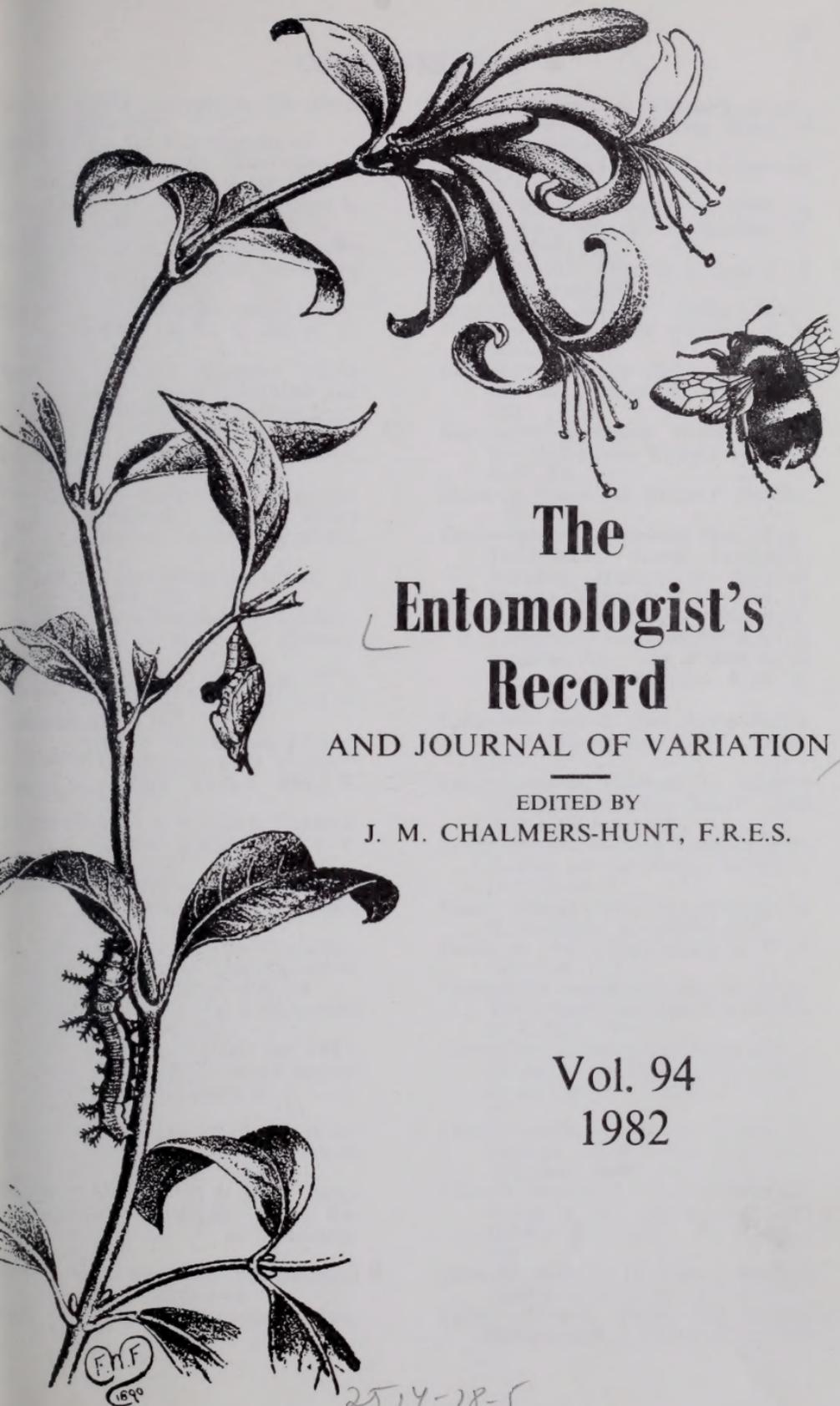


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DIORYCTRIA SCHUETZEELLA FUCHS, 1899:¹
A PYRALID MOTH NEW TO BRITAIN

By J. M. CHALMERS-HUNT¹ and M. W. F. TWEEDIE²

Among a number of microlepidoptera collected at m.v. light by J. M. C. -H. at Orlestone Forest, Kent on the night of the 23rd July 1980, was a small, brightly marked *Dioryctria* that at first sight seemed referable to *D. mutata* Fuchs. However, comparison with the latter subsequently showed it to be distinct. Revisiting the locality on the 1st August 1981, J. M. C.-H. again took this *Dioryctria*, and on submitting the specimens to Dr. J. D. Bradley they were determined as *D. schuetzeella* Fuchs. On the 20th and 21st July 1981, M. W. F. T. took from his Robinson trap at Playden near Rye, East Sussex, three examples of a *Dioryctria* that at first puzzled him, but later seemed to be small strongly marked *D. abietella* D. & S. On taking the moths off the boards, however, M. W. F. T. saw they were quite distinct and took them to Mr. M. Shaffer, who identified them as *D. schuetzeella*. Although J. M. C.-H. may be credited as being the first to take *schuetzeella* in this country, it was in fact M. W. F. T. who first had the species identified and so established it as new to Britain. Specimens were exhibited at the Annual Exhibitions of the A.E.S. and B.E.N.H.S. in October 1981.



Figs. 1-6. - *Dioryctria* species. 1, *schuetzeella* ♀, Orlestone, i.viii.81; 2, *schuetzeella* ♂, Orlestone, 23.vii.80; 3-4 *mutata*, Hampshire; 5-6, *abietella*, Kent. (Photograph by D. E. Wilson). All natural size.

D. schuetzeella was originally described from Germany in 1899, since when it has been found to have a wide distribution on the Continent. It has occurred severally in Belgium since 1906, in which year one was bred by Lambillion from Jambes (Province de Namur) on *Pinus* on 2nd July (*teste* W. De Prins *in litt.*). Lhomme (1923-63) does not mention the species, but Leraut (1980) confirms its occurrence in France, he himself having seen specimens taken

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at Buré, Meurth-et-Moselle. According to Kuchlein, Leffef & Kleinpaste (1980), the species was first discovered in Holland in 1905, but only during the past 25 years has it been found there in other localities, and these widely separated at that, though it has sometimes occurred in large numbers. Elsewhere, *schuetzeella* has been recorded from Silesia, Austria, Finland and Rumania (Zocchi, 1961).



Fig 7. — *D. schuetzeella*, Playden, 20.vii.81
(Photograph by M. W. F. Tweedie).

The species is at once recognisable from both *D. abietella* (figs 5, 6) and *D. mutata* (fig 3, 4) by the presence of a pale mark in the outer area of the upperside of the hindwing. The markings on the forewing in *schuetzeella* are darker and the ground paler than in *abietella* or *mutata*, giving *schuetzeella* a brighter appearance; moreover, *schuetzeella* is appreciably smaller than *abietella*, though it tends to be only slightly smaller than *mutata* whose general colouration is decidedly greyer than either of the foregoing. Genitally, the main characters in *schuetzeella* are to be found in the male, and readers are referred to Petersen & Gaedike (1980), Mutuura & Munroe (1973), Albers (1958) for illustrations of the genital organs of this and related species.

Fuchs (1899) gives a detailed description of the larva of *schuetzeella*, of which there is an English translation in Mutuura & Munroe (1973), who state that "the species was described from three syntypes reared at Rachlau, Germany by K. J. Schütze, from larvae found in mid-June between the young needles of fir [spruce] *Picea excelsa*". In the series of *schuetzeella* in the British Museum (Natural History), are four topotypes labelled "Rachlau 6.8.07 e. 1. *Picea excelsa* Schütze".

In the vicinity of the place where the moth was taken at Orlestone, there are stands of *Picea excelsa* (Norway Spruce), and in the property adjoining the locality at Playden there is a plantation of conifers including a number of trees of *P. excelsa*. At Orlestone, the moth appeared in numbers in two consecutive seasons, and neither there nor at Playden, was there any indication of migration of other species during the period when *schuetzeella* occurred. We therefore have reason to believe that *schuetzeella* is established as a breeding species at both places, and hope to make a combined search for the larva in 1982.

Acknowledgements

We do especially think Mr. M. Shaffer (British Museum (Natural History)) and Dr. J. D. Bradley (Commonwealth Institute of Entomology), for determining our material, as well as for their valued advice in the preparation of this paper. We also thank Dr. K. Sattler (British Museum (Natural History)), for drawing our attention to the G. Alber article.

Mr. W. De Prins located for us the Kuchlein et al. work, translated the relevant part and confirmed the determinations of the Belgian *schuetzeella*, and to him we offer our thanks.

Finally, we are most grateful to Mr. D. E. Wilson for the excellent photograph of the set examples of *Dioryctria* (figs 1-6).

References

- Albers, G., 1958. *Dioryctria schuetzeella* Fuchs. *Bombus*, 2: 36-37.
- Fuchs, A., 1899. Zwei neue Kleinschmetterlinge. *Stett. ent. Zt.*, 60: 180-184.
- Kuchlein, J. H., Leffef, F. & Kleinpaste, R. H., 1980. *Tabellen en verspreidingsatlas van de Nederlandse Microlepidoptera*, I. *Pyralidae* (Eerste Gedeelte), Wageningen.
- Leraut, P., 1980. *Liste systématique et synonymique des Lepidopteres de France Belgique et Corse*, Paris.
- Lhomme, L., 1923-63. *Catalogue des Lepidopteres de France et de Belgique*. Le Carriol.
- Mutuura, A. & Munroe, E., 1973. American species of *Dioryctria* (Lepidoptera: Pyralidae), IV. The *schuetzeella* group and the taxonomic status of the spruce cone moth. *Can. Ent.*, 105: 653-668.
- Petersen, G. & Gaedike, R., 1980. Zur taxonomie der einheimischen *Dioryctria* - arten (Lep., Phycitidae). *Entz. Berich.*, 1980(1): 21-35.
- Shaffer, M., 1966. Some changes in the nomenclature of British Lepidoptera, Pt. 2, Pyraloidea. *Ent. Gaz.*, 17: 19-26.
- Zocchi, R., 1961. Contributi alla conoscenza degli insetti delle piante forestali, V. Il gen. *Dioryctria* Zell. (Lepidoptera: Pyralidae) in Italia. *Redia*, 46: 9-143.

WHAT'S IN A NAME?

By A. A. ALLEN*

Often while waiting for a train or bus, with only my thoughts to pass the time, I fall to musing on certain of the names bestowed upon our Lepidoptera or other insects. I refer here not to the English names, a splendid colourful pageant indeed, but which, with few exceptions, display their intentions openly for all to see. I mean the scientific names — to many, I fear, little better than a multitude of often near-meaningless labels having to be painfully mastered and attached in the mind each to its accredited bearer. Whilst it is true that the latter task is unavoidable, for others more fortunate or better equipped linguistically it is lightened or compensated by finding that these names are full of interest of various kinds, and indeed in that respect little if at all inferior to their counterparts in the vernacular. On the one hand, the broad spectrum of inventive resources attested by them is itself cause for admiration. On the other, much of their charm resides in the host of subtle associations they conjure up, their flights of fancy, their imagery, quaint caprices and conceits, and sometimes too¹ the sheer poetry and music of their sound which chimes with the beauty of the creatures themselves (and often of their natural surroundings) to give a totality of aesthetic satisfaction. As, for instance, *Euphrosyne*, one of the three Graces whose name means cheerfulness — as harmonious to the sensitive ear and receptive imagination as its winged bearer is ethereal. Often a name may evoke memories of the delights of the chase, and of days when men seemed less hell-bent on the mindless destruction of nature than at present. (That is, in those of us old enough to remember some of them.)

There are also, of course, more pedestrian and prosaic appellations marking a characteristic such as foodplant or a special habit; straightforwardly descriptive ones; and eponyms or dedicatory names; together these are very numerous. This is as it should be: plain, serviceable, matter-of-fact, down-to-earth names are the staple fare, while the more imaginative, highflown, or sonorous are the seasoning. Then too, others are slightly to thoroughly obscure, a few enigmatic, others again arbitrarily formed or meaningless (but not always thereby displeasing), or owing their form to some misconception; some are frankly inapt or little suitable, yet others are outright misnomers, and a handful are merely anagrams of other names — a device serving to mark relationship. And last but, alas! not least, is a graceless rattle-taggle assortment of badly formed, atrociously misspelt,² and hopelessly botched and bungled names which the rules of nomenclature as at present framed oblige us to keep in being, though (failing strangulation at birth or radical surgery) they deserve nothing better than decent interment and oblivion — but that is another story.

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¹Especially among the butterflies, where the Linnaean custom of giving names from Greek mythology (except where foodplants were known) was widely followed.

²Such as *Operophtera* for *Oporoptera* “winged creature of autumn” (paraphrasing slightly); and *Aspitates* probably for *Aspilotes* “unspotted”.

I want now to consider what seems on the surface a very odd name, even absurd at first sight, but making sense when regarded in a less direct way. As most people know, the element *phil* in composition means loving, or delighting in; being Greek, it is often found in generic names, which favour that language for their make-up while the trivial name tends to prefer Latin elements (personal names excepted). Thus we have a lover of the fields (*Agriphila*), of glades (*Alsophila*), of evening (*Deilephila*), of warmth (*Thalpo-phila*), of moisture (*Philudoria* — the moth with the bibulous caterpillar), of wine (*Oinophila* — a real tippler this, in name at least), of pleasure or sweetness (*Philedone* — a designation, one would think, more apt for some nectar-quaffing butterfly hedonist than for this lowly little heathland Tortrix); and so on. But *Hofmannophila* — ! What in the world can *this* mean? It is the genus to which belongs that pariah among insects, the Brown House Moth (*H. pseudospretella*), whose trivial name expresses the universal contempt in which it is held, with the added imputation of falseness or treachery. Are we seriously to understand that this pest was devoted to Dr. Hofmann, as on the face of it the name seems to say? Or to his suits and socks perhaps, but why then should *he* have suffered from its ravages any more than the rest of us? No — the thing is preposterous. It *must* mean something else.

In fact another interpretation is formally possible. The relations implicit in the name might be reversed, just as for example Theophilus means “beloved of God”. At first glance this will not do either: if *pseudospretella* was the object of the good Herr Doktor’s affections or friendly feeling, he must have been an epigone of the great St. Francis of Assisi, no less. But if at this point we resort to a little “lateral thinking”, light will begin to dawn. I guess that Spuler, the author of the name, wished to commemorate the noted German microlepidopterist, but could not use the obvious name *Hofmannia* because Wocke had already done so. He therefore substituted the termination *-phila*, intending that the name should signify that Dr. H. had been devoted to this moth *in the cause of science*. This I take to have been the case; perhaps he (Hofmann) wrote a learned treatise upon it in the approved Teutonic style. At all events, that is the interpretation I finally settle for; nothing else satisfies.

Why, you may ask, have I made such heavy weather of what should be fairly obvious? Merely as an example of how puzzling a name can be until one begins to ponder on it; or if you like, to illustrate the precept: if a name appears nonsensical at first, try looking at it again from another viewpoint.

I end with a name which is *really* puzzling, apparently in the class of misnomers. I put it to readers as a conundrum: what well-known and unmistakable British moth, flying only in autumn, is named after a spring month? (No prizes offered for correct solution!) You will all have the answer instantly, of course. More to the point, why was it so named? — I confess myself at a total loss. Is its life-cycle different on the Continent? Perhaps someone can provide the full answer.

By E. C. M. HAES*

The recently published *The Butterflies of Scotland* by George Thomson demonstrates the need for naturalists of all disciplines to consider Scottish highland natural history as that of a separate island rather than simply the cooler end of Britain. As Thomson makes clear, the Clyde and Forth estuaries almost met about the time of the last post glacial climatic optimum, when the sea levels of Europe were at their recent maxima, while dense forest covered most of the fertile lowlands.

There are too few orthoptera native to Britain to provide such clear evidences of faunistic distinctions as are to be found in Scottish highland Lepidoptera or Hymenoptera: no truly arctic/alpine grasshoppers, such as *Melanoplus frigidus* (Boheman) to match say *Erebia epiphron*, Knoch, Small mountain ringlet butterfly or the wood ant *Formica aquilonia*, Yarrow, have been discovered. On the other hand it is possible that the few Orthoptera species which occur in the Highland Zone have been isolated for long enough to have formed distinct races — although no work has yet been done to establish this. Sufficient is however known about the distribution of the five species of Orthoptera so far recorded in the Highland Zone to justify some notes and observations.

The contemporary Scottish climate is not ideal for orthopterous insects but various species presumably became established quickly during the relatively warm and dry Boreal Period and a handful of the least demanding have held on there until the present day.

Perhaps *M. frigidus* and *Tetrix undulata* (Sowerby), common ground-hopper, were amongst the first post glacial Orthoptera. The latter is widespread in the Highlands to this day but there is so far no evidence that *Melanoplus* has certainly occurred in post-glacial Britain. However the Boreal Period with warm dry summers and the fact that Britain was not yet an island make the assumption of its presence quite reasonable. It is also very likely that extensive marshy areas supported colonies of *Stethophyma grossum* (L.) large marsh grasshopper and *Chorthippus albomarginatus* (De Geer) lesser marsh grasshopper, since both these wetland grasshoppers, together with *Tetrix subulata* (L.) slender ground-hopper, occur in Ireland and were thus almost certainly early post-glacial arrivals. The spread of forest in the Atlantic Period and subsequent deterioration of summer climate in more recent times doubtless eventually exterminated them in the Highland Zone although it would still be worth careful search for all three species, particularly the last in the many squares which remain unsearched for Orthoptera in Scotland.

At least one further orthopteron, *Gryllotalpa gryllotalpa* (L.) mole-cricket, occurred close to the Highland Zone at the end of the last century, in marshy land near Kilmalcolm, Renfrewshire. It too

*45, Grove Road, Worthing, West Sussex.

may well have been more widespread in Scotland earlier on. It also seems that warmth and sun loving *Tettigonia viridissima* L. great green bush-cricket could have occurred on the east coast in Forfarshire early in the last century, as it was noted here by a very famous and competent botanist, George Don, who also reported the mole cricket from the county.

Of the five species of Orthoptera now known to exist in Highland Scotland *Tetrix undulata* shows no special pattern of distribution and when recorded in Scotland appears to occur in the same variety of habitat as it does in England; woodland clearings, marshy ground and stabilised coastal sand dunes.

The four grasshopper species seem to have rather interesting distribution patterns in the Highland Zone where they are obviously about at the limits of their natural ranges. Three of the four are today virtually absent from the North West Highlands – from around Fort William northwards to the north coast. Of these three *Omocestus viridulus* (L.) the common green grasshopper appears to go high into the hills with regularity. In the Breadalbane mountains around Meall nan Tarmachan and Ben Lawers it attains over 900m. Through the Central and Eastern Highlands and at lower altitude this familiar grasshopper with its relatively loud ticking stridulation is common in almost every sheltered sun trap, stream bed or lowland pasture. Small, colourful *Myrmeleotettix maculatus* (Thunberg) the mottled grasshopper has an almost similar outline distribution to that of the common green in the Highland Zone, but does not seem to occur much over 500 metres and is most numerous on porous heathery ground. It is also the only species of grasshopper at all widespread on coastal sand dunes in the far north and is widespread to the north-eastern tip of Scotland as well as on the machirs of the Outer Hebrides, but apparently quite absent from Skye or the dunes of the north-west mainland.

Most local of the four is *Chorthippus brunneus* (Thunberg) the common field grasshopper with only one or two known colonies inland in the Central and Eastern Highlands and a few scattered colonies on coastal dunes. On the east coast it occurs as far north as Culbin Forest where it is common, but is not known farther north. On the west coast there are very isolated colonies in Kintyre, Mull, Raasay and Scalpay, but it has not so far been found anywhere on Skye nor on the mainland of the north-west. It is almost certainly at its extreme limit of existence in Highland Scotland. On the other hand flightless *C. parallelus* (Zetterstedt) the meadow grasshopper is the one grasshopper to occur commonly in the North West Highlands, although so far unrecorded from the Outer Hebrides. It is known from one place in the Orkneys and in Central Scotland ascends almost as high as the common green. It is for example locally common by the information kiosk in the Ben Lawers National Trust for Scotland Reserve, some 830 metres up the side of Beinn Ghlas. In the far north-west it seems to be very frequent along the newly widened A838, A894, A837 and other roads in the region. Possibly the widening of these tourist routes has enabled this highly adaptable species to spread from hitherto separated

river valley or marshland colonies to exploit the grassy road verges that now cross what was until recently relatively grassless, rainswept moorland. All colour variations including the bright purple femal have been found easily in the region, although the long winged f. *explicatus* is not yet recorded. One further point of interest worth mentioning is that all four grasshoppers in the Highland Zone appear to mature very early with the same early maturity (mid June onwards) as is more normal in the South of England. Presumably the long days of May and June in the Far North encourage this early maturity. It is to be hoped that these notes will stimulate further interest in our highland Orthoptera as this may well be the location for discovering essential details about the species present.

Finally, it may be worth speculating whether or not further species could occur in the region. Certainly there are no other common and widespread species. As has been suggested, *T. subulata* might be found in marshy ground in warm areas and the nocturnal oak bush-cricket *Meconema thalassinum* (De Geer) could be worth searching for in the old oak woods of the West Highlands around Loch Lomond or towards the coast where the purple hairstreak butterfly, *Quercusia quercus* L. occurs. Lepidopterists with light traps are the most likely entomologists to come across this insect in more remote areas. Another faint possibility is the presence of that elusive grasshopper *Stenobothrus stigmaticus* (Rambur). Any really small but fully winged grasshopper of 12 millimetres length or less is worth closest scrutiny and a voucher specimen to the British Museum Natural History.

Acknowledgements

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References

- Burr, M., 1936. *British Grasshoppers and their Allies*. London.
Haes, E. C. M. (editor), 1979. *Provisional Atlas of the Insects of the British Isles Part 6. Orthoptera*. Institute of Terrestrial Ecology, Huntingdon.
Thomson, G., 1980. *The Butterflies of Scotland: a Natural History*. London.
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EUPITHECIA PHOENICEATA RAMBUR: CYPRESS PUG IN ESSEX.
— On the night of 16th September 1981, I caught a specimen of this moth in my garden at Tilbury. This is the second record of this species for Essex, the first for South Essex. — C. C. PENNEY, 39 Chaucer Close, Tilbury, Essex.

PLATE I



SOME ASSISTANCE WITH REGARD TO *DODONA* SP.(LEPIDOPTERA:NEMEOBIIDAE) IN HONG KONG

By W. J. TENNENT*

Having recently received my copy of 'This is Hong Kong: Butterflies' by C. & J. Johnston, I observe on page 129 that *Dodona eugenes* Bates, is mentioned as having been first caught in Hong Kong by Mr. W. F. Palmer in 1974.

I further quote from Hill, Johnston and Bascombe 1978 (page 17): ". . . *Dodona eugenes* Bates *venox* Fruhstorfer

Very rare. First taken by Tennent in March and July 1973, and identified at the British Museum (Nat. Hist.) as subspecies *formosana* Matsumura. Eliot, however, thinks they are ssp. *venox* Fruhstorfer . . ."

The truth of the matter is that I took three female butterflies on 14th March, 18th March and 24th July 1973 in the New Territories, Hong Kong, which I took to the BM(NH) on my return to the UK later that year. They were tentatively identified as *D.eugenes*. The ssp. nearest to my specimens in physical appearance was *maculosa* Leech from Central China; the National Collection had at that time no specimens of *formosana*, the only reference available being those illustrated by Shirozu 1960 (Plate 60, Figs 547/548), which are much smaller and darker than my specimens. They were obviously not *venox* (Eliot had not seen the specimens at that time).

Having seen the illustrations of *D.eugenes* and *D.egeon* Westwood in Fleming 1974 (The descriptions of *D.egeon confluens* Corbet and *D.deodata anu* Corbet in Volume 2 Page 15, should be reversed in reference to the appropriate illustrations on Plate 55) and Corbet & Pendlebury, I sent the specimens to the BM(NH) for more positive determination.

As a result, Mr. P. R. Ackery, BM(NH) and Colonel Eliot, are of the opinion that they probably represent a new spp. of *D.egeon*, although they are in some respects intermediate between this species and *D.eugenes*.

I understood from Mr. W. F. (Bill) Palmer in 1974, that the species had been taken again in Hong Kong that year and I expected to see it illustrated in one of the recent publications. However, this is not so and I therefore illustrate two of my three specimens here. It seems they must await the capture of a male specimen in order that genitalic examination may place the form in its rightful 'slot'. More specific data on place of capture is deliberately withheld.

*1 Middlewood Close, Fylingthorpe, Whitby, N. Yorkshire.

Legend to Plate I

A. *Dodona* sp. fw length 24mm. Hong Kong. 24th July 1973.

B. *Dodona* sp. (Underside). fw length 23mm. Hong Kong. 14th March 1973.

References

- Ackery P. R., 1979. *Pers. Comm.*
 Corbet, A. S. & Pendlebury, H. M., 1956. (3rd edition 1978 Eliot, J. N.). *The Butterflies of the Malay Peninsula*.
 Fleming, W. A., 1974. *Butterflies of West Malaysia & Singapore*. Vol. 2.
 Hill, D. S., Johnston, G. & Bascombe, M. J., 1978. *Memoirs of the Hong Kong Natural History Society – Annotated Checklist of Hong Kong Butterflies*.
 Johnston, G. & Johnston, J. 1980. *This is Hong Kong: Butterflies*.
 Shirozu, T. 1960. *Butterflies of Formosa*.
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TWO INTERESTING TEPHRITIDAE (DIPT.) ON A S. E. LONDON COMMON. – Of these attractive flies (long known as Trypetidae until lately, when, alas! the perennial craze for name-changing spread to affect also the higher taxa) several local and rather rare species occur in my area, besides all the commoner ones – the former already recorded in scattered notes. During the past and present seasons I was pleased to come across two further species of that class on Woolwich Common close by here. The first, *Orellia falcata* Scop., one of our larger and more conspicuous species, turned up there on 12.vii.80 – three ♀♀ of which two had a large semicircular 'bite' out of the apical margin of each wing. Both sexes occurred there sparingly in late May and early June of the next (present) year. The foodplant, *Tragopogon pratensis*, grows patchily and sparsely on the common; I have not noticed it elsewhere in the district. *O. falcata* is by no means a common insect in suburban Kent. Niblett (1956, *The Flies of the London Area*, 3: Trypetidae (*Lond. Nat. Reprint* 101): 84, under *Trypeta*) lists only three localities there – Abbey Wood Marshes, Eltham, Erith Marshes – as compared with a long series of Surrey ones. The present locality is nearest the second of these.

The other species is *Dithryca guttularis* Mg., for which the above work gives (under the emendation *Ditricha*) four Surrey localities more or less on the fringe of the Society's area and none at all in Kent, London, or Middlesex. (I recorded the species from Box Hill, Surrey, in 1962, *Ent. Rec.*, 74: 244.) This apparent rarity clearly has nothing to do with foodplants, since *Achillea millefolium*, the host of *D. guttularis*, is general and abundant. I was surprised, therefore, to meet with the fly in some numbers in an extremely restricted spot on the edge of a large patch of yarrow in a corner of the common, on 27.vii.81. Though the entire patch was swept in detail, the Tephritid seemed absent from the dense central mass, occurring only on some half-dozen more thinly-spaced plants at one side of it. All the six taken proved to be males, suggesting that the flies had only just begun to emerge; females can be expected to appear a little later. – A. A. ALLEN, 49 Montcalm Road, Charlton, London SE3 8QG.

A SURVEY OF THE SALTATORIA OF THE BRISTOL AREA AND NORTH SOMERSET

By J. F. BURTON, F.R.E.S., F.Z.S.*

(Concluded from Vol. 93 page 171)

Common Green Grasshopper *Omocestus viridulus* (L.)

In summer and early autumn the loud and prolonged (up to 20 seconds or so) pulsating song of this emerald-green or olive-brown insect can be guaranteed to attract one's attention in the wide range of open, grassy situations it frequents. In the area under review in this paper it may be heard commonly from the boggy pastures of the Somerset peat moors and the lush riverside meadows to the grassy slopes of the ranges of limestone hills.

I have personal records of it from the following localities, unless otherwise stated in parentheses: Batheaston (Blathwayt, 1906); Brown's Folly, Bathford, 1971; Gordano Valley: Walton Moor 1962 - 79; Weston Moor 1975 - 79 and Walton Common 1975 - 76; Failand Golf Course, near Bristol 1963; Broadfield Farm Combe, near Goblin Combe, 1964; Burrington Combe, 1964; Brean Down, 1972 - 74; Mendip Hills: Crook Peak 1974, Wavering Down 1975, and Velvet Bottom, Charterhouse 1955 (D.K.M. Kevan and J. Cowley) 1964 - 75; Somerset Peat Moors: Street Heath 1945 (J. Cowley, 1949), Ashcott Heath 1963, Meare Heath 1963 - 67, Shapwick Heath 1948 (J. Cowley), 1971 - 76 and Westhay STNC Reserve 1965.

At Charterhouse-on-Mendip on 24th July 1955, D.K.M. Kevan and J. Cowley found *viridulus* parasitized by the fungus *Entomophthora grylli* (det. by W. D. Hincks).

Mottled Grasshopper *Myrmeleotettix maculatus* (Thunb.)

Although highly polymorphic, this little grasshopper can easily be identified by its clubbed antennae, a character it shares with only one other British species — the Rufous Grasshopper *Gomphocerippus rufus*, which is larger and possesses more distinctly clubbed antennae with white tips. The song of the male Mottled Grasshopper consists of a series of some twenty short chirps delivered quietly at first, but gradually rising to a crescendo within a space of 10 - 15 seconds.

Although heather moors and heaths with sufficient grass are its favoured haunts, it also occurs on sand dunes, and chalk and limestone hills, especially where the turf is short and the rock is exposed. It is therefore locally common on the Mendip Hills and on the carboniferous limestone hills extending northwards from them towards Bristol. I have records of it from the following localities (my observations unless otherwise stated): Batheaston (Blathwayt, 1906); Brown's Folly, Bathford 1971; Berrow sand dunes, 1945 - 54 (J. Cowley); Flax Bourton Combe, 1960;

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Broadfield Farm Combe, near Goblin Combe, 1964; Goblin Combe, 1964; and on the Mendips proper at Crook Peak 1960, 1964, 1972 and 1974; Burrington Combe 1964; Charterhouse 1955 (D.K.M. Kevan and J. Cowley), and Velvet Bottom, near Charterhouse 1964.

Rufous Grasshopper *Gomphocerippus rufus* (L.)

Although readily identified by its white-tipped, strongly clubbed (less so in the female) antennae, this generally brown, largish grasshopper seems to have been much overlooked in the area under review. For more than a decade the only known localities in Somerset were all on the Polden Hills where J. Cowley (1952) first discovered a colony on Walton Hill on 5th September, 1948, and where I found it continuing to flourish on visits made during 1964, 1971, 1974 and 1976. In 1950 J. Cowley also found colonies in "sheltered spots in rough long grass" elsewhere on the Poldens: Socombe Hill, near Edington (still there in 1953), Cock Hill and in a railway cutting at Cossington.

Recently R. S. Cropper has discovered *rufus* on Portishead Down (1977) and reported it from the Mendips. I have searched for it on the carboniferous limestone hills around Clevedon, Tickenham, Wraxall and Failand without success.

Lesser Marsh Grasshopper *Chorthippus albomarginatus* (DeG.)

This variable grasshopper is locally common on the coastal dunes and marshes along the entire coastline of the area under review, and is also to be found well inland over a wide area of the Central Somerset Levels. I have records of its occurrence (those uncredited are my own) from the following localities: Edington Moor 1945 and 1947 (J. Cowley, 1949); Catcott Heath (wet peat pastures) 1947 (J. Cowley 1949) and 1950 (J. Cowley, D. G. Brown and J. H. P. Sankey); Oxenpill, Westhay 1964 (with D. R. Ragge); Berrow sand dune slacks 1950 and 1954 (J. Cowley); Brean to Lymsham 1960; Clevedon Pill and seawall 1967 - 1976.

Common Field Grasshopper *Chorthippus brunneus* (Thunb.)

Much more variable in colour and markings than the last species; indeed, this grasshopper is the most highly polymorphic of all the British species with the possible exception of the Mottled Grasshopper. It is also one of the commonest, and is found abundantly, even in urban areas, throughout the region covered by this paper, except that its preference for dryish habitat means that it is more local in the extensive fens and marshes where much of the grassland is too damp and lush.

I have specific records of it from the following localities: Bristol: Clifton and Durdham Downs, 1960 - 79; King's Weston Down, 1970; Shirehampton, 1977; Henleaze, 1977 - 79; Mangotsfield, 1979; Hambrook and Whiteshill, 1978; Ashton Park, 1963 - 77; Leigh Woods, 1962 - 79. North Somerset: Pill, 1961 - 77; Easton-in-Gordano, 1964; Weston-in-Gordano and Walton Common, 1967 - 76; Portishead, 1960 - 78; Failand Golf-course, 1963 - 78; Cadbury

Camp, near Tickenham and Tickenham Hill, 1964 - 65; Clevedon (Church Hill, Wain's Hill, Court Hill, Walton Castle Hill, the seawall and Clevedon Town F.C. ground), 1967 - 79; Flax Bourton 1960; Brockley Combe, 1971; Broadfield Farm Combe, near Goblin Combe, 1964; Mendips: Blagdon, 1950 (J. Cowley); Uphill, 1951 (J. Cowley); Brean Down, 1972 - 74; Bleadon Hill, 1960; Crook Peak, 1960 - 74; Burrington Combe, 1953 (J. Cowley) 1964; Westbury and Ebbor, 1964; Charterhouse, 1955 (D. K. M. Kevan); Velvet Bottom, near Charterhouse, 1964 and Priddy, 1964; Batheaston (Blathwayt 1906); Brown's Folly, Bathford, 1971; Central Peat Moors: Ashcott Heath, 1965 - 67; Meare Heath, 1963 - 79; Shapwick (Walton, 1944); Shapwick Heath, 1950 (J. Cowley), 1976; Langport, 1961 and Muchelney, 1961; Berrow sand dunes 1945 and 1950 (J. Cowley), Bridgwater, 1952 (J. Cowley); Polden Hills: Edington, 1947 (J. Cowley, 1949) and 1950 (J. Cowley); Socombe Hill and Cock Hill, 1950 (J. Cowley); Cossington, 1950 (J. Cowley) and Walton Hill, 1964 - 76.

In hot weather *brunneus* is capable of prodigious leaps and glides: one I watched at Clevedon on 11th August, 1967 leapt to an estimated height of almost two metres and glided some seven metres over level ground, assisted only by a light breeze.

Meadow Grasshopper *Chorthippus parallelus* (Zett.)

Another abundant *Chorthippus* grasshopper in the Bristol area and North Somerset easily distinguished from the other species in this genus by its vestigial wings (especially in the female) which render it quite unable to fly. However, very occasionally a form with fully developed wings occurs, though I have yet to encounter it in this district. The chattering stridulation of the males, once learnt, is also unmistakable. It tends to shun urban areas and dry grassland, otherwise is pretty ubiquitous.

The following is a list of localities known to me; my records unless otherwise stated: Bristol: Clifton and Durdham Downs 1978 - 79; King's Weston Down, 1970; Ashton Park, 1963 - 74; Leigh Woods 1962 - 79; Hambrook and Whiteshill 1978.

North Somerset: Abbots Leigh, 1964; Pill, 1960 - 66; Easton-in-Gordano, 1964; Weston Moor, Weston-in-Gordano, 1964 - 79; Walton Common, Walton-in-Gordano, 1975 - 76; Walton Moor, Walton-in-Gordano 1962 - 79; Clevedon (Church Hill, Wain's Hill, Court Hill, Walton Castle Hill, Clevedon Pill and seawall), 1964 - 79; Failand Golf-course, 1963 - 78; Cadbury Camp, 1964 - 65; Tickenham Hill, 1964; Flax Bourton, 1960; Brockley Combe, 1971; Broadfield Farm Combe, near Goblin Combe, 1964; Chew Valley Lake, 1962; Brown's Folly, Bathford, 1971; Batheaston (Blathwayt 1906); Mendips; Brean Down 1972 - 74; Bleadon Hill, 1960; Crook Peak, 1960 - 74; Wavering Down, 1975; Burrington Combe, 1964; Cheddar Gorge, 1960; Westbury and Ebbor, 1964; Charterhouse, 1955 (D.K.M. Kevan) and Velvet Bottom, near Charterhouse, 1964 - 75; Central Somerset Levels: between Brean and Lympsham, 1960; Westhay Moor, 1954 (J. Cowley), 1964 - 65; Meare Heath, 1963 - 79; Shapwick Heath, 1952 (J. Cowley), 1963 - 76; Catcott

Heath, 1947 and 1950 (J. Cowley); Edington Moor 1947 (J. Cowley); Street Heath, 1945 and 1947 (J. Cowley); Aller Wood, Othry, 1971; Polden Hills: Edington, 1947 (J. Cowley); Socombe Hill, 1950 (J. Cowley); Walton Hill, 1964 - 74 and Great Breach Wood, 1971 - 74.

GROUND-HOPPERS (Family Tetrigidae)

Slender Ground-hopper *Tetrix subulata* (L.)

Being small, dark-coloured and generally inconspicuous the ground-hoppers are easily overlooked and this has undoubtedly happened in the area covered by this paper. I am conscious that my own searches have been far from systematic: when I have made an effort I have experienced little difficulty in finding either this or the next species in suitable localities. The form *bifasciata*, in which the pronotum and hind-wings are considerably shortened, is not uncommon. I have found it in the Gordano Valley and on Meare and Westhay Moors in the Somerset Peat Moors.

