M. RICHMOND, Staining Road, Blackpool.

NEPTICULA AURELLA (FAB.) IN SCOTLAND.—This species appears to be much less numerous in Scotland than it is in England, and the only published record for Scotland to my knowledge is that of Reid (*List of the Lepidoptera of Aberdeenshire and Kincardineshire*, 32). When on a visit therefore to central and south-west Scotland in April this year, I kept samples of any mines found on *Rubus* and submitted them to Col. Emmet who was able to confirm them as being those of *N. aurella*. They occurred to me at the following localities: Ruthwell (Dumfriesshire); Kirkcudbright (Kirkcudbrightshire); Newton Stewart (Wigtownshire); Ayr (Ayrshire); Glen Coe and Pulpit Hill, Oban (Argyle Main).—J. M. CHALMERS-HUNT.

COLIAS CROCEUS FOURC. AND OTHER BUTTERFLIES IN DORSET IN SEPTEMBER 1973.—With the apparent scarcity of the Clouded Yellow in recent years it was pleasing to see a solitary male on the wing flying over fleabane by the shore at West Bexington in Dorset on 8th September 1973, when I was in the company of Mr J. L. Messenger. I gather there have been a good many records of this butterfly in the south of late. But the butterfly population generally in those parts was quite phenomenal in the prolonged warm spell. We happened to come on a small garden at West Bay where I counted no less than 70 small tortoiseshells feeding all together on a few heads of the cultivated *Sedum* with several Red Admirals which was also very numerous as also was *Pieris rapae*. But a notable absentee was the Comma and no Painted Ladies were observed.—C. G. M. DE WORMS, Three Oaks, Woking.

MYTHIMNA (LEUCANIA) L-ALBUM (LINN.) IN SUSSEX.—On the night of 20th-21st September 1973, a night when parts of S.E. England recorded over 6″ of rain, a male *l-album* was attracted to my actinic light on the cliff edge at the Eastbourne side of Beachy Head. I tried on subsequent nights, with the help of the Eastbourne Natural History Society, to confirm that the insect was breeding there, but I saw no further specimens. The specimen was in good condition and arrived when conditions on that and on previous nights were not conducive to migration; I have little reason to doubt therefore that the species is now breeding this far East.

On 17th October 1969 I recorded this species in Old Bursledon near Southampton Water and it is also recorded from the Isle of Wight. It would be interesting therefore to hear of any other records of this moth in the South East.

It is worth noting also that *Eumichtis lichenea* (Hübn.) was abundant on the lower slopes of Beachy Head in the latter part of September 1973, and was also to be found less commonly on the upper slopes and on the nearby shingle expanse of the Crumbles at Langley Point.—I. A. WATKINSON, 2 Fairleas, Sittingbourne, Kent.

THE LONG, HOT SUMMER.—Whilst the remarkable weather of 1973 has been bringing the vast upsurge in the butterfly population to the notice of several national and local newspaper reporters, the moths have not been enjoying the limelight. Observers in Weymouth cannot fail to have noticed the extraordinarily large numbers of two species which, in any normal year can be said to be common though not very abundant. In the earlier part of the summer, the Large Yellow Underwing (*Noctua pronuba* L.) constituted greatly more than half the total moth population observed. I was away for a week in the middle of August, and on returning found that this position had been taken over to an even greater extent by the Silver-Y (*Plusia gamma* L.). — R. HARRINGTON, 5 Freemantle Road, Weymouth, Dorset, 9.ix.1973.

NYMPHALIS ANTIOPA (L.) THE CAMBERWELL BEAUTY IN KENT IN 1973. — Andrew Holmes, a young local collector, showed me today, a specimen of the Camberwell Beauty which he took at the Keston end of Hayes Common, Kent, on 31st July 1973. The butterfly was on buddleia of which there is a number of bushes close by. It is a male and in good condition. — D. BURROWS, 22 Lime Tree Walk, West Wickham, Kent, 1.x.1973.

LAMPIDES BOETICUS (L.) THE LONG-TAILED BLUE IN WARWICKSHIRE IN 1973. — On the morning of 30th August 1973, a Long-tailed Blue was captured by Dr P. Crisp at the National Vegetable Research Station near the village of Charlecote. Roger Smith and I, who are compiling the Warwickshire List of Macrolepidoptera, were soon consulted by the Warwick County Museum to whom it had been reported. Both feeling rather dubious about the genuineness of this rare insect, we set out to make the fullest possible enquiries. We were shown the butterfly, a male in very fresh condition. It had been caught flying in one of the greenhouses which was in use for bean growing.

We were concerned with the possibility that the station had imported plants from abroad, but were assured that no plants had been imported. We were given permission to search the extensive grounds: some of the fields contained beans but despite close search of these and other areas found no further *boeticus*. The specimen is now set and in my possession pending transfer to the Warwickshire Collection at the County Museum. — DAVID BROWN, Charlecote, near Warwick.

HYLES GALLII (ROTT.) IN CORNWALL. — Mr G. B. Miller of Penzance informed me that a Bedstraw Hawkmoth was captured there on 23rd July. It was found on Aubretia, and his photograph of the living moth confirmed the identification.— Dr F. H. N. SMITH, Turnstones, Perrancoombe, Perranporth, Cornwall, 20.ix.1973.

RHODOMETRA SACRARIA (L.) IN NORTH LANCS. AND SOUTH WESTMORLAND.—I found a male specimen of *R. sacraria* in the Rothamsted trap operated at Leighton Moss R.S.P.B. Reserve near Silverdale, on the morning of 7th September 1973. The same evening at about 10.30 p.m., I found two female *sacraria* resting on the outside of my m.v. trap at Beetham, three miles further north in Westmorland, and the following morning, 8th September, two males inside the trap. One more male appeared at the Beetham trap on 9th September. Four *sacraria* were also at m.v. light operated by Mr C. Scott at Arnside, just inside Westmorland, two on 8th September, two on 9th September. None of the above specimens was in fresh condition.—J. BRIGGS, Frimley House, Beetham, near Milnthorpe, Westmorland, 28.ix.1973.

HERSE CONVOLVULI L. IN BUCKINGHAMSHIRE IN 1973. — On September 27th, Mr Eric Britnell, the enthusiastic recorder of Entomology for the Middle Thames Natural History Society, brought me a large ♂ *Herse convolvuli* Linn. (Convolvulus Hawk) for identification. He had found it resting on dead leaves on a footpath in High Wycombe. It was just alive and in a worn state, having lost one antenna. I fed it, but it lived just two more days. It is now set. — G. H. B. OLIVER, Corydon, Amersham Road, Hazelmere, High Wycombe, Bucks.

A LATE DATE FOR SPILOSOMA LUBRICIPEDA (L.) IN N. LANCS.—I found a perfectly fresh male *S. lubricipeda* in the Rothamsted trap at Leighton Moss, Silverdale, N. Lancs., 19th September 1973. Is this species partially double brooded? This is the third specimen I have found in late Summer in the last three years in Silverdale. — J. BRIGGS, Frimley House, Beetham, near Milnthorpe, Westmorland, 28.ix.1973.

AUTOGRAPHA BRACTEA D. & S. IN WARWICKSHIRE. — I was most interested to read of the recent recordings of this moth in Southern England. I recorded two from my garden trap at Charlecote on the nights of 10th and 14th July 1973; both were males, the first in mint condition but the second rather worn. These are the first captures of this species in Warwickshire. Its nearest known breeding ground is some 40 miles away to the west of Wyre Forest, Worcestershire. — DAVID BROWN, Charlecote, Warwick.

AUTOGRAPHA BRACTEA D. & S. IN GLAMORGAN AND STAFFORDSHIRE.—In view of the recent reports of the southward spread of this species it may be of interest that I found one example at rest in Gelli-hir Wood, Gower, Glamorgan on 18th July 1973. In Staffordshire, *A. bractea* was first recorded in 1964 from the Churnet Valley in the north of the county, where it now appears to be well established, and one or two have been seen in places farther to the south.—R. G. WARREN, Wood Ridings, 32 Whitmore Road, Trentham, Stoke-on-Trent.

THECLA BETULAE (L.) IN DEVON. — On 14th September, a warm sunny day at Bishop's Nympton, near South Molton, Devon, I was picking blackberries by the stream, when I saw a bright brown butterfly flying round the top of a young oak tree about 15 ft. up. Presently it came down a bit and settled on an oak leaf, and later lower still to settle on bramble. On both occasions I studied it through my binoculars. It was a Brown Hairstreak and appeared to be a female.—PETER HOGG, 33 Vine Court Road, Sevenoaks, Kent. TN13 3UY, 28.ix.1973.

HYLES GALLII (ROTT.) LARVAE IN YORKSHIRE.—On 9th September 1973, my friend Mr P. Gunson and I visited an area of waste land at Wombwell near Barnsley to search for larvae of *Cucullia absinthii* L. We found the larvae on the flowers of wormwood which grows there so abundantly, but our attention was soon diverted from searching for this species after Mr Gunson spotted two larvae of *H. gallii* on *Chamaenerion angustifolium*, which grows there in some plenty. We immediately set to work searching for more and to our amazement in less than two hours had found thirty-five. Most were nearly full grown and some were quite active in the hot afternoon sunshine. They were chiefly found on the short rather stunted plants which grow on the otherwise almost bare parts of the area. The next evening we again visited the locality and in the short while before dark found five more *gallii* larvae.

On 1st September, I found two *gallii* larvae on *Chamaenerion* whilst looking over a large area of waste land at Barlow near Selby with Mr S. M. Jackson. I visited this locality again on 6th and 8th September finding four more, but here they were much harder to come by than at Wombwell.—N. GILL, 26 Mount Pleasant, Emley, near Huddersfield, Yorkshire, 12.ix.1973.

ABUNDANCE OF PLUSIA GAMMA L. AND OTHER MOTHS AT PORTLAND, SEPTEMBER 1973.—After several lean years the Silver-Y has returned in force and was very much in evidence at Portland when I was there with Mr J. Messenger in early September. The climax seemed to be on the 9th when we recorded some 60 examples on our sheet when we were running an m.v. light on the undercliff on the east side of the peninsula, but our static trap in the garden of the Pennsylvania Castle Hotel produced just short of 300 that night with no abnormal forms. I gather another collector running a trap in that vicinity on the Bill had as many as some 1200 to his light.

The prolonged warm spell had brought out most of the autumnal species almost a fortnight earlier than their normal time of appearance, notably *Leucochlaena hispida* Hufn., *Aporophyla australis* Boisd., *Eumichtis lichenea* Hübn., and the second brood of *Leucania l-album* L. But no other outstanding migrant species put in an appearance.—C. G. M. de WORMS, Three Oaks, Woking.

EARLY APPEARANCE OF ERANNIS DEFOLIARIA (CLERCK) IN S. WESTMORLAND.—By far the earliest date I have had *E. defoliaria* in 18 years of operating m.v. light was on 19th September 1973, when I found a none too fresh looking male resting on the wall near the light.—J. BRIGGS, Frimley House, Beetham, near Milnthorpe, Westmorland, 28.ix.1973.

HYLES GALLII (ROTT.) AND MACROGLOSSUM STELLATARUM (L.) LARVAE IN NORTH LANCS.—On a visit to Sandscale Warren, at Roanhead, near Barrow-in-Furness on 5th September 1973, with Mr Arthur Watson of St Annes-on-Sea, we found fifteen larvae of *H. gallii*, three quarters to full grown. They were confined to an area of about 2,500 square yards, feeding on stunted *Galium verum* growing among the litter of holiday makers and picnic parties (despite a nearby notice of £100 penalty for leaving litter). The larvae had little cover, and were fairly exposed while feeding. In the same area, Mr Watson found a full grown larva of *M. stellatarum* feeding on the same foodplant. On another visit on 10th September, a further eight *gallii* were seen, again in the same restricted area, but on this occasion one was feeding on *Chamaenerion angustifolium*. Although there are several acres of sandhills in the district, with an abundance of both foodplants unspoiled by the public, no more larvae were seen despite a careful search.—J. BRIGGS, Frimley House, Beetham, Milnthorpe, Westmorland, 25.ix.1973.

Current Literature

Proceedings and Transactions of the British Entomological and Natural History Society 6, part 1. £0.65.

This part contains "Memories of Collecting in Britain during the past fifty years" by Dr C. G. M. de Worms, a paper which shows some of the seasonal fluctuations and environmental changes during that period.

There is also a supplement for 1972 of Col. A. M. Emmet's "Microlepidoptera of Wicken Fen" which adds 12 species to the list and mentions a further 9 species found last year of which there had been no recent record. It might be as well to draw attention to a slight error which might give rise to ambiguity: following *Yponomeuta plumbella* (D. & Schiff.) comes "*Y. dentella* Fabricius". This should have been *Ypsolopha dentella* Fabricius.

By Allan E. Stubbs there is an account of a Tipulid fly, *Molophilus lackschewitzianus* Alexander, new to the British Isles, with a text figure of the male hypopygium.

Proceedings include accounts of the Centenary exhibition with two plates, indoor meetings from 23rd November to 11th Jan. 1973 and field meetings to Oxford and the Isle of Wight.

The indices for 1972 are included with this issue.—S.N.A.J.

Bromley, bred ex larva 1929, B. H. Armstrong, one, Bromley, July 17, 1931, B. H. Armstrong; *disparata* Hübner, one, Bromley, bred ex larva 1929, B. H. Armstrong.

First Record, 1831: Darenth Wood (Stephens, *loc. cit.*).

E. subumbrata Denis & Schiffermüller: **scabiosata** Borkhausen: Shaded Pug.

Native. Chalk downs, salt marshes, rough fields, flowery banks, etc.; on "Scabious" [*Scabiosa succisa*], *Pastinaca sativa*, *Senecio jacobaea*.

1. Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Petts Wood, 1948 (A. M. Swain, in de Worms, *Lond. Nat.*, **1957**: 147). West Wickham, 1950 (E. E. J. Trundell in de Worms, *loc. cit.*). Bromley, one at m.v.l., July 10, 1966 (D. R. M. Long).

2. Royal Oak, Sheppey, two, June 6, 1868 (J. J. Walker MS.) Sheerness, common (Walker, *Ent. mon. Mag.*, **8**: 184; idem, *Ent. mon. Mag.*, **9**: 163); 1873 (Hodgson, *Ent. mon. Mag.*, **10**: 180). Chatham* (Mathew, *Entomologist*, **25**: 292); 1899 (Ash, *Ent. Rec.*, **11**: 273). Strood*, larvae (Ovenden, *Ent. Rec.*, **16**: 294). Kingsferry, two, June 26, 1949 (C.-H.).

3. Herne Bay (Boyd, *Ent. mon. Mag.*, **5**: 147); larvae, July 1868 (Vaughan, *Ent. Ann.*, **1869**: 140). Chelsfield; Whitstable (P. F. Harris). Eddington (D. G. Marsh).

4. [Wingham]*, a larva on *S. jacobaea*, reared (Hammond, *Entomologist*, **2**:94).

5. Chevening, May 23, June 1, 1914, two, June 17, 1916 (Gillett, *Diary*). Chelsfield (S. F. P. Blyth). Westerham (R. C. Edwards). Biggin Hill, one May 17, 1952 (C.-H.).

6. Eynsford, common (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1891**: 122). Shoreham* (Tutt, *Ent. Rec.*, **1**:64). Cuxton (Tutt, *Ent. Rec.*, **4**:229); 1908 (Ovenden, *Ent. Rec.*, **21**: 32). Otford (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1902**:50). Gravesend (H. C. Huggins). Farningham, June 7, 1932, larva, July 11, 1933 (A. R. Kidner, *Diary*). Pinden (E. J. Hare).