The damp-loving Slender Ground-hopper seems to be locally common in the peat moors and levels of the Bristol district and North Somerset, but I only know of positive records from the following places (my records unless otherwise stated): Combe Dingle, Bristol 1950 (J. Cowley); Walton Moor, 1964 and Weston Moor, 1972 - 75; Blagdon Reservoir, 1950 (J. Cowley), Ebbor Wood, Mendip, 1952 (J. Cowley); Central Peat Moors: Ashcott, 1941 (Blair, 1941); Meare Heath, 1963 - 79; Oxenpill, Westhay, 1964; Catcott Heath, 1945 and 1950 (J. Cowley); Shapwick Heath, 1953 (J. Cowley) and Street Heath, 1949 - 53 (J. Cowley); Loxley Wood, Shapwick, 1947 (J. Cowley); Edington, 1945 - 46; 1950 - 52 (J. Cowley); dune slacks at Berrow, 1951 (J. Cowley) and Lollover Hill, Compton Dundon, 1958 (J. Cowley).

Common Ground-hopper *Tetrix undulata* (Sow.)

By far the most widespread of the three British ground-hoppers, *undulata* is smaller and stouter than *subulata* with much shorter hindwings; and although it overlaps with the latter's choice of habitats, it occupies a wider range, including quite dry conditions such as those pertaining on heaths and sand dunes. It has almost certainly been much overlooked in the area reviewed by this paper and is probably more or less generally distributed in suitable places. Records known to me are as follows: Walton Moor, Gordano Valley, 1971 (J.F.B.); Goblin Combe, 1952 (J. Cowley); Asham Wood, Downhead and Vallis Vale, Selwood, 1953 (J. Cowley); Shepton Mallet (Brown, 1939) Street Heath, 1950 and 1952 (J. Cowley); Shapwick Heath, 1951 (J. Cowley); Westhay Moor, 1954 (J. Cowley); Oxenpill, near Westhay, 1964 (J.F.B.); and Meare Heath, 1964 - 69 (J.F.B.).

References

- Blair, K. G., 1941. *Tetrix ceperoi* I. Bolivar in Britain (Orth.).
J. Soc. Brit. Ent. 2: 116 - 117.

- Blathwayt, L., 1906. Orthoptera. *Vict. Cty. Hist. Somerset* 1: 76.
- Brown, E. S., 1939. Some new county records for Orthoptera. *Ent. Rec.* 51: 143.
- Burton, J. F., 1961. Notes on Orthoptera in Southern England in 1960. *Ent. Rec.* 73: 64 - 66.
- Burton, J. F., 1963. Orthoptera Notes, 1961 - 62 with some casual observations on Lepidoptera. *Ent. Rec.* 75: 142 - 147.
- Burton, J. F., 1964. Orthoptera Notes from S. W. Britain, 1963. *Ent. Rec.* 76: 136 - 139.
- Burton, J. F., 1965. Notes on British Orthoptera in 1964, with some new Vice-county Records. *Ent. Rec.* 77: 71 - 78.
- Burton, John, 1972. The Conservation of Somerset Grasshoppers and their Allies. Part I. *Somerset Trust for Nature Conservation Newsletter* No. 22: 3 - 4.
- Burton, John, 1973. The Conservation of Somerset Grasshoppers and their Allies. Part II. *Somerset Trust for Nature Conservation Newsletter* No. 23: 3 - 5.
- Cowley, J., 1949. Orthoptera from Somerset. *J. Soc. Brit. Ent.* 3: 46 - 47.
- Haes, E. C. M., 1979. *Provisional Atlas of the Insects of the British Isles Part 6 Orthoptera: Grasshoppers and Crickets* 2nd edn. Biological Records Centre, Institute of Terrestrial Ecology, Huntingdon.
- Kevan, D. K. McE., 1961. A Revised Summary of the known Distribution of British Orthopteroids. *Trans. Soc. Brit. Ent.* 14: 187 - 205.
- Miller, K. W., in Best, G. *et al.*, 1979. Entomological Notes, Bristol District, 1977. *Proc. Bristol Nat. Soc.* 37: 73 - 83.
- Parsons, A. J., 1978. Notes on Some Invertebrates on Steep Holm. *Proc. Bristol Nat. Soc.* 36: 93 - 111.
- Payne, R. M., 1958. The Distribution of Grasshoppers and Allied Insects in the London Area. *Lond. Nat.* for 1957. 37: 102 - 115.
- Ragge, D. R., 1965. *Grasshoppers, Crickets and Cockroaches of the British Isles*. London and New York.
- Ragge, D. R., 1973. The British Orthoptera: a Supplement. *Ent. Gazette* 24: 227 - 245.
- Turner, A. H., Wilson, W. A. and Cowley, J., 1952. Some Recent Records of Somerset Insects. *Proc. Somerset archaeol. nat. Hist. Soc.* 1951. 96: 212 - 223.
- Walton, G. A., 1944. *Mecostethus grossus* (L.) and *Chorthippus bicolor* (Charp.) (Orthop.) in Somerset. *J. Soc. Brit. Ent.* 2: 185.

D'ABRERA'S BUTTERFLIES OF THE AFRO-TROPICAL REGION. —

I must make a correction to a factual statement made by a reviewer (C.G.C.D.) in *Ent. Record*, 93: 195. In the last paragraph it is stated that the author Mr. D'Abrera intends to bring out a second edition of this book. I do not know where this information came from but it is, to my certain knowledge, not true. — The question of a supplement may be in Mr. D'Abrera's mind but of this again I know not. — E. W. CLASSEY (Sole Agent for *Butterflies of the Afro-Tropical Region*), P. O. Box 93, Faringdon, Oxon. SN7 7DR.

THE WHITE-LETTER HAIRSTREAK:
STRYMONIDIA W-ALBUM KNOCH

By A. ARCHER-LOCK*

Further to my brief article (Vol. 92, No. 10, page 254), I received quite a number of most valuable comments which are summarised as follows:—

Current Situation. The North of England would seem to hold much the strongest position. Mr. S. M. Jackson considers the butterfly still to be widespread in Yorkshire except for the North West of that County, and believes that a spread may have occurred. Mr. J. Briggs knows of a strong colony in North Lancashire, commenting that this could be a recent development. Moving further South, Mr. John Payne found that the species was still hanging on in Northamptonshire even in elm-disease ravaged areas, while Mr. Jack Green knew of a good colony in Worcestershire where he considers that the butterfly can still quite readily be found. In Breconshire, Mr. J. P. Sankey-Barker has continuing records of one flourishing colony based apparently upon surviving elm saplings. Several correspondents from the Bath area, once renowned for this hairstreak, commented on a catastrophic almost total decline, including Mr. Bryan Moore, the recorder of lepidoptera for the Bath Natural History Society. Mr. Matthew Oates, who wrote a particularly entertaining and detailed letter, considers that Sussex has suffered very severely as early as 1976, and in Hampshire, twenty colonies of which he knew, are reduced to two.

Practically all the many letters refer to an abundance of *Strymonidia w-album* in 1976.

New Colonisation. There is a tenuous suggestion of a drift northwards: possibly a retreat before the advancing elm disease? Several correspondents confirm that the species wanders. Mr. Oates found two in separate pub bars in Sussex — perhaps here lies the true explanation of decline. Mr. Sankey-Barker has records of ten new sites discovered in the last five years although pointing out that they may have existed before, whilst Mr. Jackson similarly has further localities in North Yorkshire.

Elm Disease. Opinion is certainly divided as to whether this is the over-riding factor for decline. Mr. Green can find no other explanation, but there are several reports of the butterfly carrying on through the advent of elm suckers springing up. The well known seasonal fluctuation is frequently confirmed, Mr. Sankey-Barker pointing out the series of indifferent middle summers since 1976. The Cornish locality to which I originally referred has suffered no further visible elm decline, and yet two long watches at the 'master' wych elm yielded not a single sighting compared with many in 1980.

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However, I did see two widely separated specimens at the tops of elms over a stretch of half a mile in this valley.

Common Elm (Ulmus procera). There is no doubt that this butterfly will breed quite readily on this tree. Mr. Green has found larvae there, and so has Mr. Payne, even on very diseased trees, whilst Dr. D. F. Owen found them on the species within the City of Oxford.

Blossom Feeding. Most correspondents confirm frequent visits to privet, bramble, thistles, and less often to hemp agrimony, ragwort, hogweed, knapweed, and even garden flowers including buddleia, which suggests that butterflies in the South West do behave differently – perhaps due to a greater abundance of honey-dew. In 1976, Dr. Owen saw hundreds on bramble flowers in Berkshire. A seasonal shortage of honey-dew may well explain these occurrences which are reported occasionally.

The conclusion to draw must be that the White-letter Hairstreak will survive, even if one has misgivings when the *Morning Telegraph* (7/8/81) reports that Dutch Elm Disease has hit the Barnsley area hard in 1981 with more than 1,000 trees affected, and a sudden upsurge was also reported in the Edinburgh green belt (*Guardian* 25/8/81). The National loss is now put at twelve million trees.

May I thank all those who have written to me, taking such considerable trouble, and also those who have spoken to me on this subject. Obviously, I have failed to do justice to any of them, but mentioned or not, I am most grateful for their help towards a brief summary record of the current state of this often elusive butterfly.

THE PUPATION OF ANTHOCHARIS. – The beak on the pupa of *Anthocharis cardamines*, to which Lt. Col. C. A. Cowan draws attention in his paper under the above title (1981, *Ent. Rec.*, 93: 97-99), is by no means unique in the family. A rather less pronounced beak is present in the pupa of *Leptidea sinapis*, and there are many examples among the tropical and semi-tropical Pieridae. Plate 2 in Talbot's *Fauna of British India*, i (2nd edit.), figures three species *Colotis eucharis* F. (wrongly captioned as *danae*), *Ixias marianne* Cr. and *Valeria ceylanica* Feld., whilst my photographs of East African early stages, now in the British Museum (Natural History) include a number of other species.

I do not think that Lt. Col. Cowan's suggestion of the purpose of the beak can be the correct one, as most of the Indian and African species that possess it are generally not more than a fortnight in the pupal state. Generally speaking, it would appear that those pupae that are supported by a comparatively long girdle have a beak, whilst those that are appressed against their substrate do not.

The distorted beak in Lt. Col. Cowan's fig. 9 is almost certainly the result of injury when the pupa was newly formed and soft. – D. G. SEVASTOPULO, F.R.E.S., P.O.Box 95617, Mombasa (Nyali), Kenya.

BUTTERFLIES IN NORTHERN GREECE:
JULY-AUGUST 1980

By J. V. DACIE¹, MARGARET K. V. DACIE, P. GRAMMATICOS²
and J. COUTSIS³

In late July and early August 1980 we were able to revisit some of the areas in Northern Greece where we had collected on previous occasions earlier in the year (Dacie *et al.*, 1979). Based at Kallikratia, near Thessaloniki, we travelled first via the Mount Olympos area to Kastoria in N. W. Greece where we collected in the mountains near-by on the 23rd July. On the 29th July we collected in the hills north of Alexandroupolis; on the 30th July we set out for Drama, travelling by way of Komotini, Xanthi, Stavroupolis and Paranestion, undertaking some wayside collecting en route. On the 31st July and 1st August we collected in two mountainous areas north of Drama. We revisited the Kastoria area on the 5th and 6th August and the mountains near Florina on the 7th August and finally collected en route from Florina to Thessaloniki on the 8th August. In all we noted 123 species. The following were of the greatest interest to us.

Papilionidae

Parnassius apollo L. A few specimens were seen near Kastoria.

Pieridae

Pontia chloridice Hübner. A few worn specimens were seen in the dry scrub-covered hills north of Alexandroupolis on the 29th July, where we had found the species to be quite common in fresh condition on the 30th June 1978.

Colias libanotica heldreichii Staudinger. Worn specimens were not uncommon, flying in association with *Pseudochazara cingovskii* Gross (see below), in a steep rocky area near Kastoria at about 1000 m. We noted the presence of its foodplant *Astragalus parnassi* Boiss.

Colias balcanica Rebel. A few worn specimens were captured in an open sub-alpine meadow near Florina at about 1700 m.

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Lycaenidae

Agrodiaetus damon D. and S. A large colony in fresh condition was found in an open sub-alpine rocky terrain in the mountains near Kastoria at about 1400 m.

Lysandra coridon Poda. This species was found to be common and widely distributed and was noted from Mt. Olympos, near Xanthi, north of Drama, near Kastoria and near Florina. Males were in fresh condition and only a few females were seen; one was blue (? *syngrapha* Kefestein).

Nymphalidae

Apatura ilia D. and S. A few specimens were seen in two localities near Kastoria. One female *f. clytie* was netted.

Neptis sappho Pallas. One specimen was netted north of Drama where two specimens had been seen on the 30th June 1976. Two further specimens were caught between Xanthi and Paranestion at about 250 m. This species clearly is established in Northern Greece.

Satyridae

Melanargia russiae japygia Cyrillo. A colony of this species, mostly rather worn, was found in a sub-alpine flowery meadow in an open mountainous area near Florina at about 1700 m, flying with many other species, including *Boloria graeca* Staudinger, *Colias balcanica* Rebel and *Erebia ottomana* Herrich-Schäffer.

Neohipparchia statilinus Hufnagel. This species was identified in only one locality – a dry stony upland area between Florina and Edessa where *H. delattini* Kudrna had been caught in early July 1976. *Neohipparchia fatua* Freyer seems to be much more widely distributed. We identified colonies of the species near Thessaloniki, Alexandroupolis, Drama and Kastoria.

Pseudochazara cingovskii Gross. This species was found in fair to fine condition to be not uncommon flying over relatively open steep rocky slopes of scrub and scree in a localized area in the mountains near Kastoria at about 1000 m. The insects appear to be identical with those caught by Brown further south on Mount Smolikas and named ssp. *tisiphone* (Brown, 1980).

Erebia euryale Esper. We found a colony of this species in fresh condition in a clearing in a mainly coniferous forest in a mountainous locality north of Drama at about 1450 m.

Erebia aethiops Esper. A colony of this species was found on a more open mountainous grassy terrain at a slightly lower altitude a few km. from the colony of *E. euryale* Esper. We caught *E. oeme* Hübner in late June 1978 in the same area.

Erebia ottomana Herrich-Schäffer. A large colony of this species was found in an open sub-alpine meadow in a mountainous area near Florina at about 1700 m. Almost all the specimens netted were found to be worn.

Hesperiidae

Pyrgus cinerae Rambur. This fine species in fairly fresh condition was found to be widely distributed and not uncommon in the Kastoria area; it was also identified near Kirotos, en route between Mt. Olympos and Kastoria.

Pyrgus armoricanus Oberthur. This was the commonest *Pyrgus* species; we identified it almost everywhere we collected between Alexandroupolis and Kastoria.

Hesperia comma L. This species appears to be widely distributed but only scattered specimens were seen. We noted it on Mt. Olympos, north of Drama and near Kastoria.

References

- Brown, J., 1980. On the status of a little known Satyrid butterfly from Greece. *Entomologist's Rec. J. Var.*, **92**: 280-281.
- Dacie, J. V., Dacie, M. K.V., Grammaticos, P., Higgins, L. G., & Higgins, N., 1979. Butterflies in Northern Greece: June – July, 1978. *Entomologist's Rec. J. Var.*, **91**: 311-314.

Rearing and Studying the Praying Mantids by G. L. Heath. Cover and 15pp. (including 7 black and white plates). Amateur Entomologists' Society Leaflet No. 36, 1980. Obtainable from A. E. S. Publications, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS. Price £1.50 plus 20p post.

According to the author there are many different species of mantis, and that breeding them presents a continual challenge, because what suits one species may not suit another. For this reason he suggests that breeders should keep precise records of the results of their breeding experiences as the information on the subject is limited.

The author describes in this pamphlet methods for species that he has successfully bred, and treats of the subject under the headings of General Description, The Ootheca, Sources (of mantis material), Care of Oothecae, Nymphs, Adults and Types of mantis likely to be encountered.

NOTES ON *MOMPHA NODICOLELLA* FUCHS
(LEP.: MOMPHIDAE)

21

By A. M. EMMET *

This species was placed on the British list on the evidence of three specimens captured by Buxton at Westerham, Kent on the 24th of June, 1915 (Wakely, 1944-45). One of these was presented to the British Museum (Natural History) and was later found to be misidentified *Mompha subbistrigella* (Haworth) ([Cockayne], 1951). The other two are lost and without evidence to the contrary they must be considered to have been likewise *M. subbistrigella*.

The first authentic record was made by the late S. Wakely in 1950. On the 2nd of September he found a number of galls in stems of rosebay willowherb (*Epilobium angustifolium*) at Oxshott, Surrey. One of these was still tenanted and produced an adult on the 5th of October (Wakely, 1951a). During the next few years, Wakely and L. T. Ford found more galls at Oxshott and also on Ockham Common and Mickleham Down; they reared moths from these and also caught adults at Horsley in late April. All these localities are in Surrey. Larvae were found from late May onwards just into September and they concluded that the species had a single brood extending throughout the whole summer (Wakely, 1951b; 1953; 1954; 1957; 1958). Ford (1958) described it as univoltine and Emmet ([1978]) followed his opinion.

The record of this species in an East London churchyard (Plant, 1980) offered a convenient locality for further study and I was also desirous of checking the determination for which I had been responsible, since this had been challenged on the grounds that the situation was improbable. Accordingly, my wife and I visited the churchyard on the 3rd of July, 1981. We had thought from Colin Plant's account that the moth might be common but we certainly had not expected the profusion which we found. There are large stands of rosebay and a high proportion of the stems (possibly as many as one in three) were attacked. Some stems held as many as six galls and we later found that about a quarter of the galls harboured more than one larva. We should have made our visit a week earlier, since most of the larvae had already gone. We gathered 12 stems, holding about 30 galls. Eight larvae emerged from these in the next 24 hours, all of which produced adults from the 18th-20th of July; there were no parasites.

A remarkable feature of the larval feeding is that it appears to have no adverse effect on the plant, which grows to full size and flowers normally however many galls are present. Stem-feeding larvae frequently cause drooping and the closely related *Mompha divisella* Herrich-Schäffer causes branching above the gall (Ford, 1949). The gall of *M. nodicolella* when opened reveals a surprisingly small excavation in relation to the size of the larva. The gall is caused by the plant's replacement of the tissues eaten by the larva and it appears that the plant keeps just ahead by producing more

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new tissue than the larva can eat. Wakely (1951b) recorded the galls mostly on small, low plants which had not flowered; in East London they were on full-sized plants at heights ranging from 1-4 feet from the ground. The stems redden with age and the presence of a gall causes this to happen prematurely at that point, a character which renders it very conspicuous.

When the larva is full-fed, it chews out a neat hole in the side of the gall and emerges through it prior to pupating externally. A number of galls were found in which there was already a hole, but this had been covered with a thin film of silk under which a larva was visible. At first it was supposed that this was to protect the larva during a period of rest between eating out the hole and quitting the gall, but later, after aborted galls had been dissected and some found to contain two dead larvae, it was realised that the seal was made by a second larva for protection until it too was ready to leave. It has been stated above that the excavation is small. The working in galls occupied by two larvae was noticeably larger but even then the protective strategy adopted by the plant seems to work effectively.

Bradley (1951) describes the imago and Meyrick (1928) gives an excellent brief description of the wing pattern, though I do not agree with his statement that the abdomen beneath is whitish towards the apex only. I cannot recognise the species in Mr S. N. A. Jacobs' coloured figure (Wakely, 1944-45, Pl. 5, fig. 5; [Agassiz], 1978, Pl. 12, fig. 5). His drawing was made from a continental specimen and I suspect that it is not the species we have in Britain. I would never accuse Jacobs of inaccurate draughtmanship.

There are gaps in our literature in the account of the life history. The egg is presumably laid on the stem of the foodplant, but I could not find it; possibly it is placed in the axil of a flower or a leaf. One would expect to see traces of a gallery leading inwards to the centre of the stem, but I failed to find this in about 30 dissections; the new tissue which swells the stem possibly envelopes this working. The larva, on leaving the gall, is bright crimson-red, paler between segments; head, divided prothoracic plate and small anal plate brown. The pupa is pale yellowish brown. Ford (1957) describes the cocoon as thick; "thick" is a relative term, but since the pupa is clearly visible within I would regard it as an overstatement. Wakely (1953) says that "the white spun silk cocoon is of a sticky nature and inclined to adhere to one's fingers"; this tallies with my own observations. In captivity the cocoon is spun in tissue; the site in the wild is probably leaf-litter.

Although *M. nodicolella* has always been described as univoltine, the evidence suggested that it has two generations. A second visit to the churchyard with the Revd. D. J. L. Agassiz on the 21st of August gave an opportunity to check this hypothesis.

We observed adults gyrating on tombstones in the manner described by Colin Plant; the purpose seems to be to test the substrate before settling down to roost. David Agassiz also found as many as seven larvae crawling on the tombstones, indicating that they were plentiful. Yet, surprisingly, we found hardly any fresh galls. The few we observed were near the tips of the small branches

which sometimes occur high up amongst the flowers. Then David noticed small holes in the seedpods, and these pods when opened were found to contain larvae corresponding to those of *M. nodicolella*. Apart from the hole, there was no indication that a pod was tenanted. These pod-feeding larvae were present in great profusion.

At first we thought that this different method of feeding indicated a different species, but more mature reflection suggested otherwise. It was improbable that two species of *Mompha* would occur so abundantly in the same urban locality. Moreover the larvae were not eating the seeds but the internal stem to which they were attached; this pabulum probably differs little from the tissues of the main stem. One speaks loosely of the larva making a gall, but it is, of course, the plant which makes it. It probably cannot make one in a seedpod. It can only do so in the stem during the active vegetative period, and the reason why new galls were confined to the slender branches of the flower-head was that it was only in that part of the plant that growth was still taking place. It is even possible that other larvae were feeding unobserved in the stems without any gall being produced, but this is conjecture. What is certain is that in August the preferred situation for feeding is in the pods, for the adults, which began to emerge in mid-September, proved that both the gall- and pod-feeders alike were *M. nodicolella*. It is interesting that the larvae feeding in pods were heavily parasitised, whereas those in galls appeared to be immune.

The entry for species no. 851 in *The Field Guide to the smaller British Lepidoptera* needs to be rewritten as follows:—

O. On *Epilobium angustifolium*.

L. 5-6; 7-8. First generation in the stem, making a gall or swelling, usually in the flowering part of the stem; second generation in a gall high up or, more commonly, in a seedpod where its presence is betrayed by a small hole.

P. 7; 8-9. In a viscous silken cocoon spun amongst detritus on the ground.

I. 7-8; 9-5. The generations tend to overlap; the second overwinters.

With regard to distribution, Wakely's Surrey localities have already been mentioned. He also found it in Camberwell, south-east London (Wakely, 1970). He took me to the site which was the derelict garden of a house due for demolition, and I reared six moths from the galls we found. The habitat much resembled that at East Ham. Ford found galls in Broadwater Forest, Sussex and H. J. Burkill said he saw them "once in Yorkshire some years ago" (Wakely, 1951b). This last record is too indeterminate to be accepted. J. M. Chalmers-Hunt (1970) and A. A. Allen (1975) recorded *M. nodicolella* from west Kent. I have further Essex records from Wanstead Park, Grays Chalk Pit, Writtle and Saffron Waldon, and have also found galls at Freckenham, west Suffolk. The species is therefore confirmed in vice-counties 14, 16, 17, 18, 19 and 26. It has probably been taken more widely but I do not think the records have been published. The galls are easy to find and records can be made from them even if they are vacated.

Though local, this species can be abundant where found. About ten flower-heads collected at East Ham on the 21st August produced approximately 46 moths and 20 parasites; the galls taken on the same day yielded only four moths.

References

- [Agassiz, D. J. L.], 1978. *Illustrated papers on British Microlepidoptera*, iv, 170pp., 12 col. pls. London.
- Allen, A. A., 1975. Three notable microlepidoptera at Blackheath, N. W. Kent. *Entomologist's Rec. J. Var.* **87**: 27-28.
- Bradley, J. D., 1951. A comparative study of four European species, including one new species from Britain, belonging to the genus *Mompha* Huebner (Lepidoptera; Lavernidae). *Entomologist's Gaz* **2**: 173-178, 1 pl., 12 figs.
- Chalmers-Hunt, J. M., 1970, *Mompha nodicolella* Fuchs (Lep.: Tineina) in Kent. *Entomologist's Rec. J. Var.* **81**: 301.
- [Cockayne, E. A.], 1951. Notes and Observations — *Mompha nodicolella* Fuchs in Surrey. *Ibid.* **63**: 81-82.
- Emmet, A. M., [1978]. *A field guide to the smaller British Lepidoptera*, 271 pp. London.
- Ford, L. T., 1949. *A guide to the smaller British Lepidoptera*, 230 pp. London.
- , 1958. *Supplement to a guide to the smaller British Lepidoptera*, 15 pp. London.
- Meyrick, E., 1928, *A revised handbook of British Lepidoptera*, 914 pp. London.
- Plant, C. W., 1980. Unusual behaviour of *Mompha nodicolella* Fuchs. *Entomologist's Rec. J. Var.* **92**: 255-256.
- Wakely, S., 1944-45. Notes on the genus *Mompha*. *Proc. Trans. S. Lon. ent. nat. Hist. Soc.* **1944-45**: 81-84.
- , 1951a. Occurrence of *Mompha nodicolella* Fuchs in Surrey. *Entomologist's Rec. J. Var.* **63**: 49-50.
- , 1951b. Some observations on *Mompha nodicolella* Fuchs. *Ibid.* **63**: 274-275.
- , 1953. Further notes on *Mompha nodicolella* Fuchs. *Ibid.* **65**: 6.
- , 1954. Notes on collecting in 1953. *Ibid.* **66**: 107-110.
- , 1957. 1956: collecting notes and observations. *Ibid.* **69**: 153-157.
- , 1958. Notes on the Tineina. *Ibid.* **70**: 192-195.
- , 1970. *Mompha nodicolella* Fuchs, etc., at Camberwell. *Ibid.* **81**: 88.

A SECOND MONMOUTHSHIRE RECORD OF ARHOPALUS RUSTICUS L. (COL: CERAMBYCIDAE). — Mr. A. A. Allen's recent note on the southward extension of this longicorn's distribution in Britain (*Ent. Rec.* **93**: 166) prompts me to record the occurrence of a second example of this species on Aug. 27th 1980 at Usk. This insect, as did the one a year previously, came to my garden m.v. trap.

The lengths of these specimens were respectively 25 mm. and 22.5 mm. — Dr. G. A. NEIL HORTON, Plas Newydd, Usk, Gwent.

CONTRASTING RESULTS IN ASSEMBLING
EXPERIMENTS USING *ORGYIA THYELLINA*
BUTLER, *O. RECENS* HÜBNER AND
O. ANTIQUA L.

By SUSANNAH GREENBERG¹, ALBERT H. WRIGHT² and
SIR CYRIL CLARKE, K.B.E., F.R.S.³

In a previous paper (Clarke, 1979) it was reported that females of the Japanese Vapourer moth *Orgyia thyellina* readily assembled males of *O. antiqua* in this country. Matings took place and eggs were laid but none hatched, though fertile offspring from this mating are reported in the literature. On the other hand we found that the reciprocal cross, female *O. antiqua* X male *thyellina*, was fertile, and hybrid insects were obtained.

The next step was to find out whether there was similar pheromone activity between *O. thyellina* females and *O. recens* males and whether species hybrids could be obtained. Here the difficulty was that *O. recens* has become rare in UK and at first no definite reports of it could be obtained during the past few years in its usual localities in north-east England. However, in June 1981 one of us (A.W.) contacted C. A. C. telling him that he and a colleague had found a few larvae of *O. recens* near Doncaster, and this meant that a locality had been identified where assembling tests could be carried out. The third member of the team (S.G.), who was found (through the Institute of Biology) to be interested in the genus *Orgyia*, collected from C. A. C., at his home near Liverpool, many virgin females of *O. thyellina*, together with cocoons and large larvae, and took them to Doncaster so that detailed experiments could be made. A.W. and S.G. suspended the virgin females in two hanging cages in the hedgerows of a field near the sites on which the *O. recens* larvae had been found. Virgin *O. recens* females derived from the larvae mentioned earlier were also exposed and the table gives the details of the tests carried out over 44 days.

It will be seen that *O. recens* females assembled *O. recens* males, some matings took place and fertile eggs were subsequently laid. Conversely, *O. thyellina* females by themselves never assembled *O. recens* males, though the concentration of the pheromone must have been high since there were always 20 or more virgin females in the assembling cages. Also matings between *thyellina* females and *recens* males were not obtained when the moths were put together in a cage, even though the females were seen to "call". The non-assembling of *O. recens* by *thyellina* might appear to be at variance with the work of Priesner (Priesner, 1975) who found full reciprocity of pheromone activity in the genus *Orgyia*, using the electro-antennogram technique. However, there is no

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Locality number	Dates 1981	Virgin females present <i>O. thy.</i> (= <i>O.t.</i>) always in large nos. 20-30 ♀♀	Approx. times	Weather conditions	Results	Remarks
1	21.7	—	15.30-17.30	Cool, windy, a little sun, a little rain.	Nil assembled	During the experimental period four virgin <i>O. recens</i> ♀♀ (derived from wild larvae) were exposed at locality 1 in open pill-boxes. Of the 4 females two laid fertile eggs. They had evidently assembled <i>O. recens</i> males when not under observation. One female did not lay and the other disappeared.
1	24.7	—	?	"	Nil assembled	
1	25.7	—	14.30-16.15	"	Nil assembled	
1	27.7	<i>O.t.</i>	13.00-15.30	Sunny, Warm, light breeze	Nil assembled	
2	29.7	<i>O.t.</i>	13.00-17.00	"	4 <i>O. recens</i> ♂ assembled	<i>O. recens</i> box on ground adjacent to <i>thyellina</i>
1	30.7	<i>O.t.</i>	13.15-13.45	"	Nil assembled	♀♀ moved to locality 3 at 13.45
3	30.7	<i>O.t.</i>	14.00-17.00	"	Nil assembled	
2	1.8	<i>O.t.</i>	13.30-16.00	"	Nil assembled	
2	2.8	—	13.30-17.30	"	1 ♂ <i>O. recens</i> assembled	
4	4.8	<i>O.t.</i>	13.15-17.15	"	Nil assembled	
2	11.8	<i>O.t.</i>	13.15-17.00	"	Nil assembled	
2	12.8	<i>O.t.</i>	13.00-16.00	"	1 <i>antiqua</i> ♂ assembled	Very early date for <i>antiqua</i> in S. Yorkshire.

evidence that *O. recens* assembles *antiqua*, or *vice versa*, and it would be highly disadvantageous to both species if this were to happen. Natural selection therefore is likely to have evolved much more sensitive differences than those detected by the antennogram, and it is not therefore unexpected that *O. recens* behaves differently from *antiqua*. Furthermore, although *antiqua* and *recens* superficially resemble each other closely, yet they have different chromosome numbers (Robinson, 1971), the haploid number in *thyellina* being 11 and in *recens* 30 (in *antiqua* it is 14).

Our findings are only tentative since *O. recens* remains a scarce insect even in the Doncaster region, but our results strongly suggest that *O. thyellina* behaves quite differently with respect to assembling *O. recens* from what we and others have found when the males are *antiqua*. It would be most interesting to carry out electro-antennogram studies on the three species.

Since large stocks of *O. recens* larvae have been obtained from the Doncaster pairings and we also have many *thyellina* larvae it should be possible to repeat the experiments on a bigger scale in 1982.

Acknowledgments

We thank Dr. J. R. G. Turner, PhD, and Mr. G. Hyde for their help in various aspects of the work.

References

- Clarke, Sir Cyril, 1979. Some observations on *Orgyia thyellina* Butler and *Orgyia antiqua* (L.) *Ent. Rec.*, **91**: 315-316.
- Priesner, E. 1975. Electroantennogram responses to female sex pheromones in five genera of Lymantriidae (Lepidoptera). *Z. Naturforsch.* **30**, c. 676-679.
- Robinson, Roy, 1971, *Lepidoptera Genetics*, Pergamon Press, Oxford, p. 687.

A Label List of Butterflies – North, Western and Southern Europe by P. W. Cribb. Cover and 20 leaves. Amateur Entomologists' Society Pamphlet No. 11. Revised 1981. Obtainable from A. E. S. Publications, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS. Price £1.50 plus 20p. post.

This checklist covers those species in the latest (1980) edition of Higgins and Riley, *A Field Guide to the Butterflies of Britain and Europe*, apart from North African species.

Some sub-species and forms have been included, but many others omitted including a number of British sub-species. English names are given, mainly in accordance with those in Higgins and Riley, and the years of original descriptions have been included after the authors' names for genera, some species and some sub-species. The list appears remarkably free from misprints, the only one noticed being on page 9 where Kudrna has been misspelt Kurdna.

Printed on one side of a page only so that it may be cut up, the list has been designed mainly for cabinet use.

THE DIPTERA (CALYPTRATAE) OF THE SANDWELL VALLEY, WEST BROMWICH

By M. G. BLOXHAM*

(Continued from Vol. 93 page 188)

- Family MUSCIDAE
 Subfamily ACHANTHIPTERINAE
Achanthiptera rohrelliformis (R.-D.) Several specimens 6, 7.
- Subfamily MUSCINAE
 Tribe MUSCINI
Polietes albolineata (Fall.) Frequent 8.
P. lardaria (Fabr.) Common 6 - 9.
Mesembrina meridiana (L.) Common 6-9.
Dasyphora cyanella (Mg.) Common 4-8.
Orthellia viridis (Wied.) Common 6-9.
Morellia aenescens (R.-D.) Common 7, 8.
M. hortorum (Fall.) Common 5, 6.
M. simplex (Loew) Common 8.
Musca(ss) domestica (L.) Common 7-10.
Musca (Enumusca) autumnalis (Deg.) Common 7-9.
- Tribe HYDROTAEINI
Azelia cilipes (Hal.) 30-9-79.
A. macquarti (Staeg) Common 5, 6.
A. zetterstedti (Rond.) 8-7-80.
Alloeostylus diaphanus (Wied.) Frequent 7-10.
A. simplex (Wied.) Several specimens 9.
A. sudeticus (Schnabl) Frequent 7-9.
Trichopticoides decolor (Fall.) Common 5-7.
Drymeia hamata (Fall.) Common 8.
Dendrophaonia querceti (Bouche) Several specimens 8-10.
Ophyra leucostoma (Wied.) Frequent 6-8.
Hydrotaea armipes (Fall.) 29-5-80.
H. bimaculata (Mg.) Frequent 6-9.
H. dentipes (Fabr.) Common 4-8.
H. irritans (Fall.) Common 7, 8.
H. occulta (Mg.) Frequent 5.
H. parva (Meade) 12-8-79.
H. similis (Meade) Several specimens 9.
Muscina assimilis (Fall.) Very common 6-9.
M. pabulorum (Fall.) Common 6-9.
M. stabulans (Fall.) Common 6-9.
- Subfamily PHAONIINAE
Lophosceles cinereiventris (Zett.) Frequent 5-10.
L. mutatus (Fall.) 1-5-80.
Phaonia basalis (Zett.) Common 7, 8.
P. errans (Mg.) Common 5, 6.

*1 St. Johns Close, Sandwell Valley, West Bromwich, W. Midlands

- P. fuscata* (Fall.) 16-7-79.
P. gobertii (Mik) Common 6-9.
P. halterata (Stein) Common 5-8.
P. incana (Wied.) Common 5-9.
P. pallida (Fabr.) Frequent 6-8.
P. palpata (Stein) Frequent 8-10.
P. perdita (Mg.) Several specimens 5-7.
P. populi (Mg.) Several specimens 9.
P. rufipalpis (Macq.) Several specimens 8.
P. serva (Mg.) several specimens 6.
P. signata (Mg.) Common 6-10.
P. trimaculata (Bouche) Several specimens 6, 7.
P. varaegata (Mg.) Very common 4-9.
P. viarum (R.-D.) Common 6-8.
P. vittifera (Zett.) Several specimens 8.
Helina atripes (Meade) Common 5-9.
H. depuncta (Fall.) Common 7, 8.
H. duplicata (Mg.) Common 5-10.
H. impuncta (Fall.) Common 7-9.
H. laetifica (R.-D.) Common 3-10.
H. lasiophthalma (Macq.) Several specimens 7.
H. obscurata (Mg.) 15-6-80.
H. pertusa (Mg.) 30-8-79.
H. quadrum (Fabr.) Several specimens 8, 9.
H. setiventris (Ringd.) Common 7-9.
Gymnodia humilis (Zett.) Several specimens 6.

Subfamily MYDAEINAE

- Hebecnema affinis* (Malloch) Common 5-9.
H. nigricolor (Fall.) 11-9-77.
H. umbratica (Mg.) 29-5-80.
H. vespertina (Fall.) Several specimens 4.
Mydaea ancilla (Mg.) Frequent 7-10.
M. electa (Zett.) 29-5-80.
M. scutellaris (R.-D.) Common 7-10.
M. tincta (Zett.) Several specimens 8.
M. urbana (Mg.) Several specimens 9.
Myospila meditabunda (Fabr.) Common 5-7.
Graphomya maculata (Scop.) Common 7, 8.
G. picta (Zett.) Several specimens 7, 8.

Subfamily LIMNOPHORINAE

- Spilogona denigrata* (Mg.) Several specimens 7, 8.
S. vana (Zett.) Several specimens 6-10.
Calliophrys riparia (Fall.) Frequent 6-8.
Limnophora maculosa (Mg.) Common 6-10.
Pseudolimnophora triangula (Fall.) Common 6-9.
Lispe tentaculata (Deg.) Several specimens 8.