7. Sittingbourne (H. C Huggins). Westwell (Scott, 1936); 1948, 1954 (E. Scott).

8. Folkestone Warren, common (Knaggs, 1870); six, June 21, 1949 (C.-H.). Dover (Coverdale, *Entomologist*, **16**: 220); "all around" Dover (Webb, 1891); common, June 24, 1932 (J. H. B. Lowe). Ewell Minnis; Whinless Down (E. & Y., 1949). Kent [?Wye]*, imagines bred from *P. sativa* (Reid, *Ent. Rec.*, **21**: 57). Wye Crown, June 9, 1934, June 10, 1939; a larva swept from Scabious, August 1931 and reared (A. J. L. Bowes); numerous at dusk including a pair *in cop*, May 28, 1949, one, May 30, 1953 (C.-H.). Brook, larvae (P. Cue). Chilham Downs, June 10, 1951 (W. D. Bowden).

9. Margate, June 28, 1951; St Peters, one, June 17, 1957 (W. D. Bowden).

12. Ashford Warren, one, June 1, 1960 (M. Enfield). Ham Street, July 2, 1962 (de Worms, *Entomologist*, **96**: 55). Hothfield Bog, one, July 4, 1963 (M. Singleton).

16. Folkestone Town, a few (A. M. Morley).

Variation.—In RCK are the following aberrations:—*abrutaria* H.-S., two, Folkestone, 1904; *obscurata* Lempke, two, Wye, 1908. L. B. Prout; *impuncta* Lempke, two, Herne Bay, bred 1909, L. B. Prout; ab. with "median area feebly marked", one, Herne, Bay, bred 1909. J. E. Gardner.

FIRST NOTICE, 1868: Royal Oak, Sheppey, June 6, 1868 (J. J. Walker MS.).

E. millefoliata Rössler: Yarrow Pug.

Resident, perhaps native. Coastal waysides, maritime shingle beach, sandhills and waste places by the sea; on *Achillea millefolium.*

2. Stoke Saltings, larvae on *A. millefolium,* September 20, 1962, reared June 14-16, 1963 (C.-H.).

3. Herne Bay, one, August 3, 1951 (D. G. Marsh). Broad Oak, one at m.v.l., June 14, 1952 (C.-H., *Ent. Rec.,* **63**: 217).

4. Sandwich, one, July 15, 1939 (Richardson, *Entomologist,* **82**: 72; idem, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1949-50**: 41; idem, *Ent. Gaz.,* **3**: 104); one in RCK, August 16, 1939, A. J. L. Bowes (C.-H.); larvae on *A. millefolium,* September 16, 1971 (C.-H.). Ickham, one at light, 1957 (D. G. Marsh).

8. Folkestone, October 7, 1951, seven larvae on Dover Hill, five larvae at Capel, all found by G. Haggett(A. M. Morley).

9. Ramsgate, larvae collected with *A. millefolium* by A. H. Lanfear, autumn 1947, imagines reared (Wakely, *Entomologist,* **82**: 139; idem;, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1949-50**: 3); from *A. millefolium* I beat 22 full-grown larvae, September 20, 1953 (C.-H.).

11. East Malling, one, 1951†; Aylesford, one, 1951†, three, 1952-53† (G A. N. Davis).

12. Ham Street, ♀, August 7, 1933 (de Worms, *Ent. Rec.,* **64**: 53; idem, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1951-52**: 49); ♀, at m.v.l., July 30, 1951 (C.-H., *Ent. Rec.,* **63**: 217). Willesborough, one at light, July 1959 (M. Singleton).

15. Hythe Rifle Range, 43 larvae, September 18-30, 1950 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1950-51**: 36). Dungeness, two at m.v.l., August 3, 1951 (C.-H.).; 1952 (Kettlewell, *Ent. Rec.,* **65**: 305); larvae plentiful, 1955 (de Worms, *Entomologist,* **88**: 95; Bretherton, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1956**: 21); a few larvae, September 24, 1955 (E. C. Pelham-Clinton); few larvae, September 29, 1956 (R. F. Bretherton); 1957 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1957**: 15). Greatstone, 1963 (Wakely and C.-H., *Ent. Rec.,* **76**: 94). Lydd, larvae half-grown, September 28, 1966 (de Worms, *Entomologist,* **100**: 103).

16. Folkestone, three larvae, October 5-22, 1950, by A. M. Morley (de Worms, *Entomologist,* **84**: 153); three moths, 1951 (Morley, *Ent. Rec.,* **64**: 174); larvae, October 4, 1953 (de Worms, *Ent. Rec.,* **65**: 328); larvae scarce, 1957-58, owing to reduction of the foodplant (A. M. Morley).

VARIATION.—In RCK is ab. *uniformis* Dietze, one, Sandwich Bay, bred July 13, 1950, E. A. Cockayne.

FIRST (PUBLISHED) RECORD, 1949: Pegwell Bay near Ramsgate (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.,* **1949-50**: 3). The species was first *found* in Britain at Ham Street in 1933, however, but the specimen taken was not identified until many years later (cf. de Worms, *supra*).

E. simpliciata Haworth: **subnotata** Hubner: Plain Pug.

Native. Salt-marshes, river banks, waste ground, derelict sites; on *Chenopodium, Atriplex.* "Generally common" (*V.C.H.,* 1908); but the records show it to be fairly local (C.-H.).

1. "Met with the larva in some plenty in waste ground near Bexley" (Harpur Crewe, *Ent. Ann.*, **1861**: 138). Lewisham district, not scarce on palings (Fenn, *Ent. week. Int.*, **10**: 196); Lee and Blackheath areas, July 14, 1861 (Fenn, *Diary*), may refer. Westcombe Park; Bexley district, abundant (*Wool. Surv.*, 1909). Bexley, 1900 (Carr, *Entomologist*, **34**: 108); several annually, 1966-68 (D. O'Keeffe). Chiselhurst, common (S. F. P. Blyth). Sidcup, one, July 15, 1910, one, August 3, 1912, one at light, July 17, 1928, four at light, July 1935, July 10(1), 17, 1936, three, 1937, two, 1938, one August 13, 1939 (A. R. Kidner, *Diary*). Petts Wood, July 12(1), 14(1), 18(1), 1937, common 1948; St. Mary Cray, one, August 20, 1948 (A. M. & F. A. Swain). Orpington, 1948 (L. W. Siggs); one, July 1955, one, August 1956 (R. G. Chatelain). West Wickham, 1951 (E. E. J. Tundell); July 24(1), 30(1), August 1(1), 2(1), 1963 (R. F. Birchenough). Abbey Wood, 1952 (A. J. Showler). Blackheath, two at m.v.l., 1959 (A. A. Allen). Bromley, one, 1963, three, 1965, three, 1966 (D. R. M. Long).

2. Sheerness, two, June 24-25, 1868 (J. J. Walker MS.). Near Sheerness, 1871, abundant among *Chenopodium*, also at rest on fences, etc. (Walker, *Ent. mon. Mag.*, **8**: 184). Chatham, larvae on *Chenopodium* and *Atriplex* (Mathew, *Entomologist*, **23**: 347). Gravesend, very common, July 11, 1865 (Fenn, *Diary*). Gravesend; Sittingbourne; Faversham (H. C. Huggins). Greenwich Marshes; Plumstead Marshes (J. W. Tutt, in *Wool. Surv.*, 1909). New Brompton (Chaney, 1884-87). Marshes near Strood, a few larvae on *Chenopodium*, July 26, 1908 (Ovenden, *Ent. Rec.*, **21**: 33). Sheppey, July 23, 1935 (J. H. B. Lowe). Stoke Saltings, two, August 1, 1962; Kingsferry, June 26, 1949 (C.-H.).

3. Herne Bay, July 25, 1933, August 2, 1934, July 21, 1935 (A. J. L. Bowes). Den Grove, Sturry, one, 1936; Broad Oak, one, July 18, 1944, one, August 5, 1951 (C.-H.).

4. Deal, July 22, 1891 (Fenn, *Ent. Rec.*, **2**: 203-204); one, July 28, 1891, one, August 6, 1892 (Fenn, *Diary*). Westbere, one, July 24, 1946 (C.-H.).

5. Farnborough*, occasionally (H. Alderson, in *Wool. Surv.*, 1909).

6. Gravesend, June 24, 1911 (F. T. Grant). Pinden (E. J. Hare).

6a. Near Darenth Wood (see *First Record*). Chattenden Roughs (Chaney, 1884-87).

8. Elms Vale, Dover, one, July 12, 1905 (Stockwell, *Diary*). Whinless Down (E. & Y., 1949).

9. Cliftonville, one, 1950; North Foreland, one, 1950; Margate, one, July 29, 1955 (W. D. Bowden).

11. Tonbridge (Raynor, *Entomologist*, **6**: 79).

12. Canterbury City, larva and imago (J. A. Parry). Ashford (Scott, 1936). Brook* (Scott, 1950).

13. Tunbridge Wells* (Knipe, 1916).

14. Sandhurst (G. V. Bull).

15. Dungeness, one, July 26, 1935 (A. M. Morley).

16. Folkestone (Knaggs, 1870); one or two taken in the town (A. M. Morley).

VARIATION.—In RCK are the following named abs.:—*brunnea* Lempke, one, Brockley; *variegata* Lempke, one, Sheppey.

FIRST RECORD, 1831: "Very abundant near Darenth Wood" (Stephens, *Haust.*, **3**: 287).

E. indigata Hübner: Ochreous Pug.

Resident, perhaps native.; [on *Pinus sylvestris*]

1. Birch Wood (see *First Record*). Dartford*, two April 1859 (Allchin, *Ent. week. Int.*, **8**: 4). Dartford Heath, two, June 15, 1876 (Fenn, *Diary*). West Wickham Wood, April 21, 1863 (Fenn, *Diary*); 1867 (Barrett, *Entomologist*, **3**: 330); scarce amongst Scotch fir (1889) (Sheldon, *Ent. Rec.*, **1**: 70). West Wickham, one in m.v. trap, June 1, 1963 (C.-H.). Forest Hill (Cansdale, *Ent. Rec.*, **2**: 69). Bostall and Abbey Woods, on pine trunks, May 11-15, 1863 (21), May 7-16, 1865 (40) (Fenn, *Diary*). Plumstead (*V.C.H.*, 1908). Erith, one, May 17, one, June 8, 1884; Pauls Cray Common, one June 7, 1890 (Fenn, *Diary*). Orpington, one, May 1953 (R. G. Chatelain); one, May 13, 1954, one, 1955 (L. W. Siggs). Bromley, at m. v. l 1960 (4), 1962 (1), 1963 (1), 1964 (3), 1965 (2), 1966 (2); earliest date May 13, 1964, latest date July 1, 1962, with maximum numbers (2) on May 26, 1960 and May 16, 1965 (D. R. M. Long).

3. Blean, one, May 28, 1903, one, May 15, 1905, in J. P. Barrett coll. (C.-H.). Oldbridge Wood, c. 1946 (J. A. Parry). West Blean Wood, one, June 15, 1950 (W. D. Bowden).

5. Meanfield Wood, one, May 30, 1955 (R. G. Chatelain).

6. Greenhithe* (Farn MS.). Eynsford, one, May 18, 1934, B. H. Armstrong, in RCK (C.-H.).

7. Westwell (Scott, 1936).

8. West Wood, one, May 19, 1953 (A. M. Morley).

10. Seal Chart, one, June 18, 1887 (Fenn, *Diary*). Sevenoaks (*V.C.H.*, 1908).

11. Yalding (*V.C.H.*, 1908).

12. West Ashford, one at light, May 18, 1960 (M. Enfield). Ashford Town, one in garden, May 8, 1961 (P. Cue MS.).

13. Tunbridge Wells* (Knipe, 1916).

First Record, 1851: Birch Wood (Douglas, *Zoologist*, 3247).

E. pimpinellata Hübner: Pimpinel Pug.

Native. Chalk downs, rough chalky places; on *Pimpinella saxifraga*.

1. Wilmington*, a larva, October 5, 1910 (A. R. Kidner, *Diary*). Orpington, one, 1955, one, 1956 one, 1957 (R. G. Chatelain). Bromley, one, August 18 1960, one, August 17, 1961, both in m.v. trap (D. R. M. Long).

4. Ham Marshes, one, June 9, 1891 (Fenn, *Diary*); numerous, bred 1905 (J. P. Barrett coll.). Note: The locality was probably the rough chalky field adjoining the fen (C.-H.).

5. Biggin Hill, about 12 larvae, October 13, 1957; Shoreham, two larvae October 13, 1957 (A. J. Showler).

6. Greenhithe* (Farn MS.). Birling, 1903-06, odd ones kicked up from the grass (H. C. Huggins). Eynsford, one larva, October 13, 1957. Wrotham, one larva, October 19, 1958 (A. J. Showler).

7. Westwell, one at light, August 9, 1955 (C.-H.).

8. Folkestone.—Warren, scarce in spring (Knaggs, 1870); one, Windgate Hill, August 11, 1936, one, August 3, 1937, 17 larvae on the downs, August 31-September 4, 1937 (A. M. Morley); the Well between Sugarloaf and Middle Hill, 14 larvae on *P. saxifraga* growing on the shaded parts of the down, September 12, 1953, imagines bred August 1954, larvae locally plentiful with four on one plant, September 18, 1955 (C.-H.).

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley BR2 9EE, Kent.

Request for Information — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), **72**, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) **2**), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton, 20 Gore Court Road, Sittingbourne, Kent, ME10 1QN.

Back numbers—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

Butterflies (including rare specimens, moths and other insects—*on stamps* —Sale or exchange.—A. Grainger, 42 Lee Lane East, Horsforth, Nr. Leeds.

Celerio galii—The Bedstraw Hawkmoth—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

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 must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

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The Editor would be willing to consider the purchase of a limited number of certain back issues.

TREASURER'S NOTICE

The annual subscription will remain at £4 for 1974 despite the further increases in our costs.

It is now due and the Treasurer would be grateful if remittances could be sent, by those intending to renew their subscriptions, before 31st December 1973 (subscriptions paid before 15th January 1974 are £3.75). Prompt payment is the simplest way of keeping our costs down.

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The Treasurer most earnestly appeals to any who wish to withdraw their support to give notice as soon as possible and to return the January 1974 number if they receive it before giving notice of cancellation. The Treasurer points out that in accordance with the usual 'trade practice' **subscriptions are deemed to be renewed unless cancelled.**

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T. BUNCLE AND CO. LTD., ARBROATH, ANGUS, SCOTLAND

VOL. 85 No. 12 December 1973

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

PLEASE MAKE A SPECIAL NOTE

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Lepidoptera of South and Central Cornwall, 1973

By E. H. Wild and J. E. Marshall

We have been unable to trace a county list of the lepidoptera of Cornwall and, although the north coast is often visited for its specialities, the south coast has been somewhat neglected apart from Col. Rossell's occasional notes on immigrants. Thus, in an attempt to help fill this gap in our knowledge, we hired a transit van for the first fortnight of August and, accompanied by Mrs E. H. Wild and L. K. Evans, set out with an immense amount of equipment to explore the region around Fowey.

Our headquarters was the "Coach House" at Menabilly (M) occupied by Miss Marshall's uncle and situated in Lord Rashleigh's huge wooded estate on the headland between Fowey and Polkerris where we were given complete freedom to collect. The woods ,at one time an experimental area associated with Kew, are dominated by oak and beech with dense rhododendron and bamboo cover. A stream runs through a deep marshy valley and the old paths are overgrown and often impassable. Palms and other exotics grow among the native trees and lichens festoon the vegetation. The cliffs reach 200 feet in places and the shore is rocky.

E. H. W. ran a Robinson trap on the front lawn of the "Coach House". L. K. E. also ran a trap in open parkland 200 feet away but, after cows had twice snapped the cables and overturned the trap, he moved it to a drive outside the park fence. A Heath trap was also run in a nearby narrow ride. Our adventures were many and L. K. E. drove the van into some improbable places in search of potential sites. Once we even used a small boat to carry the lights to an otherwise inaccessible cove between Polkerris and the Little Gribbin.