Subfamily COENOSIINAE

- Lispocephala alma* (Mg.) Several specimens 4, 5.
L. erythrocerata (R.-D.) Several specimens 4.
Macrorchis meditata (Fall.) Several specimens 7.
Allognota agromyzina (Fall.) Common 7-10.

- Coenosia intermedia* (Fall.) Frequent 7.
C. lineatipes (Zett.) Several specimens 9, 10.
C. tigrina (Fabr.) Common 6-10.
C. tricolor (Zett.) Common 6, 7.

Discussion

Tachinidae

The locality seems to be attractive to tachinid flies and furnishes some interesting records. The fauna in general may be said to conform to expected patterns with regard to distribution data at present available, a good range of species, with a few northern and southern elements being present, examples of these being *Ernestia truncata*, a fly more common on northern moorlands and *Servillia ursina* which, together with *Medina luctuosa*, is approaching the northern limits of its range here.

Certain species are to be found in considerable numbers in most years, *Pelatachina tibialis* and *Lypha dubia* being usually common on hawthorn in May, while *Platymya fimbriata* and *Phryxe nemea* are normally plentiful throughout June, July and August. In the damp areas where *Tipula* species abound, *Siphona* species are often fairly numerous but accurate identification of these will necessitate the use of more recent literature than that employed here. Other tachinids catching the eye are *Eriothrix rufomaculata dimano*, which is abundant during August and September of most years and *Ernestia consobrina*, the latter species being probably the predominant representative of the tribe here, its congeners having been recorded somewhat less frequently. Probably Van Emden (1954) was not aware of the existence of the record for *E. consobrina* published in the Transactions of the North Staffs Field Club. (*op. cit.*), for he named southern and northern localities for the fly, but none for the north and central midlands. The record cited (Cannock, Staffs), together with the present one, suggest a more continuous distribution for this insect. Of the less common tachinids found, the most notable are *Allophorocera ferruginea* and *Wagneria gagatea*, the last named having been previously recorded from four localities only.

Morphologically, the tachinids discovered seem to vary little from normal, an exception being the earwig parasite *Digonochaeta spinipennis*, of which a specimen has been discovered with the greater part of the apical cross vein absent. Interestingly enough, this is also a characteristic feature of *Ocytata pallipes*, another fly with the same host.

Rhinophoridae

The small family Rhinophoridae contains flies having most interesting life histories, several being parasitic on woodlice. Three of these confirmed woolouse parasites, *Phyto discrepans*, *Rhinophora*

lepada and *Paykullia maculata* have been recently discovered in the valley and it is possible that careful observation of the numbers of these insects may in future yield useful information on the size of woodlouse populations which, given the ravages of Dutch Elm disease during the past 20 years, with the consequential presence of large amounts of dead timber, could well be expected to increase, with a proportional rise in the number of associated parasites. It is significant that Sutton (1972) notes that Beding found *P. maculata* to be the most common parasites of woodlice and this would lead one to expect it to be the species most frequently encountered in the field. Apparently this is not so, for Van Emden (*op. cit.*) records it as one of the rarer flies in this particular group, a contradiction that merits further investigation. In general, the flies are not particularly conspicuous or active in the field and an instance of interesting behaviour has been noticed when males of *Phyto discrepans* have been found on wooden fencing rails, for unlike the majority of other Diptera, they do not at once fly upwards into a tube placed over them, but tend to flatten themselves against the surface of the wood, which they leave with some reluctance.

Sarcophagidae

The subfamilies Miltogramminae and Macronychiinae with genera often having hymenopterous associations, have several representatives in the valley, some being conspicuous, while others are unlikely to be noticed without careful searching. Into the first category come *Metopia argyrocephala* with twinkling white orbits, *Miltogramma punctatum*, which is sometimes numerous in sandy places, occasionally in company with *Leucophora cinerea* (Anthomyiidae), while *Brachicoma devia*, in spite of close superficial resemblance to common sarcophagids, usually occurs in large enough numbers to find its way into the net on several occasions during a year. The second category includes *Macronychia ungulans*, which seems to be confined to woodlands glades and paths where it is elusive and scarce; *Ptychoneura cylindrica*, a small fly taken once on a fallen birch trunk and *Amobia signata*, which has been captured once on fallen timber and once on a woodland path. Certain sarcophagine species, notably *S. carnaria* and *S. incisilobata* are amongst the most frequently encountered flies in the locality, while *S. crassimargo*, *S. dissimilis* and *S. haemorrhoea* occur in some numbers on more marshy sites.

(To be continued)

LARVAE OF THE LEAST ARCHES: *NOLA CONFUSALIS* H.-S. AND *ROESLERSTAMMIA ERXLEBELLA* F. ON LIME. — It may be of interest to record that while beating flowers of *Tilia* sp. for *Eupithecia egenaria* H.-S. at Lynford, Norfolk on the 19th July 1981, in addition to *egenaria* larvae, I beat out from the blossoms about a dozen larvae of *Nola confusalis* and a number of larvae of *Roeslerstammia erxlebella*. The latter in due course produced moths, and the *confusalis* are at present in their characteristic boat-shaped cocoons. — J. L. FENN, 4 Pearces Close, Hochwald, Thetford, Norfolk.

FOUR NEW SOUTH AFRICAN BUTTERFLIES

By C. G. C. DICKSON, M.Sc.*

(Continued from Vol. 93 page 221)

LYCAENIDAE

A new *Lepidochrysops* Hedicke from the Hantam's Berg, C. P.

The first specimen of this insect, a female, was secured by Mr. C. W. Wykeham on a small peak of the Hantam's Berg, N. of Calvinia, on 14th October, 1976, during an outing with the present writer. After a careful examination of the specimen it was concluded that it probably represented a new species (or subspecies) and Mr. Wykeham succeeded in obtaining two males and a further female when returning to the locality on 24th October, 1977, specially for this purpose. All the foregoing examples were, however, imperfect, and it was not until October, 1978, that the discoverer of this butterfly finally caught entirely fresh specimens. A description follows hereunder.

Lepidochrysops jamesi claassensi subsp. nov.

(In the absence of full proof, to date, of a specific difference, this butterfly is being treated in the meantime as a subspecies of *L. jamesi* Swanepoel (1971).)

Male (Upperside)

General colour golden-brown, the wing-surface having a decided sheen in certain lights. Basally, narrowly blackish. There is an indistinct discocellular marking in forewing, darker than its background. Some submarginal marking more or less discernible in hindwing, with usually a definite dark spot in area 2; and this marking as a whole sometimes faintly encircled by lightish scaling (very dull orange in the case of the spot mentioned), which may be more apparent outwardly. (In one paratype all such marking is virtually absent, apart from a small indistinct spot in area 2; and is very faint in the female allotype). A fine blackish marginal line present, wider in hindwing. Cilia white, with spaces of dark brown at ends of veins, which vary in their length, especially in hindwing, and may partly or largely obscure the white spaces, while the latter themselves may, in places, be terminally dark, or may have an intermediate dark line.

Underside

Ground-colour of all wings rather greyish-brown (but very considerably overlaid with white scaling and other white marking, in hindwing); and there is a little white scaling, discally, in the forewing.

*"Blencathra", Cambridge Avenue, St. Michael's Estate, Cape Town.

Forewing. All the marking of the dark and light type of the *Lepidochrysops methymna* (L.) group is reduced in size and distinctness. Discocellular, rather lunular mark, with its white edging, relatively small in itself. Postdiscal series evenly curved from areas 2 to 6, the first (or lowest) component of the series in 1b decidedly more outwardly placed than the marking above it in 2. This series more than half-way between discocellular mark and the submarginal series, which is outwardly edged by blunt, not very well defined, white chevrons and inwardly by partly concave white scaling. Very narrow, pointedly-elongate (or principally so) dark marking beyond the last-named series edged inwardly with white scaling which continues, between this marking, to the white portions of the cilia itself. Cilia basically as on upperside, but with short incisions of the white portions entering the dark spaces, next to the wing-margin, and some dark edging outwardly.

Hindwing. Much suffusion of white scaling present in inner half of the wing between the basic marking of the general *methymna* type in this wing. The wing-surface is, however, virtually devoid of such suffusion below the costa and above vein 8. A very small blackish, outwardly white-edged marking present basally. The usual (for the *methymna* group) three sub-basal blackish spots occur in area 1a, the cell and area 7, the first small and the second elongated; while there is a relatively large black spot in area 1b and another in 7, and with the discocellular blackish marking of somewhat lunulate form. The six transverse discal spots, in areas 1b to 6 blackish to dark brown, and varying in size and shape; that in 2 well basad of the others, the smallest in 3 and the one in 4 markedly elongated in the holotype itself, while that in 6 is considerably more basad than the adjoining one. The dark brown submarginal marking from areas 2 to 7 bounded inwardly by largely well-formed, white sagittate markings, with the apices of some of them touching or nearly touching the outer white edging of some of the discal spotting. In area 1c the component representing part of the submarginal series is reduced in size and is not of a clearcut shape, though "doubled". There is a greater space between the submarginal series and the wing-margin, than in the forewing, with white-surrounded spaces occurring here (the white, pronounced outwardly); and a black spot in area 2 with a thin, approximate crescent or semi-circle of light metallic-bluish scaling, with the break in the semi-circle occurring inwardly; but in some areas there is only "haphazard" scaling here. Some similar scaling occurs on a minute black spot in area 1c. The elongated dark markings in contact with the wing-margin are at least partly joined by very fine dark lines. Cilia with the white spaces less pronounced than in forewing, owing to more encroachment of the dark portions. Though at first sight appearing to be largely dark-edged, close examination reveals an at least partial fine white edging to the cilia, with a dark line removed a little from the extreme edge — this applying in part also to the cilia of the forewing.

Length of forewing: 15.0 — 16.75 mm. (the former measurement, in holotype).

Female.

The forewing is less acute apically than in the male.

Upperside.

Similar to male; but the female allotype, anyway, is lighter and more golden in colouring than the male holotype. The allotype also shows only the barest trace of a dark spot in area 2 (without any bluish scaling), and which is not much more apparent than the indications of other submarginal spots in this wing.

Underside.

Like that of male. In the allotype, in all wings, the main spotting is smaller than in the male holotype (the two lowest spots in forewing, vestigial), but this feature is variable, individually.

Length of forewing: 15.25 – 17.75 mm. (the former measurement in holotype).

In both sexes the thorax is black above, with brown to fawn-coloured hair and, beneath, bearing greyish hair. Abdomen above blackish to rather dark golden-brown, which tone continues down the sides to the mainly whitish to light grey ventral area, and with the segmental divisions laterally white or whitish. Legs mainly greyish-white, with a silvery metallic sheen; the tarsi finely ringed with black, except in the case of the forelegs of the male. Head black or blackish frontally and with dark hair above. Eyes black, almost circled with shining white scales. Palpi blackish, with greyish-white spinous scaling on sides and beneath. Antennae black, ringed with white, with the white accentuated along lower portion of shaft; the club with a white or whitish streak outwardly, which curves round the upper outer portion just before the tip, and the club deep rufous-coloured on its under-side.

♂ Holotype, WESTERN CAPE PROVINCE: Hantam's Berg, Calvinia. 9.X.1978 (C. W. Wykeham); British Museum Reg. No. Rh. 18697.

♀ Allotype, W. CAPE PROVINCE: data as for holotype; British Museum Reg. No. Rh. 18698.

Paratypes in Coll. C. W. Wykeham: data as for holotype, 14.X.1976, one ♀ (C. W. Wykeham); 24.X.1977, two ♂♂, one ♀ (C. W. W.).

Paratype in Pringle Collection: data as for holotype, 14.XI.1978, one ♀ (V. E. and E. L. Pringle).

This insect is allied to *L. mcgregori* Pennington (*Ann. Natal Mus.* 20(2): 377-379, figs. 3, 5; 1 pl. in colour (1970) and, as already indicated, to *L. jamesi* Swanepoel (*Entomologist's Rec. J. Var.* 83(3): 97-99 (1971), but is clearly more closely related to the latter insect. In the description of the latter the colour of the upperside is stated to be dark brown with a *coppery* sheen, and if this is correct, the sheen must be different from the golden or brassy sheen of the present insect. On the basis of the original description and half-tone figures of the second insect mentioned in this paragraph, the present butterfly lacks, on the upperside, the *well-developed* orange ring of the dark submarginal spot in area 2 of the hindwing; and there are virtually no "internervular dark markings along distal margins", as mentioned for the female of the other

insect. On the underside there appears to be considerably less prominent development of the white marking in general, in both sexes and in all wings, than in the other insect, this being especially noticeable as regards certain individual components of this marking, as is apparent in a comparison with the figures concerned. From the available material, the present insect seems to be decidedly smaller than the other one, the average expanse being 30.83 mm. for males and 31.75 mm. for the females, as against 35 mm. for both the holotype and allotype of the latter (no other measurements being given with the description). A comparison of the male genitalia of the two insects has not been possible up to the time of writing.

This butterfly was discovered at one of the highest points of the Hantam's Berg, at an elevation of up to 5,447 ft. above sea-level, and flying round a rocky eminence. The flight-period appears to be short, although its full extent is not known. Perfectly fresh specimens were caught on 9th October and by the 24th of the month most if not all examples secured had clearly been out for some time; yet the Pringles have encountered, mostly worn, specimens as late as 14th November. Most specimens soon became damaged by the strong winds of this mountainous terrain.

This butterfly has been named after Dr. A. J. M. Claassens as a small token of appreciation of his meticulous and most important work on the myrmecophilous life-histories of several species of *Lepidochrysops* in the Cape Peninsula.

Most grateful thanks are due to Mr. Wykeham for his provision and even presentation of specimens for the present study.

HYPERA FUSCOCINEREA MARSH., ETC. (COL.: CURCULIONIDAE) IN S. E. LONDON. — This species (probably more familiar to many as *H.*, or *Phytonomus murina* F.) is one of the less common of the genus and seems very local; up to this year (1981) I had encountered it only in the Thames Estuary area many years ago, and then very sparingly. I was surprised, therefore, to sweep a few examples on Woolwich Common at the end of May, and two more about mid-June. The latter certainly came off tufted vetch (*Vicia cracca* L.), which may well be the principal foodplant. A curious point is that the most frequent member of the genus here previously, viz. *H. postica* Gyll., failed to turn up at all — seeming to have been replaced on the common by its close ally *H. fuscocinerea*; but as I noted it there in the year or two preceding, its apparent eclipse is probably only temporary. *H. nigrirostris* F. (cf. *Ent. Rec.* 91: 77) has been less infrequent there this season, though still always occurring singly — including a few of the brown form; whilst a fine specimen of the large *H. punctata* F., seldom seen here, was swept on the common on 25 August.

I should perhaps also mention the occurrence for the first time here of the plantain weevil *Mecinus pyrastrer* Hbst. (4 earlier and 2 later in the summer), in the same locality. Even outside the London area I find it to be far from general, despite what the books state; whereas *Gymnetron pascuorum* Gyll. and *Ceuthorhynchidius troglodytes* F., living on the same plant, are common here as, I believe, almost everywhere. — A. A. ALLEN.

Notes and Observations

A FURTHER RECORD OF *DORYTOMUS SALICINUS* (GYLLENHAL) (COL.: CURCULIONIDAE) FROM CUMBRIA. — Since recording *Dorytomus salicinus* (Gyllenhal) for the first time from Cumbria and vice county 70 Cumberland (1979, *Entomologist's Record*, 91: 27-28), I have recently discovered this rare and very local weevil in a second locality in the county. While collecting phytophagous coleoptera on Braithwaite Moss, 10km square NY22 at the North east end of Bassenthwaite Lake, Cumbria on April 4th 1981, I beat four specimens of *D. salicinus* from two somewhat isolated trees of *Salix atrocineria* Brot. growing in an open area of marshy ground and near to the edge of a small conifer wood. The *Salix* trees contained many catkins and a good number of developing leaf shoots were also present, and it is possible that the weevils were feeding on these structures and perhaps oviposition was also taking place at this time in the flowers.

I also took by beating from the above trees of willow a few specimens of the rather common *Dorytomus taeniatus* (Fabricius), and I observed that while the two species were in the net that *D. salicinus* became more active only after a very brief feining period, while *D. taeniatus* remained motionless and quiescent for a comparatively longer period and it was generally observed to walk slower.

Among other beetles collected at this site were two specimens of *Dorytomus melanophthalmus* (Paykull) also beaten from willow, and one *Anthonomus bituberculatus* Thomson, C. G. I also took the somewhat local chrysomelid *Aphthona nonstriata* (Goeze) on yellow iris. — R. W. J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria, CA28 8RF.

SAMUEL DALE'S "1704" CATALOGUE OF ENGLISH BUTTERFLIES. — John Ray and James Petiver have at least partially received their due as founders of the scientific study of insects, especially Lepidoptera, in England. Their colleague Samuel Dale (ca. 1659-1739), a Braintree, Essex apothecary and close friend and neighbour of Ray, has had relatively little notice. Dale did not attain the status of Ray or Petiver, but he contributed to both of their collections as an assiduous field entomologist, and was one of the several instigators of the eventual publication of Ray's great posthumous work, *Historia Insectorum* (London, 1710).

In the library of the Royal Entomological Society of London is Dale's copy of Martin Lister's extremely rare English edition of Johannes Godartius, *Of Insects* (York, 1682; Lisney 45; only 150 copies were printed), also *ex libris* James Francis Stephens. Bound before the printed work is a manuscript in Dale's hand, "A Cataloge [*sic*] of English Butterflies Reduced to Mr. Rays Method 1704," but containing later additions. The butterflies are described in short Latin sentences with references to published sources. The manuscript includes Dale's entries concerning other insects, and one note is dated as late as 1728. Numerous Rhopal-

cera are recognisable from Dale's descriptions, and other characterisations are now being studied so that an analysis of the manuscript can be included in a forthcoming contribution on the role of Samuel Dale in the history of British entomology. — R. S. WILKINSON, The American Museum of Natural History, New York, New York 10024.

AGONOPTERIX ASTRANTIAE (HEINEMANN) IN NORTH WALES IN 1981 — Further to my paper on *Oecophoridae* (*Ent. Rec.*, **93**:60) and that of Heckford and Langmaid. (*Ent. Rec.* **93**, 100), I found three larvae on *Sanicula* on 22nd June in mixed deciduous woods on carboniferous limestone near Llandudno (VC 49). Two were almost full fed and spun up in the tissue paper provided within five days; the third larva also well grown produced a parasite. All larvae were in the spun edge of a leaf rolled upwards as described by Heckford and Langmaid and there were signs of spinning and feeding on nearby leaves on the same or adjacent plants. In the breeding box, while the larvae remained in their original folds in daytime, other leaves were eaten and frass scattered in the box; this suggests feeding at night. Many vacated leaf folds were examined over a wide area on 22nd June suggesting that an earlier search might be more productive. As most larval spinnings were widely spaced, egg-laying may be a travelling chore in contrast to such *Agonopterix* as *heracliana* (L.), *subpropinquella* (Stainton) and *alstroemeriana* (Clerck) where a number of larvae may be found on one plant.

The moths emerged on 21st and 23rd July, and using a bee smoker on 8th August when the leaves on *Sanicula* were hidden by a strong growth of Dog's Mercury (*Mercurialis*) and Enchanter's Nightshade (*Circaea*), two faded moths were disturbed; a search with a hand lamp in another wood a week later was unsuccessful. Clearly this species has been long established in North Wales and all records from VC 49/50 and the single record from Yorkshire have come from mixed woods on limestone, for *Sanicula europaea* is mainly a calcareous plant. Of the three Tortricid pupae found in similar folds in the leaves, two were *Tortrix viridana* (L.) from oak and one was *Olindia schumacherana* (F.) which probably came from adjacent *Mercurialis* and *Circaea*; while uncertain of the *Olindia*, clearly the *Tortrix* has a labour saving purpose in using a ready made puparium. — H. N. MICHAELIS, 5 Glan y Mor, Glan Conwy, Colwyn Bay LL28 5TA.

DANAUS PLEXIPPUS L.: THE MONARCH IN WALES AND CUMBERLAND IN 1981. — A single specimen was seen and caught on 25th September on the West Cumbrian coast a few hundred yards north of Sellafield railway station. This appears to be the first record of the species for Cumberland. The insect, a female, is now in the possession of Mr. R. Savory, of Millom, but was caught by Mr. F. Downton, of Egremont.

On October 4th, my friend Dr. P. I. Clark was on holiday at Penmaenpool, near Dollgellau, Merioneth, and saw a single specimen flying round the garden for several minutes. — D. W. KYDD, "Gilgar-ran", 6 Yewbarrow Road, Ulverston, Cumbria LA12 9JS.

CACOECTMORPHA PRONUBANA HBN. (LEP.: TORTRICIDAE): LARVAL FOODPLANTS INCLUDING DAMAGE TO SKIMMIA JAPONICA THUNB. - At Dartford, Kent, on May 15, 1981, I noticed that two *Skimmia* bushes had many of their terminal shoots containing the female flowers damaged, thus preventing being formed the full complement of red berries, one of the main aesthetic attributes of the plant. The cause of the damage was found to be Tortricid larvae, and collected larvae and pupae later produced imagines of *C. pronubana*.

Search was made of other *Skimmia* bushes in the neighbourhood, and of a total of eleven, eight were found to display similar damage. Other plant species were examined for presence of *C. pronubana* larvae, especially those recorded as commonly favoured by this insect, e.g. *Euonymus japonica*, *Cupressus*, lavender and bay, but larvae were located on only three plant species other than *Skimmia* - ivy (*Hedera helix*) commonly, from which collected larvae produced rather more *C. pronubana* than the expected *Lozotactnia forsterana* Fab., and appeared widespread in contrast to the latter species: *Sedum spectabile*, one location containing several plants where almost every terminal shoot was damaged; and several bushes of small-leaved evergreen *Hebe*, the popular New Zealand shrub of which a multitude of varieties abound, although the commoner large-leaved kinds were untouched.

Many bushes of *Euonymus japonica* in this district were examined, but appeared quite free from lepidopterous larvae, although about this time I noticed that at Ilford, Essex, *C. pronubana* larvae were abundant in the terminal shoots of this shrub.

Second brood larvae in July appeared less common, although the moths from these were as usual more in evidence here flying by day than those of the first generation. Larvae were again found on the same *Skimmia* bushes, but their presence was less evident as they were on older foliage positioned lower down the stems; the same *Sedum* plants were affected, mainly older leaves nearer the base being attacked, although larvae were also within the flower panicles. Second brood larvae were also found on *Hebe* and ivy.

C. pronubana has been described as polyphagous, and certainly a vast range of larval foodplants has been recorded, although I cannot find previous reference to *Skimmia japonica*. However the above observations indicate that distinct preference is shown, and that this may vary locally. - B. K. WEST, 36 Briar Road, Bexley, Kent.

ARTIFICIAL TRANSPORTATION OF A NYMPHALID, CYNTHIA VIRGINIENSIS (DRURY). - On 3 July 1981 I was motoring northward through Union and Lycoming counties in central Pennsylvania, U.S.A., in the company of Ellen B. Wells of the Smithsonian Institution. Our automobile was a new Datsun with a highly polished finish. As we re-entered the car after a halt, a very common nymphalid, *C. virginensis* (a close relative of the cosmopolitan *cardui*) descended upon the bonnet at a point a few inches forward from the base of the windscreen, and rested with its axis at 90° to that of the car. I expected that the butterfly would quickly leave us as we began to accelerate, but it did not. Its wings were gradually

blown over sideways until they touched each other and were flat against the bonnet. At 60 mph I called Miss Wells' attention to the situation, as she was driving, and we were able to have a clear run of almost 15 miles without slowing the vehicle below 30 mph. When we were finally required to halt, the butterfly righted itself and immediately flew away.

How did the insect retain its position on a glossy surface for so long a time at such pressure? As I knew of no anatomical explanation I wrote to several more knowledgeable colleagues. No one had encountered or read about a similar situation. Miss Wells has suggested that the answer might involve aerodynamics, considering the short distance of the butterfly from the sharply diverging wind-screen. When studying the distribution of insects, we must pay attention to the artificial and sometimes curious means by which individuals may reach their destinations. Can readers of the *Record* solve the mystery of the tenacious *virginiensis*? — Dr. R. S. WILKINSON, 228 Ninth Street, N. E., Washington, D.C. 20002, U.S.A.

OBSERVATIONS ON THE PHASMID *CLONOPSIS GALLICA* (CHARPENTIER) ON THE QUIBERON PENINSULAR, BRITTANY. — Whilst camping at the excellent Park-er-Lann site at Beg Rohu on the east side of the Quiberon peninsular (September 8th and 9th, 1981) I located the phasmid *Clonopsis gallica* (Charpentier). Only adults were located and initially they were found quite by accident. My tent was pitched by an old west facing dry stone, granite wall backed by a tall rough hedge, which ran along the edge of the camp site. At the foot of the wall coarse grass, mainly cocksfoot, *Dactylis glomerata* L. with bramble and sloe, *Prunus spinosa* L. suckers formed a coarse herbage. This I considered would be worth probing for bush-crickets and native cockroaches. I proceeded to search at one end of the wall, but at the first clump of sloe — barely taller than the adjacent clumps of grass, I came to an abrupt halt and stared unbelievably as a slim green phasmid lumbered up the side of the wall.

My first impression was that some phasmid enthusiast must have camped here recently and lost a trophy collected nearer the Mediterranean, but on checking the specimen against details in my battered copy of Chopard, it was clear I had located *C. gallica*. The species is known from several places in Northern France — and indeed must be one of the most northerly ranging of all stick insects.

Further investigation along the wall in question and around the base of sloe thickets across the road, revealed many more specimens, in about equal numbers of greens and browns. A torchlight search the following night revealed that the insect feeds on leaves of younger sloe shoots at the edge of the thickets or along the base of the stone walls. I found no specimens in the upper canopies of old thickets. No nymphs were seen; so presumably this is a species with an annual cycle, eggs hatching in spring and adults laying and dying off in autumn. I found no specimens feeding on bramble or hawthorn, nor on grasses, so sloe is probably the usual

pabulum. However, Mrs. Judith Marshall has found that live specimens which I sent to the British Museum (Nat. Hist.) from Quiberon feed readily on bramble in captivity. Reference: Chopard, L. 1951. Faune de France 56: Orthopteroides, Lecharalier, Paris, 359pp. — E. C. M. HAES, 45, Grove Road, Worthing, W. Sussex BN14 9DQ.

THE BLUE UNDERWING: *CATOCALA FRAXINI* L. IN 1981. — On the morning of 2nd October, I was delighted to find a female *C. fraxini* here in my m.v. trap. As she was in worn condition, she was set up to lay and accordingly obliged with 36 eggs on the 7th and about 20 the following evening. Altogether, she has laid a total of 102 fertile eggs before dying on the 22nd October. A. HARMER, 1 Covertside, Sway Road, Lymington, Hants.

Current Literature

A Revised List of the Lepidoptera of the Isles of Scilly by the Rev. D. Agassiz. Decorated cover and 20pp. Isles of Scilly Museum Association, 1981. Available from the Author, The Vicarage, High View Avenue, Grays, Essex RM17 6RU. Price 50p postage extra.

This definitive list covers the whole Order and includes a total of 503 species, though the author says "that there must be many more species in Scilly which remain to be discovered, especially among the microlepidoptera". The list has been compiled from all available sources, but the observations with each species are mainly based on the work of Richardson and Mere (1958) and Supplements, and that of Blair (1925), and the whole is augmented from much additional unpublished data. The Introduction notices the chief sources of the unpublished data, and a list of 22 published references.

It is remarkable that in the Scilly Isles, *Oinophila v-flava* Haw. is a common species "especially in hedgerows", and *Coenonympha pamphilus* L. has only been recorded thrice. The record that in 1970 the larvae of *Utetheisa pulchella* L. (Crimson Speckled Footman) were common, was never confirmed.

A number of species cited in the list require confirmation by a recognised authority from an examination of the specimens (since there is no mention that this has been done), notably those species recorded by Miss Lena Hawkrigde as well as those merely referred to as "Record submitted to B.R.C."

Among interesting Scilly specialities may be mentioned *Nothris congrassariella* Bruand (apparently unknown elsewhere in Britain), *Pararge aegeria* L. ssp. *insula* Howarth, *Maniola jurtina* L. ssp. *cassiteridum* Graves, *Agrotis. puta* Hbn. ssp. *insula* Rich. and the striking *Eumichtis lichenea* Hbn. ssp. *scillonea* Rich.

No one interested in entomology who is resident in or visiting the Scilly Isles should be without this modestly priced booklet. — J. M. C.-H.



By C. G. C. DICKSON, M.Sc.*

(Concluded from Volume 94, page 35)

A new race of *Poecilmitis nigricans* (Aurivillius).

The first example of this exquisite little butterfly was secured by William Burchell at Genadendal, in the Cape Colony, in 1815 (i.e., in one of its races); and the specimen is still preserved in the University Museum, Oxford. It was known to Trimen as a "variety" of *Poecilmitis* [*Zeritis*] *thysbe* (L.), but only from very few specimens. Aurivillius described it himself as a "variety" of *thysbe* in Seitz' *Macrolep. of World*, 13: 430 (1924), under the present name; the type-locality being the Muizenberg Mountains in the Cape Peninsula. The writer has realised since first capturing specimens of *nigricans* on the Fransch Hoek Mountains in November, 1945, that the males, at least, from there too, differed from the nominate insect, especially with regard to the wider black band in the hindwing upperside. This feature is very obvious also in males from the Klein and Groot Zwartbergen and examples from these localities have been used for the description given hereunder.

Poecilmitis nigricans zwartbergae subsp. nov.

Male.

The forewings tend to be somewhat less pointed than in nominate *P. nigricans*.

Upperside.

In comparison with nominate *nigricans* the black band of hindwing is normally much broadened; at its greatest width, its inner edge being 3.5–4.5 mm. from the wing-margin (the width varying somewhat in different specimens and at least in one male

*"Blencathra", Cambridge Avenue, St. Michael's Estate, Cape Town.

LEGEND TO PLATE II

Pseudonympha camdeboo spec. nov.: fig. 1. ♂ holotype (upperside); fig. 2: ♀ allotype (upperside); fig. 3: ♂ holotype (underside); fig. 4 ♀ allotype (underside).

Lepidochrysoptis jamesi claassensi subsp. nov.: fig. 5. ♂ holotype (upperside); fig. 6. ♀ allotype (upperside); fig. 7. ♂ holotype (underside); fig. 8. ♀ allotype (underside).

Poecilmitis nigricans zwartbergae subsp. nov.: fig. 9. ♂ holotype (upperside); fig. 10 ♀ allotype (upperside); fig. 11. ♂ holotype (underside); fig. 12. ♀ allotype (underside).

Poecilmitis palmus margueritae subsp. nov.: fig. 13. ♂ holotype (upperside); fig. 14. ♀ allotype (upperside); fig. 15. ♂ holotype (underside); fig. 16. ♀ allotype (underside).

All figures natural size. Note: The bronzy-brown coloration of the upperside of *L. j. claassensi* is not represented correctly in figs. 5 & 6, in which the tone is much more reddish than in nature. All the other figures in the plate show the true colour satisfactorily. (Colour reproduction by Unifoto (Pty.), Ltd., Cape Town).

seen, not specially broadened). Veining across the submarginal orange-red portion of the wing more conspicuously black-scaled than in nominate race.

Underside.

Dark streak of forewing parallel with the distal-margin, usually so broadened as to coalesce with, or at least touch, the black spots in areas 2 and 4 (one exception in this respect, has been seen). Hindwing with *deeper and more prominent* brown or rufous-brown colouring, as a "zone", beyond the middle of the wing, in nearly all specimens, than in nominate *nigricans*, and this darkening also applying in general to the wing near the base; while in the least darkly marked examples there is, anyway, more contrast between the dark and light areas.

Length of forewing: 12.75 - 15.0 mm. (13.5 mm. in holotype).

Female.

Forewings more rounded distally than in the female of nominate *nigricans*.

Upperside.

Blue from bases of all wings rather deeper and duller than in the female of nominate *nigricans*, and the dark marginal border broader, that of the hindwings more noticeably so, in comparison with the latter taxon. Dark costal border of forewing also tends to be broader and is in some cases much more prominent.

Underside.

The dark streak parallel with the distal-margin of the forewings has not been markedly broadened in all of the females concerned, though broadened in a number, including the allotype.

Length of forewing: 13.25 - 16.5 mm. (the former measurement, in allotype).

♂ Holotype, WESTERN CAPE PROVINCE: Zwartberg Pass, 7.XII.1973 (no collector's name); British Museum Reg. No. Rh. 18699.

♀ Allotype, W. CAPE PROVINCE: data as for holotype 21.II.1977 (Dr. J. B. Ball); British Museum Reg. No. Rh 18700

Paratype in author's collection: data as for holotype (at approx. 5,000 ft.), 29.XI.1969, one ♂ (C.G.C.D.).

Paratypes in Coll. Dr. J. B. Ball: as holotype, 21.II.1977, one ♂ (Dr. J. B. Ball); 2.XI.1968, one ♂ 3.X.1968, three ♂♂ (Dr. J. Kaplan); 7.XII.1973, one ♂ (no collector's name).

Paratypes in Coll. C. W. Wykeham: as holotype, 27.XII.1969, two ♂♂ (C. W. Wykeham); Seven Weeks Poort (Klein Zwartberg), 1.XII.1962, two ♂♂, one ♀ (C. W. W.).

Paratypes in Coll. Transvaal Museum: as holotype, 9.XI.1946, two ♂♂ one ♀ (K. M. Pennington); 29.X.1963, three ♂♂ 29.X.1963, two ♀♀ 4.I.1965, one ♀ 4.X.1965, two ♀♀ 20.X.1966, one ♀ (R. Badham). Seven Weeks Poort (Klein Zwartbergen), 30.X.1941, three ♂♂ two ♀♀ (Dr. G. van Son); 29.XI.1957, one ♂, one ♀ (K. M. Pennington).

The larger examples, of both sexes, of *zwartbergae*, attain a larger size than the largest ones of *P. n. nigricans*.

Specimens of this group from the Fransch Hoek Mountains (and the adjoining Middenkrantzberg) are larger on the whole than the nominate race and both sexes are normally devoid of orange in the cilia, on the upper-side of the forewing, with white spaces only, between the black portions. The black hindwing bands of the males are decidedly wider in most specimens, than in nominate *nigricans*, but with the width varying noticeably in some individual specimens. On the underside, the dark streak parallel with the distal-margin of the forewing tends to be wider than in the nominate race but the hindwing underside is more like that of the latter race, than of *zwartbergae*. This insect can be regarded as representing another race in itself. Male examples from the Hermanus Mountains seem to be more similar to nominate *nigricans*: i.e., from the few seen by the present writer.

Grateful thanks are due to Dr. J. B. Ball for furnishing a high proportion of the specimens employed in the study of *P. n. zwartbergae*; and to Dr. L. Vári, of the Transvaal Museum.

A new race of *Poecilmitis palmus* (Cramer).

The striking features of this race of *Poecilmitis palmus* (Cramer) were first appreciated after a male specimen in good condition had been caught by Mrs. K. M. Wykeham, when accompanied by her husband the late K. M. Wykeham, 6 miles to the east of Knysna, in the South Western Cape Province, on 24th January, 1964. In March of the following year the locality was revisited by the writer with Mr. Wykeham and a useful series of further specimens of both sexes, in perfect condition, was secured. The main characters of this race are described below.

Poecilmitis palmus margueritae subsp. nov.

Male (upperside).

Dark basal scaling more extensive than in the nominate race, especially in the hindwing, and of a noticeably darker, bluish-black, colour; the inner-marginal concavity also darker. Black spotting over the orange-red ground-colour of the wings tends to be more prominent than in the nominate race and the distal-margin of the forewings broader; while in the hindwing there is always a continuous black marginal border, which is almost consistently relatively prominent, extending down to at least vein 6. There is less orange in the cilia of the forewing and less encroachment of this on to the actual wing-surface, than in the nominate race: this applying, certainly, to all specimens that have been seen from the type-locality itself.

Underside.

Continuous dark streak parallel with distal-margin of forewing broader and darker than is normally the case in the nominate race and the darkened zones (more or less reddish-brown) of the hindwing, darker and more richly coloured than in the nominate race.

Some darkening of the abdomen is also apparent.

Length of forewing: 12.75 – 14.75 mm. (the latter measurement, in holotype).

Female (Upperside).

All characters as in the male, but the black spotting of the wings is inclined to be even more pronounced, while the black border of the hindwing is also more pronounced and extensive, and contrasts in these respects quite markedly with that of the nominate race.

Underside.

Characters in general much as in the male, but the dark line parallel with the distal-margin of the forewing has not, in the females seen, been widened as much as in the males.

Length of forewing: 14.5 – 16.0 mm. (the latter measurement, in allotype).

♂ Holotype, WESTERN CAPE PROVINCE: 6 miles E. of Knysna 13.III.1965 (C. G. C. Dickson); British Museum Reg. No. Rh. 18701

♀ Allotype, W. CAPE PROVINCE: data as for holotype; British Museum Reg. Rh. 18702

Paratypes in author's collection: data as for holotype, 24.I.1964, one ♂ (Mrs. K. M. Wykeham): 13.III.1965, two ♂♂, one ♀ (C.G.C.D.).

Paratypes in Coll. Dr. J. B. Ball, W. CAPE PROVINCE: Keurboom River Forest Reserve, nr. Nature's Valley (30 miles E. of Knysna), 18.XII.1979 five ♂♂. [It may be mentioned that Dr. Ball has discovered other localities for this butterfly in the district as a whole. Some of the specimens concerned have been less extreme than others in the development of the dark marking]

Paratypes in Coll. Transvaal Museum: data as for holotype, one ♂ (C.G.C.D.).