158 species (macros, pyrales and plumes) were recorded on the estate. A further 24 species were collected using generators and portable lights at other sites which were: Par Marshes (P); Goss Moor (GM); Caerhays (C) and Portholland (PH).

A full list of species is given below together with the localities. The list of Tortricoidea has been added by Miss Marshall. Although rather a commonplace lot, there were a few interesting surprises. A number of birch feeders will be noticed in spite of the absence of this tree from this part of the country.

One of the commonest insects at the Menabilly traps was *Lithosia quadra* L. with a nightly average of about 40, the maximum for one night being 72. The proportion of ♀♀ to ♂♂ was about 1:20. We did not find it outside the estate where it appears to be very well established. *Discoloxia blomeri* Curt. turned up on four nights between 1st and 10th August—very late dates. *Eilema caniola* Hübn. appeared twice in the traps at Menabilly and once at Caerhays. A single *Mythimna putrescens* Hübn. at Menabilly and two at Caerhays were all we could find of this species. *Alcis jubata* Thunb. was fairly common at Menabilly though not elsewhere.

Apart from *Vanessa atalanta* L. and *Udea ferrugalis* Hübn., no immigrants were seen.

Except for the night of August 1st, the weather was generally unfavourable, being wet and windy during the first week followed by a warm spell with clear nights and a bright moon during the second.

Although not within the scope of this paper, it is worth recording that on the journey home we drove into a stubble field near Buckfastleigh, Devon, for a coffee-break and caught three *Euplagia quadripunctaria* Poda on the hedgerows.

SPECIES LIST

Alucitoidea

Alucita hexadactyla L. (M).

Pyraloidea

Chrysoteucha culmella L. (*all*). *Crambus perella* Scop. (M.C.). *Agriphila tristella* D. & S. (*all*). *A. geniculea* Haw. (M). *Catoptria pinella* L. (*M.C.*) *Scoparia cembrella* L. (*PH*). *Eudonia resinella* L. (M). *E. mercurea* Haw. (C). *Evergestis forficalis* L. (M.P.C). *Eurrhypara hortulata* L. (M). *E. coronata* Hufn. (M.PH). *Ebulea crocealis* Hübn. (M.GM.C). *Udea lutealis* Hübn. (C). *U. olivalis* D. & S. (M). *U. ferrugalis* Hübn. (M). *Nomophila noctuella* D. & S. (M). *Pleuroptya ruralis* Scop. (M.C.PH). *Hypsopygia costalis* F. (M). *Achroia grisella* F. (PH) *Eurhodope marmorea* Haw. (PH). *Phycita roborella* D. & S. (M). *Dioryctria abietella* D. & S. (M).

Pterophoroidea

Pterophorus pentadactyla L. (M). *Adaina microdactyla* Hübn. (M). *Oidaematophorus lithodactyla* Treits. (C).

Bombycoidea

Malacosoma neustria L. (all). *Macrothylacia rubi* L. (M.C.PH.P.). *Philudoria potatoria* L. (all).

Geometroidea

Falcaria lacertinaria L. (M). *Drepana cultraria* F. (M). *Thyatira batis* L. (M). *Habrosyne pyritoides* Hufn. (M.C.). *Pseudoterpna pruinata* Hufn. (M). *Hemithea aestivaria* Hübn (M). *Cyclophora linearia* Hübn. (M). *Scopula marginepunctata* Goeze. (M.PH). *S. imitaria* Hübn. (M). *Idaea biselata* Hufn. (M.P.PH). *I. dimidiata* Hufn. (M.C.PH). *I. aversata* L. (all). *Orthonama vittata* Bork. (M). *Xanthorhoe spadicearia* D. & S. (all). *X. ferrugata* Clerck. (M). *X. fluctuata* L. (M.PH). *Scotopteryx chenopodiata* L. (M.C). *Catarhoe cuculata* Hufn. (M.PH). *Epirrhoe alternata* Mull. (all). *E. galiata* D. & S. (M.GM.C.PH). *Captogramma bilineata* L. (M). *Cosmorhoe ocellata* L. (PH). *Ecliptopera silaceata* D. & S. (M.PH). *Chloroclysta citrata* L. (M.GM). *Hydriomena furcata* Thun. (M.GM). *Horisme tersata* D. & S. (M.GM). *Melanthia procel-*

lata D. & S. (M). *Perizoma affinitatum* Steph. (GM). *P. alchemillata* L. (M). *P. flavofasciata* Thun. (PH). *Eupithecia haworthiata* Doubl. (M). *E. pulchellata* Steph. (M.PH.) *E. centauriaria* D. & S. (M). *E. icterata* Vill. (M). *Gymnoscelis rufifasciata* Haw. (M). *Discoloxia blomeri* Curt. (M). *Hydrelia flammeolaria* Hufn. (M.). *Abraxas grossulariata* L. (M. C. GM. PH.). *Lomaspilis marginata* L. (M.GM). *Ligdia adustata* D. & S. (C). *Semiothisa alternaria* Hübn. (M). *S. liturata* Clerck. (M). *Opisthgraptis luteolata* L. (M.P.). *Epione repandaria* Hufn. (P). *Ennomos quercinaria* Hufn. (M). *Selenia dentaria* F. (M.PH). *S. tetralunaria* Hufn. (M). *Crocallis elinguaria L.* (M.GM.PH). *Ourapteryx sambucaria* L.(M.C.). *Biston betularia* L. (all). *Peribatodes rhomboidaria* D. & S. (M). *Alcis repandata* L. (M). *A. jubata* Thun. (M). *Cleorodes lichenaria* Hufn. (M). *Ectropis historiata* Goeze (M.C.) *Cabera exanthemata* Scop. (P.GM). *Lomographa temerata* D. & S. (M). *Campaea margaritata* L. (M). *Hylaea fasciaria* L. (M). *Gnophos obscuratus* D. & S. (M.P.PH).

Sphingoidea

Sphinx ligustri L. (M). *Laothoe populi* L. (M). *Deilephila elpenor* L. (M).

Notodontoidea

Phalera bucephala L. (M). *Notodonta dromedarius* L. (GM.P.C). *Eligmodonta ziczac* L. (M.GM.C). *Pheosia gnoma* F. (M). *P. tremula* Clerck. (M). *Ptilodon capucina* L. (M.P). *Pterostoma palpina* Clerck. (PH).

Noctuoidea

Euproctis similis Fuessly. (M). *Lymantria monacha* L. (M.PH). *Thumatha senex* Hübn. (M.GM). *Miltochrista miniata* Forst. (M.P.). *Eilema griseola* Hübn. (M). *E. caniola* Hübn. (M.C). *E. deplana* Esper. (M.P). *E. lurideola* Zinck. (M.P.C). *Lithosia quadra* L.(M). *Arctia caja* L. (M..GM). *Spilosoma luteum* Hufn. (M.GM.C). *Phragmatobia fuliginosa* L. (M.P. GM.C). *Agrotis segetum* D. & S. (M). *A. exclamationis* L. (M.GM.C). *A. trux* L. (M). *Ochropleura plecta* L. (all). *Noctua pronuba* L. (all). *N. comes* Hübn. (M.C.P.PH). *N. fimbriata* Schreber (all). *N. janthina* D. & S. (all). *N. interjecta* Hübn. (all). *Peridroma saucia* Hübn. (M). *Diarsia brunnea* D. & S. (M). *Xestia c-nigrum* L. (M.PH). *X. baja* D. & S. *X. sexstrigata* Haw. (GM). *X. xanthographa* D. & S. (M). *Dicestra trifolii* Hufn. (M). *Melanchra persicariae* L. (M.PH). *Lacanobia oleracea* L. (M). *Hadena perplexa* D. & S. (C.PH). *H. confusa* Hufn. (C.PH). *H. bicruris* Hufn. (PH). *Cerapteryx graminis* L. (M.GM). *Mythimna ferrago* F. (M.P. C). *M. straminea* Treits. (M). *M. impura* Hübn. (all). *M. pallens* L. (M). *M. putrescens* Hübn. (M.C). *Acronicta psi* L. (M). *Acronycta rumicis* L. (M.P.GM.C). *Craniophora ligustri* D. & S. (M). *Cryphia domestica* Hufn. (M). *C. muralis* Forst. (M.C.PH). *Amphipyra berbera* Rungs. (M). *A. tragopoginis* Clerck. (M.C). *Mormo maura* L. (M). *Phlogophora meticulosa* L. (M). *Ipimorpha subtusa* D. & S. (GM). *Cosmia diffinis* L. (M). *C. trapezina* L. (M.C). *Apamea monoglypha*

Hufn. (all). *A. lithoxylea* D. & S. (C). *A. remissa* Hübn. (M). *A. scolopacina* Esper. (M). *A. ophiogramma* Esper. (C). *Oligia strigilis* L. (M). *O. fasciuncula* Haw. (C.PH). *Mesoligia literosa* Haw. (all). *Mesapamea secalis* L. (all). *Photedes pygmina* Haw. (M). *Luperina testacea* D. & S. (M.C.PH). *Amphipoea oculea* L. (M). *Hydraecia micacea* Esper. (C). *Nonagria typhae* Thunb. (M). *Coenobia rufa* Haw. (M.P). *Hoplodrina alsines* Brahm. (all). *H. blanda* D. & S. (M.C). *H. ambigua* D. & S. (C). *Caradrina clavipalpis* Scop. (M). *Bena prasinana* L. (M). *Colocasia coryli* L. (M.GM.C). *Autographa gamma* L. (all). *A. jota* L. (M.GM.C). *Abrostola trigemina* Werne. (M). *A. triplasia* L.(M.P.PH). *Scoliopteryx libatrix* L. (M.C). *Hypena crassalis* F. (M). *H. proboscidalis* L. (M.PH). *Polypogon tarsipennalis* Treits. (M). *P. nemoralis* F. (M).

Tortricoidea (provisional)

Cydia splendana Hübn. (C). *Rhyaconia pinicolana* Doubl. (M). *Celypha striana* D. & S. (M). *Pandemis corylana* F. (M). *P. cinnamomeana* Treits. (M). *P. heparana* D. & S. (M). *Clepsis consimilana* Hübn. (M). *Lozotaenia forsterana* F. (M). *Croesia forsskaleana* L. (M). *Acleris schalleriana* L. (M). *A. variegana* D. & S. (M). *A. emargana* F. (P.GM). *Agapeta hamana* L. (PH.M.C). *A. zoegana* L. (PH.M.C). *Stenodes straminea* Haw. (PH).

The following butterflies were recorded at Menabilly:

Thymelicus sylvestris Poda. *Pieris brassicae* L. *P. rapae* L. *P. napi* L. *Quercusia quercus* L. *Lycaena phleas* L. *Polyommatus icarus* Rottem. *Vanessa atalanta* L. *Aglais urticae* L. *Inachis io* L. *Argynnis aglaja* L. A. *paphia* L. *Pararge aegeria* L. *Lasiommata megera* L. *Pyromia tithonus* L. *Maniola jurtina* L. *Coenonympha pamphilus L. Aphantopus hyperantus* L.

Hyperantus, R.I.P.

By Charles F. Cowan

It is surely time that the name of our little Ringlet butterfly *Aphantopus hyperantus* (L.) was laid to rest. Even before Linnaeus died it was being spelt "hyperanthus", but how could one connect flower-power with this unassuming drab insect? Some even tried to rename it after a brother of Xerxes of Persia, Hyperanthes, who died at the hands of Leonidas at Thermopylae.

There is absolutely no excuse for this, for Linnaeus quite clearly explained his 32 Danaid names in his 1758 *Systema Naturae* (**1**: 467-472). Dividing the Danaids into two sections

the Candidi (Whites) and Festivi (Coloured), he said in his footnote to page 467 "*Danaorum Candidorum* nomina a filiabus Danai Aegypti, *Festivorum* a filiis mutuatus sum", or "I have taken the names of the Whites from the daughters, and of the Coloured from the sons, of Danaus-Aegyptus". A further note affecting eleven names says on page 471 that where the foodplant is known he had adapted its name instead. We are left with ten feminine names in the Whites and eleven masculine names in the Coloured, to which Linnaeus added fourteen and five respectively in his 1767 edition.

Anyone so inclined could have found the ancient legend without great difficulty. It is sketched in a useful recent paperback (Radice, 1973: 98). Belus, as the Romans transcribed the Greek version of Baal, or Bel, King of Egypt and descendant of Io, had two remarkable sons, Danaus and Aegyptus. Danaus had fifty daughters and Aegyptus had fifty sons. Inevitably the girls were all unwilling subjects of attention and Danaus had to flee with them to Argos. However, Aegyptus and the boys invaded and Danaus was forced to acquiesce. A mass wedding was arranged, but Danaus gave to each daughter a dagger for her defence on the nuptial night. All were duly widows next morning except Hypermestra who, smitten by love at first night, spared her Lynceus and both lived happily ever after. Hyperantus, of course, was one of those forty-nine frustrated first-nighters, only a third of whom were thus commemorated in butterfly lore by Linnaeus.

The names Lynceus and Hypermestra were not used by Linnaeus in 1758, but six years later he did introduce (among the Nymphs, through a thesis by Johansson) *Papilio hypermnestra,* which variant spelling has appeared again in other genera. True, also, Hyperanthus is a variant spelling of Hyperantus, depending on which Latin transcriber of the Greek version of the ancient Egyptian name one happens to consult. It is not up to us to change the spellings of zoological names based on such sources once they have been published. The Code rightly says that, unless the name published actually contravenes the Code, or from the accompanying text there is an obvious error, the original spelling stands. Lynceus also was commemorated, but Dru Drury rather upset the plan by giving his name to one of the Whites, which then included the species now placed in *Hestia.*

An excellent and well-researched analysis of the many mythological names used by Linnaeus for his *Papilio* species is that by Professor John L. Heller.

REFERENCES

Heller, J. L. (1945). Classical mythology in the *Systema Naturae* of Linnaeus. *Trans. Am. phil. Soc.* **76**: 333-357.

Radice, B. (1973). *Who's Who in the Ancient World.* 336 pp., 56 figs. 8°. Penguin Books.

Notes on some of the British Nepticulidae II

By A. M. EMMET

(Continued from page 180)

Egg	Underside, away from a rib.	Underside, away from a rib.
Mine	At fiirst a narrow highly contorted gallery with coiled frass, not staining the leaf purplish. The gallery is relatively short leading abruptly to a large blotch which usually envelops and obscures the early mine. The frass in the blotch is brown and is well distributed.	At first a narrower, highly contorted gallery with dispersed frass staining the leaf purplish. The gallery is longer, later becoming broader and more gently sinuous; the frass is blackish, dispersed and conspicuous. The final blotch less often envelops, and never obscures the early mine.
Larva	Mines venter upwards. The larva is yellowish white when young, with large oval dark spots, broader in the lateral plane. When full grown, its dorsal vessel is green. The dark ventral spots are linear and barely visible in the mine. Head light brown, thoracic plate inconspicuous.	Mines venter upwards. The young larva is ochreous yellow with large, oval dark spots, broader in the lateral plane. When full grown it is greenish white with the dorsal vessel green. The darker ventral spots are linear and conspicuous in the mine. The head and thoracic plate, which is conspicuous, are dark brown.
Imago	Head ochreous yellow to fuscous; cilia grey-whitish.	Head black, cilia whitish.

E. arcuatella has a wider distribution in Britain than *E. rubivora* and they seldom seem to occur in the same ground. Thus *arcuatella* is common in the chalk areas of Kent, where there is no trace of *rubivora*. *E. rubivora* is common in north Essex and Cambridgeshire, where I have never found *arcuatella*. Three localities come to my mind where strawberry grows under dewberry; in two of these (Kent and Oxfordshire) *arcuatella* occurs on the strawberry, but there are no *Ectoedemia* mines on the dewberry, while in the third (Essex *rubivora* occurs on the dewberry but there are no *Ectoedemia* mines on the strawberry. Leigh Woods, Somerset, is the only locality where I have seen both species together.