The writer possesses two male specimens of *P. palmus* from the Witteklip Mountain, 23 miles W. of Port Elizabeth in the Eastern Cape Province captured by Mr. L. Hersalek on 10/12/67 and 15/1/68; and these examples bear a resemblance on the upperside to Knysna ones. Mr. V. L. Pringle has subsequently caught other specimens there and, as he has pointed out, the undersides of this population are not always specially darkened.

The habitat near Knysna is in a slight, sloping depression, somewhat damp and with grass, Bracken and other plants present. One of the chief food-plants of *P. palmus*, the yellow-flowered shrub *Chrysanthemoides monilifera* T. Norl. (Compositae) occurs abundantly there. This particular race of this brilliantly coloured Lycaenid is named with much pleasure after Mrs. K. M. Wykeham – with respect to her second Christian name. The original specimen concerned is figured in colour in *Pennington's Butterflies of Southern Africa*, Pl. 125, fig. 426 III (1978).

THE BEAUTIFUL SNOOT: BOMOLOCHA FONTIS THUNB. – I was interested in the reference (*Ent. Rec.* 93: 241) to the occurrence of *B. fontis* in Kent in places where bilberry was absent. In July 1979 I saw several examples of this species in the Gower peninsula, South Wales in a wood where so far as I could see there was no bilberry.

In Staffordshire, *B. fontis* was at one time common in several oak woods with a dense undergrowth of bilberry. From some of these woods it has disappeared following clear felling; although the bilberry remains the insect evidently needs the woodland cover, and it is notable that it does not occur on bilberry on open heathland. More recently, however, there has been evidence that the species is on the increase and it has appeared in several woods from which it was not previously recorded.

Both in Staffordshire and in South Wales there have been single occurrences in moth traps in places where there was no bilberry. – R. G. WARREN, Wood Bindings, 32 Whitmore Road, Trentham, Stoke-on-Trent, ST4 6AP.

THE DOTTED CHESTNUT: *CONISTRA RUBIGINEA*
D. & S. (LEP.: NOCTUIDAE)

By BRIG. E. C. L. SIMSON*

On 9th April '81 I went with a friend to try the heaths round Chobham (Surrey) for *C. rubiginea*. We arrived at the spot marked with a X on my friend's map. It was just coming on dusk, but light enough for us to see that we were facing considerable opposition, because three men were engaged in extracting generators, mercury vapour lamps and stands, sheets, bags, nets and all the dread apparatus of the expert moth-snatcher, from the boot of a car parked exactly on our X!

But now it was our X no more, and we were considering going off to search the heaths for a spot we might call Y, when my friend recognised one of the three entomologists as a person he had previously met in a Hampshire wood, when both were after *Trichopteryx polycommata* D. & S. Credentials thus established, we made a plan by which the five of us would make a large circle out on the heath, among the scattered birch trees. My nearest neighbour was about 100 yards from me and had a set-up similar to my own. It was a warm night and soon moths began appearing on my sheet; nothing very wonderful came and I suppose a couple of Scarce Prominents, *Odontosia carmelita* Esp. were the most interesting. After about an hour my neighbour of 100 yards away put out his light and soon I saw him coming towards me with all his gear. As he got level he put down his generator and came across to me. He looked really happy and the reason lay in a box, which he held under my nose. There sat a beautiful *rubiginea*, which had been beastly enough to select his sheet instead of mine. M. V. light makes one look a bit green at normal times; now I must have looked emerald bright. The lucky captor said that he had a bad leg and that was his lot for the night. So off he went hobbling, but humming, into the darkness towards the cars.

I redoubled my efforts to turn, by magic, the wretched *incerta*, which visited me, into beautiful orange-hued moths with black spots. To no avail, and about mid-night, the air having turned cold, I packed up and returned to the cars. Shortly afterwards my friend and the remaining two turned up and I found that my friend had been no more successful than I, but that the others had got two *rubiginea*; one at sugar and another to light. So between five of us three *rubiginea* had been caught. I stared, wistfully, out over the black heath.

And now a very pleasant thing occurred for me. The three, to me, strangers, came up, held out a box in which sat a *rubiginea*, and told me to take it. They said they understood that this was my fourth unsuccessful visit to the locality over the years and that they had a certain female (the one taken at sugar). They were not sure, but felt the one they had given me was also a female, and wished me to have it. It was the one taken 100 yards from my light.

*"Pine Corner", 4 Durnford Close, Chilbolton, Stockbridge, Hants. SO206 AP.

It was a charming gesture, and I was thrilled to accept. Thrilled as anyone would be who has sat on those "blasted heaths" round Chobham, spring after cold spring, hoping to box this elegant moth. So, with many expressions of gratitude, we said goodbye, and I drove home with my friend. I dropped him off at his house and he invited me in so that we could properly examine our trophy. My friend had taken quite a few male *rubiginea* in the past, but had never obtained a female from which to breed a series.

Now it is not easy to determine the sex of a live *rubiginea*, especially as a male, which has just had a good gorge at sugar, fallow, etc., can be very fat bodied. Equally, a female which has not eaten for some time, can be slim bodied. To me the antennae of the sexes appear indistinguishable. So you must imagine the two of us peering through magnifying glasses at our moth and not getting very far, especially as a bright light made it rather skittish. So we gave it a whiff of chloroform and probed even more deeply into the matter. My friend once thought he saw an ovipositor, but I said "wishful thinking". So, as the moth came to, I put it back in the box and set off home, with my friend's pleas not to kill it, at any cost, ringing in my ears. It was a new species for me and in pretty good nick. Doubtless he felt that if it grew restless and started to damage itself, my self control might vanish. To prevent this he had even promised me a specimen *rubiginea* from his own short series.

As soon as I was home I put the moth in a plastic box lined with tissues, and went to bed. Next morning I opened the box very carefully and saw the moth asleep on the side tissue. I made up a solution of honey and brown sugar in water, soaked up as much as a piece of cotton wool could hold, put it in a bottle-top as a container, and placed it in with the moth, which still slept. I looked in the box every morning and was pleased to see that the moth had not in any way injured itself by flying round and that it had been sucking at the honey, as shown by the fluid which it had passed onto the tissues. So the days passed and twice I caught the moth with its proboscis in the bottle top. If one can tame an insect, this was certainly tamed. It showed no fear at my opening the box; it never attempted to fly and on the tenth day I saw a few pure white eggs on the edge of a tissue. I rang my friend, who came over at once and, after careful search, found 14 eggs which he took home with him to hatch. I went on giving the moth fresh honey every other day and by the 19th day of her captivity she had laid 62 eggs, though she did not lay every day. She laid no more after and, on the 21st day, she died peacefully, still clinging to the tissues. As far as I know she never flew in the box and she remained a perfect specimen, fit for any collection, except for being rather pale — but then she had lived for 6 months. My friend took all the eggs for hatching, because we were going to feed the young larvae on apple, of which he had a plentiful supply in his garden.

52 larvae hatched by 6 May and my friend brought me 26, being my share; from these I obtained 24 perfect imagos. Bred *rubiginea* has to be seen to be believed: beautiful indeed. I remain truly grateful to the three generous entomologists I met that April night.

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THE IMMIGRATION OF LEPIDOPTERA TO THE
BRITISH ISLES IN 1980: A SUPPLEMENTARY NOTE

By R. F. BRETHERTON¹ and J. M. CHALMERS-HUNT²

The following corrections and additions should be made to part I of the main report (in *Ent. Rec.* 93: 47-54):

Corrections to Annexe II

- D. RAMBURIALIS: S. HANTS: this record should be dated 19.8 and initialled (RLH).
R. SACRARIA: SUSSEX. Worthing should be dated 29.9.
O. OBSTIPATA: for BERKS, substitute OXON (v.c.23)
A. CONVULVULI: for WEXFORD, substitute W. CORK.
U. PULCHELLA: W. SUSSEX: delete (ASE) substitute (RTR)
N. AERUGULA: for (1), substitute (2)
H. PELTIGERA: for BERKS, substitute OXON (v.c.23)

Additions to Annexe I – Recorders and localities

It should be noted that in some cases insects have been reported by two or more recorders. In Annexe II the initials given are those of the recorder from whom the record was received first; but as far as possible the names of all have been included in Annexe I. It has not been generally possible to name the authors of all the records which have been received through intermediaries.

- | | |
|--|---|
| Bellorby, Mr and Mrs C., Westmorland | Howell, Mrs S. J., Hagley Wood, Sussex |
| Blokland, T. J., co. Cork, Ireland | Jago, E. M. R., E. Kent |
| *Burton, J. F., Bristol | *Kydd, D. W., Cumbria |
| Clouter, F., Isle of Sheppey, E. Kent | *McRitchie, B., Harlow, Essex |
| *Dey, D., Sussex and Kent | *Page, B. W., Warwicks. (<i>Bull. am. ent. Soc.</i> , 40:84) |
| *Dunn, T. C., co. Durham, in <i>Vasculum</i> 65: 61 | *Payne, K., Merseyside (<i>Ent. Gaz.</i> 32:64) |
| *Ellis, E.A., mainly Norfolk | *Pons, M. A. S., S. Lancs. |
| *Gent, C. J., Newcastle-upon-Tyne (<i>Bull. am. ent. Soc.</i> 40:84) | Price, L., Stroud, Glos. |
| *Harewood, N. W., Cleveland, N.E. Yorks v.c.62 (<i>Bull. am. ent. Soc.</i> 40: 126 & pers. comm.) | *Read, R.W. J., W. Cumbria |
| *Haynes, R. F. & Hillis, Dr. J. P., Ireland (<i>Irish. Nat. J.</i> 20: 296-298) | *Scott, R. E., wardens' records from 42 R.S.P.B. reserves in the United Kingdom |
| | Walley, P. F., Beachy Head, Sussex |
| | *Welch, R. C., Isles of Mull, Coll, Skye |

¹Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE

²1 Hardcourts Close, West Wickham, Kent BR4 9LG

- *Hobbs, R. N., Sussex; E. Kent *White, M. C., mainly Worksop
Hall, N. M., Portland, Dorset; district, Notts.
Scilly
Howell, A. D., St Margarets Bay,
E. Kent

Additions to Annexe II – Scarce Immigrant Species

- DANAUS PLEXIPPUS L. WESTMORLAND (v.c.69). Grange-over-Sands, 12.10. One seen flying in a garden (CB per DWK).
N. POLYCHLOROS. E. KENT. St Margaret's Bay, 28.8., male (ADH).
R. SACRARIA. E. KENT. Dungeness, 7.8. (DCB).
O. OBSTIPATA. MID CORK. Ballymaloe, 8.8; Ballyhooley, 24.8. W. CORK. Castletown, 24.8. (RFH & JFH). DORSET. Portland, 28.9 (NMH). ORKNEY. Orphir, 27.8 (RIL).
A. CONVULVULI. LOUTH. Dundalk, 6.10 (RFH & JPH). MONMOUTH. Usk, 3.10 (GANH).
M. UNIPUNCTA. SCILLY IS. 17-24.9, with *P. saucia*, becoming common at sugar and ivy towards the end of the week (NMH).
H. ARMIGERA. E. KENT. Minster-in-Sheppey, 16.8, one at light (FC).
H. PELTIGERA. DORSET. Portland Bill, 6/7.6, two (NMH). N. GLOS. Kingscourt, Stroud, 13/14.6, one (LP).

Of these additions the record of *D. plexippus* in Westmorland is the only one of the year, and probably the first for that vice-county; and the specimen of *N. polychloros* caught in Kent appears to be the first reported there since 1977.

Among the commoner species, most of the supplementary British records of *V. atalanta* reflect either its initial association on arrival with *C. cardui* or its unusually poor performance thereafter, though in Cumbria it had achieved rough equality in numbers with that species by September (DWK). There is also an interesting note of twelve seen flying south or south west at Hastings. E. Sussex, on September 20 (RNH). In Ireland, however, *V. atalanta* clearly enjoyed a very good year, with a total of 1,422 reported. Although arrivals in June were, as in Britain, fewer than those of *C. cardui*, it seems to have bred more successfully, being described as very abundant in August and September. It was also noted in very large numbers at Cape Clear Island, W. Cork on several dates in October (RFH & JPH). These may have represented south westerly movement of Irish bred butterflies, or further immigration which was not paralleled in Britain.

For *C. crocea* we have one additional record in June, at Hagley Wood, Sussex (SJH) and over a dozen for the late August and early September immigrants, ranging from Dorset and Anglesey to Cumbria, which raise the British total to about 80. In Ireland, where the June immigration was much stronger and extended as far north as Ulster, where there was probably some local breeding, the late August invasion was mainly to the south east and agreed

in date with the arrivals in Cornwall and movement up the west coast of Britain. In Ireland the recorded total, also about 80, was the highest since 1975. For *M. stellatarum* there are two additional records, from Bristol, June 15 (JFB) and Kendal (DWK) to add to what was in England a fairly good year; but the Irish total of six, between late May and early September 30, was not distinguished.

Several supplementary records of *U. ferrugalis* emphasised its abundance and ubiquity here, as in Ireland; but *P. xylostella* seems to have been much less common there.

Corrections to Annexe III – Cynthia cardui

LANCASHIRE, N. Leighton Moss 31.8: for corrected dates and numbers, see below.

Additions to Annexe III

BEDFORDSHIRE. Sandy, 7/13.6, one present; 3.8/4.9, seen on 13 days, maximum 5 on 10.8; 8.10 (1); Sutton Fen, 5/8/4.9, seen on 5 days, one or two. (RES).

BERKSHIRE (v.c.22), Kennington, 7.9, one (JFB).

CAMBRIDGESHIRE (v.c. 29), Great Evenden, 7.6, one (EAE); Fowlmere, early 8, numerous; Ouse Washes, in first three weeks 8 (RES).

CHESHIRE. Gayton Sands, 8/13.6, July one, 14.8/4.9; Wirral, 13.8, many worn (MASP).

CUMBERLAND. St. Bees Head, large numbers arrived in June (RES); Corkickle and elsewhere 7.6 (4); Kirkland, 2.7, one on flowers of *Hypochoeris radicata*; near Egremont, 9 and 10.8 (2); Nethertown and elsewhere 16/31.8 (14); Walbarrow Crag, 19.10, one (RWJR); Kendal, 1.6 (1), Solway Marshes 4.6., c.40/50 (DWK).

DERBYSHIRE. Buxton, 26.6, one (EAE).

DEVON S. Aylesbeare Common, 4.6/5.7 (3), 11/31.8, with maximum of 8. (RES).

DORSET. St. Albans Head, 16.7 (2); Studland, 17.7 (1) (MCW).

DURHAM. Butterknowle, 28.6, one; Sunderland, 31.7, c.20 along a garden hedge, 1.8, dozens on cliffs; Quebec, 12.7, one; Chester-le-Street, 29.7.(2), 31.7 (1), 1/3.8 (20/40); 14.8, many; 8.9 (1); Waldridge Fell, 17.8 (1).

ESSEX S. Harlow, first seen 29.6, in late July and August many reports of singles and occasionally of two or three (BMcR).

GLOUCESTERSHIRE S. Nagshead, 12.6., 13.6, 18.6, 12.8, all singles (RES).

HAMPSHIRE S. Langstone Harbour, 13.6 (1), 23.8(2) (RES).

KENT E. Clowes Wood and elsewhere 10/23.8 (8); Rainham, 3/7.9 (3), Folkestone, 7.9 (1) (D.D.); Folkestone, 5/16.8 (7), 20/25.8 (22), 24.8, common, 25.8 (12), 1/8.9, still common, especially on knapweed; 3.10, one (EMW).

ISLE OF WIGHT. St. Catherine's Point, 4.6., one off the sea

LANCASHIRE N. Leighton Moss, June, small influx (peak 3), very large influx from late July, with peaks 14.8 (58), 16.8 (138), then falling quickly in poor weather (RES).

- LANCASHIRE S. Ainsdale N. N. R., June, second week, large influx; in July larvae on isolated plants of *Cirsium vulgare*, but *not* on the dense patches of *C. arvense*; fresh adults appeared August, first week, and remained until mid-September; no larvae then seen, but a number of fresh adults in October, second week. (KP).
- LINCOLNSHIRE N. Tetley Marsh, large numbers (RES).
- NORFOLK W. Wells-on-Sea, 7.6.(1); Swaffham, 8.6 (1); Tottingstone, 7.6 (1) (EAE).
- NORFOLK E. Beeston, near Sheringham and five other places, 10/16.6, all singly; Hoveton, 12.7, one; Hickling, 2.8, several (EAE).
- NORTHUMBERLAND N. Black Law, c.1,000ft, near Wooler, 29.7, sudden appearance, groups of 3 to 5 flying south all day and through 30.7, 31.7, 1.8, after which thunderstorms checked observation, and later the butterflies had dispersed; Kyloe, 1.8, dozens seen (TCD)
- NORTHUMBERLAND S. Coquet Is., 24.6 (1); 29.7, large influx (more than 30), decreasing until a few still present in mid 8. (RES); West Gosforth, 1.8 (1), 2.8 (10 on buddleia) (CJG/TCD).
- NOTTINGHAMSHIRE. Worksop district, 6.6 (2), 8.6 (2); 30.7 (1), 1.8 (1), 10/16.8 (43), 19.9 (2) (MCW).
- SOMERSET N. Failand, near Bristol, 11.6, one at hedgerow flowers (JFB).
- SUFFOLK E. Halvergate Island, 2.6 (1), 28.6 (1), July (2), August first week, very abundant; Minsmere, 12.7/18 (5) (RES), 16.8 (2 fresh) (JFB); Wolves Wood, 1.8 (1), 2.8 (1); Felixstowe, 8.6 (1) (EAE).
- SUFFOLK W. Lakenheath, 8.6 (12) (EAE).
- SUSSEX E. Fore Wood, mid-June, on two days, mid August, one (RES); Hastings, 20.9 (1) (RNH).
- SUSSEX W. Rogate, numerous mid September, especially 14.9 (JACG).
- WARWICKSHIRE. Charlecote, 28.9, 4 larvae in separate tents on nettle – emerged 23/24.10 (BWP).
- YORKSHIRE N. E. (v.c. 62). Cleveland. Saltburn and Redcar dunes, 3.6, later widespread inland and through industrial Teeside; mid 7 a few worn, later in large numbers (? emerging) to mid 8, then vanished, late 9, a few on *Sedum*. Larvae from newly hatched to fully fed from early 7 to 2.8, with 200 on dunes in three days; all those collected pupated by 10.8. Early 9 / early 10, c.600/700 larvae found and most collected, some producing adults while others were still feeding, and butterflies still emerging in captivity 11.11. No Larvae were parasitized (NWH).
- YORKSHIRE S. E. (v.c. 61), Bempton Cliffs, 7.6 first, odd singles in July, maximum 16.8 (10); Hornsea Mere, 24.6/21.9, maximum 30.7: largest immigration for many years; Blacktoft Sands, first late 7, 1/21.8 c.10 daily (RES).
- YORKSHIRE MID. (v.c. 64). Bishopthorpe, 25.9 (MCW); Fairburn, 3.7. (1), 31.7/3.9 in good numbers (RES).

Ireland

ANTRIM. Rathlin Island, 5.6 (58), 15.6 (70), regularly later; Shanes Castle, 8.6 (1); 24.9 (2) (RES).

CORK. Lemara, 7.8 (1), 10.8 (1) (TJB).

For other Irish records, total 1,751, see RFH and JPH, *Irish Nat Jnl.*, 20: 296-298

Scotland

ABERDEENSHIRE N. Loch of Strathbeg, 5.6/8.9, maximum 31.7 (6). (RES).

ANGUS. Loch of Kinnordy. 11.6, 23.6, 7.7, singles; 31.7/2.8, up to 4 present; recorded in 8 at 3,200ft. (RES).

INNER HEBRIDES (v.c. 104), Skye, Glen Brittle, 14.6, Dunvegan Castle, on *Armeria*, Claigan Beach (2), Loch Bharcasaig, 17.6 (REW).

INVERNESSSHIRE E. Loch Garten, 12.6 (1), up to 2 on four days 8; Insh Marshes, 9/22.6, singles, 12/22.8, singles, 17.8 (3) (RES).

MULL and COLL (v.c. 103). Salen, Mull, 9.6 (1) (RCW).

PERTHSIRE W. Killiekrankie, influx from 6.6 on. (RES).

RENFREWSHIRE. Loch Winnoch, from 8.6, with up to 8 regularly in late 6, 7, 8 (RES).

SHETLAND. Loch of Spiggie, 22.6, 6.7, 31.7, 1.8, all singles; 2.8. (6), regularly until 16.8 (RES).

Wales

ANGLESEY. South Stack, 3.6/4.7, and again 7.8/11.10 (RES).

BRECONSHIRE. Gorse Bank, 26.6, with maximum 20.9 (6); other localities 26.6 onwards, at least 77 specimens, last Maescelyn, Brecon, 26.10 (PS-B).

DENBIGHSHIRE. Llanduno and Llandrillo, 3.8 (3) (MCW).

GLAMORGAN. Ynys-hir, first 3.6, up to 6 until 3.7; 10.8 (1); 4.9/15.10, again in numbers (RES).

MONTGOMERYSHIRE. Lake Vyrnwy, common in latter half of the summer (RES).

MONMOUTHSHIRE. Beaufort, 4.10, at 1,200ft (PS-B).

Our appeal for more information about *C. cardui* in 1980 produced a wide response: a great many records came from collective recorders who have passed on information from several hundred observers whose names are too numerous to mention here. We are especially indebted to Mr. R. E. Scott for collecting and submitting notes from the wardens of some 40 reserves of the Royal Society for the Protection of Birds. We have also made use of the valuable analysis of *C. cardui* records in Ireland which was provided by Mr. R. F. Haynes and Dr. P. Hillis and later published in the *Irish Naturalist's Journal*, but is not reproduced in detail here. For information about larvae we are very grateful for the accounts of findings in Cleveland by Mr. N. W. Harewood and Mr. K. Payne, which have also been published elsewhere.

These additional records include some from 20 vice-counties not mentioned in our main report, but for the most part these

confirm the impression that the spread of *C. cardui* was thin and limited in extent far inland and away from the main coastal arrival points, though spread from these along the coasts was fairly widespread. The strength and timing of the main invasions of the west coast of England in the first week of June, and of the north east coast of both England and Scotland in the last days of July, are abundantly confirmed; but the additional records also show that there were relatively weak influxes to East Anglia and further north at the same time, slightly in advance of the mass invasion of Fife and Aberdeen on June 5 and 6. These were apparently not linked by arrivals on the south English coast between south Devon and east Kent, and they may have had a separate continental origin. The extent, the timing, and indeed the existence of a third large invasion to the west of England in late August or early September, which we previously thought likely, remains uncertain. Further accounts of the finding of large numbers of larvae in the open again mention the presence of widely differing instars at the same times and places. This surely implies, where the larvae and pupae survived, the emergence of adults over a long period, and it is possible that even the large numbers of butterflies seen in various places from mid August onwards resulted from this rather than from fresh immigration. The few examples reported from the Isle of Sheppey and now from Folkestone in October may well have been grandchildren of the original June immigrants.

In Ireland the pattern was interestingly different. The whole eastern coast from Wexford to Antrim clearly shared in the swarms which visited western Britain in June: more than one third of the Irish annual total was recorded there then, but records in south western Ireland were very few. As might be expected, Ireland felt little or no effect from the eastern invasion of Britain of *C. cardui* at the end of July; the numerous records in the eastern Irish counties are attributed to successful local breeding from the June immigrants. In October, however, Waterford scored 72, Cape Clear Island, Co. Cork 527, and Galway 54, thus equalling the total for June. This must surely represent a further major immigration from the south west, which was apparently not experienced at all in Britain.

LARVAE OF *CAMPTOGRAMMA BILINEATA* L.: YELLOW SHELL FEEDING ON CRUCIFERAE. — With reference to B. K. West's note (*Ent. Rec.*, 93: 198) on *Camptogramma bilineata* feeding on *Cardamine flexuosa*, I can add three more species of Cruciferae as larval foodplants. In the winter of 1979-80 I found a larva on *Arabis caucasica*, a common rock-garden plant, introduced from south-east Europe, and in the spring of 1980 one was found feeding on *Aubretia deltoidea*, another rock-garden plant, introduced from Greece. Both records are from my garden at Leicester, where a larva has also been found on *Origanum majorana* (Labiatae). The third record is of a larva found feeding on wild cabbage, *Brassica oleracea*, growing on the cliff-tops at Lighthouse Down, Dover, in the spring of 1981. All three larvae eventually produced moths. — DENIS F. OWEN, 6 Scraftoft Lane, Leicester.

THE EARLY STAGES OF *PARORNIX FINITIMELLA* 53
(ZELLER) AND *P. TORQUILLELLA* (ZELLER)
(LEPIDOPTERA:GRACILLARIIDAE)

By A. M. EMMET*

Parornix torquillella was placed on the British list in the same year as that in which it received its name in Germany (Stainton, 1850). Later Stainton (1864) gave a full and accurate account of its early stages. He described it as bivoltine flying in May and August, but with reservations, since he had taken the adult in July and adults from July larvae had not emerged until the following year. Morris (1872), Meyrick (1928) and Ford (1949) all treated the moth as bivoltine, ignoring Stainton's uncertainty.

Parornix finitimella was named and described in the same paper as *P. torquillella* (Zeller, 1850). Although Stainton (1850; 1864) made reference to it, he did not include it as a British species. However, he stated that he had reared an *Ornix* [*Parornix*] from sloe which was not *P. torquillella* (1864: 296). He tentatively determined these moths as the *Crataegus*-feeding *P. anglicella* (Stainton), but added that they should possibly be referred to *P. finitimella*, a supposition we can now tell to have been correct. Neither he nor any other contemporary British entomologist followed up this hint and more than half a century was to pass before this common species was confirmed as occurring in this country.

When this happened, its recognition by Pierce (1917) was only a chance by-product of his work on the genitalia of the Geometridae. In this study he was helped by the Revd. C. R. N. Burrows who was vicar of Mucking, an Essex hamlet on the Thames estuary. Pierce used to stay with Burrows and the two entomologists were struck by the number of interesting microlepidoptera in the area. Burrows, however, was only a macrolepidopterist and could not determine them. Accordingly, Pierce suggested that Burrows should make a collection and send the moths to him for identification (Pierce, 1918). It was amongst this material that he found *P. finitimella* after dissection of the genitalia. The discovery did not arouse much interest because concern with the microlepidoptera had to a large extent lapsed in Britain. Few collectors checked their specimens and Meyrick (1928) was able to give only the counties of Essex and Durham for the occurrence of *P. finitimella*. No attempt was made to look at the early stages to see if there were any differences and for another fifty years no further thought was given to the subject.

This was the situation I inherited in 1979 when *A Field Guide to the smaller British Lepidoptera* was written. My attempt to add useful information was disastrous, for I got it the wrong way round. I had recognised that there were two mine patterns, one of which seemed the more common. Understandably, in view of the history

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of the two species in Britain, I ascribed the commoner mine to *P. torquillella*.

It was not until 1980 that I began to make a serious study of the early stages of these moths for Volume 2 of *The Moths and Butterflies of Great Britain and Ireland*. I wrote the draft text of the Gracillariinae in the winter of that year and devoted my field work in 1981 to checking and embellishing what I had written. Consequently the information which follows has been well digested.

As the result of my research, I found that the species were readily distinguishable in their early stages and that these differed in their timing. Dr. M. R. Shaw had written to me in 1979 suggesting that *P. torquillella* was univoltine and this was confirmed by my observations in 1980-1981. It appears to have a long emergence period extending from the end of May until July. Larvae do not appear until mid July and continue through August and September. The resulting adults do not emerge until the following year (cf. Stainton's observations quoted above). It would be possible for the earliest moths to produce a generation which completes its cycle in the summer months but I have no evidence that this ever happens.

The larva of *P. torquillella* has two cloudy dark marks on its head, which are sometimes obsolete. Its body is pale yellowish green without contrasting pinacula, its prothoracic plate has the four black spots characteristic of the genus and the thoracic legs are concolorous with the body.

P. finitimella, on the other hand, is definitely bivoltine. Moths of the first generation fly in late April and May. Larvae are then found in June and July which produce a second generation of adults in July and August. Larvae occur again in September and October and give rise to the overwintering pupae.

The larva of *P. finitimella* is very different. It has four well-defined black marks on its head as well as the prothoracic plate. Its body is grey with conspicuous paler pinacula which are obsolescent on the abdominal segments; it becomes much paler when full-grown, but still retains a hint of its grey colour. The thoracic legs are ringed black, appearing wholly black except under magnification.

There are no detectable differences in the mines in the sap-feeding phase (the first two instars). There are, however, distinctions in the third instar mine, when tissue-feeding begins after the change in mouth-parts and a spinneret has been developed. *P. finitimella* spins the lower cuticle more extensively, causing it to contract in a number of creases and draw the lower edges of the mine together; the lower cuticle becomes greenish grey, flecked darker. The mine is relatively long and narrow. *P. torquillella*, on the other hand, spins the lower cuticle lightly; the mine is only slightly arched and the cuticle has a single central crease and is white, at any rate in tenanted and newly vacated mines. The mine is relatively shorter and broader and is transparent when held up to the light. Because of the lighter spinning, the mine splits open more easily, and the old ruptured mines which are so much in evidence on blackthorn bushes in autumn are generally of this species. In my experience, fresh

mines are easily told apart, but the marks of distinction tend to become blurred with the passage of time and it may then be necessary to study the characters of a number of mines before being sure of the species. A complication is that in southern England both are abundant and mixed mines will almost always be found on the same bush.

With regard to distribution, *P. torquillella* has the wider range, extending to Scotland and Ireland. *P. finitimella* becomes scarce in northern England and Meyrick's record from Co. Durham is still the most northerly; it has not been reported from Scotland or Ireland. In the south one gets the impression that *P. finitimella* is the more plentiful, but this is probably because in autumn one sees two generations of its vacated mines as opposed to one of *P. torquillella*. When I was making records for Essex (Emmet, 1981), I had not mastered the differences and, as I admitted, I might have recorded *P. finitimella* as *P. torquillella* in some instances. I then recorded *P. torquillella* from 56 of the 57 10X10 km squares in the county but *P. finitimella* from only 9. In 1981 I have increased the number of squares for *P. finitimella* to 52 and confirmed *P. torquillella* in all of these. There is hardly a stand of blackthorn in the county in which I have not found both species, if I have had the chance to search at the right time of year. What is true for Essex probably holds for all other southern counties.

With the knowledge I now have, I would rewrite species 281 and 282 in the *Field Guide* as follows.

281 (1102) *P. finitimella* (Zell.)

O. 5-6; 8-9. On the under surface of a leaf of *Prunus spinosa* or *P. domestica*.

L. 6-7; 9-10. When young, in a gallery in the lower epidermis which leads into a small, *Phyllonorycter*-type blotch in which the lower cuticle turns greenish grey and is strongly contracted by internal spinning. Later feeds under the downwards-folded tip or edge of a leaf, making successively two or three such folds. Larva grey with paler pinacula; head with four black spots; thoracic legs ringed black.

P. 7-8; 9-4. In an orange-yellow cocoon spun under a narrowly folded leaf-edge or in leaf-litter.

I. 4-5; 7-8. Comes to light.

282 (1103) *P. torquillella* (Zell.)

O. 6-8. On the under surface of a leaf of *Prunus spinosa* or *P. domestica*.

L. 7-9. Mine differs from that of *P. finitimella* in being only slightly contracted by internal spinning and having the lower cuticle white. Larva pale yellow-green without conspicuous pinacula; head with two darkish spots; legs yellow-green.

P. 9-5. Similar to *P. torquillella*.

I. 5-7. Has a long emergence period.

Possessors of the *Field Guide* who do not have the interleaved edition may prefer to make less extensive changes. I suggest that the

first priority is to alter the last word of the second line of the "L" paragraph under *P. finitimella* from "less" to "more", and the second to amend the timing of the stages of *P. torquillella*.

References

- Emmet, A. M. (ed.), 1979. *A field guide to the smaller British Lepidoptera*, 271 pp. London.
- Emmet, A. M., 1981. *The smaller moths of Essex*, 158 pp. London.
- Ford, L. T., 1949. *A guide to the smaller British Lepidoptera*, 230 pp. London.
- Meyrick, E., 1928. *A revised handbook of the British Lepidoptera*, 914 pp. London.
- Morris, F. O., 1872. *A natural history of British moths*, 1-4. London.
- Pierce, F. N., 1917. Occurrence in England of *Parornix finitimella* Z., a species of Gracilariidae new to the British list. *Entomologist's mon. Mag.* **53**: 9-10.
- Pierce, F. N., 1918. The Lepidoptera of an Essex garden. *Entomologist's Record. J. Var.* **30**: 81-86.
- Stainton, H. T., 1850. On *Ornix meleagripennella* and its allies; a group of Lepidoptera, family Tineidae. *Trans. ent. Soc. Lond.* (2) **1**: 86-96.
- Stainton, H. T. *et al.*, 1864. *The natural history of the Tineina*, **8**, vii, 315 pp., 8 col. pls. London.
- Zeller, P. C., 1850. Verzeichniss der von Herrn Jos. Mann beobachteten Toscanischen Microlepidoptera (Section 7). *Stettin. ent. Ztg.* **11**: 139-162.

PAPILIO MACHAON L. (SWALLOWTAIL) FLOURISHING IN A N. NORFOLK LOCALITY, 1981. — The present year having been a poorer one for butterflies (at least in my district, S. E. London) than I have experienced for very long, it is some small consolation to be able to report that one of our threatened species, *P. machaon*, was quite common in a small area of a privately-owned fen in North Norfolk. On a very warm afternoon, 22 June, these splendid creatures — apparently at the height of their season, being in mint condition — were disporting themselves in the open flowery fen, often swooping and perching on various blossoms (mostly purple composites), their wings maintained in tremulous motion whilst feeding in the manner peculiar to their kind, and presenting an unforgettable spectacle. It was possible to have 6, if not 7, in view at a time, their territory seeming to be concentrated by the apparent restriction of the foodplant, hogs' fennel, to one spot in that part of the fen which we visited. The butterflies were not shy; in fact, one seemed bent upon trying to enter my net as I was stalking a fly, and had to be 'shooed' away! We learnt from the landowner that, so far as he knew, *machaon* has never been 'put down' there, but had been present from early times. — A. A. ALLEN.

By ALAN E. STUBBS*

After false starts and a stormy passage through Parliament, new legislation affecting a wide range of countryside issues has been passed.

An item of particular concern to entomologists is the list of protected species. At earlier steps in the evolution of the new legislation there was consultation with the Entomological Societies, and in particular through the Joint Committee for the Conservation of British Insects. However, the scope and nature of the draft legislation became greatly modified in its passage through Parliament. There are two major reasons for the changes in the list. Firstly, as an all embracing act there were no concessions to entomologists – thus, area listing and other conditions were swept aside to suit those interested in vertebrates. Secondly, it proved virtually impossible to influence events when neither of the Houses of Parliament has anyone with a knowledge of insects (the system depends on the right questions being asked).

There are now 19 species of invertebrates on the protected list. Discussion here will concentrate on the Lepidoptera since this will be the main concern of readers.

Large Blue (*Maculinea arion*). This was already protected under the Wild Creatures and Wild Plants Act 1975. In September 1979 the Nature Conservancy Council issued a press notice saying that the butterfly was probably extinct in Great Britain. No sighting accepted as authentic has been received since that date, despite checking out various reports.

Heath Fritillary (*Mellicta athalia*). With some reservations, the Societies had earlier accepted the inclusion of this species. It has been undergoing steady decline in the South-West where it is now down to two sites. There are real fears that it could die out in this area. However, in January 1982 the Duchy of Cornwall agreed to the removal of young conifers from its main site and NCC hopes to finance a study starting this summer. In Kent, the population level is erratic depending on the state of the coppice areas. Whilst numbers can be large in a good year, colonies could easily be collected out during population lows.

Chequered Skipper (*Carterocephalus palaemon*) was last seen in England in 1975 and was intended for protection in England only. With the various delays in the legislation it is now questionable whether it will be refound. However, the Act gives national listing though its status in Scotland is not critical.

Swallowtail (*Papilio machaon*). This was sneaked on as a complete surprise, apparently because it is pretty and MP's have heard of it. NCC had 20 minutes to reply at a time when no-one with a knowledge of the insect was available. The advice that would have

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been given was that this butterfly, though local, is largely holding its own in Norfolk and is in no imminent danger. It is not the sort of species which would easily be collected out (the prospect of a Yare barrage is a far greater threat). Some people hold the view that now this species is on the Act, it should stay there as a flag waver for gaining public interest in insect conservation. (On a similar short notice occasion NCC successfully advised against the Purple Emperor being put on the Act.)

There are five moths on the Act. The Essex Emerald (*Thetidia smaragdaria* F.) was added to the 1975 Act in 1979 (see *Ent. Rec.*, 91: 258-60) since it was down to a very small colony; there are rumours of a second colony but its status remains critical. The Barberry Carpet. (*Pareulype berberata* D. & S.) has only one small native site, as has the New Forest Burnet (*Zygaena viciae* D & S.) and the Reddish Buff (*Acosmetia caliginosa* Hbn.). The Black-veined moth (*Siona lineata* Scopoli) has few localities.

The protected species among other invertebrates are one dragonfly (*Aeshna isosceles*), three Orthoptera (*Decticus verrucivorus*, *Gryllus campestris* and *Gryllotalpa gryllotalpa*), one leaf beetle (*Chrysolina cerealis*), two spiders (*Eresus niger* and *Dolomedes plantarius*) and three snails (*Monacha cartusiana*, *Myxas glutinosa* and *Catinella arenaria*).

All the above species are protected in England, Scotland and Wales, with provision for fines of up to £1000 per specimen taken or possessed illegally. It is illegal to disturb these species so netting a swallowtail to look at is against the law. Should anyone accidentally take a protected species, for instance a Reddish Buff moth in a light trap, then it should be released; if not recognised as such until dead and set, then it is best to inform NCC of the circumstances. Specimens obtained before 1982 are in the clear. It is however, illegal to trade or barter (or to advertise to do so) in these species or to receive specimens under these circumstances. It is possible to give away prior breeding stock or old specimens providing this is genuinely free rather than barter.

The Nature Conservancy Council does not wish to see long lists of species on this sort of Act anymore than entomologists do. Apart from the administrative implications, there is no point invoking the cumbersome arm of the law against collecting unless there is a real concern that collecting will endanger the survival of a species. In future it will be NCC who has prime responsibility for the listing on species. Such legislation emanating from Parliament is not directed at tripping up the responsible entomologist, it is there as a long stop against people who behave selfishly and irresponsibly towards endangered species.

Entomologists will share the view that conservation of habitats is the most important measure required. Here the Act has very substantially increased the safeguard for Sites of Special Scientific Interest, indeed NCC is now in a position to have a substantial say in how sites should be managed and, specifically, how they should not be managed. It is now imperative that the important entomological sites are given proper protection and that the most

damaging types of management are avoided. The Invertebrate Site Register organised by NCC is timely in these respects and it is hoped that entomologists will take full opportunity to see that their interests are taken into account.



THE USE OF THE TERM 'POCK-MARK' IN ENTOMOLOGY. — Coleophorid leaf-mining larvae make a small entrance hole in the cuticle, the case being fixed at its orifice to the edge of the hole, so that the larva can fully extend itself to feed on the parenchyma without having entirely to quit the safety of its case. The larva then detaches its case and moves elsewhere, leaving behind a conspicuous blanched portion of leaf where it has fed and the tell-tale circular hole so familiar to microlepidopterists. In appearance, this hole resembles in miniature a pit or scar left by a pock, and so 'pock-mark' is suggested as a suitable term for this characteristic and well-known feature among the Coleophoridae. — J. M. CHALMERS-HUNT.

COLEOPHORA PARIPENNELLA ZELLER — A NEW FOODPLANT. — A single larval case of what appeared to be *Coleophora paripennella* was found on 9th June 1981 feeding on *Cirsium arvense* on a wide verge adjacent to the A 299 Thanet Way at Whitstable, Kent. The larva fed for about a week on *Cirsium* and the moth emerged on 14th. July 1981, which Dr. J. D. Bradley very kindly confirmed as *C. paripennella*. Other micro-lepidopterists are believed to have recorded this species from *Cirsium* but I can find no published reference. — N. F. HEAL, Fosters, Detling Hill, Nr. Maidstone, Kent.

CARPOPHILUS SEXPUSTULATUS (FABR.) (COL.: NITIDULIDAE) IN SURREY WITH A NOTE ON ITS HABITS IN BRITAIN. — Amongst beetles revealed by removing the loose bark of a large oak log on 17.iii.1981 in Richmond Park (TQ 1871) was a single example of this species. This would appear to be a new record for the vice-county of Surrey.

In a report for the Institute of Terrestrial Ecology entitled "A Bibliograph of the occurrence of Certain Woodland Coleoptera" by Paul T. Harding (1978), *Carpophilus sexpustulatus* is referred to grade 3 ("indicator of Old Forest in certain circumstances"). This is borne out by the present finding, seeing as Richmond Park has existed for some considerable time.

Occasionally found in stored products, the beetle is found in normal circumstances under the bark of logs — usually those of oak, but also beech, hornbeam, spruce, pine etc. However it seems that the adult will visit carrion (vide *Ent. Mo. Mag.* xviii. 1907, p.82). Most captures stem from the period January to June. The published records of which I am aware give rise to the following list of vice-counties — all in England: 8, 15, 16, 25, 31, 56, 63, 64.

I thank Messrs A. A. Allen, P. M. Hammond and P. T. Hammond and P. T. Harding for their comments. — D. PRANCE, 23 Brunswick Road, Kingston Hill, Kingston-upon-Thames, Surrey.

THE DIPTERA (CALYPTRATAE) OF THE SANDWELL VALLEY, WEST BROMWICH.

By M. G. BLOXHAM*

(Concluded from Volume 94, page 31)

Calliphoridae

The Calliphoridae provide interesting records, three species of limited distribution occurring, these being *Bellardia unxia*, the least common representative of an otherwise abundant genus, *Pollenia varia*, of which only a single specimen has been taken, and *Calliphora subalpina* which occurs in some numbers in most woodland in the valley. The latter species is not only considered an uncommon insect but also an unlikely capture in this area according to present knowledge of its distribution (Van Emden 1954). Of the other species, *Cynomyia mortuorum* has been recorded during most summer months on one particular site but it has never been numerous, *Phormia terraenovae* also falling into this category. The remaining flies of this family are usually abundant throughout the year.

Scathophagidae

Although certain flies of this family are very numerous, the number of species occurring is not great. The four flies of the genus *Scathophaga* are all common on most sites, several other diptera including the bluebottle *Calliphora vicina* and the crane fly *Limonia tripunctata* having been recorded as the prey of *S. stercoraria*. *Norellisoma spinimanum* is often abundant in gardens and at margins of streams. Of the other genera, *Nanna fasciata* is common in many damp places during spring and early summer, *Juncus* species often being very good indicators of likely sites for this fly, while *Carex* beds at the margins of the larger pools house good populations of *Cordilura impudica* and *C. pudica*. *Cleigastra apicalis* is distributed even more widely in similar situations, on one occasion a specimen being taken with the tipulid *Erioptera griseipennis* as prey.

Anthomyiidae

At present there is no R.E.S. handbook for identification of Anthomyiidae and anyone undertaking this task has to rely to a fairly large extent on continental works, as English papers deal with a few genera only. It is therefore probable that the family is still unfamiliar to many dipterists and for this reason, a certain amount of general information on most of the species recorded is included here.

One of the features that makes the family a difficult one to study is that species, even in different genera, are so very similar in the field. This usually means that it is necessary to make ex-

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tensive captures and carry out a microscopic examination of every insect to ensure that species are not overlooked. An additional complication is encountered in that females are often difficult, if not impossible, to identify with certainty and in most cases only careful examination of the genitalia of the males enables the flies to be identified correctly. The species list given for the valley is, therefore, with two exceptions (*Leucophora grisella* and *Eustalomyia festiva*) based on the examination of males.

Of the genus *Chirosia*, three species have been recorded: *C. albitarsis* and *C. parvicornis* having been taken on bracken, the larvae mining the leaf of that plant according to Collin (1955). His observations suggesting the probability of a flight period limited to May and June for *parvicornis* also seem to be corroborated, as the fly was not seen in the locality after the first week in June. The final species recorded, *C. flavipennis*, also occurred in the vicinity of bracken, although no direct association with the plant seemed evident.

Many *Pegohylemyia* species do not seem to be confined to a particular habitat, *P. fugax* being one of the most abundant and widely distributed flies in the locality. The same comments apply to flies of the genus *Lasiomma*, the two species recorded often being found basking on fences during spring and early summer.

The five species of *Hydrophoria* have all been taken in woodland, *H. annulata* and *H. caudata* having been discovered in very shaded situations, the others in open glades or at the margin.

Of the very common anthomyid species, *Craspedochoeta pullula* and *Anthomyia imbrida* are good examples. Both are found in nearly every situation although *C. pullula* does not seem to favour shade as much as *A. imbrida*. Also encountered in numbers during spring and early summer are *Phorbia securis* and *sepia*, which may often be seen basking on fences.

The genus *Leucophora*, like Sarcophagidae associated with Hymenoptera, is well represented and four species are recorded. The closely similar *L. obtusa* and *L. personata* are abroad fairly early in the year in the vicinity of bare ground such as paths and stone heaps, often being present in some numbers. *L. cinerea* and *L. grisella* occur rather later and are apparently more selective in their chosen sites, isolated specimens have so far been discovered only in the vicinity of natural sand pits occurring as a consequence of the weathering of breccias. On the sites mentioned, hymenopterous activity was usually evident, but no attempt was made to determine species present or study any possible associations between the wasps and flies.

Smith (1971) gives information on the occurrence and distribution of *Eustalomyia* species associated with solitary wasps nesting in dead wood and Chandler (1976) also comments on the occurrence of these flies. There seems to be agreement that the species are uncommon in Britain except in certain localities. Observations of *E. festiva* and *E. histrio* in the valley indicate a distinct preference for ancient woodlands, as the insects are only found in one such

area of about 20 acres, being particularly associated with ash trees, on which both species have been taken while basking. Wooden posts and rails nearby were also popular for this purpose. Although the flies have a long flight period in the valley, they never occur in numbers and it is interesting to note that while males of *E. histrio* have been taken, no male of *E. festiva* has yet been captured, an experience also recorded by Chandler (*op.cit.*).

Of the *Delia* species, four seem to be abundant, but *D. lamelisetata* has been taken only once on open meadow land and the solitary *D. criniventris* specimen was netted at the border of a marshy pond in woodland. Of the genus *Hylemya*, all three species seem common in woodland and scrub areas throughout the valley, *H. strenua* also occurring in gardens.

Some flies of certain calypterate genera notably *Melanomyia* (Rhinophoridae), *Hebecnema* and *Spilogona* (Muscidae), are conspicuous in the field by virtue of their strongly blackened wings and males of the anthomyid genus *Heterostylodes* also exhibit this feature. *H. pratensis* was taken at the margin of a wood where it was nearly overlooked owing to its similarity to flies of the other genera mentioned.

While *Paregle radicum* can stake a good claim to be the most abundant and widely distributed Anthomyid in the locality, *P. cinerella* has been recorded only once, a specimen being discovered on a paddock fence post. The well known association of certain flies of the genus *Egle* with *Salix* species is confirmed, the three species all having been taken in early spring on *Salix caprea* catkins, *E. muscaria* having also been captured in a number of other situations. *Nupedia infirma* apparently has a very long flight period and has been found on wooden railings during most of the summer months. It has been recorded as the prey of *Dioctria baumhaueri* on two occasions. In early and late summer, *Pseudonupedia intersecta* often occurs in numbers in such places. The same cannot be said of *Emmesomyia villica* which seems not only to have a limited flight period, but also to be a scarce species. Two males were captured on hawthorn on consecutive dates, but visits to the same area on a number of other days throughout the year failed to reveal any more specimens and none were found elsewhere.

Among the larger anthomyids found in the woodlands is *Pegomya praepotens*, which is to be seen on tree trunks and low vegetation during June and July. According to Chandler (*personal communication*) this species is probably one of the rarer flies of the family.

In concluding, it is surprising that more species of the genus *Pegomya* have not yet been found. Of the two species so far found, *P. nigritarsis* is by far the most common.

Fanniidae

Fanniidae discovered include species that are often extremely numerous in the valley. *Fannia canicularis*, *F. scalaris*, *F. monilis*, *F. postica* and *F. coracina* have been regularly found in my garden, the latter species having also been bred out, together with *F. vesparia*

from a nest of *Vespula vulgaris* (L) found locally. Many of the other species seem to be extremely common at the margins of woodland while *F. hamata* is often found in more shaded localities where it is one of the most accomplished 'hoverers'. The rarer species of the genus *Fannia* have not so far occurred during the survey, the only exception being *F. aequilineata*, which was bred out from detritus found in the hollowed stump of a horse chestnut. Fonseca (1968) recommends breeding experiments as a method most likely to provide the rarer species of the genus and this record would appear to bear this out.

Muscidae

Perhaps the most notable feature of the muscid records is the presence of so many common species. Very few unusual ones occur and, save for *Alloeostylus sudeticus*, a predominantly northern fly with a single southern record (Somerset - Hinton Charterhouse), they do not appear to have any special distributional significance. Of the less frequently encountered species, *Achanthiptera rohreliformis* has been bred out from a nest of *Vespula vulgaris*, but has only twice been discovered in the field. *Phaonia vittifera* and *Lophosceles mutatus*, flies with a scattered distribution over the British Isles also occur, while *Hydrotaea parva* has been found on *Carex* species at the margin of a pond. Of the genus *Mydaea*, five species are found in woodland, the scarce *M. ancilla* being not infrequent. A Staffordshire record for the uncommon *Graphomyia picta* (Madeley), is given in the transactions of the North Staffordshire Field Club (*op. cit.*). The fly is not infrequent on *Carex* species in marshy areas of the valley.

Conclusions.

In general, it seems probable that the Sandwell Valley, West Bromwich, houses a rich fauna of Diptera Calyptratae and that the list given is by no means complete. As yet, no species belonging to the families Oestridae and Gasterophilidae has been found. This may well be a consequence of the gradual loss of farmland, for although horses for recreational purposes are present in some numbers, the varied livestock that might have supported several species of these specialised flies in the past has almost disappeared. No records exist for Hippoboscidae or Nycteribiidae, but the simple traditional collecting techniques used here were hardly designed to make such captures and co-operation with specialists in other orders will probably yield specimens of these flies in due course. The Diptera collected possess a wide range of different life histories and generally confirm much of the present distribution data as given in the R.E.S. handbooks. Explanations as to why certain sub-families are so poorly represented will have to wait until the remaining fauna and flora of the area have been more fully investigated when the overall picture of insect interrelationships in the district may be more complete.

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References

- Ackland, D. M. 1969. Notes on the Palaearctic species of *Egle* R-D (Dipt-Anthomyiidae) with Descriptions of Two New Species. *Ent. Mon. Mag.* **105**, P. 185-192.
- Brindle, A. et al. The Insects of the Malham Tarn Area. *Proc. Leeds Phil. & Lit. Soc.* Vol. IX (2) p. 76-90.
- Britten, H. 1952. Diptera of Staffordshire. Part 2. Edited by J. Edwards. *Transactions of the North Staffs Field Club* p. 44-58.
- Brown, E. 1863. *The Natural History of Tutbury.* p.210-23.
- Chandler, P. J. 1976. Notes on some Uncommon Calypterate Flies (Diptera) Observed During Recent Years. *Ent. Rec.* **88**: 14-19.
- Collin, J. E. 1920. A Contribution Towards the Knowledge of the Anthomyid Genera *Hammomyia* and *Hylephila* of Rondani (Diptera). *Trans. Ent. Soc. Lond.* **1920**: 305-26.
- Collin, J. E. 1955. Genera and species of Anthomyiidae allied to *Chirosia*. *Proc. Roy. Ent. Soc. Lond.* series B23 (5-6): 95-102.
- Collin, J. E. 1958. A Short Synopsis of the British Scathophagidae (Diptera). *Trans. Soc. Brit. Ent.* **13** (3) 37-56.
- Day, C. D. 1948. *British Tachinid Flies.* Arbroath 150pp.
- Emden, F. I. van 1954. Tachinidae & Calliphoridae in *Handbook Ident. Br. Insects* **10**(4a) : 133.
- Fonseca, E. C. M. D'Assis. 1956. A Review of the British Sub-families and Genera of the Family Muscidae (Diptera). *Trans. Soc. Brit. Ent.* **12**: 113-128.
- Fonseca, E. C. M. D'Assis. 1968. Muscidae in *Handbook Ident. Br. Insects*, Vol. X 4(6): 1-119.
- Hennig, W. 1976. In LINDNER 'Die Fliegen der Palaearktischen Region'. 63a - 'Anthomyiidae' p. 1-707.
- Kloet, G. S. & Hincks, W. D. 1976. *A Check List of British Insects.* second edition (completely revised). Part 5. Diptera and Siphonaptera. *Royal Ent. Soc. Lond.* 139pp.
- Ringdahl, O. 1952. A Survey of the Swedish species of *Hydrophoria* and *Acroptena*. *J. Soc. Brit. Ent.* **4**(4): 75-83.
- Smith, K. G. V. 1971. *Eustalomyia hilaris* Fallen (Dipt. Anthomyiidae) Confirmed as British with Notes on other species of the Genus. *Ent. Gaz.* **22** : 55-60.
- Stubbs, A.E. et al. 1977. The British Insect Fauna in 'Antenna', (*Bull. Royal Ent. Soc. Lond.*). **1** (1) : 23 - 27.
- Sutton, S. 1972. *Woodlice.* Ginn & Company, p 58-60.

A NEW COUNTY RECORD FOR CORNWALL, WITH OBSERVATIONS ON OTHER NOTABLE MACROLEPIDOPTERA IN THE COUNTY

By M. HADLEY*

I was fortunate enough, in the company of Mr Mark Parsons to spend two weeks (24 August – 5 September 1981) on vacation in Cornwall. We enjoyed the best of the summer of 1981 with a spell of fine uninterrupted weather which brought to light some species of note to the county.

Ipimorpha retusa Linn., a new county record. This species was found by M. Parsons and J. Gregory at Breney Heath near Bodmin on the 26th August, a single specimen being captured. A follow up visit to the site on the 29th produced another five specimens though most were released due to damage. I would think it likely that this species could be found at other similar sites in the county where *Salix carr* has invaded old mine-workings.

Tholera cespitis D. & S., stated by the *Victoria County History* to be scarce and local. *T. cespitis* has been recorded from only the following localities, Falmouth (1905), Tresco on Scilly (1925), Redruth district (1943-58), Perranporth (recently), Coverack (1976), St. Agnes (1969) and Mullion Cove (1977). Bearing in mind the paucity of records for this species we add the following localities:— Polruan (1) 28.8.81, Porkellis Moor, Wendron (several) 27.8.81 and Breney Heath, Bodmin (1) 29.8.81.

Lithosia quadra Linn. There exists a general body of opinion that this species is now resident on the coast, the VCH recording *quadra* as 'widely distributed but local'. E. H. Wild et al. (1973, *Ent. Rec.* 85: 275-9) records the species from Menabilly as very common, with a nightly average of forty individuals, the best total recorded being seventy-two in one night. I was not therefore surprised to record five *quadra* at light at Polruan, just a few miles from Menabilly, four on the 28 August and one taken on the 1 September.

Pterapherapteryx sexalata Retzius seems from its recorded history to be a very elusive insect in the county with only three localities cited by R. Heckford. The VCH states a specimen was taken in 1905 close to Liskeard, F. Smith records the species from Perranporth (1962 and 1967), and John Gregory from Par (1978). The species was recorded from Breney Heath on 26.8.81 and 29.8.81.

Other species of note observed during the holiday were *Anarta myrtilli* Linn., recorded from Porkellis Moor, the larvae being swept from the top of heather on the 27 August, *Eupithecia phoeniciata* Rambur., taken twice at Polruan and suspected of breeding locally; specimens were taken on 26.8.81 and 2.9.81. The rather rare and local *Stilbia anomala* Haworth, and *Xestia castanea* Esp., were also recorded from Breney on 29.8.81.

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Acknowledgements

I should like to thank Mrs S Turk of the University of Exeter; Cornish Biological Records Centre for access to considerable amounts of data on Cornish Lepidoptera and equal quantities of hospitality.

My thanks are also due to Dr F Smith who gave me helpful advice, and to R Heckford who made available written notes on several of the species noted in this article and from which I have freely drawn information.

I also take this opportunity of acknowledging the financial support from the Nature Conservancy Council in making these trips possible.

THE SCARCE MERVEILLE-DU-JOUR: *MOMA ALPIUM* OSBECK AT ORLESTONE FOREST. — On 30 June 1981, I visited the Kent Trust Reserve (compartment 11) in Longrope Wood to discuss future management of the reserve with the Conservation Officer and two other members of the Trust. When we stopped in the middle of this block of oak woodland I just happened to look at the trunk of the oak tree next to me, and there, just above eye-height, was a freshly emerged *Moma alpium*. After admiring it, we made a point of having a good look at the trunk of every oak we passed after that, but found no more moths. I was, however, able to find the original moth again that evening to take some photographs of it: not easy at 6 feet up a tree trunk! No *alpina* appeared at two mv lights or a couple of dozen sugar patches in the wood that night, not even the one we knew was there, which had dropped like a stone into the undergrowth when I disturbed it, in an attempt to get it into a better position for photographing it. I see from the Forestry Commission permit holders' records that Messrs. R. F. Eley and R. Fairclough recorded this species at Orlestone in 1979. — M. ENFIELD, New Cottage, Warren Farm, Boughton Aluph, Ashford, Kent.

COLEOPHORA POTENTILLAE ELISHA (LEP.: COLEOPHORIDAE) — SOME OBSERVATIONS. — Having collected a number of cases of what I had assumed to be *Coleophora violacea* Strom from birch in Havant Thicket, Hampshire, in the autumn of 1980, I was not a little astonished to find that the moths which emerged in May 1981 were practically all *C. potentillae*, only one of them being *violacea*. In October 1981 Col. D. H. Sterling and Mr. P. H. Sterling, collecting in the same locality, noted that cases of *potentillae* were particularly common on *Potentilla erecta*, and also feeding on *Betula* and *Salix atrocinerea* seedlings growing among the *Potentilla*. I think this is the first record of *potentillae* found on a foodplant other than *Rosaceae*.

In September 1981 Messrs. E. C. Pelham-Clinton, R. J. Heckford and I were collecting near Crackington Haven in Cornwall, and found *potentillae* to be extremely abundant. The cases were most common on *Prunus spinosa*, but also found on *Crataegus monogyna*, *Rubus fruticosus* and *Potentilla erecta*. — J. R. LANGMAID, 38, Cumberland Court, Festing Road, Southsea, Hants.

WHAT AILS ADONIS?

A. C. MORTON*

In common with several other species, the Adonis Blue butterfly *Lysandra bellargus* Rott. has experienced a decline in recent years. Ecological studies which are in progress (Dr. Jeremy Thomas, personal communication) may suggest reasons for this decline and, hopefully, allow effective conservation measures to be taken. As part of a wider conservation effort (Morton, in press *Biological Conservation*) *L. bellargus* has also featured in laboratory studies. In 1981, these studies suggested a fascinating aspect of the ecology of *L. bellargus* which deserves further investigation.

Lysandra bellargus and *L. coridon* Poda are often cited as examples of insects whose distributions are limited by that of their larval foodplant. However, both species may be absent from sites where this plant, *Hippocrepis comosa* L., is quite abundant. Moreover, although some sites support sizeable populations of both species, *L. bellargus* is frequently absent from sites which are suitable for *L. coridon*. Although this may be as a result of competitive exclusion, there are no data with which to support this view. Perhaps a more likely explanation is that *L. coridon* has ecological requirements which are more easily met than those of *L. bellargus*.

Both *bellargus* and *coridon* may be reared on artificial diets (Morton, 1981). During 1981 a group of *bellargus* larvae failed on one particular batch of diet, although this same batch was accepted by *coridon*. It was noted that this batch contained *Hippocrepis* leaf powder, from plants collected at a site which supports only *coridon*. Could it be that the diet failed because it contained plant material which was toxic to *bellargus*? Based on this chance observation, I would like to suggest the following hypothesis, which will be tested experimentally in 1982.

Many legumes are cyanogenic and there is direct evidence that cyanogenesis in *Lotus corniculatus* L. and *Trifolium repens* L. does have a protective function against herbivores, especially snails and slugs (Jones, 1962; Ellis *et al.*, 1977a, 1977c). The chemistry of cyanogenesis is reasonably well understood (Conn, 1973; Seigler, 1975) and the genetic basis of the character in the two plants mentioned above has been discussed by Nass (1972) and by Jones (1977). Moreover, phenotypic expression of cyanogenesis may depend on temperature in some individuals (Ellis *et al.*, 1977b). Reduced expression of the cyanoglucoside under cold conditions would not be deleterious since molluscs are notably inactive at low temperatures (Crawford-Sidebotham, 1972). However, in the absence of selective grazing the cyanogenic forms are probably at a disadvantage to the acyanogenic plants, due to their increased metabolic demands.

Compared to molluscs, lycaenid larvae are probably fairly insignificant herbivores. By fortunate mutation some, such as *Polyommatus icarus* Rott., synthesize the enzyme rhodanese (Parsons &

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Rothschild, 1964) and can detoxify the foodplant. By doing so, they are able to exploit a food resource which is not accessible to animals lacking rhodanese, and thus experience reduced competition.

Given the above facts, one only has to assume that (a) *Hippocrepis comosa* is like other legumes and is polymorphic for cyanogenesis, (b) *coridon* larvae possess rhodanese and can detoxify these plants, and (c) *bellargus* larvae lack this enzyme, to produce a plausible hypothesis for *bellargus* having a more restricted range than *coridon*. Thus, *coridon* can exist on sites where the plants are toxic or non-toxic, whereas *bellargus* would be restricted to the latter.

In the absence of experimental tests of this hypothesis, we can only judge its plausibility by testing its predictions against field observations. In addition to the basic differences in distribution, there are some other predictions:

- 1) Production of rhodanese would be metabolically expensive so *coridon* should have a longer larval stage than *bellargus* due to reduced feeding efficiency.
- 2) *coridon* adults dispersing from their home sites are likely to have equal reproductive success whether the new sites they reach have toxic or non-toxic plants. For *bellargus*, however, such new sites may be unsuitable since most plants may be cyanogenic. We would therefore expect *coridon* to have higher dispersal rates than *bellargus*.
- 3) Maximum expression of cyanogenic phenotype might be expected between April and June, the period of maximum grazing by molluscs. *L. bellargus* would be able to exploit 'cyanogenic' plants by avoiding this time; i.e. feeding before April and after June. However, *coridon* may have to partly compensate for a longer larval stage by feeding at higher temperatures.

While these phenomena may be explained in many other ways, it is at least of some interest that the field observations are not contrary to the independent predictions of the hypothesis. However, even if the basic idea proves sound, the true situation is likely to be more complicated. For example, *bellargus* may possess rhodanese but a form of the enzyme which is effective only at different temperatures from the form which may be found in *coridon*. Or the effect may be due to an entirely different complex of toxic plant materials.

If readers agree that the idea is plausible, they could provide valuable assistance with the experiments this season. Initially, there is a need to screen plants in *coridon* and *bellargus* sites for production of cyanide. If anyone would be prepared to provide samples of plants for analysis, I would be most grateful if they would contact me.

References

- Conn, E. E., 1973. Biosynthesis of cyanogenic glycosides. *Biochem. Soc. Symp.*, 38, 277-302.

- Crawford-Sidebotham, T. J., 1972. The role of slugs and snails in the maintenance of the cyanogenesis polymorphisms of *Lotus corniculatus* and *Trifolium repens*. *Heredity*, **28**, 405-411.
- Ellis, W. M., Keymer, R. J. & Jones, D. A., 1977a. The defensive function of cyanogenesis in natural populations. *Experientia*, **33**, 309-311.
- Ellis, W. M., Keymer, R. J. & Jones, D. A., 1977b. The effect of temperature on the polymorphism of cyanogenesis in *Lotus corniculatus* L. *Heredity*, **38**, 339-347.
- Ellis, W. M., Keymer, R. J. & Jones, D. A., 1977c. On the polymorphism of cyanogenesis in *Lotus corniculatus* L. VIII Ecological studies in Anglesey. *Heredity*, **39**, 45-65.
- Jones, D. A., 1962. Selective eating of the acyanogenic form of the plant *Lotus corniculatus* L. by various animals. *Nature*, **193**, 1109-1110.
- Jones, D. A., 1977. On polymorphism of cyanogenesis in *Lotus corniculatus* L. VII The distribution of the cyanogenic form in Western Europe. *Heredity*, **39**, 27-44.
- Morton, A. C., 1981. Rearing butterflies on artificial diets. *J. Res. Lep.*, **18**, 221-227.
- Morton, A. C. (in press) Butterfly conservation — The need for a Captive Breeding Institute. *Biol. Conserv.*
- Nass, H. G., 1972. Cyanogenesis: Its inheritance in *Sorghum bicolor*, *Sorghum sudanese*, *Lotus* and *Trifolium repens* — A review. *Crop Science*, **12**, 503-506.
- Parsons, J. & Rothschild, M., 1964. Rhodanese in the larva and pupa of the common blue butterfly (*Polyommatus icarus* (Rott.)) (Lepidoptera). *Ent. Gaz.*, **15**, 58
- Seigler, D. S., 1975. Isolation and characterization of naturally occurring cyanogenic compounds. *Phytochemistry*, **14**, 9-29.

THE DINGY SKIPPER: *ERYNNIS TAGES* L. AB. *RADIATA* BROWN IN DORSET. — On the 17th June 1979, at my school, Milton Abbey, Dorset, I took a short series of *E. tages*, one of which was a variety, although I did not know its name. However, in December 1981, Mr. John Swiner kindly lent me some back issues of the *Record* to browse through. In the October 1970 issue, plate XV, p.253, there is a photograph and description by A. D. R. Brown of *E. tages* ab. *radiata*. I instantly recognised this specimen as being almost identical to my own which is ♂, and although a little worn is still very distinctive. Mr. Brown (*loc. cit.*) states that he knows of the existence of only two ab. *radiata* (his own included), so it is pleasing to be able to record a third example. — R. D. G. BARRINGTON, Old College Arms, Stour Row, near Shaftesbury, Dorset SP7 0QF.

CORRECTIONS. — In vol. 93, p. 197, line 5 up, for *monsticta* read *monosticta*; line 3 up, for *discupuncta* read *discipuncta*, for *Area* read *Aroa*; line 2 up, for *Nemerophanes* read *Hemerophanes*, for *N. enos* read *H. enos*. — D. G. SEVASTOPULO.

THREE SPECIES OF *LEUCOPIS* MEIGEN (DIPTERA: CHAMAEMYIIDAE) NEW TO BRITAIN

By Dr. I. F. G. McLEAN*

The Chamaemyiidae is a family of acalyptrate Diptera with 25 species recorded from Britain (Kloet and Hinks, 1976), whose known larvae are predators of Homoptera. Typically, the adults are small (less than 4 mm long) with distinctive silver-grey dusted bodies, and many species have paired black spots on the abdominal tergites. The adults may be collected by sweeping plants infested with their larval prey, or by rearing from larvae found in association with aphids, adelgids or scale insects (McLean, 1978). Keys to the British species are given by Smith (1963) and Collin (1966). Recent collecting by the author and examination of museum collections has resulted in the discovery of additional species in the genus *Leucopis* Meigen, three of which are dealt with here. Revised keys are not given at this time pending the addition of further species, but consulting the references cited will enable these three species to be identified with the exception of *Leucopis geniculata*, for which distinguishing characters are given in the text.

Leucopis (Leucopis) argenticollis Zetterstedt. The identity of this species has been established by McAlpine and Tanasijtshuk (1972), who give a detailed description with figures of both sexes. They record the larvae as being predators of Adelgidae (Conifer Woolly Aphids), especially of *Pineus* species on Pines.

MATERIAL EXAMINED: SUFFOLK, Wangford Warren (SNT reserve) 20. VIII. 1977, 1 ♀ swept from *Pinus sylvestris* L. leg. I. F. G. McLean (lacks antennae).

Leucopis geniculata Zetterstedt. I am indebted to Dr. J. F. McAlpine (Ottawa) for kindly identifying a British pair (from East Wretham) of this species, and for giving me a copy of his notes on the holotype female in the Zetterstedt collection, University Zoological Museum, Lund, Sweden, which he made in April 1966. This species may be separated from other British *Leucopis* which possess a pair of strong pre-scutellar acrostichals by the broad frons (about half total head width) and usually by the presence of 4-6 outstanding postsutural dorsocentral bristles. *Leucopis (Lipoleucopis) praecox* de Meijere also has these characters, but in this species the costa ends at vein $R_4 + 5$ while in *L. geniculata* it continues to vein $M_1 + 2$. *L. geniculata* also lacks a proscutellum (see McAlpine, 1960) and all these similarities, together with similarities in the structure of the male genitalia seem to indicate a close relationship to *L. praecox*. However, the subgeneric position of *L. geniculata* has not yet been definitely established. It is probably a larval predator of Adelgidae as adults have been swept from foliage of *Pinus sylvestris* infested with *Pineus pini* Macquart.

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MATERIAL EXAMINED: ABERDEENSHIRE, Glen Tanar 31.V.1980, 5 ♀ swept from *Pinus sylvestris* leg. I. F. G. McLean; DUMBARTONSHIRE, Bonhill ? date 31.III.1906, 1 ♀ leg. J. R. Malloch, in RSM; NORFOLK, University of East Anglia, Norwich 1.VI.1977, 3 ♀ ; Kilverston, Thetford 17.V.1978, 2 ♀ ; East Wretham (NNT reserve) 20.V.1978, 7 ♂ and 13 ♀ ; 28.V.1978 4 ♀ , all swept from *Pinus sylvestris* and leg. I. F. G. McLean; SUFFOLK, Barton Mills 11.V.1938, 1 ♂ ; 17.V.1938, 1 ♀ ; 15.IV.1961, 1 ♂ ; Worlington 12.V.1944, 1 ♂ ; 9.IV.1945, 4 ♂ (1 lacks head) and 2 ♀ ; 29.IV.1947, 2 ♀ ; 7.V.1947, 2 ♀ ; 29.IV.1949, 1 ♂ , all leg. J. E. Collin, in HEC; Tuddenham NNR 17.V.1978, 6 ♀ swept from *Pinus sylvestris* leg. I. F. G. McLean; Lakenheath Warren 25.V.1980, swept from *Pinus sylvestris* 3 ♀ leg. I. F. G. McLean and 1 ♀ leg. P. J. Chandler; SURREY, Oxshott Heath 4.VI.1977, 1 ♀ swept from *Pinus sylvestris* leg. I. F. G. McLean.

Leucopis (Neoleucopis) orbiseta McAlpine. This species was described by Dr. McAlpine, in his 1971 world revision of the subgenus *Neoleucopis*, from six specimens from Finland, and he has kindly confirmed the identity of two males and one female from Britain (East Wretham). Like the two species discussed above, *L. orbiseta* would appear to be a larval predator of Adelgidae. It is not clear whether the pair from Cheshire collected by Britten were reared from *Pineus strobi* Hartig, or if they were collected as adults from trees infested with this woolly aphid (there are no puparia preserved with the specimens).

MATERIAL EXAMINED: CHESHIRE, Delamere 28.VIII.1924, 1 ♀ ; 29.VIII.1924, 1 ♂ (lacks genitalia) both labelled "on *Pineus strobi*" leg. H. Britten, in Verrall-Collin coll. HEC; NORFOLK, East Wretham (NNT reserve) 20.V.1978, 1 ♀ swept from *Pinus sylvestris* leg. I. F. G. McLean; 28.V.1978, swept from *Pinus sylvestris* 23 ♂ and 8 ♀ leg. I. F. G. McLean and 1 ♀ leg. Miss C. Brown; Holme Dunes (NNT reserve) 8.VII.1978, 1 ♀ swept from *Pinus nigra* var. *maritima* (Ait.) Melville leg. J. W. Ismay; SUFFOLK, Barton Mills 29.VIII.1939, 1 ♂ ; 25.VII.1941, 1 ♂ , both leg. J. E. Collin, in HEC; Wangford Warren (SNT reserve) 20.VIII.1977, 2 ♀ swept from *Pinus sylvestris* leg. I. F. G. McLean.

ABBREVIATIONS USED: HEC – Hope Entomological Collections, RSM – Royal Scottish Museum NNT – Norfolk Naturalists' Trust, SNT – Suffolk Naturalists' Trust.

Acknowledgements

It is a pleasure to thank Dr. J. F. McAlpine (Ottawa, Canada) for all his help with my studies of Chamaemyiidae. I thank Dr. M. W. R. de V. Graham (HEC, Oxford) and E. C. Pelham-Clinton (RSM, Edinburgh) for allowing me to examine the collections in their charge, the Norfolk Naturalists' Trust for permission to record insects from their reserves, the Suffolk Naturalists' Trust for permission to record insects at Wangford Warren, and Dr. J. W. Ismay (Port Moresby, Papua New Guinea) for collecting Chamemyiidae in Britain and for advice and encouragement in many ways.

References

- Carter, C. I., 1971. Conifer Woolly Aphids (Adelgidae) in Britain. *Forestry Commission Bulletin* No. 42. HMSO, London.
- Collin, J. E., 1966. The British Species of *Chamaemyia* Mg. (*Ochthiphila* Fln.) (Diptera). *Trans. Soc. Brit. Ent.* **17**(4), 121-128.
- Kloet, G. S. and Hincks, W.D., 1976. Diptera and Siphonaptera, Check Lists of British Insects, second edition. *Handbk. Ident. Br. Insects*, **11** (5).
- McAlpine, J. F., 1960. A new species of *Leucopis* (*Leucopella*) from Chile and a key to the World Genera and Subgenera of Chamaemyiidae (Diptera). *Can. Ent.* **92**, 51-58.
- McAlpine, J. F., 1971. A revision of the subgenus *Neoleucopis* (Diptera: Chamaemyiidae). *Can. Ent.* **103**, 1851-1874.
- McAlpine, J. F. and Tanasijtshuk, V. N., 1972. Identity of *Leucopis argenticollis* and description of a new species (Diptera: Chamaemyiidae). *Can. Ent.* **104**, 1865-1875.
- McLean, I. F. G., 1978. Aphids and their allies (Homoptera: Sternorhyncha). In *A Dipterists Handbook. Amateur Entomologist* **15**, 176-183.
- Smith, K. G. V., 1963. A short Synopsis of British Chamaemyiidae (Dipt.). *Trans. Soc. Brit. Ent.* **15** (6), 103-115.