Thus the evidence of distribution, biology, imaginal markings and genitalia all indicates that *arcuatella* and *rubivora* are distinct species.

I shall now proceed to discuss species grouped under their host plants, as I did in my previous series of notes.

ACER spp. (Maples and Sycamore)

The British list includes three *Acer-feeding* Nepticulidae of the genus *Etainia* (Beirne, 1945), namely *sericopeza* Zeller 1839, *decentella* Herrich-Schäffer 1840 and *sphendamni* Hering 1937. Stainton (1854) was the first to mention *sericopeza* in our literature and he also described *decentella* over a century ago (Stainton 1867), though it was not detected in this country for another sixty-six years (Adkin 1933). The last to be recognised as British was *sphendamni* (Ford 1948), but the differences between *sphendamni* and *sericopeza* in their biology and imaginal markings have never been expressed in the English language. Meyrick (1928) wrote before *sphendamni* had been discovered or named, while Ford (1949) includes *sphendamni* as an addendum (species No. 1346a), but wrongly ascribes to it the same life history as *sericopeza*—wrongly in as much as his description of *sericopeza* is incorrect for that species though accurate enough for *sphendamni*. The notes which follow will attempt to clear up our misconceptions regarding the early stages and will give a dichotomous table for the recognition of the imagines.

(1) *Etainia sericopeza* Zeller. The discovery of the interesting life-history of this species was made by the late A. G. Carolsfeld-Krausê of Denmark and, in particular, by Herr Eberhard Jäckh of Bremen, who has been kind enough to send me a copy of his valuable paper on the subject (Jäckh 1951). The notes which follow are based mainly on Jäckh's article, but also in part on Hering (1957). I myself have never encountered *sericopeza* and it is possible that it does not occur in Britain.

The foodplant of *sericopeza* is *Acer platanoides* Linn., the Norway maple. The moths of the first generation emerge in May and lay their eggs near the tips of the keys. The young larva mines its way in a more or less direct line along the wing into the seed-capsule where it eats out a cavity. The mined area turns black (Goureau in Tutt 1889). Sometimes there is a dearth of winged seeds and the eggs are laid on the petioles which are mined by the larvae; however, the majority of these larvae can only partially develop on this pabulum and so they perish. When mined, both the keys and the petioles fall prematurely to the ground. The larvae spin their cocoons on the keys (Goureau).

The resulting moths emerge in the summer and lay their eggs in August and September at the base of the leaf stalks. The August larvae feed for a time in the petiole, but this part of the plant seems to suit them only when they are young, for they soon mine along the bark and enter a bud. When this has been eaten out the larva again proceeds along the bark to another bud, where it completes its growth in the spring. Affected buds are aborted, and such a condition may indicate the presence of a larva. When full-fed,the larva quits the bud and pupates probably on rubbish in the ground. Larvae hatch-

ing in September do not feed in the petiole, which is becoming too hard by that date, but at once mine along the bark into a bud.

(2) *Etainia sphendamni* Hering. The food plant is *Acer campestre* Linn., the field maple. In a favourable season there are three generations in the year. The eggs are laid on the wings of the keys, and after some initial uncertainty of direction, the young larva mines inwards and enters the seeds, where it feeds in the same manner as the first generation of *sericopeza* in the seeds of *A. platanoides*. As the larvae may be found in June, August and October, they must be indifferent to the degree of ripeness of the seeds. When full fed, the summer larva leaves the seed-capsule and spins its cocoon at the tip of a key (seldom the one which was mined) or on the upper surface of an adjacent leaf. The October larvae descend to the ground when full-fed and over-winter in hibernacula. These they leave in the spring and crawl back up the trunks to spin their cocoons on the bark.

E. sphendamni never feeds in the buds or mines the bark; the tenanted keys do not fall prematurely and they are not blackened.

(3) *Etainia decentella* Herrich-Schäffer. The foodplant is *Acer pseudoplatanus* Linn., the sycamore. The life history of the first generation is unknown (Hering 1957), but that of the second generation resembles the October generation of *sphendamni*, except that, according to Hering, the larva feeds exclusively in the wings of the keys and does not enter the seeds. I have never heard of mines being found in this country, but moths have been reared from cocoons found on the sycamore trunks in spring — though parasites are more likely to emerge, as I know to my cost.

Thus it is seen that our three species of *Etainia* are host-specific to three different species of *Acer*. Our earlier writers confused *sericopeza* and *sphendamni*. Thus Tutt (1899), who had French and English sources for his description of '*sericopeza*', was describing that moth when he was quoting from Goureau but *sphendamni* when quoting from Warren. The inconsistencies in his narrative are thereby explained.

There is no doubt that *sphendamni*, feeding on field maple is our common species, and it may well be that *sericopeza*, feeding on Norway maple, does not occur in Britain, for the Norway maple is not native to this country, though it is not infrequently planted in parks and gardens. The best way to search for *sericopeza* would be to look for fallen and blackened keys under Norway maples in mid-June. So far I have failed to recognise British *sericopeza* in the collections I have studied.

The imagines of the three species are very similar, but may be distinguished by the aid of the following key.

1. Head and collar black. Sub-basal dark costal markings not reaching the dorsum. Male hindwings with a patch

of dark androconial scales near the base on the upperside *decentella*

— Head ochreous yellow to ferruginous. Sub-basal dark fascia reaching dorsum. Male hindwings without androconial scales on the upper side 2

2. Collar ochreous whitish, paler than the head markings of the forewings yellowish white ..... *sericopeza*

— Collar brownish, darker than the head, markings on the forewings darker yellowish white ..... *sphendamni*

[N.B. — Jäckh states that the sub-basal dark fascia is broader than the pale fascia immediately beyond it in *sericopeza* but narrower in *sphendamni;* this does not seem to apply to British specimens.]

In addition to the seed and bud/bark-feeding species we have two Nepticula species which mine the leaves. In my previous note I have already written about *Nepticula speciosa* Frey, which feeds on sycamore (*Ent. Record* **83**: 77). Its range seems to be spreading apace in England. Meyrick (1928) could only record it from Hampshire: in my previous note I gave further localities, but they were all south of the Thames; now I have reared it from Cambridgeshire (Chippenham Fen) and (in company with others) recorded the larva from Suffolk (Thorpeness).

The other leaf-miner is *Nepticula aceris* Frey, whose mines have hitherto been found only on *Acer campestre* in Britain, but according to Hering (1957) it occurs on various species of maple. This moth has what may be a unique distinction: it holds a legitimate place in the British list without ever having been seen, alive or dead, in this country! Mr S. N. A. Jacobs found two vacated mines near West Malling in 1949 and I found three such mines at Lullingstone in 1971; these localities are situated about ten miles from each other in Kent. I revisited Lullingstone on several occasions in 1972, but drew blank in my search for further evidence of *N. aceris.*

BETULA spp. (Birch)

I have supplementary notes on three species.

(1) *Stigmella betulicola* Stainton. For some reason I omitted to state in my previous notes that the larva of *betulicola* has a chain of ventral spots which are especially conspicuous on the thoracic segments; the larva mines venter upwards. This character is useful for distinguishing tenanted mines of *betulicola* from those of *S. luteella* Stainton.

(2) *Stigmella distinguenda* Heinemann. Johansson (1971) uses the following nomenclature:—

luteella Stainton 1854 (*distinguenda* Heinemann 1862)
distinguenda Heinemann, sensu Klimesch 1948

From this we can deduce that Heinemann's type specimen of *distinguenda* has been examined and found to be *luteella* and

that the species described as British by Wood in 1894, and ever since referred to by us as *distinguenda* is in want of a name. How tiresome! For the present, though, we can still call it *distinguenda.*

This still appears to me to be a very scarce species, occurring locally only in small numbers. A new locality constituting an extension of its recorded range, is the Essex Naturalists' Trust reserve at Fingringhoe Wick near Colchester. We can only hope *distinguenda* has survived the fire there occasioned by a farmer's carelessness when burning off his stubble.

I have already expressed puzzlement at failure to find an expected second generation of *distinguenda* in Kent (*Ent. Record,* **83**: 137). I have since noted that Petersen (1930) gives it in his list of univoltine species, quoting Spuler as his authority. Though I have found a tenanted mine as late as early October, I am now inclined to regard it as one of the species with a long period of emergence, but a single generation. Consequently the larvae, like those of the univoltine *speciosa* Frey, may occur from July till October.

(3) *Ectoedemia mediofasciella* Haworth 1828 (*woolhopiella* Stainton 1887) is another of our rare Nepticulids. Meyrick (1928) gives the range as "Berks, Oxon, Hereford, Carnaervon, local, not recorded elsewhere". Consequently, when in August 1972 I came across *mediofasciella* relatively commonly in two seperate localities in the Lake District, I thought I had made a discovery. However, reference to Tutt (1899) revealed that it had been found in adjacent localities nearly a century ago by Threlfall and Hodgkinson: their localities were Grange (Lancashire) and Arnside and Witherslack (Westmorland), while mine were at Cartmell (Lancashire) and Threlkeld (Cumberland). I had a day's collecting at Arnside, but could find no trace of its continued presence there.

Meyrick omitted these early records of *mediofasciella* because he knew little about the Nepticulidae and was suspicious of those who did. He liked to 'lump' species together if they were at all similar, regardless of their life-history. Thus in his first edition (1895) he treated *'woolhopiella'* as a synonym of *argentipedella* Zeller. In his second edition he conceded that it was distinct, but discarded all records except those of Wood and Waters. His statement "not recorded elsewhere" is equally fallacious ,since *mediofasciella* has been found in a number of localities in northern and central Europe.

Mistakes also occur in the description of the earlier stages, since writers prefer to reproduce the statements of famous general entomologists rather than those of the less well known specialists. Thus Stainton (1887), Meyrick (1928) and Hering (1957) all say that the larva is green. On the other hand Wood, who discovered the species, says (in Tutt 1899) "It is yellow—indeed a deep yellow—the greater part of its life, but becoming paler when it is practically adult; it borrows something of a greenish tinge from its surroundings, though its true colour

is still yellow, as can be ascertained by removing it from the mine". I made the following description on 13.viii.1972, from full grown (not adult!) larvae in their mines, and one which had just left its mine for pupation. "Glossy pale yellow with an obscure chain of small dark ventral spots which can only be seen faintly in the mine; head yellow brown with jaws and cephalic ganglia somewhat darker". On the same day I described the young larvae as follows: "Deep yellow, with a chain of very large, blackish, ventral spots; these spots are oval with their broader axis in the lateral plane (i.e. at right angles to the line from head to anus). The larva mines venter upwards". The dark spots are similar to those carried by *Ectoedemia quinquella* Bedell and are shed in the same manner. On one *mediofasciella* larva I counted eleven, on another eight, and on a third seven spots. In the case of this last larva I could detect one of the discarded spots lying at the edge of the track of frass. By the time the larva leaves its contorted gallery and starts blotch-feeding, all these dark spots have been left behind.

On 29.viii.1969, I picked a birch leaf at Ballinahinch, Co. Galway containing a vacated mine which I provisionally determined as that of *mediofasciella.* The mine was old and discoloured, and as there was an element of doubt in my mind, I did not then record it. Now that I am familiar with *mediofasciella,* my doubts have been dispelled, and I can with confidence confirm the record and pronounce *Ectoedemia* (*Dechtiria*) *mediofasciella* Haworth (*woolhopiella* Stainton) to be an addition to the Irish list. It also occurs in Scotland: on 30.vii. 1927 Mr E. C. Pelham-Clinton found three mines (two vacated and the third containing a dead larva) at Tongue, in north Sutherland.

So it seems that *mediofasciella* is widely distributed throughout Britain at a very low level of density, but from time to time in local abundance. In conclusion let me add that in September 1972 I made a pilgrimage to '*woolhopiella's*' eponymous village in Herefordshire, but drew blank. Indeed, there was little sign of insect life at all because, as a local game-keeper told me, the farmers had overdone their spraying.

Carpinus (Hornbeam) and *Corylus* (Hazel)

We have two neps on these foodplants, *Nepticula floslactella* Haworth and *N. microtheriella* Stainton. The adults are quite distinct but the larvae and mines can easily be confused. The following notes may help readers to separate the two.

(*To be continued*)

A new species of *Torynesis* Butler (Lepidoptera: Satyridae), with observations on some related taxa

By C. G. C. Dickson

No. 29

When describing *Torynesis mintha piquetbergensis* (*Entomologist's Rec. J. Var.*, **79**: 160-162 (June, 1967)) the present writer drew attention to another member of this genus which inclined towards *T. mintha magna* (van Son) and which had been found as close to Cape Town as the Simons Berg Mountains. Even if they are not identical with it, some of the specimens of this butterfly (especially ones in which the postdiscal bar of the forewing is nearly white), resemble what has up till recently been regarded as a smaller variation of *magna* from Matjesfontein; and, elsewhere in the Karroo, found by Dr J. Kaplan and Mr R. D. Stephen within recent years. Dr L. Vári has in the meantime considered *magna* to represent a distinct species and has treated it accordingly in his paper in *Ann. Transv. Mus.*, **27**(10): 210-211, 30th Oct., 1971*. As the insect which is now being dealt with appears to be allopatric like all the other recognised members of the genus (at least as seems to be the case up to the present), its relative status has been difficult to assess. It is somewhat intermediate between *mintha* and *magna* though presumably closer to the former.

This butterfly is, as far as is known from observations to date, essentially a mountain insect or one which does at least seem to be restricted to fairly elevated ground and occurs at higher altitudes than those at which *mintha* is usually found. In spite of there being no records so far of the two being other than allopatric the range of the former certainly extends well into the general area frequented by the latter. The relative closeness of some of the respective habitats and the possibility of actual overlapping taking place must therefore be considered when studying the two butterflies. Since, notwithstanding this situation, each insect retains its identity (and with external differences supported by some difference in the male genitalia) it is felt that these butterflies could hardly be other than specifically distinct. The new taxon is therefore being described hereunder as a separate species.

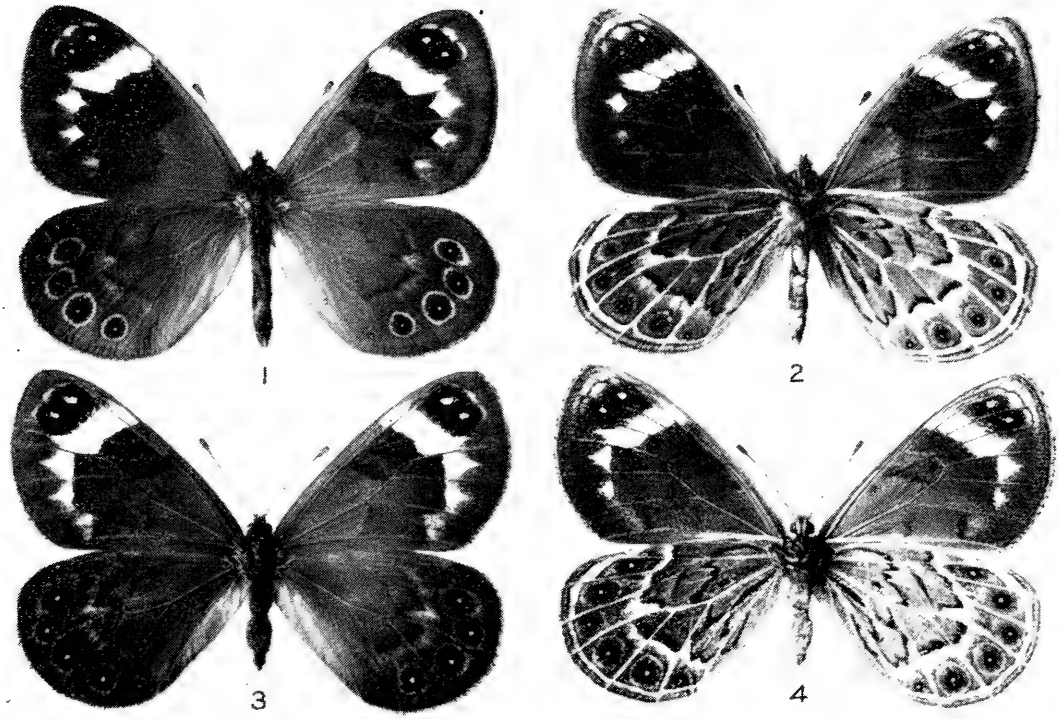
Torynesis **haweanas** spec. nov.

Average size of both sexes above that of *T. mintha* (Geyer) but below that of *T. magna* (van Son).

Male. Upperside.

Forewing. Postdiscal bar inclined to be lighter than is usual in *T. mintha*, more creamy-white, and (as in holotype) frequently broader. Small upper, third pupil in black ocellate

* This paper contains also a description of T. orangica Vári.



Torynesis hawequas spec. nov.

Fig. 1. ♂ Holotype (upperside).
Fig. 2. ♂ Holotype (underside).
Fig. 3. ♀ Allotype (upperside).
Fig. 4. ♀ Allotype (underside).

Figures approximately natural size.

Photo: H. N. Wykeham.

patch only very occasionally present, but frequently so in *mintha*. The black patch itself noticeably large in some specimens.

Hindwing. Aparently no constant difference, in comparison with *mintha*.

Underside.

Forewing. The same differences apply as those noted for upperside, but the small upper, third pupil in black ocellate patch is not infrequently visible. The postdiscal bar may be of a deeper tint. Curved silvery-grey apical streak normally broader than in *mintha*.

Hindwing. Brown ground-colour deeper than in *mintha*. The black markings frequently heavier, if not invariably so. Silvery-grey scaling of veins and similarly coloured marking elsewhere on wing with a rather purplish tone and not as light as in *mintha* and, apart from the continuous, narrow submarginal stripe, contrasting less strongly with the dark background. Golden-yellow rings encircling black submarginal ocelli not as well developed as is usual in *mintha*, and in some paratypes virtually absent.

Length of forewing: 26.5-30 mm. (27 mm., in holotype). An abnormally small specimen has a forewing measurement of only 25 mm.

Female. Upperside.

Forewing. Postdiscal bar usually with a deeper yellow tinge than in male. (In the male holotype and female allotype it is of the same tone in each case).

Hindwing. Very much as in male; the rings of the ocelli sometimes enlarged in individual specimens.

Underside.

Very similar to that of male.

Forewing. Reddish-brown colouring extending from wing-base, frequently rather more prominent and extensive than in male.

Hindwing. Ground-colour inclined to be less deep in tone in type-series as a whole, but not so in female allotype, in comparison with male holotype.

Length of forewing: 28-33 mm. (the former measurement, that of allotype).

In both sexes the hair and scales of the body and ancillary parts are, in general, darker in this insect than in *T. mintha*.

♂ Holotype, WESTERN CAPE PROVINCE: Middenkrantz Berg, Fransch Hoek Mtns., 19.iv.1972 (C.G.C.D.); British Museum Reg. Uo. Rh. 17322.

♀ Allotype, W. CAPE PROVINCE: Fransch Hoek Mtns. (N. of top of Pass), 18.iv.1972 (C.G.C.D.); British Museum Reg. No. Rh. 17323.

Paratypes in Coll. British Museum: data as holotype, 1♂; as allotype, 14.iv.1972, 2♀♀ (C.G.C.D.).

Paratypes in author's collection: as allotype, 2.iv.1946, 3♂♂, 14.iv.1972, 1♂, 3♀♀; as holotype, 18.iv.1972, 2♂♂, 1♀, 19.iv.

1972, 2♂♂; Hawequas Mtns., 8.iii.1937, 1♂ (C.G.C.D.); Simons Berg, 26.iv.1937, 1♀ (C.G.C.D.).

Paratypes in Coll. Transvaal Museum, as holotype, 19.iv. 1972, 1♂, 1♀ (C.G.C.D.).

Paratypes in Coll. National Museum of Rhodesia, Salisbury: as holotype, 19.iv.1972, 1♂, 18.iv.1972, 1♀ (C.G.C.D.).

Paratypes in Coll. A. J. Duke (presented to C.G.C.D.): Du Toit's Kloof, 9.iv.1950, 4♂♂, 1♀ (A.J.D.).

Paratypes in Coll. C. W. Wykeham: Simons Berg, 27.iv.1962, 6♂♂, 1♀ (C.W.W.).

As in *T. mintha,* both sexes show much variation in the development or otherwise of the upperside deep brownish- to orange-red colouring on the inner side of the black discal marking in the forewing and on its outer side in the hindwing—and which may occur elsewhere also. This is well developed in the male holotype and in the female allotype it is very conspicuous in all wings. In the former specimen the prominent rings encircling the black submarginal ocelli of the hindwing are golden-yellow and, in the latter, rich brownish-red. There is a general tendency in both sexes for the golden-yellow marking bounding outwardly the black ocellate patch in the forewing to extend less far outwards than in *mintha.*

Apart from its smaller average size, *T. hawequas* differs from *T. magna* in rarely having the postdiscal bar of the forewing upperside quite as white or whitish or the other markings (when present) as lightly coloured in any of the wings; the light marking bounding outwardly the black ocellate patch of the forewing is also decidedly narrower than in *magna,* while the black cross-streak in the cell of the forewing is closer to the end of the cell. The same remarks concerning the light marking apply to the underside, these being less prominent and extensive, especially those adjoining the black subapical patch of the forewing, than in *magna,* in which they are particularly well developed in the female. The narrow silvery apical marking of the forewing does not continue as far downwards, and the ground-colour of the hindwing is a little darker than in *magna* with the dark markings generally less heavy and the silvery markings as a whole, including the edging to the costa, less light and prominent. It is now believed that the Matjesfontein insect referred to at the beginning of this article is distinct from true *magna* and requires further investigation.

In comparison with those of *T. mintha* from and close to the Cape Peninsula, the male genitalia of *T. hawequas* show certain differences, which are not, however, always very consistent individually, if a sufficient number of preparations of each taxon are used for this purpose. These include some difference in the shape of the lower sclerotized process of the membrane which extends down from the *gnathos;* the more elongate form of *valve* in *hawequas;* the larger size of the spine at the distal end of the *aedeagus* and the apparent absence of any definite, minute spine below this spine; and the

PLATE XX

longer *saccus* in *hawequas,* than in *mintha.* The shape of the *valve* in the present insect approaches that of *T. magna,* but the exact outline, etc., of this organ is by no means constant in taxa of this group. Amongst other differences, the bifucate form of the upper sclerotized patch of the anal membrane, in *magna,* is a characteristic feature of the genitalia of this species.

The present butterfly was first encountered, by the writer, on the Hawequas Mountains above Bain's Kloof and overlooking Wellington, Cape Province, on 8th March 1937. It is named after these mountains which, in turn, derive their name from a now extinct Bushman tribe, the Ubequas, the present name having changed in the course of time from this original form (*vide Place Names in the Cape Province* by C. Graham Botha, Cape Town, 1926). Further specimens were found in abundance on the Simons Berg Mountains on 26th April of the same year and, in subsequent years, on the Fransch Hoek and other mountains in this portion of the South Western Cape. The butterfly was in fact found at Fransch Hoek some years earlier by the late P. R. Robertson, and the late Dr K. H. Barnard procured specimens of what may have been the same insect at a high altitude in the Great Winter Hoek Mountains, in the twenties.

Although there may be concentrations of this butterfly in spots specially suited to it, as has been noticed towards the top of the Fransch Hoek Pass (western side), it can be scattered over a wide area, if the food-plant (*Danthonia* spp. (Gramineae)) is present. Individual males sometimes fly over the mountain-sides for quite long distances without settling.

In the light of the current investigations, it seems possible that the status of *T. mintha piquetbergensis* (which is referred to in the opening paragraph) might have to be raised eventually.

The life-history of nominate *T. mintha* has been described and figured by Clark and Dickson in *Some South African Butterflies* (1952), and by Clark in van Son's *The Butterflies of Southern Africa,* Pt. II (1955).

"Blencathra," Cambridge Avenue,
St Michael's Estate, Cape Town.

PLATE XX

Genitalia of *Torynesis*

Fig. 1. ♂ Genitalia of *Torynesis hawequas* spec. nov. (left valve removed).

Fig. 2. Valves (right) of four specimens of *T. hawequas.*

Fig. 3. Aedeagi of two specimens of *T. hawequas.*

Fig. 4. Further details, as enumerated, of ♂ genitalia of two specimens of *T. hawequas* (parts not, in most cases, shown in normal plane):— a. Upper sclerotized patch on anal membrane; b. Lower sclerotized process, immediately above aedeagus and juxta; c. Juxta, lateral view

(but not lying horizontally); and as viewed from above (with distal end to left).

Fig. 5. ♂ Genitalia of *T. mintha mintha* (Geyer).

Fig. 6. ♂ Genitalia of *T. mintha piquetbergensis* Dickson. (N.E. of Moorreesburg, C.P.).

Fig. 7. ♂ Genitalia of *T. magna* (van Son). (Steynsburg, C.P. (Mrs R. J. Southey)).

Figures 21 times natural size.

Photo: H. N. Wykeham.

Some Records of Bred Tachinidae

By T. H. Ford

Since the untimely death of Leonard Parmenter, the pages of the "Record" have held very few references to the Tachinid flies, and it is hoped that this article will be of interest to those lepidopterists who breed these parasites from time to time. Over the past few years the following have been bred from various sources.

Breeding data and determinations are by the writer unless indicated otherwise.

Blepharomyia amplicornis Zett. 1 male, 1 female from a larva of *Lygris populata* Linn. May 1970, Sheffield.

Wagneria lentis Meigen, 3 from a larva of *Anchoscelis helvola* Linn., July 4, 1969, Sheffield (det. D. M. Ackland).

Campylochaeta inepta Meigen, 2 males from an unindentified geometer larva, June 2, 1970, Symonds Yat, Herefordshire. 1 male from an unidentified larva by J. Culpin, March 1973, Derbyshire.

Ernestia consobrina Meigen, 1 female from a larva of *Ceramica pisi* Linn., June 30, 1971. Catcliffe, Rotherham.

Linnaemyia vulpina Fallen, 4 males Grenoside, Sheffield. 1 male Skipwith Common, Yorkshire. All from larvae of *Lycophota varia* Villers.

Compsilura concinnata Meigen, 1 from a larva of *Phigalia pilosaria* Dennis & Schiffermuller, July 25, 1969, Sheffield (det. D. M. Ackland). 1 from a larva of *Apatele megacephala* Dennis & Schiffermuller, September 1965, Catcliffe, Rotherham. 1 male and 1 female from a pupa of *Aglais urticae* Linn. July 13, 1970, Catcliffe, Rotherham. In spite of having bred this common species on three occasions, I have not yet taken the imago in the field.

Actia bicolor Meigen, 1 male bred from an unidentified *Eupithecia* larva by F. Harrison, 1973, Via Gellia, Derbyshire.

Siphona geniculata Degeer, Several bred from a larva of *Ceramica pisi* Linn., August 2, 1972, Catcliffe, Rotherham.

Voria trepida Meigen, 1 male from larva of *Diataraxia oleracea* Linn., August 8, 1970 Catcliffe, Rotherham.

Nemorilla floralis Fallen, 3 males, 2 females from a pupa of *Plusia gamma* Linn. September 8, 1972, Catcliffe, Rotherham. The cocoon containing the host pupa and parasite puparia was brought to me by a local schoolgirl, Miss Tracey Smith, and contained the skin from the final larval stadium, to which were attached eight eggs of the parasite, one on each of the epicranial plates and the remaining six to the first segment behind the head of the caterpillar, well out of reach of the jaws. Since only five of the parasites matured it would appear that even the parasitic mode of life is not without its dangers.

Carcelia gnava Meigen, 1 male and 1 female from a larva of *Malacosoma neustria* Linn., July 2, 1971, Capel Bangor, Cardiganshire.

Carcelia lucorum Meigen, 1 male, 2 females from a larva of *Phragmatobia fuliginosa* Linn. June 1971, East Moor, Derbyshire. (Parasites bred and host determined by B. Statham).

Zenillia nemea Meigen, 1 male, 2 females from larva of *Phlogophora meticulosa* Linn., September 1964, Looe, Cornwall. Abundantly from larvae of *Abraxas grossulariata* Linn., May 1965, Rotheram. 1 male from a larva of *Aglais urticae* Linn., July 1965, Catcliffe, Rotherham. 1 male from a larva of *Diataraxia oleracea* Linn., April 10, 1972, Chesterfield, Derbyshire. (Parasite bred and host determined by B. Elliott).

Zenillia longicauda Wainwright, 2 from larva of *Hydriomena furcata* Thunb., July 24, 1969, Totley, Sheffield. (det. D. M. Ackland).

Eumea hortulana Meigen, 1 female from a larva of *Apatele psi* Linn., July 4, 1970, Sheffield.

Pales pavida Meigen, 1 male from a larva of *Alsophila aescularia* Dennis & Schiffermuller, July 28, 1971, Youlgreave, Derbyshire.

A few of these records, those which constitute Vice County or County Records for Yorkshire have appeared in the Annual

Report of the Yorkshire Naturalists' Union, in "The Naturalist" for 1972.

I should like to thank all correspondents who provided material, Mr D. M. Ackland for determining specimens sent to the Hope Department, University Museum, Oxford; and also Mr Peter Skidmore and Mr P. J. Chandler for help with specimens and literature.

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SHEFFIELD
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JUNE 1973

The Pupa of *Pieris krueperi* Stgr. (Lep.:Pieridae)

By JOHN G. COUTSIS, B.A., M.ARCH

The pupa of *Pieris krueperi* has a length of approximately 5/8 of an inch and is similar in shape to that of *Pieris rapae* L.

Dorsum and sides light grey with a slight greenish tinge, shot with numerous black dots and mottled with dark grey-green and light cream areas, the latter situated mostly along the raised parts.

Wing cases grey-green with minute black irrorations and a series of small black dots along the outer margin.

Ventrum light green.

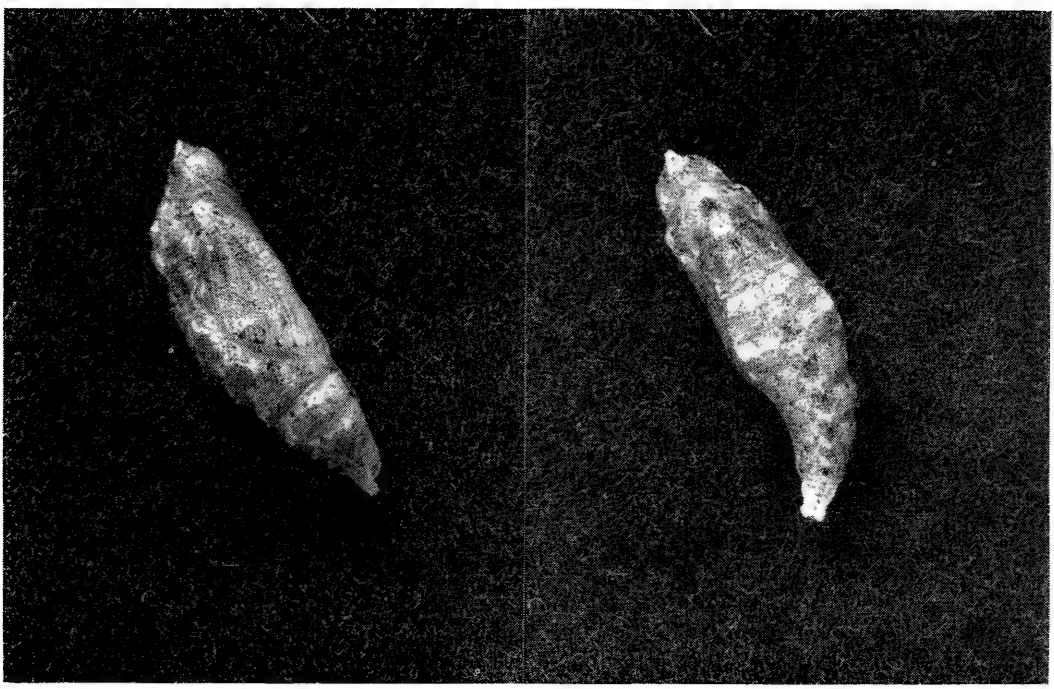
Specimens bred from eggs laid in the wild on *Alyssum saxatile* L., on Mt. Imittos, Attica, Central Greece.