PIERIS RAPAE L. AND CARDARIA DRABA [CRUCIFERAE] AS A LARVAL FOODPLANT. — This plant, commonly known as Thanet Cress, a native of S. and C. Europe and Western Asia, was introduced into Britain in 1809, and is now a common plant of roadsides and waste land in N. Kent, especially near the Thames estuary, forming dense clumps with conspicuous masses of white flowers in May and June. On a number of occasions I have observed females of the vernal brood of *P. rapae* laying eggs upon this plant, as at Crayford on June 13th, 1981. In 1979 butterflies were reared from such eggs found at Greenhithe, the larvae being given only Thanet Cress.

On August 12th, 1981, on some waste land close to Dartford Heath, I watched two female *P. rapae* flying purposefully over the tall grasses and at intervals disappear amongst them. Investigation showed that they were seeking somewhat deteriorated plants of Thanet Cress, largely hidden from view, upon which to lay eggs.

It appears that *C. draba*, at least in N. W. Kent, is a significant larval foodplant for both broods of *P. rapae*, although I cannot find reference to *C. draba* as a pabulum for this insect in the textbooks and journals.

A further observation made at Crayford on June 13th, 1981, was that many male *P. brassicae* L. were present and appeared to settle frequently amongst the considerable masses of Thanet Cress. However, this was illusory, for close inspection revealed that they were seeking isolated plants, largely hidden, of common vetch, *Vicia sativa*, upon which to feed. — B. K. WEST, 36 Briar Road, Bexley, Kent.

Bernard Sinclair Goodban

Bernard Goodban died suddenly on 18th December 1981 at the age of 80, he having been born on 11th June 1901. His interest in the macrolepidoptera was lifelong and while general in earlier years, he later concentrated entirely on the Geometridae (excepting the "pugs").

He will be remembered by many as co-discoverer in this country in 1956, of *Xanthorhoe birviata* Borkhausen (Balsam Carpet). He also took an active part in the investigation into the Lepidoptera of the Ruislip District in the 1950s, which included hundreds of records of the forms of *Biston betularia* L., which were valued by Dr. Kettlewell in his work on melanism. Always keen on rearing moths, especially varieties, he was involved in the establishment of the genetic basis of ab. *brunneata* Cockayne of *Ennomos autumnaria* Werneburg.

A modest and kindly man ever willing to help anyone, he will be greatly missed by his many friends. It is understood that his collection of Geometridae will go to the British Entomological and Natural Society. — W. E. MINNION.

William Ernest Collinson F.C.I.S., F.R.E.S.

Bill Collinson, was born in Mumbles, South Wales on the 21st January 1920, and died at his home in Ringwood, Hants on the 22nd December 1980, after a long illness which he bore with great fortitude.

A keen naturalist from an early age, Bill gave many Natural History lectures, and in 1971 appeared on television in a programme on conservation. His real love, however, were the lepidoptera, and main speciality the Northern Eggar: *Lasiocampa quercus* ssp. *callunae* Palmer, about which he wrote a paper dealing with its many aberrations. This paper on the "Black Eggar" appeared in the *Proceedings of the Yorkshire Naturalist* for 1956. He also wrote numerous articles in the *Bulletin of the Amateur Entomological Society*. But, without doubt, his principal contribution to entomology is *The Butterflies and Moths of Halifax and District* (1970), an annotated list of 334 macrolepidoptera recorded since 1832 in the old parish and district of Halifax.

Bill formed an extensive collection the greater part of which he bequeathed to his son D. P. Collinson of Liss, including a remarkable aberration of *Drymonia ruficornis* Hufn. (cf. *Proc. Brit. ent. nat. Hist. Soc.*, 1974: 7(1) pl. I, fig. 9); but the cabinet with the butterflies and moths mentioned in his Halifax List has been given to the Halifax Scientific Society and Museum.

No words can express the real feeling of personal loss felt by his many friends who knew and loved him, and our sympathy is extended to his widow, to his son and daughter and to his grandchildren. — ROBERT AND AMANDA WATSON.

John Venour Gane

John Gane was born in Bridlington, Yorkshire on 19th July 1907, and died on 27th January 1981. His parents had a boys' preparatory school at Marton Hall, near Bridlington, and it was from them that he drew his broad interest in Natural History as part of his daily instruction, and in 1937 succeeded his father there as headmaster.

His main interest was in the macrolepidoptera of Norfolk, and in particular those of the Broads. He was also the younger brother of C. W. G. Gane who had a locality in Norfolk for *Catocala fraxini* L., where it appears to have been resident and was taken in numbers in 1933 and 1934.

John was very meticulous in his recording, writing up full lists of species and numbers on every occasion. He corresponded with and met many of the Norfolk people, and it was with their help that between 1970 and 1980 he compiled a list of the lepidoptera of Norfolk. This list, which was almost completed at the time of his death, was never published and is at present in the hands of the writer as are his Notebooks, Card Index and Collection.

Much of his collecting was done with light, but unenamoured with the design of the Robinson Trap, he produced a light trap to his own specification by commissioning a joiner to build a double-walled folding wooden carcass, canvas-lined to give the moths purchase. He redesigned the collar out of solid perspex, lengthened the funnel to eighteen inches, and enclosed the bulb inside a perspex cover. This ambitious construction was situated on the roof of his garage within a stone's throw of Barton Broad, where among many interesting species he took *Orgyia recens* Hbn. (bred 25.5.1973 from larvae found on meadowsweet) and *Eilema pygmaeola pygmaeola* Dbldy.

John was a quiet and thorough collector always willing to share his extensive knowledge, and will be greatly missed by all who knew him. — MARK HADLEY.

Notes and Observations

A VERY FINE EXHIBITION. — I am getting old and can no longer chase *Colias croceus* in August over clover fields. But in October 1981, I was pursuing certain ecclesiastical quarries, and my wife and I spent ten days in Verona in Northern Italy. What a lucky choice it was, for there in the heart of the City in the Palazzo Gran Guardia was this exhibition of farfalle (butterflies) of the world.

The Catalogue is obtainable from the Museo Civico di Storia Naturale at Verona, and contains some 70 pages with colour pictures and diagrams. We are told on p. 69 that the collection of butterflies together with that of Coleoptera and Hemiptera comprises the most important collection in the Verona Museum. There are over one million in number with some 50000 butterflies. This they say is one of the most important collections in Italy, most of the insects coming from Piemonte and Veneto with some from Kenya and Brazil.

On p.66 it is interesting to read that the following are among the species that have become extinct in the region: *Araschnia levana*, *Euphydryas aurinia* and *Thecla betulae*. I was fascinated by the diagrams of insect flight which record the variety of flight which we old bug hunters know so well; but alas, this does not appear in the Catalogue, for it is something I have not seen recorded before. There is the personal note too, in photographs of Carlo Recchia and Rosetto Gioco at work in their laboratories.

But what interested me more than almost anything were the pre-Linnean species on show. I did not know there were any. But there it was — *Papilio canaria* in a 1750 (?) collection for what we know as *Gonepteryx rhamni*. A brown, labelled 'occulata'. A pre-Linnean fritillary labelled 'aglaia'. And of moths, dear old *S. convulsi*. I'm working hard with a dictionary. What happy fortune brought me to Verona. — Rev. Canon P. C. HAWKER, St. Botolph's Vicarage, 84 Little Bargate Street, Lincoln LN5 8JL.

A SOUTH AMERICAN SYNTOMID IN CAMBRIDGE. — In October 1981 my wife was given a 'nasty black stinging fly' by our local greengrocer in Chesterton, Cambridge. It had apparently suddenly appeared and alarmed the customers. The specimen, which was in excellent condition, appeared to be freshly emerged and was a male of *Ceramides vividis* Druce. This is a reasonably common South American syntomid whose larvae are recorded as being a minor pest of banana trees, with whose fruit it was almost certainly imported. I have seen many things from our local shops, mostly beetles, but also cockroaches, spiders and once a tree frog. This however is the first Lepidopteran. I hope for others. — B. O. C. GARDINER, University of Cambridge, Department of Zoology, Downing Street, Cambridge.

MR. J. RAE AND HIS RECORDS, AND A NOTE ON MR. WILLIAM REID OF PITCAPLE. — Whilst recently browsing through Prof. Trail's 1878 list of the "Lepidoptera of Dee" (*Trans. nat. Hist. Soc. Aberdeen*, 1878: 28-42), I noted that the extremely puzzling and unlikely record of *Argynnis paphia* at Muchalls, Kincardineshire was due to Mr J. Rae. Idly moving on to another unlikely record, that of *Erebia medea (blandina)* (= *aethiops*) on the coast at Nigg, Kincardineshire I again found Mr. Rae's authority used. Now roused I searched the list and noted all Mr. Rae's records. They are few but choice!

As well as the two noted above he lists *Zygaena trifolii* between Muchalls and Stonehaven, *Liparis auriflua* (= *Eproctis similis*) at Aberdeen and *Botys verticalis* (= *Pleuroptya ruralis*) at Shetlocksley, Aberdeen. Now the last is still found rarely, scattered throughout lowland Aberdeenshire, but the others are very peculiar. Indeed some authors have had to devote considerable, fruitless time and space to accounting for them in their biogeographical speculation. It seems to me that a strong circumstantial case can be made for regarding Mr. Rae as, shall we just say, unreliable, and my advice would be for people to allow his records to vanish gracefully.

Having impugned one reputation may I resurrect another. P. B. M. Allan, whose writing I admire and enjoy greatly, discusses

Eumichtis (= *Blepharita*) *satura* in "A Moth Hunter's Gossip" (1947), and suggests most amusingly that William Reid from Pitcaple, Aberdeenshire cleverly beat up a lucrative trade in the moth by discussing its larval habits. All very possible, but firstly Reid was not a dealer, as Allan suggests, and secondly all his writings, and especially his learned and comprehensive "List of the Lepidoptera of Aberdeenshire and Kincardineshire" (1893) are redolent of integrity. He was a microlepidopterist of real skill, and we are still rediscovering many of the species which he listed and which to us seemed rare and perhaps unlikely. If you read his works I am sure you will conclude, with me, that far from being a canny dealer he was actually a learned and reliable field lepidopterist. I would like him to be revered, not villified! — M. R. YOUNG, Department of Zoology, Aberdeen University, Tillydrone Avenue, Aberdeen.

DANAUS PLEXIPPUS L. IN THE ALGARVE, PORTUGAL, 1981. — The reports of this butterfly in South-West England in the first four pages of the November/December 1981 "Record" make my own experience worth recording in a journal primarily concerned with British entomology.

We holidayed at the Montechoro Hotel just outside Albufeira in the Algarve from 2nd to 16th October. For the first few days the weather was mixed and worsening with a wind from the South-West which is unusual in this part of Portugal. There were few butterflies about but I was struck by the plentiful supply of Lantana bushes in the hotel and neighbouring gardens and these reminded me of Teneriffe where they are so well patronised by the Monarchs.

When the wind changed back to the North we were blessed with settled weather and very warm sunshine and almost immediately *D. plexippus* appeared gliding round the swimming pool on the 9th, it was seen on most days during the ensuing week, usually on or near the Lantana. Knowing nothing of the events in England and hoping that specimens from the Canaries might be settling in the Algarve I made no attempt to catch it though nothing could have been easier as it rested on the flowers and was obviously in very good condition.

I am not aware whether it is possible to distinguish a specimen from the Canary Islands from one from America, but in view of the shorter distance and favourable wind this seems the more likely source for the Algarve specimen and does not seem so unlikely for the Cornish specimens. It would be interesting to know how many more Monarchs were seen along the Western sea-board of Europe at this time. — C. I. RUTHERFORD, Longridge, Macclesfield Road, Alderley Edge, Cheshire, SK9 7BL.

INTERESTING MOTHS AT MV LIGHT AT OR NEAR WYE, KENT IN 1981. — This year, I ran Robinson traps continuously at Wye College from May to August, and in my garden on the downs above Boughton Aluph intermittently throughout the year. May and most of June produced very low numbers of both species and individuals, but the situation improved in July and August. The more interesting species trapped were: —

Rhyacia simulans Hufn., at Wye on 29 July, now recorded for

the fourth year running in Kent, after its first capture in the county in 1978. The date is interesting, since the adults are supposed to aestivate from mid July to mid August. *Diarsia dahlia* Hbn. Boughton Aluph, 25 August; the first record for the area for 12 years. *Arenostola phragmitidis* Hbn., one at each site on 7 August; the appearance of two fresh specimens on the same night some distance from any possible breeding ground suggests a possible dispersal flight that night. *Hadena confusa* Hufn., Boughton Aluph, 2 July, the first record here in five years. *Evergestis extimalis* Scop., Boughton Aluph, 25 August. — M. ENFIELD, New Cottage, Warren Farm, Boughton Aluph, Ashford, Kent.

ANOTHER FOODPLANT OF THE YELLOW SHELL: CAMPTOGRAMMA BILINEATA L. — Publication of the recent note on the larval foodplants of *C. bilineata* (West, *Ent. Rec. J. Var.*, **93**, 198, 1981) happened to coincide with a re-examination of the note-books kept by myself and my brother (S. A. Knill-Jones) between 1955 and 1962. The entry for 17.4.1957 includes a note to the effect that night-searching for larvae at Freshwater, Isle of Wight (OS.SZ. 3387) revealed one stout green larva with a dark dorsal line, whitish lateral line and brown head, on *Ranunculus ficaria* L. (Ranunculaceae). The resulting imago emerged on 22.6.1957. There is no note that feeding was actually observed, but this would not be expected as the note-books rarely contained such observations unless the originally recorded foodplant was found to be unacceptable. The brief larval description is consistent with that given in Stokoe and Stovin, *Caterpillars of British Moths*, (F. Warne, London, 1948) and the note makes it highly likely that *R. ficaria* is a foodplant for the post-hibernation larvae of *C. bilineata* in the wild. — R. P. KNILL-JONES, 9 Crown Road South, Glasgow, Scotland

FURTHER RECORDS OF MONOCHROA HORNIGI (STAUD.) — I recently had cause to re-examine and dissect some *Monochroa* spp. This led to the discovery that I had taken *M. hornigi* at Enfield, Middx., 14.vii.1979 and at Southampton, 17 & 19.vi.1970.

The latter specimens had previously been misidentified as *M. elongella* (Hein.) and are so-recorded in Goater's list of Hampshire lepidoptera. I did find, however, that I have a specimen of *elongella* from Braunton Burrows, North Devon, 26.viii.1970, which was correctly identified. This is a scarce and local species whose larva feeds on *Potentilla anserina*. — D. J. L. AGASSIZ, The Vicarage, 10, High View Avenue, Grays, Essex RM17 6RU.

THE RISE OF THE CYPRUS PUG: EUPITHECIA PHOENICEATA RAMBUR IN THE EASTBOURNE AREA. — This moth has been spreading along the south coast and was first noted in Eastbourne on 27 August 1978 at light in my old garden. In 1979, two were noted: one by Mr. M. Hadley and one by Mr. S. W. P. Pooles. In 1980, a further eight specimens were captured, including one netted near the cliffs at Holywell by Mr. C. Pratt. In 1981, fewer traps were run in the area; however, the moth was noted in increased numbers with a total of 15, including one interesting record of it from Deep Deane which is some way from a larval foodplant. — M. PARSONS, The Forge, Russells Green, Ninefield, Battle, E. Sussex.

NOTES ON SOME BRITISH CURCULIO SPP. (COL.). — The occurrence of the rather scarce and pretty little *Curculio rubidus* Gyll. in the eastern suburbs of London during the present century seems not to be well established up to now. Fowler (1891, *Col. Brit. Isl.*, 5: 386) cites Forest Hill and a statement by Champion that it is "not uncommon in the London district"; but it is clear from what follows that this latter refers to places in Surrey well outside the metropolis, and in any case all these are 19th-century records. Moreover, the species is not included at all in the Victoria County History list of Coleoptera of Kent (Fowler, 1908). There is, however, a record for Shooters Hill and Lee (in this district) by W. West, in 'Woolwich Surveys' (1909) — the only one for Kent that I have seen, although *C. rubidus* is not really rare in the county. In the eastern division I have met with it once or twice singly in Ham Street Woods; in the western, at Darenth Wood likewise — on the last occasion there, 7.ix.63, one each of the present species and *C. betulae* Steph. were taken off birch in the same sweep of the net. In the year after moving to Charlton (1974) I was pleased to come across a few examples of *rubidus* by sweeping under trees on two of the grassy slopes in Maryon Wilson Park there, in August; I have seen none since, but have made no special search. One was at a little distance from a birch, while two others were near oak, ash, and black poplar. This is not far from Shooters Hill where West took it long ago, and where I have collected on many occasions but have found, so far, only the more common oak-feeding species *C. venosus* Grav., *glandium* Marsh., and *pyrrhoceras* Marsh.

C. betulae, supposedly scarcer than *rubidus*, seems also to be little known in Kent; the VCH list gives only Plumstead (S. Stevens), but I have taken it two or three times singly at Darenth and Ham Street Woods, and its actual range and incidence in the county appears very similar to that of its close ally. The late Dr. A. M. Masee once told me that *betulae* could best be found high up on the outer shoots of fairly young birches.

The polyphagy attributed to this species is somewhat remarkable. As a larval pabulum, the developing fruits or catkins of alder are doubtless not too dissimilar to those of birch, nor are young fruits of sloe to those of cherry; but *between* these two pairs of development-media the difference is surely considerable. Hansen (1965, *Danm. Faun.* 69: 318) gives all four as hosts but alder as the principal one in Denmark — birch being exceptional, whereas in Britain it is by far the most usual (as with *C. rubidus*). And that is not all: Reitter (1916, *Faun. Germ.*, 5: 189) adds *Quercus* and *Salix cinerea* (the latter also for *rubidus*)! His inclusion of willow is of interest in lending some plausibility to my tentative association of both species at times with *Populus* (Allen, 1947, *Ent. mon. Mag.*, 83: 127, and see above under *C. rubidus*); compare further the common little black *C. pyrrhoceras* which seems to fluctuate in its host-choice between oak and willow, again geographically; e.g. the former in Britain, the latter in Denmark. Possibly, however, confusion with the very similar *C. salicivorus* Payk. may sometimes have occurred. In any case polyphagy is much less surprising with

these smaller species of the genus (s. *Balanobius* Jekel) whose larvae develop in leaf-galls as opposed to fruits.

In contrast, the larger species of *Curculio* are virtually monophagous; where a secondary host is alleged to exist it is probably based on adult straying, as when oak and hazel, for instance, grow close together. It is noteworthy that a middle-sized oak-feeding species, *villosus* F., develops in the familiar 'oak-apple' galls, and not in acorns like *venosus* and *glandium* — a fact not, I think, noticed in British works. Biologically, therefore, it belongs with the *Balanobius* group, whilst in other respects a typical *Curculio* s. str. (= *Balaninus*). I should perhaps mention in passing that the very distinctive *C. (Balanobius) crux* F., which lives on *Salix*, is common on much of the Continent and would be expected to occur in Britain.

I cannot agree with Fowler's estimate (*l.c.sup.* 385) that *C. glandium* (= *turbatus* Gyll.) is 'not common'; I have always found it at least as commonly as *C. venosus*, if not more so. The two often occur together on the same oaks, and I have had *glandium* on the tray in plenty off one tree at Windsor, accompanied by a few *venosus*. The former is notable also for its great variation in size, some specimens being but little larger than *betulae* which they rather resemble. On the other hand *nucum* L. and *venosus*, from what I have seen, vary hardly at all in that regard. All three of these larger species are, normally, easy to discriminate in the field, each having its own characteristic facies not readily described.

I have taken all eight British species of *Curculio* at Darenth Wood, W. Kent, which classic locality is now sorely in need of protection. — A. A. ALLEN.

EULYPE HASTATA L.: ARGENT AND SABLE FEEDING AT BLUEBELLS (ENDYMION NONSCRIPTUS). — R. South in his *Moths of the British Isles*, Vol. II states of this moth — "It flies in the afternoon sunshine around and over birch trees, and occasionally alights on the leaves", and my experience of the insect in Southern England is in accord with this description. However, on May 25th, 1952, at Broadwater Forest, Sussex, later to be despoiled by the Forestry Commission, I saw about a dozen specimens most of which were feeding at bluebells far past their prime. Aphides were not in evidence on the flowers, and I suspect the moths were imbibing some product caused by bacterial activity rather than upon nectar. I have not observed *E. hastata* feeding at flowers on other occasions, nor have I seen any reference to such behaviour. — B. K. WEST, 36 Briar Road, Bexley, Kent.

AN EARLY RED ADMIRAL. — In warm sunshine this morning, my wife and I watched a *Vanessa atalanta* L. sunning itself by the roadside in Holmesley Enclosure in the New Forest. In view of the recent very cold spell it seems likely that this was one that managed to hibernate. In spite of there being a light SW wind, the insect had none of the urgency of an immigrant about it. — E. H. WILD, 7, Abbots Close, Highcliffe, Christchurch, Dorset, 31.i.1982.



Current Literature

The Smaller Moths of Essex by A. M. Emmet. 158pp., stiff wrapper. Essex Naturalist No. 6. The Essex Field Club, c/o Passmore Edwards Museum, Romford Road, London E15 4LZ. 1981. Price £7 (£5 to Members of the British Entomological and Natural History Society).

Many years have elapsed since publication of W. H. Harwood's classic account of the microlepidoptera of Essex in the *Victoria County History* (1903), so that an up-to-date definitive work on the smaller moths of the county has long been a desideratum. Compiled by one of the foremost British microlepidopterists of this century, the new book adequately fills this need, and is thus a most welcome addition to the county lepidopteras.

Among the subjects treated in an introduction replete with interest are: (1) The recording area; (2) The presentation of the records, (3) Types of habitat; (4) The history of recording in Essex; (5) The principal recorders; (6) Recorders, past and present; and (7) Collections. The main part of the work follows with details of the 1052 species so far recorded, to every one of which is appended a trim little thumbnail-sized distribution map. Despite some abbreviation, presentation on the whole is admirably clear and precise with, among other particulars, the names of localities, years of occurrence, authorities, vice-county and 10km square numbers, and a species' status in the county. *The Smaller Moths of Essex* also includes foodplants, but interest in these would have been far greater were it made clear upon which of these foodplants species have been known to feed in Essex. A valuable feature is the first and last year of known occurrence or year of recording in the county, though a first record cited here is not always the earliest, as reference to Samouelle, *Entomologist's Useful Compendium* (1819) and Wood, *Index Entomologicus* (1839) will show. Less essential in a specialised work of this nature, are over 400 lines in larger type, mostly of general interest only and not strictly relevant to Essex. Further space is taken up by 50 drawings, mainly of representatives of families of microlepidoptera, of which though many are well executed (notably those by E. S. Bradford), there are others so poor as to be quite unrecognisable. The book concludes with an important list of 262 bibliographical references, but is regrettably devoid of any index. There are a fair number of printing errors, mostly trivial however, and in the review copy some of these had already been neatly corrected in the hand of the author.

The above criticisms are far outweighed by the merits of this fine work. Much of it is the outcome of intensive pioneer exploration of the county, undertaken by the author over the past few years, assisted by his wife Katie, and resulting in a remarkably comprehensive and well-researched account. Reasonably priced, especially to B.E.N.H.S. members, we heartily recommend this book to students of the British microlepidoptera and devotees of "local lists". — J.M.C.-H.

THE IMMIGRATION OF LEPIDOPTERA
TO THE BRITISH ISLES IN 1981, INCLUDING THAT
OF THE MONARCH BUTTERFLY:
DANAUS PLEXIPPUS L.

By R. F. BRETHERTON¹ and J. M. CHALMERS-HUNT²

The outstanding invasion of the generally poor season of 1981 was that of *Danaus plexippus* L., which came with many North American birds mainly to south west Britain. Some 120 sightings have been reported and, although numbering of the butterflies concerned is difficult, the influx was probably the largest yet recorded. The records are discussed and set out in detail in Annexe III.

Apart from this, among the scarce immigrant species (Annexe II) the capture in a last fling during the warm week-end of November 20/22 of the tenth known British specimen of the Noctuid *Tathorhynchus exsiccata* Lederer in Cornwall and of an example of the Pyrale *Euchromius ocella* Haw. in Kent are especially notable, as is also the recognition on September 29 in Glamorgan of a single *Cynthia virginiensis* Drury (*Ent. Rec.* 93: 242), which had presumably accompanied the *D. plexippus*. Other good single records are of a *Nymphalis antiopa* L. seen in Surrey on August 15 (*Ent. Rec.* 93: 242), a *Diachrysia orichalcea* F. in West Sussex on August 8, a *Hyles gallii* Rott. observed by day in the Isle of Wight on August 3, and of a *Catocala fraxini* trapped at Lymington, South Hampshire on the night of October 1.

In addition, single larvae of *H. gallii* were found as far apart as Sussex and Yorkshire. Of the two *Nymphalis polychloros* reported (*Ent. Rec.* 93: 237) the first, at Catisfield in Sussex on April 4 may either have over-wintered in Britain or come with other immigrant species about that date; the second, at Whitstable, East Kent, had only slight migratory contemporaries and was perhaps locally bred, either from immigrant or precariously established native stock. *Deltote bankiana* Hbn., which was reported in 1980 as a single immigrant, at Kingsdown, East Kent, now appears to be at least temporarily established nearby (*Ent. Rec.* 93: 204). A single specimen of *Scopula rubiginata* Hufn. taken at Dungeness on August 5 1981 is assumed to have been an immigrant, like the few previous examples recorded from the Kent Coast.

Agrius convolvuli L. alone among the scarcer species did rather better than in 1980. One was seen in Essex in July, one in Lincolnshire in August, and 19 between September 15 and October 5, widely scattered from south Devon to Orkney; but these were mostly single specimens, and no mass immigration appears to have taken place. *Rhodometra sacraria* L. appears to have arrived in three distinct batches. 12 were recorded from September 10 to 20; seven from September 26 to October 4, the last being as far north

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as Warwickshire, and two, both females of ab. *labda* Cramer, on November 21 and 22 at Rogate, Sussex. This form is usually obtained by rearing in warmth in captivity; its presence in the wild, and that of the semi-tropical *T. exsiccata*, in late November shows that this migration must have had a very distant origin. *Mythimna unipuncta* was reported in similar numbers from September 19 to October 5; and one was also present in Cornwall on November 21. These were, however, from four coastal localities only between west Cornwall and south Essex. *M. vitellina* was reported twice in Cornwall in late May but the numbers noted in September and October were very small. Less than ten *Orthonama obstipata* F. were noted, curiously spread at various dates between May 28 and October 5. Of other scarce immigrants there were only two *Spodoptera exigua* Hbn., the second being on November 22, and of *Trichoplusia ni* Hbn. and *Palpita unionalis* Hbn.; and only single records of *Eurois occulta* L., *Mythimna albipuncta* D. & S., *Helicoverpa armigera* Hbn., *Heliothis peltigera* D. & S., *Diachrysia orichalcea* F. A Brimstone butterfly which was observed and captured, but not retained, in a garden at Temple Ewell, Dover on July 28 appears from the careful description to have been an example of *Gonepteryx cleopatra* L. This south European species is not a known migrant, and its presence outside Dover may have been due to introduction in a car or lorry. There have been at least four previous occurrences in Britain between 1870 and 1957.

The total of 23 scarce immigrant species reported in 1981 compares badly with 29 in 1980, itself a poor season; the number of individuals was also very much smaller.

Most of the common immigrants also did badly. Of *Vanessa atalanta* L. one was found hibernating in a heated room in Orkney in February, and five probable immigrants were reported in March and April; but the usual influx in late May and June was small, and no larvae from it were noted though some were found in late August and September. There were, however, considerable immigrations in August and especially in late September, so that numbers may have approached normal in the autumn. The last was seen at Bradwell-on-Sea on October 23.

Of *Cynthia cardui* L. about 120 were reported, in contrast to the abundance of 1980. The earliest singles reported were as far north as St. Bees Head, Cumbria, and Orkney, on May 14; these were followed by a few others, widely spread later in the month, about a dozen in early June and some singles in July. There were apparently several small invasions in August, with penetration inland as far as Warwickshire and Hertfordshire; a few scattered singles in September; and a last record at Beer, South Devon, on October 11. Two full grown larvae and some vacated webs were noted at Muston, south east Yorkshire, on August 10.

Colias crocea Fourc., with some 50 clearly immigrant examples reported, had an interesting year. The first record was not until July 30 at Aylesford Common, South Devon, after which there was a small influx mainly in the south west about the middle of August and in its last days and in early September a larger one, with bigger

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numbers seen in Sussex and Kent and a single in Essex. Inland records were of about five, with some *C. cardui*, at Ashridge, Hertfordshire and of one at Tidworth, North Wiltshire on August 17 and 19. The last specimens seen were at Slapton, South Devon, September 21 and 23. In Warwickshire, however, there was an extraordinary occurrence reported by Mr. D. C. G. Brown (*Ent. Rec.* 93: 241). On August 2, 70 examples were counted, including three f. *helice*, in and near old gravel workings, and ten later visits by him and others to the same place brought the total count to over 400: the last singles were on September 6 and 13, and the only one seen elsewhere was within a mile of the main site. Even allowing for considerable recounting on successive visits such numbers must surely reflect local breeding from several parents. Later information obtained from Mr. R. G. Payne reveals the presence of from seven to 12 male *C. crocea*, but no females, during the second week of August in an area south of Duston, 30 miles further east, in Northamptonshire, where a few (not previously reported) were seen at the same time in 1980. The origin of these large, isolated, occurrences is mysterious. There were no records of *C. crocea* anywhere in Britain in May or June 1981, which might have provided parents; no Warwickshire records of it in 1980, the most recent being of two singles on August 5, 1979; and no other reports from Northamptonshire in 1980 or 1981. Overwintering in Britain in any stage has never been proved, and seems very unlikely so far north as these counties.

Among the common moths *Autographa gamma* L. showed a somewhat patchy picture. Apart from a single specimen at Beetham, Westmorland on May 6, arrivals only began in the last ten days and remained much below average in June and most of July; many observers commented on its unwonted scarcity, which continued in most inland areas for the rest of the season. In August and September, however, sizeable sudden influxes were counted at several coastal light traps. In Sussex at Peacehaven, 63 and 66 on August 6 and 27, a total of 30 for the four nights of September 5 to 8 and at East Dean 100 on August 25; at Bradwell-on-Sea, South Essex, 124, 120, 179 on August 13, 14 and 26, and a total of 71 for September 6 to 9. Other traps near the coast, however, as at Chillington, South Devon and Beetham, Westmorland, reported no considerable influxes and "lowest ever" totals for the season. Sudden relative increases in the numbers of *A. gamma* are often useful in checking the arrival points and dates of immigrant swarms which include other, and scarcer, immigrants.

Agrotis ipsilon Hufn. began well with two influxes, widely reported, about March 7 and again in late March and early April; breeding from these may have provided most of the few moths recorded in June and July. Numbers from August to October were clearly lower than usual; but the species put in an appearance during the last immigration of November 20 to 22. No records of it came from places north of Cumbria.

Peridroma saucia Hbn., with about 40 reported from 12 places, was also unusually scarce. The first was at Rogate, West Sussex, on

May 22, followed by two others elsewhere in June, and there were small immigrations, mainly to the south and south east coast from late August into October; eight were trapped at Fountainstown, co. Cork before September 23. The last record was at Hayling Island, South Hampshire on October 21, and the most northerly at Beetham, Westmorland, on October 4. Of the diurnal *Macroglossa stellatarum* L. only eight were reported, from five places: three at Slapton Sands, South Devon, in late August, with the first in West Cornwall on June 16 and another on July 14; there was one at Leigh, Surrey on September 6, and the last at Bromley, West Kent on October 14.

The usual immigrant Microlepidoptera did little better. *Nomophila noctuella* D. & S., despite an early start in late March and April in Essex and elsewhere, was a rarity except after very small influxes in September; but two were noted as far north as Caldarvan, Dumbartonshire, and the last was seen at Mawnan Smith, West Cornwall, on November 22. *Udea ferrugalis* Hbn. was reported from few places only in small numbers, but seems to have been least scarce in late August. The first record was on June 6 and the last on November 22, both at Mawnan Smith, West Cornwall. *Plutella xylostella* L. is often overlooked unless it appears in swarms at light traps or among crops. It was nonetheless reported by some 20 observers from the south coast to Orkney, and it occurred in every month, from the first two at Peacehaven, Sussex on April 2 until the last at Hampstead Middlesex, on October 18. Large influxes appeared at Peacehaven in late May and early June and again in late July, and 30 were trapped at Langness, Isle of Man on June 12; from August onwards it was in smaller numbers but more widespread, probably resulting from local breeding. The species is suspected of being resident as well as immigrant.

The Noctuid *Phlogophora meticulosa* L., is a common species which many recorders may not realise is certainly both immigrant and resident. Early moths, such as the singles reported at Hampstead on April 4 and 24, were probably immigrants, since native larvae, even helped by an unusually mild winter, would not have produced moths so early, though they no doubt contributed many if not most of the considerable numbers which were widespread in southern England through June and early July. After a pause numbers again rose steeply to much higher levels in September and early October. There is then clear evidence of immigration near the coast: a trap on the cliff edge at Highcliffe, South Hampshire on September 29 scored 56 *P. meticulosa* along with nine *A. ipsilon*, and a peak of 71, with very few before or after, was registered from October 2 to 7 at Muston on the Yorkshire coast. The last record of the year, a single at Bramley, Surrey on November 21 was also probably immigrant. But, to judge from the abundance of the species there and elsewhere inland in late August and September, a second home bred generation also played some part. The northern limit of successful over-wintering in Britain is not known, and the interplay of immigration and residence is not fully understood. Six specimens of *P. meticulosa* trapped in Orkney from September 1

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to 16 may have been primary immigrants to Britain, or immigrants to Orkney of southern native stock.

We have received a number of reports of *Rhyacia simulans* Hufn., especially from Essex, Kent, and Lincolnshire. These support our previous view that such occurrences in recent years have resulted from internal spread of the species rather than from immigration. At Bradwell-on-Sea 22 were trapped in small nightly numbers over the whole period from July 5 to August 4; and in south east Lincolnshire, where the species was first seen in 1978, it is now well established. *Spaelotis ravida* D. & S., often said to be an immigrant, has recently shown a similar internal spread.

ANNEXE I

Records and localities

(The names of recorders who gave information about *D. plexippus* are starred.)