References

Coutsis, J. G. (1970). Descriptions of the egg and larva of *Pieris krueperi* Stgr (Lepidoptera: Pieridae) Entomologist, **103**: 75-76.

FURTHER OBSERVATIONS ON AUTOGRAPHA BRACTEA D. & S. IN GLOUCESTERSHIRE IN 1972 AND 1973. — It would seem that *A. bractea* has indeed taken up residence in Gloucestershire. Further to Mr R. P. Demuth's report on this species in the September issue of the *Record* I would like to add that I took a fresh specimen in the Forest of Dean in 1972 and in 1973 I had two specimens in a m.v.l. trap which I run regularly at Avening Glos.; one on July 19th and the other on July 20th. A most welcome visitor, and it is to be hoped, one that has come to stay.—J. NEWTON, 11 Oxleaze Close, Tetbury, Glos.

PLATE XXI



Lateral view Dorsal view

Pupa of *Pieris krueperi* Stgr.

Crete in late June, 1973

By L. G. Higgins

My wife and I visited Crete this year from June 12-21st, and the following notes are supplementary to the interesting account of the island by R. F. Bretherton (1969) which deals with the first 2 weeks of the same month. For 4 days we were accompanied by our Grecian friend J. G. Coutsis who had visited the island before. With his help we were able to find the best localities and we made good use of our time. From our base at Heraklion we could reach by car almost anywhere on the island. The western mountains at Omalos were visited only once and the day was unfavourable. Coutsis visited this locality again on June 17th and he has kindly permitted me to include a note of his findings on that day.

With the Nida Plateau and *Kretania psylorita* as our objective, we went first to Anogia. We were told at the village that the Nida could be reached in about 5 hours, a hard walk on the rough mountain track. Not discouraged J. C. hurried away and reached the lower slopes in about 3 $^1_2$ hours, where he found the species associated with a spiny *Astragalus*. At this date most specimens were worn, but he brought back enough to satisfy us both.

My wife and I managed to walk some distance along the path where we found only the commonest species flying on the heavily grazed mountain. We visited Anogia again to collect below the village, where my wife took the first *Nymphalis polychloros*. The south coast was visited twice, the first time beyond Phaistos, where we failed to find any promising collecting places. The next time we drove down past 'Agios Nikolaos to Ierapetra, where we turned eastwards along a greatly improved road which I understand will be extended northwards to Sitia, but at this date we did not see any butterflies. Our best collecting places were in the Lasithi area. This plateau is devoted to arable farming, with the harvest already begun at the time or our visit, and the great flocks of sheep and goats are not allowed there.

We knew, of course, that the island fauna is very restricted, but I think we were disappointed to find butterflies so local and generally scarce. Access to most mountains is difficult, roads rarely extend to the 1,000 m. level and above that paths are poor and vegetation extremely scanty in summer. In most districts the mountains are under constant attack by great flocks of sheep and goats, and the slopes at middle heights are severely eroded in consequence. This year, after a fine, warm spring and early summer, we found much vegetation already mature and drying up at the time of our visit. The following notes relate only to species of special interest or to those not mentioned by Bretherton in his paper.

Pieris (*Artogeia*) *rapae* L. The second (?third) generation widely distributed and common. On the upperside of the fore-

wings in most specimens and in both sexes, the black apical mark enlarged (f. *mannides* Verity) and resembling *P. mannii* closely. In doubtful specimens identification can be confirmed by examination of the androconial scales in which the apical tufts of fibrils is usually slightly wider in *P. mannii.*

Gonepteryx cleopatra L. One of the commonest species at the time of our visit. Size consistently small, fw 27-28 mm., ♂ upperside orange flush rather pale and slightly reduced, underside of hind-wing constantly yellow (f. *massiliensis* Foulquier).

Leptidea sinapis L. Taken by J. G. C. on June 17th, near Fourness, south of Chania, on the banks of the river Keritis. Specimens of the second or third generation; males on upperside of fore-wings apical black spot fore-shortened.

Quercusia quercus L. A single male taken on June 18th beyond Lasithion.

Kretania psylorita Freyer. 25 specimens taken by J. G. C. on June 13th, flying at 1,400 m. (4,500 ft.) on the lower slopes of the Nida Plateau .Most specimens were already worn.

With fresh material it has been possible to make a satisfactory examination of this species, including the male genitalia. In my opinion there can be no doubt that *psylorita* is closely related to the Asiatic *eurypilus* Freyer. Apart from the differences in size the markings are similar, the eyes in both are smooth and the characteristic male genitalia appear identical in shape (figure 1). Perhaps a subspecific relationship would be appropriate.

Charaxes jasius L. Seen but not taken at about 800 m. on the road from Chania to Omalos on June 14th, and seen again several times in the same area by J. G .C. on June 17th. Not seen elsewhere.

Nymphalis polychloros L. Four specimens taken near the village of Anogia. Seen again but not taken below the Lasithi Plateau near Kera. Seen by J. G. C. at Omalos on June 17th.

Pandoriana pandora D. & S. Seen several times at altitudes of about 800 m. One male taken near Kera.

Hipparchia semele cretica Rebel. Common and widely distributed. The distinctive characters of the male genitalia are well known. The females are remarkable for having a sphragis, present in all 14 specimens in my series, and in all 3 specimens taken by J. G. C. This is a carinate structure with the keel upwards, attached to the end of the female abdomen, easily visible on inspection (figure 2). It it not composed of

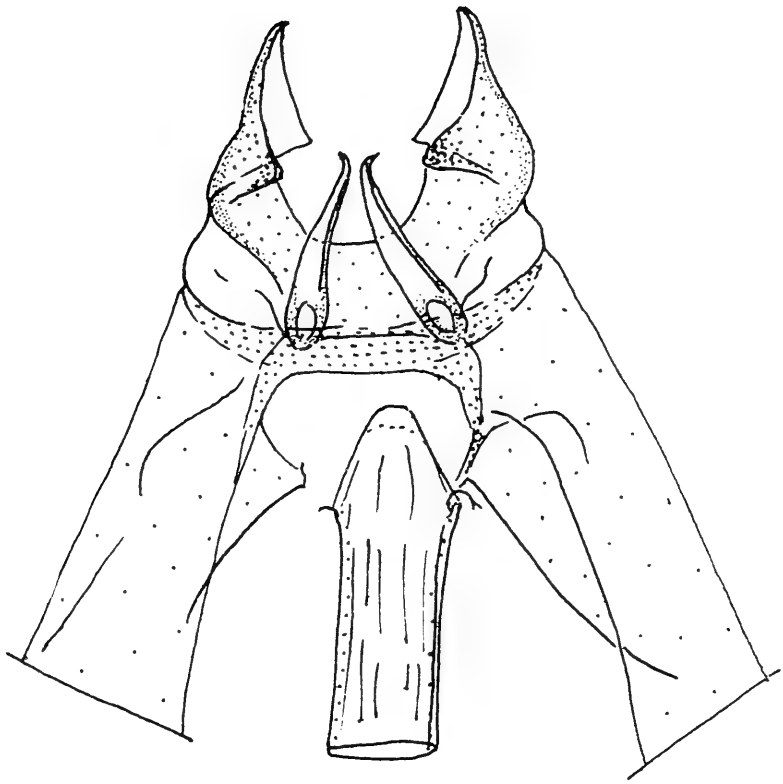


Fig. 1

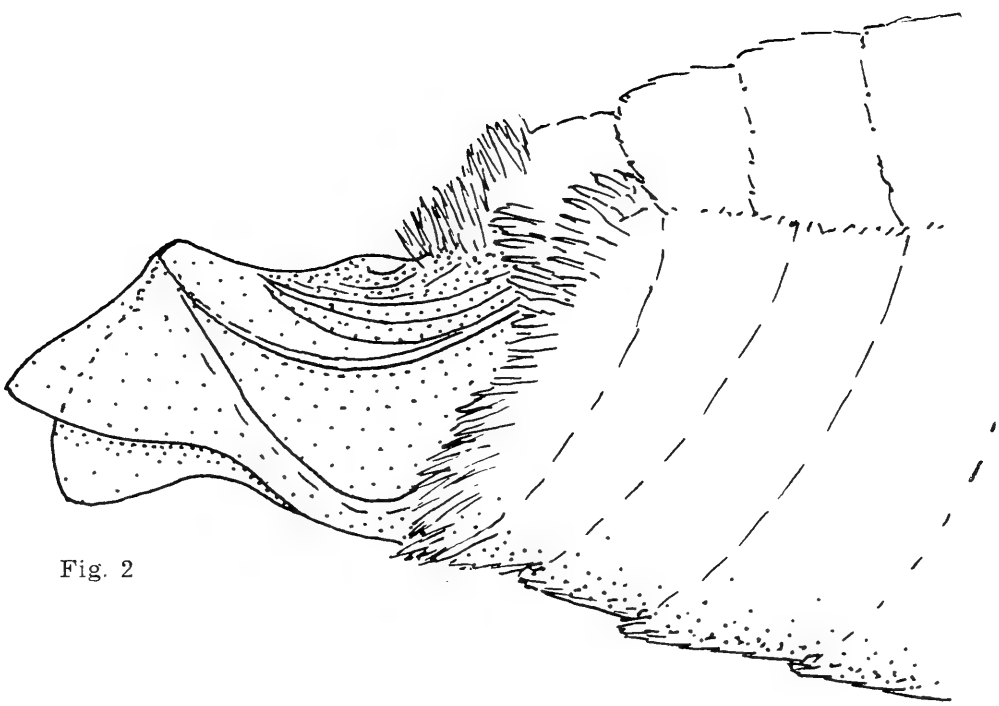


Fig. 2

Fig. 1: *Kretania psylorita.* ♂ genitalia dorsal view, showing labides, falces and penis apex

Fig. 2: *Hipparchia semele cypriensis.* Side view of ♀ abdomen showing terminal sphragis

chitin as is the sphragis of *Parnassius*, but probably of yellowish waxy material, fragile and easily damaged, which disappears during preparation of the genitalia for microscopical examination. This structure probably appears after copulaton. It is not peculiar to Cretan specimens, but occurs also in *semele* from Cyprus (*cypriensis* Hölik) and from Kurdistan (*pellucida* Stauder), and so suggesting an oriental relationship. In addition I have single specimens from central France, from southern Spain and from Konia in Asia Minor in which vestiges of a similar development are present. In other respects I have not found any material differences between female genitalia of Cretan specimens and those of other European localities. I have not seen even a vestigial sphragis in females of *H. aristaeus* from Corsica, Sardinia, Morocco, Sicily or Greece. As far as I know, such a structure has not been reported in any other Satyrid butterfly.

Maniola jurtina strandiana Obratsov. A handsome race; in females on the upperside of the fore-wings the orange suffusion is usually extensive. The subspecies, described from southern Russia, is widely distributed in western Asia.

It will be appropriate here to refer to an observation made by Mr K. M. Guichard about 2 years ago. He took 4 specimens of *Euchloe ausonia* Hübner in Crete near Omalos on May 14th. Two are large, fore-wing length 23 mm. in fresh condition, the costal spot on the fore-wing large, probable referable to ssp. *tauricus* Röber. Two others, taken at the same time and in the same place, are smaller, length of fore-wing 19 mm., upperside not heavily marked, the costal spot small and narrow, resembling ssp. *simplonia* auct. Both these small specimens are in poor condition. The striking phenotypical differences between these two forms call for further investigation.

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Bretherton, R. F. (1969). *Notes on butterflies (Rhopalocera) in Crete in June 1969. Ent. Rec.*, **81**: 296-302.

Obratsov, N. S. (1936). *Neue Lepidopterenformen.* Festschrift zum 60 Geburtstag von Prof. Dr. Embrik Strand., **1**: 638.

DERBYSHIRE NEPTICULIDAE.—While in Derbyshire in October 1973, I collected mines of some 14 different species of Nepticulidae which Col. Emmet has kindly determined including those of four species which he tells me constitute new county records. These four species are as follows—*Stigmella ulmivora* (Fologne) on elm and *S. crataegella* (Klimesch) on hawthorn, both between Abney and Eyam, N. Derbyshire; *S. luteella* (Stainton) and *Nepticula lapponica* Wocke, both on birch at Dovedale.—J. M. CHALMERS-HUNT

New Record of *Exitianus taeniaticeps* (Kirschbaum) with Description of a New Species of *Erythroneura* Fitch (Cicadellidae : Homoptera) from India

By A. S. Sohi and V. C. Kapoor
(Department of Zoology-Entomology Punjab Agricultural University Ludhiana)

Exitianus taeniaticeps (Kbm.) has been recorded for the first time from India on sandal at Coimbatore. This species is very widely distriuted in other parts of the world (Metcalf, 1967). The male genitalia of this species are given in Plate A.

Erythroneura kuluensis, sp.n.
(Plate B, Figs. 1-9)

Male:—Body colour whitish yellow. Head yellowish, slightly narrowed with two rusty brown oval spots in the middle and two at the apex of the median longitudinal streak. Eyes black with yellowish tinge. Pronotum with rusty brown marking in continuation with the anterior oval spots, and rest of posterior area smoky. Scutellum rusty brown with two dark brown spots on either side of the wedge-shaped median spot; a transverse sulcus present. Tegmen with first apical cell subdivided by a supernumerary vein, second apical cell narrow at the base and comparatively wider at the apex, third apical cell large, broadly quadrangular, fourth apical cell somewhat triangular; claval area with one elongated basal and another small apical rusty brown spot, another elongated similar spot present in the middle of the tegmen; basal costal area rusty brown. Wing as in Fig. 3.

Male genitalia:—Male plate broader at the base and narrower apically situated little before the apex, a linear row of five macrosetae and thirteen microsetae present on the outer margin, some submicroscopic setae at the apex and numerous hairs at the tip, style slender, straight, with second apical extension well-developed, notch near the apical extension deep; connective roughly triangular with median cephalic lobe and sides first convex then concave; aedeagus in its lateral position roughly hatchet-like, with serrations at the apex; gonopore sub-terminal; pygofer hook short, tubular with pointed apex, anal tube with one long and one short macrosetae and a number of fine hairs.

Length: 2.52 mm.

Material examined:—Holotype ♂, paratypes 10 ♂♂, 10 ♀♀, Kulu (Himachal Pradesh), on shain (*Plectranthus rugosus* Wall), 4.x.1968, coll. A. S. Sohi, deposited in Punjab Agricultural University Collection.

This species is closely related to *Erythroneura mingorensis* Ahmed from Pakistan. It can be easily differentiated from

this species by body colouration, tegmen with first apical cell with only one supernumerary vein as compared to more in *mingorensis*. Male plate only slightly curved distally and with five macrosetae as compared to only three in the latter; style deeply notched before apical extension and straight basad; aedeagus with dorsal apodeme and preatrium well-developed and with serrations latero-apically.