- *Alexander, Mrs R., per J C, Skomer, Pembrokeshire
 *Agassiz, Rev. D.
 *Archer-Lock, A., S. Devon
 *Allison, Mr and Mrs, per BG, S. Hants.
 Baker, B. R., Caversham, Oxon.
 Barrington, R. D., Lulworth, Dorset
 Bond, K. G. M., Isle of Man, co. Dublin, co. Cork.
 *Bovey R., per J C, Dyfi N.N.R., Merioneth
 Braddock, A., per CRP, Alfreton, Derbyshire
 Bretherton, R.F., Bramley, Surrey
 Bretherton, M.F., S. Devon
 Briggs, J., Westmorland
 Brown, D. C. G., Charlecote, Warwicks.
 Buckingham, C., Sevenoaks, W. Kent
 Buddle, R. F., Dover, Folkestone
 *Burridge, R., per MR, at sea off Ushant
 Burrows, D. S., S. Hants, N. Devon
 Burton, J. F., Bristol, Cambs, Dyfed
 Butcher, A. G. J. B., Rochester, Tenterdan, E. Kent
 *Campbell, J. L., Isle of Canna
 *Campbell, W. D., *Guardian*, 21.X.81
 Carter, C. I., Tidworth, Wilts
 Chalmers-Hunt, J. M., Kent, co. Wicklow
 Chambers, R., Temple Ewell, E. Kent
 *Church, S., Chiddingfold, Surrey, Plaistow, Worthing, W. Sussex
 Christie, I. A. C., Dumbartonshire
 Clouter, F. H., Isle of Wight
 *Comont, J., Dyfed
 *Cowell, M., per CRP, E. Sussex
 Craske, R., per CRP, E. Sussex
 Cross, G., Bridport, Dorset, per BS.
 Dewick, A. J. & S. F., Bradwell-on-Sea, S. Essex
 *Elliott, B., Lizard, W. Cornwall
 Enfield, M. A., E. Kent
 Evans, K. A. G., Croydon, Surrey, Lyme Regis, Dorset
 Eve, H. C., E. Kent
 Fairclough, R., Leigh, Surrey
 Feltwell, J., Catisfield, E. Sussex
 *Foggitt, G. T., Scilly
 Foster, A. P., Mawnan Smith, W. Cornwall
 Gascoyne-Pees, M., Ranmore, Surrey
 *Goater, B., S. Hants and various
 *Green, Dr. G., Winspit, Dorset
 Greenwood, J. A. C., Rogate, W. Sussex
 Gregory, J., per CRP, Par, E. Cornwall
 Hadley, M., E. Sussex, Polruan, W. Cornwall
 Hall, N., Portland, Dorset; Scilly, Tilehurst, Berks
 Harman, T. A., Reculver, E. Kent
 *Harmer, A., Lymington, S. Hants
 Hart, C., Betchworth, Surrey; Barton Broad, E. Norfolk
 *Harvey, Prof., per D. Agassiz
 *Haynes, R. F., Galway, Eire
 *Heath, J., various
 *Hedges, J., Ballakaighan, Isle of Man
 Hilliard, R. D., Ashridge, Herts.
 Holdaway, P., Biggin Hill, E. Kent
 Howarth, T. G., Beer, S. Devon
 Howell, Mrs S. J., Sussex
 *Hunt, D. per RDP, Scilly
 Imber, S., Ewhurst, Surrey
 Jackson, S. A., Newton Dale, N. Yorkshire.
 *J. Jamieson, Mrs., per D. Hunt, St. Martin's Scilly
 Jewess, P. J., Newington, E. Kent
 *Kydd, D. W., Sellafield, Cumberland; Dolgellau, Merioneth
 Largen, R., Wiston, W. Sussex
 Lipscomb, Major Gen. C. G., Glamorgan
 Lloyd, B., per CRP, Lullington Heath, E. Sussex

- *Lorimer, Dr. J. A., Pembrokeshire
Lorimer, R. I., Totteridge, Herts;
Orphir, Orkney
Luckens, Dr. C. J., Winspit, Dorset
McRitchie, B., W. Essex; St. Ives/
Portreath, W. Cornwall
Maynard, C., per CRP, E. Sussex
Miles, P. J. S., Cambridge
Myers, A. A., Fountainstown, co.
Cork
Newbery, P. E., RSPB wardens'
reports
O'Heffernan, H. L., Slapton and
Chillington, S. Devon
O'Keefe, per BS, Heathfield, E.
Sussex
Owen, Prof. D. F., Dungeness,
Dymchurch, Dover, E. Kent
Owen, R., Bigbury-on-Sea, S. Devon
Parsons, M., per CRP, Ninfield, E.
Sussex; Polruan, W. Cornwall
Payne, J. H., Wellingborough,
Northamptonshire
*Penhallurick, R. D., Scilly, Cornwall,
Devon
Phillips, J. W., Topsham, S. Devon;
Purbeck, Dorset
Pilcher, R. M., S. Thorsby, Lincs.
*Plymouth City Museum, S. Devon
Porter, J., Sheffield Park, E. Sussex
*Pratt, C. R. P., Peacehaven and
widely in Sussex
Randall, C. J., Whitstable, Thanet,
E. Kent
Radford, J. T., per CRP, Walberton,
W. Sussex
*Rayner, E., Pagham, W. Sussex
*Rogers, M., per JH, at sea
Seaford Nat. Hist. Soc., per CRP,
E. Sussex
*Searle, Col., per SC, Worthing,
W. Sussex
Sell, M., per RIL, Scilly
Skinner B., Wye, Kent and various
Smith, B., South Croydon, Surrey
*Smith, F. H. N., Nancledra, Penhale,
etc., W. Cornwall
Softly, R. A., Hampstead and
Fulham, Middx.
Sokoloff, P., Bromley, W. Kent
Sterling, Col. D. H., Winchester,
S. Hants
Walters, J. W., Hayling Is., S. Hants
Warren, Miss E., Folkestone, Kent
*Wildridge, B., Thame, Oxon.
*Wills, D., per B. Elliott, W. Cornwall
Wilson, D. E., Dungeness, E. Kent
Winter, P. Q., Muston, S. E. Yorks.
*Woodman, J., per CRP, Rottingdean,
E. Sussex
Wykes, Uploders, Dorset.
*Zealley, M. J., per RDP, Scilly

ANNEXE II

Records of scarcer immigrant species in 1981

- EUCHROMIUS OCELLEA Haw. (1) E. Kent: Wye, 22.11, one at light in the
field (BS).
PALPITA UNIONALIS Hbn. (2) S. HANTS Hayling Island, 30.9. (JMW).
S. ESSEX: Bradwell-on-Sea, 1.10 (AJD).
{GONEPTERYX CLEOPATRA L. (1). E. KENT: Temple Ewell, Dover,
28.7, in garden (RC).}
NYMPHALIS POLYCHLOROS L. (2). E. KENT: Whitstable, 8.7 (CJR,
Ent. Rec. 93: 237); E. SUSSEX: Catisfield, 4.4, basking on a wall and
apple tree (JF).
NYMPHALIS ANTIOPA L. (1) SURREY: South Croydon, in garden (RS,
Ent. Rec. 93: 241).
DANAUS PLEXIPPUS L. AND CYNTHIA VIRGINIENSIS Drury, see
Annexe III
SCOPULA RUBIGINATA Hufn. (1) E. KENT: Dungeness, 5.8 (DEW *teste*
BS).
RHODOMETRA SACRARIA L. 21 W. CORNWALL: Mawnan Smith, 16.9,
male, 1.10, male (APF), S. ESSEX: Bradwell-on-Sea, 15.9, male, 27.9,
male (AJD). S. HANTS: Highcliffe, 14.9 (EPW); Winchester, 20.9 (DCS).
E. KENT: Rochester, 10.9; Tenterden 12.9, male, 19.9, 30.9, male
(A.J.G.B.); Sandwich, 14.9, male disturbed at 4 p.m. (JMC-H). SURREY:
Addiscombe, 10.9, male, 11.9, male, 26.9, female (KAGE). E. SUSSEX:
Ninfield, 28.9, 30.9 (MP per CRP). W. SUSSEX: Wiston, 15.9 (RL per
CRP); Rogate, 20.9, male; 21.11, male, 22.11, female, both ab. *labda*
(JACG). WARWICKS. Charlecote, 4.10, by day (DCGB, *Ent. Rec.* 93:
241)

- ORTHONAMA OBSTIPATA F. (c. 10). S. ESSEX: Bradwell-on-Sea, 8.7, 11.9 (SFD, AJD). S. HANTS: Winchester, 15.9. (DHS); Hayling Is., 15.10, male (JMW). SURREY: Betchworth, 28.5, male (CH). W SUSSEX: Wiston, 29.7, 1.8 (RL per CRP). SCILLY: 13/20.10, several at ivy (NH).
- AGRIUS CONVOLVULI L. (21) S. DEVON: Bigbury-on-Sea, 12.9, female at rest (R. Owen per DFO); Lyme Regis, 13.9, male at rest on boat in harbour (KAGE). DERBYSHIRE: Ilkeston, 9.9, male (AB per CRP), Alfreton, 30.9, a.m., at rest on a coat (AB per CRP). DORSET: Bridport, 20.9 (GC per TWH). N. ESSEX: Hatfield Broad Oak, 15.7 (per BMcR). E. KENT: Folkestone, 28.9, female, 7.10, male (RFB). N. E. LINCS: South Thoresby, 22.8 (REMP). ORKNEY: Holm, 15.9, on a school wall (RIL). SURREY: Leigh, 26.9, 28.9 (RF); Chiddingfold, 29.9 (SC). E. SUSSEX: Eastbourne town, c.17.9, on a parked car (CM per CRP); Peacehaven, 29.9, female at nicotiana: no ova present (CRP). W. SUSSEX: Plaistow, 22.9 (SC); Walberton, 27.9, 30.9, 4.10 (JTR per CRP); Wiston, 29.9 (RL per CRP). S. E. YORKS: Filey, 5.10, 10 a.m., very battered on ground near cliff top (PQW).
- ACHERONTIA ATROPOS L. (1 adult, 11 larvae). KENT, E.: Dover, 28.9, female. E. SUSSEX: Heathfield, 14/18.9., eleven almost fully grown larvae on potato plants (DO'K per BS).
- HYLES GALLII Rott. (1 adult, 2 larvae). ISLE OF WIGHT: Great Combe Wood, 2.30 p.m., one at rest (FHC, *Ent. Rec.* 93: 239). E. SUSSEX, Lullington Heath, 10.9, larva confirmed by photo (B. Lloyd per CRP). N. E. YORKS: Scarborough district, 13.9, fully fed larva, which pupated 17.10, confirmed at Museum (per PQW).
- [LYMANTRIA DISPAR L. (1) SURREY: Ewhurst, 5.7, worn male at light; later inquiry shows that this probably resulted from local rearing in captivity (SI)].
- EUROIS OCCULTA L. (3) E. KENT: Newington, nr. Sittingbourne, 2.9 (PJJ), E. NORFOLK: Irstead, 28.7 (CH). S. E. YORKS: Muston, 7.9 female, infertile ova (PQW).
- MYTHIMNA ALBIPUNCTA D. & S. (1) DORSET: Milton Abbey, 29.9, male (RDB).
- MYTHIMNA VITELLINA Hbn. (7) W. CORNWALL; 29.5, worn male (APF). E. CORNWALL: Par, 19.5 (per CRP). MID CORK: Fountainstown, before 23.9 (AAM). S. ESSEX: Bradwell-on-Sea, 2.10 (AJD). S. HANTS: Highcliffe, 31.10 (EPW). W. SUSSEX: Walberton, 11.9, 30.9 (JTR per CRP).
- MYTHIMNA UNIPUNCTA Haw. (17) W. CORNWALL: Mawnan Smith, 16.9, 28.9, 29.9, 30.9 (2), 21.11, all males (AJP). ESSEX: Bradwell-on-Sea, 28.10 (AJD). S. HANTS: Highcliffe, 20.9., 23.9, 26.9, 27.9, 3.10 (EHW); Hayling Island, 27.9, 28.9, 29.9, 3.10, 9.10 (JMW). E. SUSSEX: Beachy Head, 15.9 female at light, lacking ova (CRP).
- TATHORHYNCHUS EXSICCATA Led. (1) W. CORNWALL: Mawnan Smith, 22.11, male (APF).
- SPODOPTERA EXIGUA Hbn. (2) E. SUSSEX: Ringmer, 22.11 (CRP). W. SUSSEX: Rogate, 4.6 (JACG).
- HELICOVERPA ARMIGERA Hbn. (1) W. SUSSEX: Walberton, 7.10 (JTR).
- HELIOTHIS PELTIGERA D. & S. (1) WARWICKS: Charlecote, 4.10, among clover by day (DCGB).
- [DELTOTE BANKIANA Hbn. E. KENT: nr. Sandwich, 4.7, a short series and more later (NFH), 4.7, one (TWH, *Ent. Rec.*, 93: 204): apparently now breeding here.]
- TRICHOPLUSIA NI Hbn. (2) W. CORNWALL: Kynance Cove, 26.8 (BE). DORSET: Portland, 5.9 (NMH).
- DIACHRYSLIA ORICHALCEA F. (1) W. SUSSEX: Walberton, 12.8 (JTR per CRP).
- CATOCALA FRAXINI L. (1) S. HANTS: Lymington, 1.10, female (AH).

(To be continued)

Letter to the Editor

Dear Sir,

On reading the reports of entomological holidays which are published from time to time, one striking feature is that collecting is almost if not entirely confined to daytime activities; may I therefore put forward a plea through the *Record* for collectors to include some night work during their holidays? The fact that there is scope for breaking fresh ground in this respect during a Continental holiday was brought home to me when I bought the first two moth volumes of *Mariposas de la Peninsula Iberica*, a work on Spanish and Portuguese lepidoptera very much on the same lines as Heath's *Moths and Butterflies of Great Britain and Ireland*. Time and again question marks appear on the distribution maps, and in the chapter on moth collecting, the authors discuss sugaring, adding that little use has been made of this technique in the Iberian Peninsula. And it was thanks to the use of the m.v. lamp that *Endromis versicolora* L. was first discovered in Spain in 1964. Who knows what other discoveries there still remain to be made? — C. L. NISSEN, Batiment F2, App. 271, Residence Beausejour, ave. Clemenceau, 77100 Meaux, France, 15.iii.82.

Current Literature

The Oxford Book of Insects by John Burton and others. 213 + viii pp, 96 pp of colour illustration. Oxford University Press, 1981. Pocket edition £2.50.

This volume is a reduced format version of the 1979 edition. Measuring 11 x 15 cm it is certainly pocket-sized, although the paper cover would not last long if used in this mode. The work follows the format of other "Oxford" books in this series — after a brief introduction to each group there is a concise but informative description of each species considered, with the illustration appearing on the opposite page. The volume concludes with a small section on classification and structure of insects, notes on the various orders, a brief bibliography (listing a number of works that are virtually unobtainable) and an index.

The standard of illustration is very high for a popular work, and the reviewer was able to recognise most of the Lepidoptera and Coleoptera illustrated! Nearly 800 species are shown, most in 'natural' poses against a background of appropriate food plant. The illustrations have suffered a little from reduction — some of the Diptera are rather dark, and some larvae are unrecognisable. The nomenclature, at least for the Lepidoptera, is from the 'South' era, and authors are not given for scientific names. The coverage of orders is uneven, with Lepidoptera predominating.

Despite these minor criticisms the text and illustrations provide excellent value for money. For the general naturalist this probably ranks amongst the best available popular works on insects. — PAUL SOKOLOFF.

THE 'TYPES' OF *MANIOLA JURTINA SPLENDIDA*
WHITE (LEPIDOPTERA: SATYRIDAE)

By GEORGE THOMSON*

Between the years 1871 and 1872 Dr. Francis Buchanan White wrote and published his fine work *Insecta Scotica* in serial form in the *Scottish Naturalist*. Although his travels took him to many parts of Britain and Europe collecting and studying Macro- and Microlepidoptera, Coleoptera, Hemiptera as well as other invertebrates and plants, he never neglected his native Scotland or Perthshire the county town of which was his home for most of his life. His superb collection survives almost intact apart from some specimens of Macrolepidoptera which have mysteriously disappeared, some important Coleoptera which were transferred to the British Museum (Natural History) and his Hemiptera which are said to have been loaned to a museum in the United States in the 1920s and which have never been returned.

FIG. 1

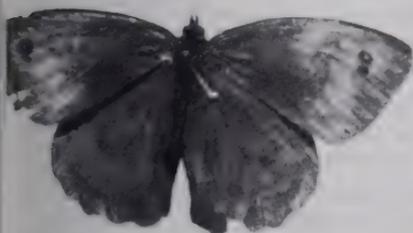


FIG. 2

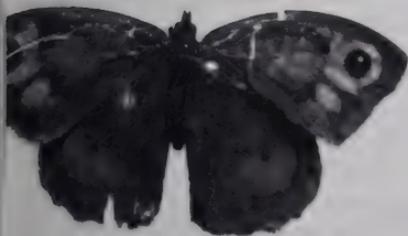


FIG. 3

FIG. 4

Maniola jurtina splendida White. Figs. 1 and 2, male syntype upper side and underside respectively. Figs. 3 and 4, female syntype upper side and underside respectively. All natural size.

The Rhopalocera section of *Insecta Scotica* lists some thirty-six species occurring in the country, although this number includes unconfirmed species such as *Pyronia tithonus* (Linnaeus), *Argynnis adippe* (Denis and Schiffermuller) and *Hamearis lucina* (Linnaeus). He discounts *Erebia ligea* (Linnaeus) and does not include *Cartero-*

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cephalus palaemon (Pallas) which was not found in Scotland until more than thirty years after his death. The only mention of a 'new' butterfly in this section of his work is the form of *Maniola jurtina* (Linnaeus) called *splendida* which he describes thus:

"Var. (and ab.) *splendida*. — Larger and brighter coloured; the apical spot of the front wing with two white dots." And he continues: "Found by Mr. A. Davidson in the island of Longa, on the west coast of Ross-shire. Mr. Davidson informs me that it is very plentiful in the island, and that it is the only form occurring there. Occasionally in Aberdeenshire (J. W. H. Traill). I have taken this variety in the island of Capri near Naples." Note that the locality is Longa Island, Ross-shire — not Lunga, Argyllshire as stated in Higgins and Riley (1970, 1973, 1975, 1980).

Buchanan White did not designate types as such, but it would be expected that he would have retained examples of this race in his collection. P. P. Graves (1930) in his redescription of *splendida* said that he had searched for the Buchanan White 'types' in the Perth Collection without success: "Buchanan White's types could not be found in the Perth County Museum. . ."

No further search for *splendida* was made until the White collection was examined for the purposes of the author's work on *Maniola* (Thomson, 1969, 1970). My quest was no more successful than that of Graves some thirty-nine years earlier, although there were specimens of the Capri form to which White referred in his description. There the matter would have rested had it not been for an accidental discovery. While studying the collection of Lepidoptera for a quite different purpose (Thomson, 1980), I noticed that the contents of box number 15 comprised an odd mixture of families including Noctuidae, Geometridae, Arctiidae, Saturniidae, Lycaenidae, Pieridae, Nymphalidae and also a number of Microlepidoptera. The most interesting specimens were those in the last row, three *jurtina*, a set male and female and a pinned but unset female, all being of the form found in the north-west of Scotland which we know as *splendida*. The three *jurtina* were unlabelled. Nor had they numbers referring to entries in one of the cabinet books in which White kept note of specimen data. Two volumes of his notes survive, although the first 200 entries in the first book have been lost. It is unlikely that these specimens were added to the collection by someone else at a later date. The insect collections in the Perth Museum, until very recently, have been carefully segregated and kept as individual collections rather than being absorbed in a single large collection. There was a separate 'Perthshire Collection' and some use of individual specimens has been made from time to time for display purposes. It is more probable that the odd assortment of lepidopterous insects in case 15 represents material given to White. All of his main collection was of his own making, supplemented by purchased specimens of rarer European species. The comment in his description, "found by Mr. Davidson in Longa", would suggest that the three *jurtina* were given to him by Davidson and the two set specimens are those on which he based his description.

The 'types' themselves are worth close examination as they contrast greatly with Graves' topotypes illustrated in his plate, particularly in the female underside. Graves' material had a rather uniform underside to the forewings in the females with a somewhat pale underside to the hindwings on which the fulvous streak between the discal and postdiscal areas (Hubner's line) stands out clearly. It has already been suggested that his series was atypical of the north-western race in this respect (Thomson, 1970). On the other hand, the Buchanan White pair is representative of the widespread *splendida* form, having an extremely well marked medial line between the basal and postdiscal areas of the female underside forewing. Furthermore, this form has a rather dark underside hindwing which tends to obscure the fulvous Hubner's line. In all other respects both the male and the female are similar to Graves' specimens having large bipupilled apical eyespots and the extensive fulvous markings in both sexes.

The specimens in the Buchanan White collection have been designated as types and labelled thus:

(a) subspecies *splendida* White. Syntype male (figs. 1 and 2). North-west Scotland, probably Longa Island, Ross-shire: A. Davidson.

(b) subspecies *splendida* White. Syntype female (figs. 3 and 4). North-west Scotland, probably Longa Island, Ross-shire: A. Davidson.

The third (unset) specimen found beside the abovementioned types has been labelled:

(c) subspecies *splendida* White. Syntype female. North-west Scotland, probably Longa Island, Ross-shire: A. Davidson.

All specimens remain in the Perth Museum.

Acknowledgements

My sincere thanks go to Mr. James Blair, Curator of the Perth Museum and Art Gallery and Mr. Michael Taylor, Keeper of Natural History, for their generous help while I was working in the museum and for allowing me access to the Buchanan White collections.

References

- Graves, P. P., 1930. The British and Irish *Maniola jurtina* L. (Lep. Satyridae). *Entomologist* **63**: 49-52, plate 1.
- Higgins, L. G. and Riley, N. D., 1970. *A Field Guide to the Butterflies of Britain and Europe*, Collins.
- _____ 1973 _____ 2nd edition
- _____ 1975 _____ 3rd edition
- _____ 1980 _____ 4th edition
revised and reset.
- Thomson, G., 1969. *Maniola (Epinephele) jurtina* L. (Lep. Satyridae) and its forms. *Entomologist's Rec. J. Var.* **81**: 7-14, 51-58, 83-90, 116-117.
- _____, 1970. On the nature of *Maniola jurtina splendida* B. White (Lep. Satyridae). *Entomologist's Rec. J. Var.* **82**: 261-268.
- _____, 1980. *The Butterflies of Scotland: a Natural History*. Croom Helm, London.
- White, F. B. W., 1872. *Insecta Scotica*. *Scott. Nat.* **1871-72**: 162-168, 198-202, 238-241, 273-275.

THE DECLINE OF THE INDIGENOUS MACROLEPIDOPTERA OF ABBOT'S WOOD, EAST SUSSEX

By M. HADLEY B.Sc., A.R.C.S., F.R.E.S.*

Whilst recording the demise of various native Lepidoptera for the Nature Conservancy Council, it was immediately apparent that a significant number of species had been lost from Abbot's Wood, a favourite haunt of the Victorian collector. The woodland was known to many if not to most of the great Lepidopterists of the past century. So fine were the stands of mature Oaks, and how common were the specialities, that Thomas Salvage ran a Butterfly Farm on its outskirts, trading on the abundant material contained therein. The author having spent most of his entomologically 'formative' years collecting in the Eastbourne area, feels compelled therefore to put pen to paper concerning the loss of species that this woodland has suffered.

The woodland is approximately 1½ miles square in area, and situated just north-west of Polegate. Unlike many modern woodlands, there has been no overall change in its size, although the surrounding environs have seen much agricultural improvement. However, there have been considerable changes within its borders. These can be examined by consulting the Ordnance Surveys of 1898 and 1925, and through to the present day. The woodland was totally deciduous prior to the turn of the century, consisting mainly of mature trees of great antiquity, until the 1939-45 war when most of the oaks were felled, excepting those of constituent woodlands on the periphery. The first signs of coniferisation began with a very small plantation on the 1925 O.S. revision in the centre of the wood. Nowadays the whole area, excepting the fringes, stands as a monument to the softwood industry.

This paper compares the qualitative and quantitative changes that have happened to the Macrolepidoptera. Only species that are resident have been used in this compilation, with known migratory species excluded from the comparison.

¹The Macrolepidoptera are defined here as those species represented in volumes 1 and 2 of South's *Moths of the British Isles*

Methods of Comparison

Eastbourne is unusual in many respects, but none less than the fact that it has a detailed entomological history. The history of the Lepidoptera in the Eastbourne area has been covered by four separate publications from 1885 until the present date.

The first list covering the whole of Sussex, Jenner (1885), issued in the *Proceedings of the Eastbourne Natural History Society*. The present author extracted all records cited for Abbot's Wood and where species had been noted as common, or abundant throughout

*Nature Conservancy Council, 19-20 Belgrave Square, London, SW1X 8PY.

the county's woodlands. This paper comprised two lists supplied to J. H. A. Jenner by Messrs. G. T. Porritt and W. H. Tugwell, both of whom collected extensively in the area.

The second list of species for the county is that of Goss and Fletcher (1905), in the *Victorian County History of Sussex*. The species lists in this were largely drawn up by J. H. A. Jenner and W. H. B. Fletcher, although notable contributors were R. Adkin, J. Anderson, C. G. Barrett, W. M. Christy, A. C. Vine and many others. Again, the same technique was applied, of extracting records specifically relating to the area and those species which it was stated were general to the County's woodlands.

The third publication is perhaps the best known upon the area, if not one of the best produced local lists of its kind. Issued in parts between 1928 and 1934, the critical volume dealing with the moths was published in 1930, in the *Transactions of the Eastbourne Natural History, Photographic and Literary Society*. This dealt with the detailed distribution of all species, and Adkin noted clearly whether species were present at the time of writing. This fine list was accompanied by a long series of half-tone plates of the common species.

The last list to cover the wood was that of the present author, Hadley (1980). Records from Abbots Wood were abstracted but noteworthy lists for the woodlands were submitted by Messrs. C. Pratt, S. W. P. Pooles and M. Parsons.

This completed a series of publications documenting the history of this woodland from 1885 until the present day. To aid completeness of this report, data held at the Biological Records Centre at Monks Wood was abstracted and checked to make sure no noteworthy species had been overlooked.

For the purposes of this comparison, the lists of Jenner, Adkin and Hadley were used. The present writer decided against use of the *Victoria County History*, as all species covered by that list for the area in question are listed by Adkin (1930).

Results

In a paper of this sort, long species lists have only a limited use, so I decided to omit these from the published account for the sake of brevity, and also because, for the purposes of comparison, 'species totals' are of more significance. Table One shows the total number of species which were recorded by each author for the wood. The number of species found to occur in the wood in all three accounts (ie. 1885-1980) was 156.

In each list, there were a number of species which did not occur in either of the other two lists, and these may be accounted for by temporary residence, migration (note that well known migrants were excluded from the compilation wherever possible), overlooked species and species that had not been taxonomically separated. The total number of species in this category for each author was Jenner 44, Adkin 47 and Hadley 24.

Extinctions in the area were treated as species that were noted as being present by a particular author, but not recorded before or after. For example, Jenner recorded *Apamea sublustris* (Esp.), but the species was not recorded by either Adkin or Hadley, and *Apamea crenata* (Hufn.) which was noted by Jenner and Adkin, but not by Hadley. Thus, species lost between 1885 and 1930 totalled 44, and those lost between 1930 and 1980 equalled 95. Provision was made for species that were not recorded by Adkin but were noted by the other two authors: these species totalled 19. The total number of species recorded for the whole period 1885-1980 was 423 species.

Discussion

I do not intend to enter into a lengthy discourse on these results, but shall highlight some of the major factors.

A steady decline in the Macrolepidoptera of Abbots Wood is happening now, and has been going on for nearly a century, an acceleration in this trend has occurred since the 1930s. This decline is substantiated by three sets of data. Thus, the total number of species has declined (since 1930), the number of new arrivals has declined, and the number of species becoming extinct has increased from 44 to 95 during the two last recording periods.

Three major factors must be considered to have shaped these results: habitat loss, climate and changing collecting techniques. Trapping using Mercury Vapour light is an efficient and highly productive method of sampling a fauna, but it tends to make a lepidopterist slothful and lazy (speaking from experience), and traditional techniques such as sugaring and beating get forgotten so that many species are overlooked this way. For this reason, the writer feels the advantage of light for collecting has been offset by the loss of traditional techniques and has consequently lent only minimal bias to the results. Climate is as unpredictable as the beasts themselves. However, it is believed, and there seems to be a general consensus of opinion of this, that there has been a downturn in the climate this century. Lastly, and perhaps most significantly, the changing environment within the wood cannot be underestimated. The final blow to the woodland species came with the felling of the great stands of oaks just after the 1939-45 war, and latterly, afforestation by the Forestry Commission, resulting in the present day legacy of substantial areas of sterile conifer plantations and regularly mown rides.

Table 2 shows the species of Draft Red Data Book status which have occurred in the wood since recording began. It paints a depressing picture of loss. *Siona lineata* (Scop.) probably died out due to natural causes, change of climate or lack of suitable habitat for the larvae. The remainder of the species were recorded again by Adkin, and he turned up specimens of *Catocala promissa* (D. & S.) which was probably temporarily established in the area. However, fifty years after Adkin, not a single Draft Red Book species remains, for which habitat loss and climate must be blamed.

DECLINE OF INDIGENOUS MACROLEPIDOPTERA OF ABBOT'S WOOD

TABLE ONE

Histogram to show the total number of species recorded from Abbot's Wood by each author.

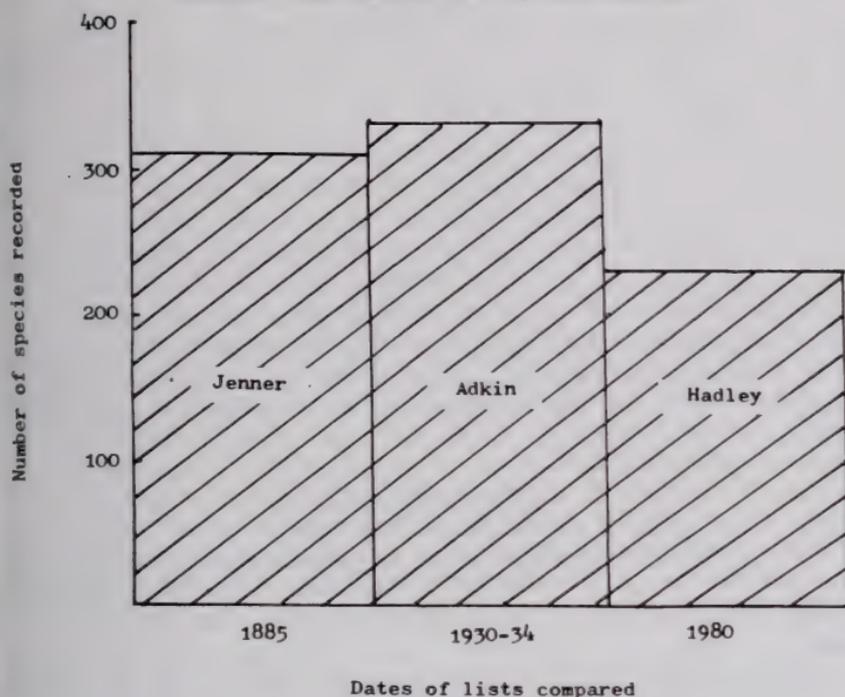


TABLE TWO

Table of draft Red Data Book species of Moths Recorded from Abbot's Wood, East Sussex.

Species	Red Data Book Category	Species recorded by:-		
		Jenner	Adkin	Hadley
<u>Siona lineata</u>	1	+	-	-
<u>Cucullia gnaphalii</u>	1	+	+	-
<u>Eriogaster lanestris</u>	2	+	+	-
<u>Hemaris fuciformis</u>	2	+	+	-
<u>Hemaris tityus</u>	2	+	+	-
<u>Jodia croceago</u>	3	+	+	-
<u>Momo alpium</u>	3	+	+	-
<u>Catocala promissa</u>	3	-	+	-
<u>Heterogenea asella</u>	3	+	+	-
<u>Cyclophora pendularia</u>	3	+	+	-

+ indicates presence of species

The only recent success was the establishment of a colony of *Spargania luctuata* (D. & S.) during the 1960's and early 1970's, in the one remaining area of the woods that remains in a similar condition to when it was first constituted, namely that of the area known as Milton Hide. Encouraging signs have been the opening of the rides by the Forestry Commission and the clearance of some of the large tracts of Gorse that were becoming rampant. One cannot underestimate the negative effect of routine ride maintenance as it reduces floral diversity, upon which adult insects are dependent as well as pruning back severely sources of larval foodplants. A rotational system leaving wide ride margins would be less labour intensive and ecologically preferable. The clearing of many of the other areas together with the planting of young birch and other broadleaves has had beneficial results, with several species reoccurring after absences of many decades, species such as *Acronicta alni* (Linn.) and *Furcula bicuspis* (Borkh.). If this trend is continued the long-term future of the woodland is not so bleak as one might expect.

Acknowledgements

The writer would like to make due acknowledgement of the resources and time of the Nature Conservancy Council and the Biological Records Centre, Monks Wood, in the compilation of this paper.

Individually I wish to express my thanks to A. E. Stubbs, J. Heath, C. Pratt, M. Parsons and S. W. P. Pooles for their kind help, advice, and constructive criticism.

References

- Adkin R., 1930. The Moths of Eastbourne Part 1. *Trans. Eastbourne Nat. Hist., Photographic and Literary Soc.* Vol. X.
- Adkin R., 1934. The Butterflies and Moths of Eastbourne. 1st Supplement. Additions and corrections. *Trans. Eastbourne Nat. Hist. Photographic and Literary Sol.* Vol. X.
- Bradley J. D. & Fletcher D. S., 1979. *Recorders Log Book or Label List of British Butterflies and Moths.* Curwen Books.
- Goss, H. & Fletcher, W. H. B., 1905, *Lepidoptera in Victoria County History of Sussex.*
- Hadley, M., 1977. The Macrolepidoptera of Eastbourne (Excluding Butterflies). *Ent. Rec. J. Var.*, 89: 2.
- Hadley M., 1980. *An Annotated list of the Macrolepidoptera of Eastbourne (Excl. Butterflies).* Nature Conservancy Council, S. E. Region.
- Jenner J. H. A., 1885. Macrolepidoptera of East Sussex. *Trans. Eastbourne Nat. Hist. Soc.*
- South R., 1961. *The Moths of the British Isles.* Frederick Warne & Co. Ltd.

PYRRHOCORIS APTERUS L. (HEM.: PYRRHOCORIDAE) IN DORSET. — In July 1979 I was brought two specimens of *Pyrrhocoris apterus* which had been taken at Kimmeridge on the Dorset coast. The only known permanent colony for this handsome black and red species is on Oar Stone Rock, a small island off the Devon coast, near Torquay, where it has been present for very many years. — S. C. S. BROWN, 158 Harewood Road, Bournemouth, Dorset.

MICROLEPIDOPTERA: A REVIEW OF THE YEAR 1981

By the Rev. DAVID J. L. AGASSIZ*

1981 was not a year many lepidopterists in Britain will remember with great relish. The Spring was cold and wet and seemed to go on long after it should have been Summer. Even if the moths were enduring the weather there were few opportunities for students to pursue them in those months when so many larvae can be found.

It seemed in due course that the insects also had not fared very well, for when better weather came, which it did in July and August, the population of many species seemed to be smaller than usual, as was the case with the larger moths.

Books are often set aside in favour of field work during the height of the season, but this year was cheered by the publication in the summer of *The Smaller Moths of Essex* by A. M. Emmet. Not many counties have a good list of 'micro' species and very seldom is such a list produced separately; it is therefore a comment on the prominence of the study of smaller species that a County Field Club should undertake such a work at this time. The list itself is a tribute to the energy and thoroughness of the author, and it is I believe the first attempt at mapping microlepidoptera by 10km grid squares.

Excitement is often aroused by species added to the British list, and these also were few. However, it often happens that discoveries of this kind only come to light a year or more later, and this was the position in 1981. *Dioryctria schuetzeella* Fuchs was taken by several collectors in Kent where it seems to be established as resident and presumed to be feeding on Norway Spruce; it transpired that the first specimen was taken by J. M. Chalmers-Hunt the previous year, but the identity was established, and the species found to be resident in 1981. It will be interesting to see how widespread this species becomes, for so many recent colonists of our Islands are associated with conifers. This is not surprising in view of the addiction of foresters to the growing of these, but despite that one suspects that more species may yet be found if only entomologists were more prepared to endure the monotony of these plantations and work them thoroughly, looking for likely species which are known to occur on the continent of Europe. Towards the end of the year it became clear that *Oegoconia caradjai* Popescu-Gorj & Căpușe was a resident species which had hitherto been confused with *O. quadripuncta* Haw. This makes for a small number of additions, none first taken in 1981, but already there are indications of one of two others which may come to light in 1982 or thereafter.

Species added in recent years continued to be found, as usually happens, for example *Scythris inspersella* Hübn., *Coleophora linosyridella* Fuchs and *Metzneria aprilella* H.-S. were bred, the latter in great numbers from *Centaurea scabiosa*, but in no case was the known distribution significantly extended.

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As for rare species, it was encouraging to hear of a further record of *Paramesia gnomana* Cl. of which the first authentic specimens were taken by Godfray in 1977. A third specimen of *Lampronia flavimitrella* Hb. was taken in Kent by N. F. Heal, but its life history remains to be unravelled. Many searches for *Agonopterix astrantieae* Hein. in the South of England proved fruitless, but two were bred from North Wales by H. N. Michaelis. His name should have been included in my Review of the Year 1980 among the discoverers of *Bucculatrix cidarella* Zell. feeding on *Myrica gale*, a habit which has now been reported from Ireland.

Sustained interest in the microlepidoptera has produced a number of interesting records, which demonstrates the value of study in this and other less popular fields. It is remarkable that even in big cities like London, species of considerable interest can still be found. The list of species recorded from Buckingham Palace by Dr. J. Bradley continues to grow, and in recent years has included *Morphaga choragella* D. & S., *Coleophora tamesis* Waters, *Aroga velocella* Zell., and *Teleiodes alburnella* Zell.; S. A. Knill-Jones has recorded *Nemapogon granella* Linn. and *Tinea pallescens* Stt. from central London, and at Hampstead R. A. Softly has had *Microthrix similella* Zinck.

There now follows a list of some of the more interesting records, inevitably it is incomplete, and another person would select different species for mention; I have tried to include new, or renewed county records which extend the known range of a species and other less common species which seemed worthy of comment. They are arranged in the order of Kloet & Hincks (1972). *Micropterix tunbergella* Fabr., Perthshire (K. P. Bland); *Stigmella samiatella* Zell., N. E. Essex (A. M. Emmet) more than doubling the number of specimens taken in Britain, *S. acetosae* Stt.; *Adela croesella* Scop., Dumfries (K. P. Bland); *Meesia richardsoni* Wals. still resident at Portland (D. J. Sterling); *Monopis imella* Hb., Co. Cork, Eire (D. J. L. Agassiz); *Ypsolopha lucella* Fabr. including a ♂, Suffolk (A. M. Emmet); *Coleophora violacea* Ström. Perthshire (K. P. Bland); *C. vibicigerella* Zell., Kent (N. F. Heal & R. & A. J. Fairclough); *C. machinella* Bradley, Surrey (R. & A. J. Fairclough); *C. argentula* Steph., E. Lothian and *C. sylvaticella* Wood, Aberdeen (K. P. Bland); *Esperia oliviella* Fabr., Kent (J. Fenn) and Hants. (D. J. Sterling); *Agonopterix bipunctosa* Curtis, Anglesey (H. N. Michaelis) and Cardiganshire (A. N. B. Simpson); *Eulamprotes wilkella* Linn., Essex (A. M. Emmet); *Syncopacma larseniella* Gozm. from many localities after R. J. Heckford¹ showed that most records of *S. cinctella* Cl. refer to this species; *Blastodacna atra* Haw., Hants. (J. R. Langmaid); *Phalonia minimana* Carad. and *Aphelia unitana* Hb., Selkirk (K. P. Bland); *Olethreutes arcuella* Cl., Kent (J. Fenn) and lastly a specimen of the rare migrant *Euchromius ocella* Haw. was taken in Kent in November by B. F. Skinner.

¹We expect publication of a paper by R. J. Heckford on *Syncopacma larseniella* in the next issue of the *Record* - Editor.

ADDITIONS TO THE MACROLEPIDOPTERA OF YORKSHIRE

By S. M. JACKSON*

Since publication in 1970 of *The Lepidoptera of Yorkshire (Macro-lepidoptera)*, compiled by members of the Lepidoptera Committee of the Yorkshire Naturalists' Union, and edited by C. I. Rutherford, there have been 12 additions to the County list as set out below. Nomenclature accords with that of Kloet & Hincks (1972).

Pseudoips prasinana L.: Scarce Silver Lines. This species has long been known to occur in N. Lincs., but the first authentic Yorkshire record is of five larvae being beaten from oak at Potteric Carr Nature Reserve (vc. 63) by R. I. Heppenstall in late May 1978. He later took the moth at light at Rossington, near Doncaster (vc. 63) on 28th July 1978.