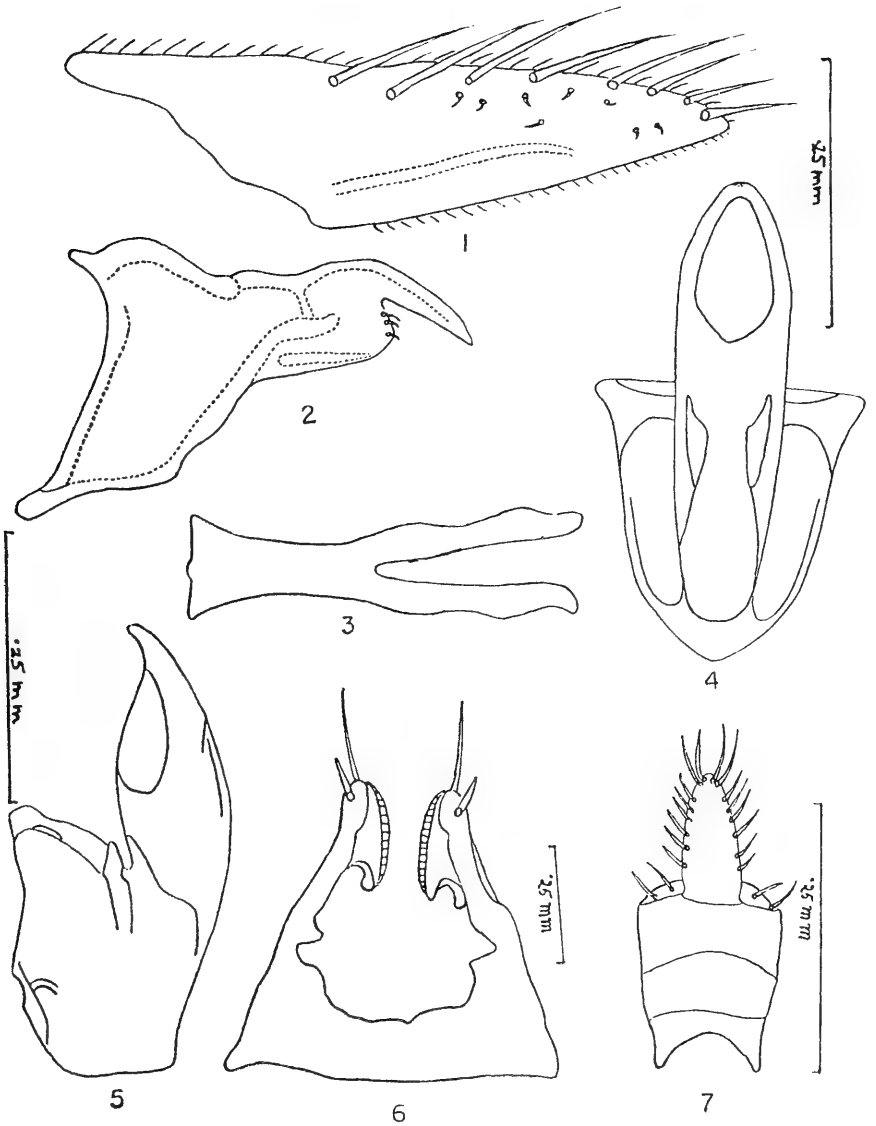

PLATE A

Exitianus taeniaticeps (Kbm.)
Fig. 1—Male Plate (Ventral view)
Fig. 2—Style (Dorsal view)
Fig. 3—Connective (Dorsal view)
Fig. 4—Aedeagus (Dorsal view)
Fig. 5—Aedeagus (Lateral view)
Fig. 6—Pygofer
Fig. 7—Anal tube

10 ♂♂ and 11 ♀♀ of *Pruthius erythromaculatus* Ramakrishnan and Menon were also collected from Kuly on *Artemesia scoparis* and 2 ♂♂, 1 ♀ deposited in NPC, Div. of Entomology, I.A.R.I., New Delhi 12. 5 ♂♂, 10 ♀♀ of *Velu caricae* Ghauri were collected on Fig from Ludhiana.

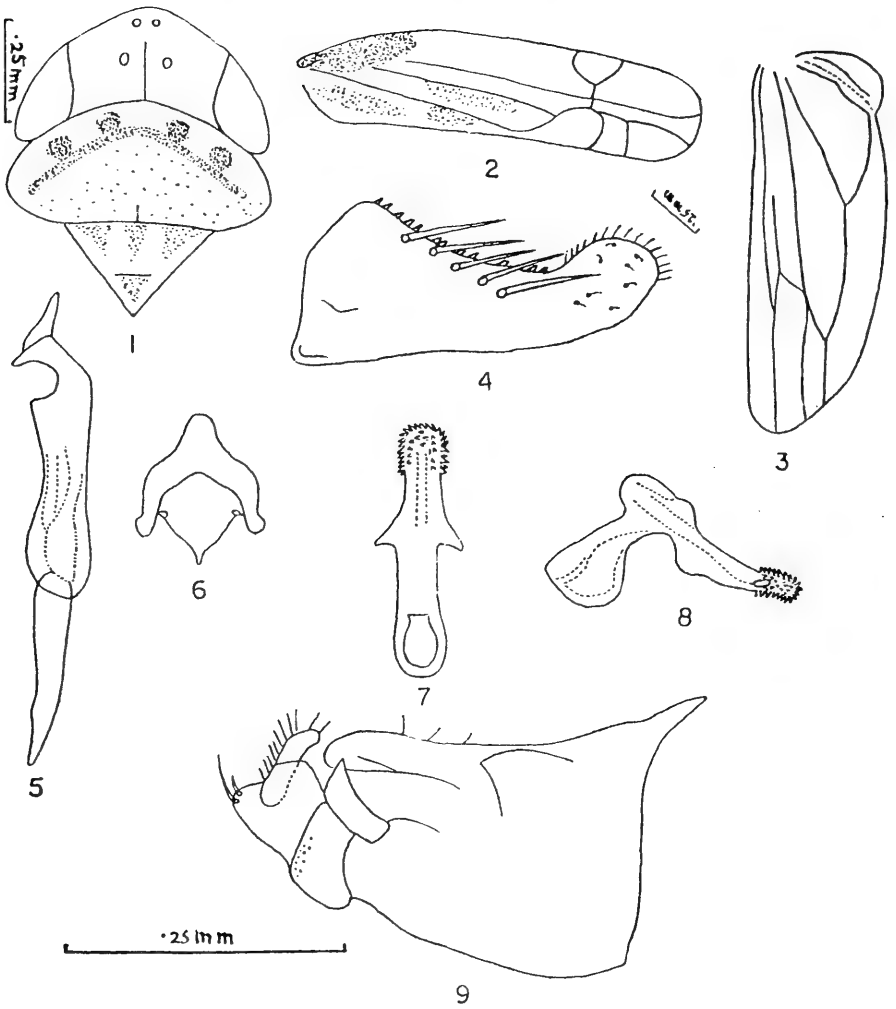

PLATE B

Erythroneura kuluensis sp.n.
Fig. 1—Head and Thorax (Dorsal view)
Fig. 2—Tegmen
Fig. 3—Wing
Fig. 4—Male plate (Ventral view)
Fig. 5—Style (Dorsal view)
Fig. 6—Connective (Dorsal view)
Fig. 7—Aedeagus (Dorsal view)
Fig. 8—Aedeagus (Lateral view)
Fig. 9—Pygofer

Acknowledgements

We are grateful to Dr O. S. Bindra, Prof. and Head, Department of Zoology-Entomology, Punjab Agricultural University Ludhiana for providing necessary facilities. We are also thankful to Dr (Mrs) R. Nayyar, F.R.I., Combatore for sending specimens of *Exitianus* and to Shri Jaswant Singh, Artist, Dept. of Botany, Punjab Agricultural University, Ludhiana for inking the diagrams.

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Notes and Observations

BLACKBERRIES AS AN ATTRACTION FOR MOTHS.—On 6th October I went mothing with a friend in a damp wooded valley near Le Havre. Besides using an actinic tube to attract moths I sugared some trees and posts but the sugar proved comparatively unattractive. There was, I found an alternative attraction to which moths were coming in fair numbers, namely ripe blackberries (fruits of *Rubus* sp.). Most of these had already been picked by day-visitors of the human species, but the few that remained were attracting *Agrochola circellaris* (Hufn.), *A. lota* (Clerck), *Eupsilia transversa* (Hufn.), *Conistra vaccinii* (L.), *Phlogophora meticulosa* (L.) and *Scoliopteryx libatrix* (L.). I have heard about moths being attracted to rotten fruit in orchards, but not heard of this with reference to blackberries: the observation may be useful to others on their autumnal outings.—E. P. WILTSHIRE, 23 Avenue Foch, 76-Le Havre. (*Xanthia togata* (Esp.)=*flavago* (Fab.) and *X. icteritia* (Hufn.) sometimes occur in considerable numbers at ripe blackberries.—Ed.).

PLUSIA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN S. DEVON IN 1973.—My previous yearly observations were made from Thurlestone. These are from Chillington, approximately seven miles to the east; both locations are within two miles of the sea. *P. gamma* totals are: May 25th-31st (m.v. trap in use 7 nights), 14; June (28 nights), 30; July (31 nights), 349, with 84 on 30th and 75 on 31st; August (26 nights), 1084, with 306 on 19th and 141 on 24th; September 1st-13th (13 nights), 376. Total for May 25th-September 13th, 1853. *N. noctuella* totals are: May, 1; June, 2; July, 2; August, 4; September, nil. Total for May 25th-September 13, 9.—H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington Kingsbridge, S. Devon.

MYTHIMNA UNIPUNCTA (HAW.) AND OTHER LEPIDOPTERA ON THE ISLE OF CANNA.—Following the capture of a fresh specimen of *M. unipuncta* in the m.v. trap on 7th January this year, reported in the April number of the *Record,* the species has turned up again several times this autumn, viz: 20th September, one, fresh; 22nd September, three, fresh (two presented to the Royal Scottish Museum, the other released); 1st October, two, worn (this after several days of very bad weather, including a force 10 N.E. storm); 3rd October, two, fairly fresh. Unfortunately I had to leave the island on the last date for about a month. *M. unipuncta* has thus been taken nine times on Canna this year; previously only twice in 1964 and once in 1966.

Of the early migrants, *Plusia gamma* has turned up quite frequently since early September; *Vanessa atalanta* a number of times during the summer; *Cynthia cardui,* one, which remained in my garden for a week; *Rhizedra lutosa,* one, 2nd October.—J. L. CAMPBELL, Isle of Canna.

AGRIUS CONVOLVULI (L.) IN S. DEVON.—On 9th September I found a perfect female *A. convolvuli* in my m.v. trap, the only migrant hawkmoth taken during the trap's operation between 25th May and 13th September.—H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington, Kingsbridge, S. Devon, 5.x.1973.

AN INFERTILE FERAL FEMALE HYLES GALLII ROTT.—On 10th August 1973, Mr Peter Martin and I took a very large ♀ *H. gallii* at a m.v. trap at Sandwich, Kent. The night was a poor one, cold with a heavy, rolling sea mist and very few moths flying, but we returned with our prize and visions of many ova to give to our friends and our personal stock at an all time high.

The moth was in fairly good, though not mint, condition and was given full five star treatment with ample space and regular feeding, and during 10 days of captivity laid a total of 170 ova on bedstraw. After its demise, Peter Martin excised some 300 perfectly formed eggs from the still large abdomen but to our great dismay it became evident that the moth was infertile for all the eggs, however laid, collapsed.

With such experience of the Sphingids as I have had I have never encountered a barren female and friends whom I have consulted feel that the female will not fly until it has been mated. If this is so, then an interesting hypothesis develops. At least one example of this species was taken at Sandwich in 1972 and, presumably, others may have arrived whose progeny could well have survived the extremely mild winter. Perhaps our unhappy and barren female emerged locally and, fed up with waiting for non-existent ♂♂, fluttered a few yards to our trap and to our own vast disappointment.—K. G. W. EVANS, 31 Havelock Road, Croydon, Surrey, CRO 6QQ.

(Our correspondent would be interested to have the views of others. Tutt (*British Lepidoptera,* **4**: 169-201) published probably the most detailed account ever of this species but apparently has no reference to any case of infertility.—Ed).

MIGRATION IN WEST WALES, SEPTEMBER 1973. — Having always managed, as a birdwatcher, to leave just before or arrive just after peak migration days, I was particularly pleased this year to be in West Pembrokeshire for an interesting influx of migrant moths. This influx took place between September 3rd and 7th — and reached its peak on the 4th and 5th. It produced 5 Convolvulus Hawks (*Argius convulvuli* L.) including 3 on one night, 2 Gem (*Orthonama obstipata* F.) and a large number of Vestals (*Rhodometra sacraria* L.): including the bracken around the trap there could well have been 50 on the peak night, 15 on the following night, 1 thereafter and thence no more. Our cottage was at Martins Haven — 100 yards from the sea and 13 miles west of Haverfordwest — and interesting local species included fair numbers of *Polymixis xanthomista* Hübn., a few *Stilbia anomala* Haw. and one only *Eilema caniola* Hübn. (though I was a little late for this). Also several Manx Shearwaters which came down to the trap during the night and could not fly away again without assistance. These birds cannot take off from flat ground and most evenings, as dusk fell and the light went on, some would emerge from the bracken or from under the cottage, whence we would carry them down to the cliff top for "launching" or sometimes just throw them up into the air. — J. B. FISHER, Beaumont-cum-Moze, Essex.

OBSERVATIONS ON AGLAIS URTICAE L. AND NYMPHALIS IO L. AT SLAPTON BEACH, S. DEVON IN 1973.—May 25th-31st, both nil; June, *A. urticae*, one, *N. io*, nil; July, *A. urticae*, one, *N. io*, 8; August, *A. urticae*, 144, *N. io*, 44 (12 on 15th); September 1st-13th, *A. urticae*, 199 (56 on 5th), *N. io*, one.—H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington, Kingsbridge, S. Devon.

Current Literature

An Amateur's Guide to the Study of the Genitalia of Lepidoptera. A.E.S. leaflet No. 34, 40p.

This useful pamphlet is compiled by several gentlemen and also from previous publications on the subject by the society, apparently edited by Mr P. W. Cribb. As is pointed out on the first page, much of this literature is out of print. The present pamphlet will be found to fill this gap, and will enable beginners to commence their operations properly and gain skill in making these very important preparations.

The paper is plentifully illustrated with line drawings, and commences with a description of the male and female genitalia and the functions of the various parts. This is followed by instructions for examining the genitalia of an intact specimen, fresh or dried.

Practical instructions for dissection, and the making and preservation of these preparations are given, and finally there is a short bibliography.—S.N.A.J.

From **Dr Dalibor Povolny** I have the following separates:

Ergebnisse der Zoologischen Forschungen von Dr Z. Kaszab in der Mongolei (Nr. 267). Tribus Gnorimoschemini, Lepidoptera, Gelechiidae. Acta Sc. Nat. Brno 7(2): 1-42.

Of the 56 species described from Mongolia, 36 of these are new species described here by the author. From the Gobi desert a new genus. *Gobipalpa* is set up for *Gobipalpa inexpectata,* one of the new species described.

There are six distribution maps of this interesting region, and 15 forewing pattern drawings, together with 28 drawings of male genitalia.

Diptera of the Family Sarcophagidae as a Component of the European Synusia of Synanthropic Flies.

This paper sets out to analyse the position of the Sarcophagidae flies in relation to other flies visiting meat, fruit, and foeces, as an aid to establishing their importance in the matter of Hygiene.

The paper is written in the English language with summaries in the Czech and Russian languages. It is illustrated by diagrams and photographs.

Turcopalpa glaseri gen.n., sp.n. und Taxonomie einige Arten der Gattung Scrobipalpa Janse (Lepidopera, Gelechiidae) aus der Turkei.

A new genus and species are set up, and six new Scrobipala species are described with some taxonomic discussion. There are 23 genitalia figures and 9 forewing pattern drawings. The paper is in the German language with an English abstract.

Einige interessante Tierrelikte in der Fauna Mitteleuropas und ihre Biochore (Insecta). Folia Entomologica Hungarica (Series Nova) XXV No. 20.

Here the author mentions a few interesting relict insects from central Europe with biographical notes. The paper is written in the German language.—S.N.A.J.

Hewitson on Butterflies 1867-1877: £4.80. E. W. Classey.

This book was reviewed (antea: 75), but since then Mr Classey found the edition to be defective in that pages 6/7, 10/12, 14/15 and 18/19 in "One Hundred New Species of Hesperiidae" had been accidentally transposed from the similarly numbered pages of "Descriptions of some New Species of Lycaenidae". The book has been printed again duly amended, and copies have been sent out to all recipients of the former printing, with the request that the defective copies be destroyed. — S.N.A.J.

Deal* (Morris, *Br. Moths*, **1**: 232). Near Walmer, one, August 21, 1888 (Fenn, *Diary*). Downs between St. Margaret's Bay and Kingsdown, one, August 16, 1890 (Fenn, *Ent Rec.*, **1**: 204). Kent [?Wye district]*, larvae, September 1907 (Reid, *Ent. Rec.*, **20**: 13). Betteshanger, not common (E. & Y., 1949). Brook, larvae on *P. saxifraga*, September 1960 (P. Cue MS).

16. Folkestone Town, 1946-47 (2), 1954 (2), 1955 (3) (A. M. Morley).

First Record, 1870: Folkestone Warren (Knaggs, *List of Butterflies and Moths occurring in the neighbourhood of Folkestone*, 18).

E. nanata Hübner ssp. **angusta** Prout: Narrow-winged Pug.

Native. Heaths, commons, woods; on *Calluna vulgaris, Erica tetralix*. Probably casual in 2.

1. Birch Wood vicinity, not uncommon (Stephens, *Haust.*, **3**: 289). West Wickham, ♂, May 14, 1860 (H. Tompkins, *Diary*); one, June 29, 1861 (Fenn, *Diary*); reported at *Haggerstone Entomological Soc.* as having been taken (in 1887) (Russell, *Young Nat.*, **8**: 114). Lee, one on a lamp, August 23, 1862; Paul's Cray Common, one, August 3, 1887, two, August 11, 1891, one, July 15, 1893 (Fenn, *Diary*). Chislehurst, common, 1907-09 (S. F. P. Blyth). Bexley district, abundant (L. W. Newman, in *Wool, Surv.*, 1909). Dartford Heath, c. 1862 (Jenner, *Week Ent.*, **2**: 197); August 8, 1891 (Fenn, *Diary*); still there (L. T. Ford, *in litt.*, x.1952). Plumstead (W. West, in *Wool. Surv.*, 1909). Bostall Heath (H. J. Turner, in *Wool. Surv.*, 1909). Abbey Wood, one at m.v.l., 1954 (A. J. Showler). Farnborough; Keston Common (W. Barnes, in *Wool. Surv.*, 1909). Keston, three, May 9-15, 1947 (D. F. Owen). Hayes Common, larvae plentiful, October 8, 1919, larvae fairly plentiful, September 29, 1920 (A. R. Kidner, *Diary*); one May 9, 1947 (D. F. Owen). Elmstead Wood, frequent, 1948 (J. F. Burton). Orpington, one, September 18, 1956, one, July 21, 1959 (R. G. Chatelain). Bromley, one, August 6, 1960, one, September 1, 1962, one, August 19, one, August 24, 1965 (D. R. M. Long).

2. Near Sheerness, one on fence, August 1871 (Walker, *Ent. mon. Mag.*, **8**: 184).

3. Blean Woods, one, May 13, 1866 (Fenn, *Diary*). Chestfield, one at light (P. F. Harris).

6a. Near Darenth* (Stephens, *loc. cit*).

7. Stockbury, common, 1919-20 (H. C. Huggins). Westwell, one, July 29, 1946, July 24, 1951 (G. V. Bull). Boxley, 1953 (A. H. Harbottle).

8. Folkestone Warren (R. Fairclough *teste* A. M. Morley personal *communication*, i.1954). Betteshanger, July 6, 1957 (R. F. Betherton).

10. Westerham (Haworth, *Lep. Brit.*, 362). Brasted Chart, larva, imago reared 1914; Sevenoaks, July 29, 1919, May 28, 1920 (Gillett, *Diary*).

12. Ham Street, June 30, 1935 (A. J. L. Bowes). Hothfield (Scott, 1936); 1955, larvae, August-September 1959 and 1961 (P. Cue MS); larva on *C. vulgaris* and *E. tetralix*, September 9, 1961, reared (C.-H.). Ashford Town in garden, May 19, 1954 (P. Cue MS).

13. Tunbridge Wells district, two, 1868 (Cox, *Entomologist*, **4** (62), ii). Pembury Woods (Morgan, *Lepidoptera of Tunbridge Wells District* MS.). Tunbridge Wells, common (H. E. Hammond). Goudhurst, one, May 16, 1960 (W. V. D. Bolt).

14. Benenden, one, August 5, 1946; Sandhurst, at light (G. V. Bull).

Variation.—According to Prout (in Seitz, *Pal. Geom.*, Suppl., 201, fig. 17k), our most usual English form is referable to *angusta* Prout

(=*angustata* Haworth, praeocc.) which differs from the type in having the "wings narrower, the forewing very lanceolate, of a purer grey and without admixture of reddish or yellowish; angulation of the last pale band generally more acute; extrabasal line much more elbowed, more oblique, straighter; the threads which traverse the bands very distinct".

In RCK is an ab. "dark dusted", one, Bexley, May 1904.

FIRST RECORD, 1809: *Phalaena angustata* . . . "Habitat in Cantio apud Westerham, at valde infrequens. Imago i Aug. Sepibus" (Haworth, *loc. cit.*).

[(*E. extensaria* Freyer ssp. *occidua* Prout: Scarce Pug.

Recorded in error.

Recorded as Kentish in *Proc. S. Lond. ent. nat. Hist. Soc.*, **1962**: 51, and the error not since corrected)]

[(*E. innotata* Hufnagel: Angle-barred Pug.

Recorded in error.

E. innotata is a non-British species that has been recorded a number of times from Kent doubtless owing to confusion with *E. fraxinata* Crewe (*q.v.*) whose imago closely resembles it. The larva of *innotata*, however, is very different in appearance from that of *fraxinata* and feeds on *Artemisia;* yet, despite the following statement, there is not to our knowledge a single authenticated instance of its occurrence in Kent or elsewhere in Britain. Tutt (1896, *Br. Moths*, 261) has: "The Coast Pug (*E. innotata*) is . . . exceedingly rare, and confined in Britain, so far as is certainly known, to the coasts of Kent and Essex, the larva feeding on *Artemisia maritima*")].

E. fraxinata Crewe: Ash Pug.

Resident, perhaps native. Hedgerows, bushy places, sandhills; on ash, *Hippophae rhamnoides*. Note: The records of *E. innotata* Hufnagel doubtless refer to *E. fraxinata*, and I have accordingly included them here as representing this species.

1. Browns Woods, one, July 11, 1885; Lee, one, July 5, 1886, one, June 14, 1887, one, June 25, 1891, ♀ taken by Auld on paling, June 8, 1894 (Fenn, *Diary*). Lewisham one, 1895, W. H. Tugwell; Eltham, one, bred 1893, B. A. Bower, three bred 1896, B. A. Bower, all in RCK (C.-H.). Plumstead (J. A. Clark, in Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, **1900**: 69). Eltham (A. H. Jones, in Buckell & Prout, *loc. cit.*). Bexley (*V.C.H.*, 1908). Lewisham (R. A. Adkin, in *Wool. Surv.*, 1909). West Wickham, 1950. (E. E. J. Trundell, in de Worms, *Lond. Nat.*, **1957**: 145). Blackheath, one at m.v.l., 1959 (A. A. Allen). Bromley, one in m.v. trap, July 1, 1966 (D. R. M. Long).

2. Near Sheerness, 1871, two at rest on outhouse (Walker, *Ent. mon. Mag.*, **8**: 184).

3. Millstrood, one, June 26, 1949, taken by P. F. Harris (Huggins, *Entomologist*, **84**: 142, as *innotata*) Broad Oak, May 22, (1), June 30 (2), 1952, all at light (C.-H.).

5. Farnborough* (W. Barnes, in *Wool, Surv.*, 1909). Layams Farm, Keston, pupa under bark in winter, reared April 16, 1949 ♀ (R. F. Birchenough).

6. Greenhithe* (Farn MS.). Birling Downs, two beaten from hedge, June 15, 1912 (F. T. Grant).

6a. Darenth Wood (see *First Record*). Chattenden (*V.C.H.*, 1908).

7. Westwell (Scott, 1964).

8. Canterbury, three pupae under ash bark, April 16, reared May 12, 26, 27, 1865 (Fenn, *Diary*). Folkestone* (Ullyett, 1880). Wye district* (1904, Barrett, *Lep. Br. Isles*, **9**: 107, as *innotata*). Whitfield, June 30, 1953 (T. G. Edwards).

9. Margate, June 27 (1), 31 (1), 1902, June 18 (1), July 1 (1), 1903, June 6, 1904 (2) in J. P. Barrett coll. (C.-H.).

10. Sevenoaks, one, bred Ruthven, in RCK (C.-H.).

11. Aylesford, one, July 14, 1955 (G. A. N. Davis), is in my coll. (C.-H.). Maidstone, one at light, July 16, 1955 (E. Philp).

12. Ham Street, taken in 1964 (Anon., *Proc. S. Lond. ent. nat. Hist. Soc.*, **1964**: 13).

[13. Tunbridge Wells, "doubtful" (Knipe, 1916)].

14. Sandhurst, one, June 16, 1933, in G. V. Bull coll. (C.-H.).

15. Dymchurch, two, 1952 (Wakely, *Ent. Rec.*, **65**: 43). Greatstone, larvae on *H. rhamnoides*, June 8, July 1958, July 1959, July 1960, July 1961 (P. Cue MS.); beat larvae from *H. rhamnoides*, September 10, 1961, reared May 1962, beat about twelve larvae mostly full-grown from H. *rhamnoides*, July 27, 1963 (C.-H.).

16. Folkestone, 1929 (Morley, 1931); one, May 27, 1953 (A. M. Morley); ♀, May 30, 1953 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1953-54**: 38, as *innotata*).

First Record, 1831: "Apparently rare; I possess two examples captured in a garden near Darenth-wood in June" (Stephens, *Haust.*, **3**: 286, as *innotata*).

E. virgaureata Doubleday: **pimpinellata sensu** Doubleday: Golden Rod Pug.

Native. Woods; on *Solidago virgaurea*..

1. Dartford Heath (Farn MS.). Plumstead (West, *Ent. Rec.*, **18**: 199). Lee (H. J. Turner, in *Wool. Surv.*, 1909).

6. Greenhithe, moth trap (Farn MS.).

6a. "In the Kentish locality [?Darenth Wood]*, where I have been in the habit of taking it for some years past, it strictly confines itself to the flowers of the *Solidago*, though there is plenty of *Senecio* in and near the woods" (Crewe, *Ent. Ann.*, **1862**: 47, *communicated* 4.xi.1861). Darenth (Farn MS.).

7. Westwell, one, June 6, 1906, L. B. Prout, in RCK (C.-H.).

8. Folkestone* (Ullyett, 1880). Covert Wood, larvae not uncommon, 1927 (H. C. Huggins). Covert Wood, Elham Park Wood and Denge Wood, about 20 larvae beaten from *S. virgaurea*, October 1960, all parasitized except one which emerged April 1961; larvae beaten out, autumn 1961, moths bred spring 1962 (G. M. Haggett); there is a series of 18 specimens in RCK bred by Haggett and labelled "Lyminge", bred iv.1961 (1) and viii.1962 (17) (C.-H.); (also, cf. Haggett, *Proc. Br. ent. nat. Hist. Soc.*, **1968**: 99, 101).

10. Brasted, occasionally (R. M. Prideaux).

12. Shadoxhurst (Scott, 1936). Ham Street (H. C. Huggins); [many larvae swept from *S. virgaurea*, August 7, 1946, none reared (de Worms, *Entomologist*, **80**: 81), the date seems too early (C.-H.)]; one bred, 1950, from a larva beaten out (G. M. Haggett). Ashford, c. 1953 (P. Cue).

FIRST RECORD, 1859: "I have found it by no means rare in the Kentish woods, where the underwood is from one to two years' growth, and the golden rod has room to grow and flower freely" (Crewe, *Zoologist*, 6694).

E. abbreviata Stephens: Brindled Pug.

Native. Woods; on oak. Frequent and found in all divisions except 5 (probably present), 4, 9, 15. "Generally distributed" (*V.C.H.*, 1908).

The imago has been mostly observed at light, to which it is sometimes attracted in considerable numbers. Thus, A. J. L. Bowes (*Diary*) wrote that at Thornden Wood (div. 3) on March 24, 1935, it was swarming at the lights of his car with "two dozen on one wing at one point". It is also occasionally noted at sallow bloom, and by day at rest on oak trunks.

There are many records of the larvae being found on oak, and in my diary I mention that I beat them plentifully from oak at Orlestone Woods, Ham Street on June 13, 1947 (C.-H.).

VARIATION.—Kentish *abbreviata* show varying degrees of melanism, the most extreme forms occurring in the north-west of the county. Within the past few years I have taken at West Wickham examples that appear to conform to abs. *hirschkei* Bastel. and *nigra* Cockayne and others that are less extreme, but the typical form seems no longer to occur at this locality (C.-H.). In RCK is an ab. described as "dark dusted", one, Sevenoaks, 1892, one, Bexley 1904.

FIRST RECORD, 1831: "Not common; taken at Darenth in June" (Stephens, *Haust.*, **3**: 283). This is also the first British record and original type reference.

E. dodoneata Guenee: Oak-tree Pug.

Resident or native. Woods, hedgerows; [on *Quercus robur, Ilex quercifolia*]. Apparently extinct in 1, though formerly abundant there.

1. Lee.—May 19—June 1, 1860, common in Burnt Ash Lane (Fenn, *Lep. Data* MS.; Fenn, *Ent. week Int.*, **9**: 59); about 80 flying at dusk round pollard oaks, May 20—beginning June, 1861, in Burnt Ash Lane (Fenn, *Ent. week. Int.*, **10**: 196); over 70 noted May 8-26, 1862; eight, April 27—May 21, 1863; six, May 12-17, 1864; May 4, 1865; four, May 23, 1874; noted almost annually 1885-95, though generally less numerously, but with sixteen, May 19-26, 1892; five in Hither Green Fields, 1888; Eltham, seven, 1889-90 (Fenn, *Diary;* Fenn, *Lep. Data* MS.). West Wickham, May 1, 1861 (Fenn, *Dairy*); (Pseudon., *Week Ent.*, **2**: 124). Kidbrook, by beating hedges (West, *Ent. Rec.*, **18**: 199). Bexley, 1914 (L. T. Ford).

3. Bysing Wood, three or four, 1913-14 (H. C. Huggins). Chestfield, Whitstable, on pales round Whitstable Castle (P. F. Harris).

4. Worth (T. W. Harman).

8. Tilmanstone, a worn specimen beaten out of *Ilex*, June 27, 1933 (A. M. Morley).

9. Northdown, not uncommon in April (P. F. Harris); Margate, one, May 19, 1934, P. F. Harris, in my coll. (C.-H.). St. Peters, about 12 on street

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley BR2 9EE, Kent.

Request for Information — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), **72**, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) **2**), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton, 20 Gore Court Road, Sittingbourne, Kent, ME10 1QN.

Back numbers—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

Celerio galii—The Bedstraw Hawkmoth—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

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

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