Meganola albula D. & S.: Kent Black Arches. One taken at m.v. light by P.Q. Winter at Muston near Filey (vc.61) on 16th July 1973. This is the first northern record of a species usually found south of London, especially on the coasts of Kent, Sussex and Hants.

Nola aerugula Hbn.: Scarce Black Arches. This species was added to the Yorkshire list when Barry Spence took two at light at Kilnsea (vc. 61), one on 26th and one on 27th July 1980.

Simyra albovenosa Goeze: Powdered Wainscot or Reed Dagger. Found for the first time in Yorkshire in 1970 when B. Spence took it near the reed bed at Kilnsea (vc. 61). It is now considered to be extinct there as the habitat has been washed into the sea.

Mythimna vitellina Hbn.: Delicate. Was taken for the first time in Yorkshire at Muston near Filey (vc. 61), on 11th October 1978, by P. Q. Winter.

Lithacodia pygarga Hufn.: Marbled White Spot. Although there is an old record for Wharncliffe Woods from 1872, this was later considered erroneous. Therefore, when several were seen at light on Skipwith Common (vc. 61) on 1st July 1978 by W. Jagger and S. M. Jackson, this was regarded as constituting a new county record. The species has also been seen there annually up to 1981.

Scopula marginepunctata Goeze: Mullein Wave. Recorded for the first time in Yorkshire by S. L. Sutton, who took it at Spurn (vc. 61) on 16th August 1972.

Xanthorhoe quadrifasiata Clerck: Large Twin-spot Carpet. After recently extending its range into Notts., this species was first noticed in Yorkshire in 1978, by Ray Hawley at Hornsea Mere (vc. 61), and later, A. S. Ezard noted it at Rudston (vc. 61) on 28th July and 18th August 1980.

Eupithecia insigniata Hbn.: Pinion-spotted Pug. First found in Yorkshire when Paul Ingham took two at Snainton (vc. 62) on 5th and 6th June 1977. Also taken at East Ayton (vc. 62) in 1979, and at Muston near Filey (vc. 61) on 7th June 1979.

Chloroclystis chloerata Mabille: Sloe Pug. First noticed in Yorkshire by P. Q. Winter who found larvae on sloe at Muston on

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4th May 1975, then at Settrington near Malton on 5th May 1976 and at Harpham near Driffield on 1st May 1977 (all in vc. 61). Also found at Wass (vc. 62) by Dr. A. M. R. Heron.

Semiothisa notata L.: Peacock Moth. The sole Yorkshire record is of one taken at m.v. light in Staindale near Pickering (vc. 62) on 27th August 1977 by P. Q. Winter and S. M. Jackson.

Deileptenia ribeata Clerck: Satin Beauty. This species, long known to occur in N. Lancashire, was not noticed in Yorkshire until August 1974 when S. M. Jackson recognised some worn specimens (by their pectinated antennae), which came to m.v. light operated by W. Jagger near Pickering. The species, probably previously confused with *Alcis repandata* L., is now known to be widespread in north-east Yorkshire, with further records from Wass, Scarborough, Buttercrambe Woods (1980 and 1981) and Pickering (all in vc. 62).

Moths of Southern Africa by E. C. G. Pinhey. 273pp. 63 col. pl. + 18 fig. 4to. Cloth. Pub. A. A. Balkema (Rotterdam) 1979. £21.75.

To attempt to cover the moths of Southern Africa, estimated as exceeding 10,000 species, in a single volume is a daunting task. This volume describes and illustrates some 1183 species selected from the majority of families as representing the more colourful or interesting species, or those of economic importance. The vast bulk come from the families of larger moths. Introductory chapters cover general characteristics and biology, collecting, rearing and preparing insects and identification and classification.

The bulk of the text comprises the systematic section. The general format provides keys to families where appropriate. A description of the family is given and there follows a treatment of selected genera. Each genus has the reference to its original description, synonymy and name of type species. Individual species are similarly treated with a description of salient features (usually wing patterns), notes on larvae (where known) and distribution.

In a work of this nature, the illustrations are of paramount importance. The plates are made from photographs of set specimens and on the whole are of excellent quality. The specimens are photographed against a variety of coloured backgrounds, predominately white and blue/green. The latter is very effective for light coloured insects but unfortunately many white-winged moths are pictured against white backgrounds making identification impossible. Each specimen is numbered to enable easy reference to the text description. The work concludes with a glossary, bibliography and three indices – to pest species, host plants, and a general index.

On the whole, the author has produced a readable and useful work, although the juxtaposition of general introduction and detailed references to original descriptions suggests an attempt to cater for too wide a readership. The presentation of the volume is very good and there is an attractive, painted frontispiece. Considering the quality and quantity of the illustrations, the price represents very good value. – PAUL SOKOLOFF.

DERMAPTERA FROM THE GUNONG MULU
NATIONAL PARK, BORNEO.
A CORRECTION AND AN ADDITION

By A. BRINDLE*

In a previous paper on the earwigs collected in the Gunong Mulu National Park (Brindle 1980), three female earwigs were listed as *Parapericomus* sp. Philip Chapman, to whom I am indebted for some of the earlier specimens, has now collected three more of this species, of which one is a male, and this shows that the species concerned is *Nala ornata* Borelli and not *Parapericomus*. The three latest specimens were taken under damp rocks near the stream by Lubang Payau Air (Deer Water Cave), 22.8.1980. *Nala ornata* was originally recorded from south of Gunong Mulu in the Baram river area. The entry in Brindle (1980) "4. *Parapericomus* sp." thus should be replaced with "4. *Nala ornata* Borelli", and the family is Labiduridae. The family Labiidae begins with "5. *Auchenomus setulosus* Burr".

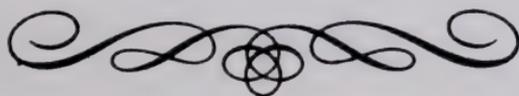
A single female of *Chelisoches brevipennis* Borelli (Chelisochidae) was found on guano in a pocket in the flowstone wall of Water Polo Cave (formerly Pinnacles Cave), Gunung Api, 18.12.1980. Although female earwigs are often difficult to name satisfactorily, this species is distinctive in closely resembling the common Oriental and Australasian *C. morio* (F.), from which it is distinguished by the short elytra and reduced wings. Originally described from Los Banos, Luzon, Philippine Islands (Borelli, 1923), it is identical, according to Borelli (1931-4) with *C. bimammatus* Hebard, the latter name being a synonym. Interestingly the latter was described from Batu Cave, Selangor, Malaysia, so there seems to be a correlation of habitat. From known habits of *C. morio*, *C. brevipennis* is likely to be a predator of smaller animals.

The list of earwigs from the Gunong Mulu National Park is thus eight.

References

- Borelli, A., 1923. Dermatteri della Isole Filippine. *Boll. Musei Zool. Anat. comp. R. Univ. Torino* 21 (No. 13): 1-20.
 ———, 1931-4. Dermapteres de la Presqu'île Malaise. *Bull. Raffles Mus.* 6-9: 80-95.
 Brindle, A., 1980. Dermaptera from the Gunong Mulu National Park, Borneo. *Ent. Rec.* 92: 172-175.

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BUCCULATRIX CIDARELLA ZELLER,
(LEP. LYONETHIDAE) ON *MYRICA GALE*

By H. N. MICHAELIS*

In the works and published notes consulted, alder is always listed as the sole foodplant of this species. On 8th September 1980, I took E. C. Pelham-Clinton and J. Langmaid to a low lying marsh (100 ft.) near Llanbedrgoch, Anglesey (VC 52). Our object was to look for *Agonopterix bipunctosa* (Curtis) among the *Serratula tinctoria* (Saw-wort) and *Glyphipterix schoenicolella* Boyd; the last was already recorded from the site. There is a fine growth of *Myrica gale* on which J. L. found empty leaf-mines which prompted a search producing vacated circular white spinnings of the moulting "chambers" of a *Bucculatrix* species. A few larvae were found of which most fell to the ground, together with a few inhabited moulting spinnings. Beating into our nets showed that many larvae were present. Some of these spun up the next day on the lid and sides of the box in a yellowish-grey ribbed shuttle-shaped cocoon. The larvae feed on the underside of the leaf after vacating the mine, and leave the upper cuticle intact to form a window pattern of feeding, which cannot in shape be confused with the typical *Coleophorid* mine of *C. viminetella* Zeller, which was also present.

As we thought and hoped we had a species new to Britain, I attempted to force an early emergence by means of refrigeration followed by gentle heat. This did not succeed and the remaining cocoons were kept in a cold frame to produce moths from 26th May to 18th June 1981. On 11th September, E.C.P.-C. and J. L. went to Borth Bog, Cardigan (VC 46) to meet Maitland Emmet and all found larvae plentiful on *Myrica*. A further visit by H.N.M. to a more western site in Anglesey showed larvae to be equally plentiful. As the shrub is plentiful on high ground in Snowdonia (VC 49), search was made at varying heights up to 1,200 feet in the next two weeks, but no sign of larvae or feeding pattern was seen on the *Myrica* there, though a few moulting spinnings were seen on alder leaves nearby. Conversely, there is a stand of alder within 100 yards of the Llanbedrgoch *Myrica* and though beaten and searched in June and August 1981, neither moth nor larva was seen among this alder.

The 1980 moths appeared to be *cidarella* and this was later proved by genitalia preparations made by E.C.P.-C., J.L. and J.D. Bradley. As further confirmation, I am told that Mark Shaw was able to feed Anglesey larvae from *Myrica* on alder leaves.

In October 1980, I searched for an hour for cocoons on branches and stems of *Myrica* and found only one. Remembering that cocoons of *B. maritima* Stainton are found on nearby grass leaves rather than on *Aster tripolium*, I found five cocoons of *B. cidarella* on grass and sedge leaves; these had weathered to brownish and the cocoons were not easily seen. I visited the same site on the evening of 23rd June 1981 and found moths resting on or flying around *Myrica* from 1700 hrs. onwards (many were also disturbed by beat-

*5 Glan-y-mor, Glan Conwy, Colwyn Bay. LL28 5TA.

ing). Possibly, this was a mating flight though I saw no paired moths.

Meyrick says this moth is fairly common among alder, though I have never found it so in north Wales or in north-west England where alder is plentiful and in Lancashire is used for making the soles of clogs. In fact, I usually find it only singly as a mine, larva or moth. What little I have seen of the *Myrica* feeder suggests that it occurs on low ground, possibly near western coasts. There is a fine growth of *Myrica* in a similar situation at Witherslack (VC 69) which might be worth searching in August or September. Though the species has a new foodplant on which it seems to congregate in large numbers when compared with alder, there is no suggestion that it should be raised to sub-specific rank.

To conclude, on that pleasant September day, E.C.P.-C. and J. L. had *Glyphipterix schoenicolella* which was new to one or both, and I found one *Agonopterix bipunctosa* new to me and probably to north Wales.

References

- Eckstein, K. 1933. *Die Kleine Schmetterlinge Deutschlands*.
 Hering, E. M. 1951. *Biology of the Leaf Miners*.
 Meyrick, E. 1927. *A Revised Handbook of British Lepidoptera*.
 Stainton, H. T. 1874. Observations on Tineina, *Ent. Ann.*, 1874: 43
 Tutt, J. W. 1905 *Practical Hints for the Field Lepidopterist*, 3: 89

FOODPLANT OF COLEOPHORA SALICORNIAE WOCKE IDENTIFIED AS SALICORNIA FRAGILIS P. W. BALL AND TUTIN. — The larval cases of *Coleophora salicorniae* reputedly being found on one species of Glasswort only, and in the hope of avoiding a repetition of the abortive search of the acres of foodplant that cover the saltmarshes at this time of the year, I took a plant upon which I found two larvae at Stoke Saltings, Kent on 11th October, 1981 to the Maidstone Museum where Mr. Eric Philp kindly named it as *S. fragilis* which is one of the common species found in the 'middle' saltmarsh zone, particularly on the pure mud sides of channels below the fringe of *Halimione* and often forming pure stands. — N. F. HEAL, Fosters, Detling Hill, Nr. Maidstone, Kent.

THE WOOD WHITE: LEPTIDEA SINAPIS L. IN SOUTH DEVON. — On 6th August 1981 a pair of wood whites were seen flying over rough vegetation on the undercliff to the west of Branscombe on the South Devon coast. These insects were observed for some thirty minutes and seemed perfectly at home in an area more akin to their typical habitat in continental Europe than on the English mainland. There are plenty of trees in the area — beech and oak being dominant — but no large areas of unbroken woodland similar to that which is the favoured habitat for this insect in Surrey and Sussex. — P. J. BAKER, Mount Vale, The Drive, Virginia Water, Surrey.

ERYNNIS TAGES L. AB. RADIATA BROWN: A CORRECTION. — In vol. 94. p. 69, line 5, for Mr. John Swiner read Mr. John Simner. — R. D. G. BARRINGTON.

RECORDS OF PHORIDAE (DIPTERA) REARED FROM FUNGI

By R. H. L. DISNEY* and R. E. EVANS**

One of us (R.E.E.) reared a number of Phoridae from fungi collected at various localities in Norfolk during 1980. The following species were obtained:

Megaselia bovista (Gimmerthal)

Nine from *Lycoperdon* (= *Calvatia*, = *Langermannia*) *giganteum* (= *L. bovista*) in August, from North Tuddenham Common (Grid ref. 63/0311). Gimmerthal (1848) reared this species from *L. giganteum*. Colyer (1954) reported it from cultivated mushrooms (*Agaricus bisporus*).

Megaselia buxtoni Colyer

Five from *Thelephora terrestris* in September and October from Swanton Novers Wood (63/0032). Previously it has been reported from *Pleurotus cornucopiae*, *Polyporus squamosus* and *Gloeoporus* (= *Polyporus*) *fumosus* (= *Bjerkandera fumosa*) (Colyer 1954, Buxton, 1961, Chandler, 1973).

Megaselia flava (Fallen)

Six from *Peziza varia* in July and August, from Warren Wood (63/0911); four from *Pluteus cervinus* in August and September, from Wayland Wood (52/9299); and 42 from *Peziza micropus* in August, from Wayland Wood. Previously reported from *Peziza* (= *Aleuria*) *repanda* (Colyer, 1954), *Russula heterophylla* (Schmitz, 1948), *R. aeruginea* (Eisfelder, 1956), *Cortinellus edodes* (Kiyoku, 1968) *Amanita* and *Tricholomopsis* (Chandler, 1978).

Megaselia flavicans Schmitz

Six from *Amanita excelsa* in June from Mousehold Heath (63/2410); and eight from *Russula cyanoxantha* in September, from Holkham Woods (53/9045). Previously reared from 15 other species of fungi (Schmitz, 1948, Eisfelder, 1956, Disney & Evans, 1978).

Megaselia impolluta (Schmitz)

Eight from *Pluteus minutissimus* in August, from Warren Wood. Previously reared from *Pluteus umbrosus* (Colyer, 1954) and a rotten *Pleurotus* sp. (Disney & Evans, 1979).

Megaselia lutea (Meigen)

38 from *Russula vesca* in June and July, from Honingham Fen (63/0911); and nine from *Russula lepida* in September and October, from Lenwade Pits (63/1018). Previously reared from 36 species of fungi, including these two (Schmitz, 1948, Eisfelder, 1956, Buxton, 1961, Disney & Evans, 1979).

Megaselia nigra (Meigen)

121 from *Agaricus campestris* in August, from Welborne (53/0609). Previously reared from this species and *A. bisporus* (Wood, 1914, Schmitz, 1948, Brauns, 1950, Colyer, 1954, Hussey, 1950, Robinson, 1978); from *Coprinus comatus* (Malloch, 1912) and *Boletus* (Chandler, 1978).

* Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU.

** Chanterelle, Church Road, Welborne, Near Mattishall, Norfolk, NR20 3LH.

Megaselia pygmaeoides (Lundbeck)

Five from *Russula nigricans* in September, from Honingham Fen. Previously reared from this and 17 other species of fungi (Eisfelder, 1956, Buxton, 1961, Disney & Evans 1979).

Discussion

The rearings from *Amanita excelsa*, *Peziza micropus*, *P. varia*, *Pluteus minutissimus* and *Thelephora terrestris* are the first records of named species of scuttle fly breeding in these fungi. *Conicera similis* (Haliday) is the only named Phorid previously reported from *Pluteus cervinus* (Schmitz, 1948) and *M. flavicans* has not previously been reported from *Amanita excelsa*.

Acknowledgement

One of us (R.H.L.D.) is grateful to the Shell International Petroleum Co. Ltd. for a grant to further studies of Phoridae.

References

- Brauns, A., 1950. Zur Kenntnis der Schadinsekten und Champignonkulturen. *Nachr. Bl. dtsh. Pfl. Sch. Dienst. Braunschweig* 2: 153-156
- Buxton, P. A., 1961. British Diptera associated with fungi. III. Flies of all families reared from about 150 species of fungi. *Entomologist's mon. Mag.* 96: 61-94.
- Chandler, P. J., 1973. Some Diptera and other insects associated with decaying elms (*Ulmus procera* Salisbury) at Bromley, Kent, with some additional observations on these and related species. *Entomologist's Gaz.* 24: 329-346
- Chandler, P. J., 1978 in Stubbs, A. & Chandler, P. (Eds). *A Dipterist's Handbook*. The Amateur Entomologist's Society.
- Colyer, C. N., 1954. A new species of *Megaselia* (Dipt., Phoridae) from Britain; notes on fungicolous Phoridae. *Entomologist's mon. Mag.* 89: 108-112.
- Disney, R. H. L. & Evans, R. E., 1978. Two species of Phoridae (Dipt.) reared from fungi. *Entomologist's mon. Mag.* 113: 165 (1977)
- Disney, R. H. L. & Evans, R. E., 1979. Further records of Phoridae (Dipt.) reared from fungi. *Entomologist's mon. Mag.* 114: 166 (1978)
- Eisfelder, I., 1956. Die häufigsten Pilzbewohner (Fliegen als Pilzverzehrter). *Z. Pilzk.* 22: 108-117.
- Gimmerthal, B. A., 1848. Beobachtete Metamorphose einer neuen Fliegen-species und einer bereits bekannten Blattwespe. *Arbeiten Naturf. - ver Riga* I: 329-330
- Hussey, N. W., 1960. Biology of mushroom phorids. *Mushroom Sci.* 4: 260-269 (1959)
- Kiyoku, M., 1958. Studies on the insect fauna of the Japanese pine mushroom and the damage due to the insect pests. *Sci. Rep. Okayama Univ. Fac. Agr.* 11: 49-59.
- Malloch, J. R., 1912. The insects of the Dipteran family Phoridae in the United States National Museum. *Proc. U.S. natn. Mus.* 43: 411-529
- Robinson, W. H., 1978. Identification of *Megaselia agarici* (Lintner) and *Megaselia halterata* (Wood) (Diptera: Phoridae). *Plant Pest Rep.* 3: 14-16
- Schmitz, H., 1948. Zur Kenntnis der fungicolen Buckelfliegen. *Natuurh. Maandbl.* 37: 37-44.
- Wood, J. H., 1914. Notes on British Phora (further additions). *Entomologist's mon. Mag.* 50: 152-154.

MACROLEPIDOPTERA OF AN UPLAND AREA IN
KIRKCUDBRIGHTSHIRE, SOUTH-WEST SCOTLAND

By Dr. P. D. HULME*

Kirkcudbrightshire forms part of the Dumfries and Galloway Region. The lepidoptera in this Region, as in many other areas of Scotland, are under-recorded. There is, therefore, plenty of scope for lepidopterists to work there, especially as the variety of habitat is, perhaps, unrivalled by that of any other area of comparable size 'north of the border'. The main lepidoptera accounts for the Region list species taken around Almorness, Kirkcudbrightshire (V.C. 73) (Robinson, 1870-71), Gatehouse-of-Fleet, Kirkcudbrightshire (Russell, 1944) and Corsemalzie, Wigtownshire (V.C. 74) (Gordon 1913, Gordon 1919).

From October 1970 to July 1973 I worked for a few days each month on the Silver Flowe National Nature Reserve and stayed at Mid Garrary (10 km west of New Galloway, Kirkcudbrightshire) a field station of the Department of Plant Biology, University of Hull. The field station is within Clatteringshaws Forest, and the Silver Flowe N.N.R. lies along the north-west edge of the Forest. Much of my spare time was spent recording macrolepidoptera within this area. At Mid Garrary I ran a light trap which at first had an ordinary 150w tungsten bulb and from 1971 a mercury blended tungsten bulb.

This block of upland country lies above 600ft (183m) O.D. and is composed predominantly of peatland, moorland and Forestry Commission plantation. At the time of the survey there were extensive unforested areas grazed by sheep but now most are planted with conifers. However, the deep peat of the Silver Flowe and the steeper slopes of hills remain unforested and sheep are now confined to one small-holding. The plantations contain species of pine (*Pinus*), larch (*Larix*) and spruce (*Picea*). Relatively few scattered broad-leaved trees and large bushes grow in the area. These are mainly birch (*Betula pubescens* Ehrh.), hawthorn (*Crataegus monogyne* Jacq.) and eared sallow (*Salix aurita* L.). Around Mid Garrary and the near by Garrary Burn there are a few naturally growing sessile oaks (*Quercus petraea* (Mattuschka) Liebl.) and several, possibly planted, aspens (*Populus tremula* L.) and rowans (*Sorbus aucuparia* L.). Many of the species listed below are tree feeders and some are present as a result of tree planting, for example, *Thera obeliscata*, *Semiothisa liturata* and *Eupithecia lariciata*. On the moorland and drier peatland areas the vegetation is dominated by purple moor-grass (*Molinia caerulea* (L.) Moench), heather (*Calluna vulgaris* (L.) Hull), cotton-grasses (*Eriophorum vaginatum* L. and *E. angustifolium* Honck.), deer-grass (*Trichophorum cespitosum* (L.) Hartm.) and sweet-gale (*Myrica gale* L.), while on the wetter peat areas bog mosses (*Sphagnum* spp.) are dominant.

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The nomenclature and order of this list follows the check list of Kloet and Hinks (1972).

I am grateful to R. M. Palmer and Dr. M. R. Young for genitalia dissections of *Amphipoea* spp. and *Eupithecia* spp. respectively and for identifying a number of other species, and to my wife for typing the manuscript.

References

- Gordon, R. S., 1913. A list of the Macrolepidoptera of Wigtownshire, Part 1. *Trans. J. Proc. Dumfries and Galloway nat. Hist. Antiq. Soc.* **1**: 168-188.
- Gordon, J. G. M., 1919. The lepidoptera of Wigtownshire, Part 2. *Ibid.* **6**: 156-167.
- Kloet, G. S. and Hinks, W. D., 1972. *A Check List of British Insects*, 2nd Ed. Handbk. Ident. Br. Insects, XI (2). London.
- Robinson, W. D., 1870-71. Lepidoptera of Kirkcudbrightshire. *Entomologist* **5**: 218-220, 230-232.
- Russell, A. G. B., 1944. Moths taken in the neighbourhood of Gatehouse-of-Fleet, Co., Kirkcudbright, *Entomologist* **77**: 90-92.

HEPIALIDAE

Hepialus humili (L.), *H. fusconebulosa* (De Geer).

PIERIDAE

Pieris napi (L.).

NYMPHALIDAE

Aglais urticae (L.), *Inachis io* (L.), *Boloria selene* (D. & S.).

SATYRIDAE

Erebia aethiops (Esp.), *Coenonympha pamphilus* (L.), *C. tullia* (Mull.).

LASIOCAMPIDAE

Poecilocampa populi (L.), *Lasiocampa quercus callunae* (Palm.), *Macrothylacia rubi* (L.).

SATURNIIDAE

Saturnia pavonia (L.)

GEOMETRIDAE

Scopula ternata (Schr.), *Xanthorhoe designata* (Hufn.), *X. munitata* (Hubn.), *X. montanata* (D. & S.), *Epirrhoe tristata* (L.), *Entephria caesiata* (D. & S.), *Cosmorhoe ocellata* (L.), *Coenotephria salicata* (Hubn.), *Eulithis testata* (L.), *E. pyraliata* (D. & S.), *Chloroclysta miata* (L.), *C. citrata* (L.), *Thera obeliscata* (Hubn.), *Colostygia multistrigaria* (Haw.), *C. pectinataria* (Knoch), *Hydriomena furcata* (Thunb.), *H. ruberata* (Frey.), *Rheumaptera hastata* (L.), *Epirrita autumnata* (Borkh.), *Operophtera brumata* (L.), *Perizoma alchemillata* (L.), *P. didymata* (L.), *Eupithecia satyrata* (Hubn.), *E. subfuscata* (Haw.), *E. nanata* (Hubn.), *E. lariciata* (Frey.), *Semiothisa liturata* (Clerck), *Petrophora chlorosata* (Scop.), *Opisthograptis luteolata* (L.), *Selenia dentaria* (Fab.), *Odontopera bidentata* (Clerck), *Crocallis elinguaris* (L.), *Apocheima pilosoria* (D. & S.),

Biston betularia (L.), *Agriopis aurantiaria* (Hubn.), *A. marginaria* (Fab.),
Alcis repandata (L.), *Ematurga atomaria* (L.), *Bupalus piniaria* (L.),
Cabera exanthemata (Scop.), *Hylaea fasciaria* (L.).

SPHINGIDAE

Laothoe populi (L.).

NOTODONTIDAE

Phalera bucephala (L.), *Cerura vinula* (L.), *Eligmodonta ziczac* (L.),
Pheosia gnoma (Fab.).

LYMANTRIIDAE

Orgyia antiqua (L.).

ARCTIIDAE

Nudaria mundana (L.), *Parasemia plantaginis* (L.), *Diacrisia sannio* (L.),
Spilosoma lubricipeda (L.) *Phragmatobia fuliginosa* (L.).

NOCTUIDAE

Ochropleura plecta (L.), *Noctua pronuba* (L.), *N. comes* (Hubn.),
Paradiarsia glareosa (Esp.), *Lycophotia porphyrea* (D. & S.),
Diarsia mendica (Fab.), *D. rubi* (View.),
Xestia baja (D. & S.), *X. castanea* (Esp.), *X. sexstrigata* (Haw.),
X. xanthographa (D. & S.), *Cerastis rubricosa* (D. & S.),
Lacania biren (Goeze), *Ceramica pisi* (L.), *Cerapteryx graminis* (L.),
Orthosia gracilis (D. & S.), *O. incerta* (Hufn.), *O. gothica* (L.),
Mythimna impura (Hubn.), *Aporophyla nigra* (Haw.), *Xylena vetusta* (Hubn.),
Blepharita adusta (Esp.), *Antitype chi* (L.), *Acronicta psi* (L.),
Euplexia lucipara (L.), *Phlogophora meticulosa* (L.), *Hyppa rectilinea* (Esp.),
Apamea monoglypha (Hufn.), *A. epomidion* (Haw), *A. remissa* (Hubn.),
Oligia fasciuncula (Haw.), *Mesapamea secalis* (L.), *Photedes minima* (Haw.),
P. pymina (Haw.), *Amphipoea lucens* (Frey.), *A. crinanensis* (Burr.),
A. oculatea (L.), *Hydraecia micacea* (Esp.), *Celaena haworthii* (Curt.),
Diachrysis chrysis (L.), *Plusia festucae* (L.), *Autographa gamma* (L.),
A. pulchrina (Haw.), *A. bractea* (D. & S.), *A. triplasia* (L.),
Phytometra viridaria (Clerck), *Rivula sericealis* (Scop.),
Hypena proboscidalis (L.).

COLEOPHORA TRIGEMINELLA FUCHS AND C. CORACIPENNELLA HBN. IN SOUTH YORKSHIRE. — On 17th April 1981 while at Denaby Ings, near Mexborough (VC 63), a Yorkshire Naturalists' Trust nature reserve, I found two cases of *C. trigeminella* on hawthorn, one of them feeding on the unopened flower buds. From these cases moths emerged on 11th and 22nd June.

From cases of the '*nigricella* (Steph.)' group, besides *C. cerasivorella* Packard I was pleased to rear two specimens of *C. coracipennella*, one from a case on blackthorn collected at Denaby Ings on 12th May 1981, the moth emerging on 18th June and one from a case on hawthorn collected near West Melton on 17th May 1981 which emerged on 25th June. I am grateful to Mr. R. Heckford for confirming the identity of my slides of *coracipennella*.

Besides providing the first Yorkshire records for these two species these appear to extend considerably the range of what seem to be local or under-recorded moths. — H. E. BEAUMONT, 7 Brampton Road, West Melton, Rotherham, South Yorks., SE3 6AN.

COLEOPHORA MACHINELLA BRADLEY:
ITS REDISCOVERY IN ENGLAND,
AND DESCRIPTION.

By JOHN R. LANGMAID*

On 15th June 1977 I collected nearly twenty Coleophorid cases from *Achillea ptarmica* in Botley Wood, Hampshire. The larvae continued to feed for a further two weeks and then pupated. Moths emerged during the latter half of July. One of them was larger than all the others and proved, on examination of the genitalia, to be *Coleophora trochilella* Duponchel. The others were identified later the same year as *C. machinella* Bradley by Mr. R. W. J. Uffen after he and Rev. D. J. L. Agassiz has made preparations of the male and female genitalia (figures 1 and 2).

The larval case is 8mm long, made of silk, slenderly cylindrical and trivalved, ochreous-brown, paler caudally. The mouth-opening is at 60° to the long axis, and there is a distinct 'neck'. The larva mines the leaves of the foodplant from underneath, and wanders freely from leaf to leaf.

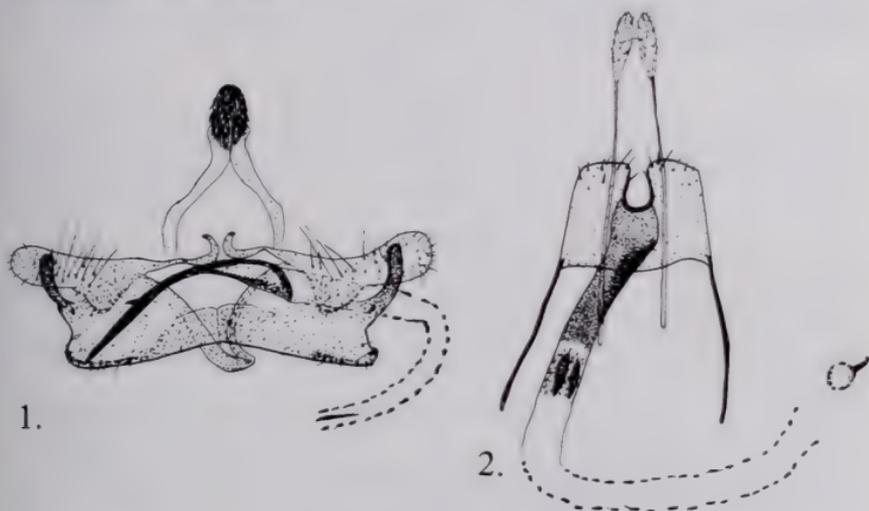


Fig. 1. Male genitalia of *Coleophora machinella* Bradley. Fig. 2. Female genitalia of *C. machinella*.

The moth is similar to *trochilella*, but smaller, with a wingspan of 10-11 mm. Head fuscous, ochreous tinged, paler laterally; antenna white, sharply ringed black; labial palpus whitish above, mixed with ochreous-brown at sides and underneath; thorax and tegula whitish ochreous; legs whitish above, dark fuscous beneath; forewing brownish ochreous, darker toward apex, the male being distinctly darker than the female, a white streak along costa to near apex, veins from cell marked with white streaks toward apex, a

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white streak along fold and another along dorsum to termen, cilia greyish ochreous; hindwing dark grey in the male, paler in the female, cilia grey tinged with ochreous; abdomen dark grey.

The species was originally discovered by the late Mr. W. Machin in the early 1880's bred from larvae feeding on *Artemisia maritima* from saltings on the Thames Estuary, and was named *maritimella*. Subsequently it was placed on the Thames Estuary, and was named *maritimella*. Subsequently it was placed in the synonymy of *trichilella* (Bradley 1966), and then renamed *machinella* after further examination of the genitalia of Machin's specimens (Bradley 1971).

Since 1977 further cases have been found in Botley Wood, and in West Walk, Wickham, Hampshire, from late May to early July. In late July 1977 two specimens were taken flying among *Achillea ptarmica* at Ditchling Common, Sussex, by Lt. Col. A. M. Emmet, and in 1981 Mr. R. Fairclough found cases on Ashted Common, Surrey. In 1980 Mr. Uffen rediscovered the species in North Kent feeding on *Artemisia maritima*. In 1981 moths were bred from this foodplant, and it is notable that they are distinctly paler than those bred from *Achillea ptarmica*. Although the sexual dichroism is also apparent in these, the males are approximately the same colour as the females from *Achillea ptarmica*, and the females are paler still, the forewing ground colour being pale ochreous yellow.

Acknowledgments

My thanks are due to Mr. R. W. J. Uffen for identifying the specimens, and to Rev. D. J. L. Agassiz for the drawings of the genitalia.

References

- Bradley, J. D., 1966. Some Changes in the Nomenclature of British Lepidoptera. *Ent. Gaz.*, 17: 213-235.
 Bradley, J. D., 1971. Some Changes in the Nomenclature of British Lepidoptera. *Ent. Gaz.*, 22: 24-25.
 Machin, W., 1884. Two New Species of the Genus *Coleophora*. *Entomologist*, 17: 87.
 Toll, S., 1953. Eupistidae (Coleophoridae) of Poland. *Mater. Fiziogr. Kraju*, no. 32:292pp., 28pls.

THE DEATH'S-HEAD HAWKMOTH AND CONVULVULUS HAWK-MOTH IN KENT IN 1981. — A female Death's-head Hawkmoth (*Acherontia atropos* L.) was seen in my sister-in-law's neighbour's garden in Dover, but the latter was too frightened to go near it. Fortunately, however, my sister-in-law recognised it as a moth and put a container over it and called me. The date was the 28th September.

On the same date as the above, a female *Herse convolvuli* L. was brought to my home by a friend who found it alive while working on a building in Folkestone that day. This same friend also brought me another *H. convolvuli*, a very worn male, which he had found on 1st October on the same site in Folkestone. — R. F. BUDDLE, 72, Alfred Road, Dover, Kent.

TWO WEEKS IN THE CANARY ISLANDS IN 1981

By H. G. ALLCARD, F.R.E.S.¹ and ANTHONY VALLETTA, F.R.E.S.²

We met at the new airport, Reina Sofia, in Tenerife on Tuesday, the 1st of September at 1.15 p.m.; though on different flights from different airports, we managed to arrive more or less at the same time at our destination. By 2.30 p.m. we had reached our hotel at Santa Cruz de Tenerife.

Whilst enjoying a cup of tea on the patio, we were greeted by the smallest butterfly, *Zizeeria knysna* Trimen, which was flying in good numbers on the well-trimmed hedges surrounding the lawn. Not much later the largest butterfly *Danaus plexippus* Linnaeus, appeared and was soon followed by another. They both soared and fell and soared again until, tired, they rested on the bougainvillea for a quick drink. As in previous years, we were looking forward to seeing *Catopsilia florella* Fabricius in the hotel gardens, but this time it was absent, though the foodplant, *Cassia didymobotyra*, was still available. Later we noticed that it was also absent from the nearby park where several huge *Cassia* trees were in full bloom and where, in 1979, we had seen so many pupa cases on their defoliated branches and butterflies on the wing. The only other butterfly we saw that afternoon was *Pieris napae* Linnaeus.

2nd September. We paid a courtesy visit to the Director of Icona (National Institute for the Conservation of Nature). He told us that there had been little rain-fall that winter and consequently the vegetation had dried up earlier than usual. We then went to Monte de las Mercedes, 19km from Santa Cruz; there we noticed the complete dryness. The *Cedronella canariensis*, the favourite plant of the butterflies, was in seed and the *Rubus ulmifolius* was in berries. The only butterflies we saw in that locality were *Cyclirius webbianus* Brulle and *Lampides boeticus* Linnaeus. So we drove further on to the road which leads to Las Carboneras; here also we were disappointed. All the *Cedronella* that grew near the road had been uprooted to make room for a concrete gutter. Two years previously this road, though dusty and somewhat rough, had been a paradise for *Gonepteryx cleobule* Hubner when the *Cedronella* was available and in bloom. The larval foodplant, *Rhamnus glandulosa*, was still there but the food for the butterfly had totally disappeared. In fact we did not come across a single butterfly until we reached a country house some 2km away where *G. cleobule*, *Colias crocea* Geoffroy, *Pararge xiphioides* Staudinger, *P. rapae* and *C. webbianus* were feeding at garden flowers.

3rd September. We again visited Monte de las Mercedes but as nothing was on the wing we proceeded to Las Yedras. Here, once more, we found that the *Cedronella* had been cut down, especially those plants by the road. Luckily we noticed a spot below a villa

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where a few plants had been spared. We saw a small butterfly resting on a dry thistle and to our delight it was *Thymelicus acteon christi* Rebel, the only skipper found on the island. Two *C. crocea*, very small in size, a single *Pontia daplidice* Linnaeus and a male and female *Maniola jurtina* f. *fortunata* Alpheraky were also seen. All male *G. cleobule* seen that morning had their wings damaged but the females were in very good condition.

4th September. In the morning we explored another locality on the other side of Las Carboneras, below Monte de las Mercedes and some 600m above sea level. We could not go far as a landslide had blocked the road the night before. This locality was a good one for Lycaenidae and Hymenoptera; in fact, *C. webbianus*, *Lycaena phlaeus* Linnaeus *Aricia cramera* Eschscholtz and *L. boeticus* were quite common on the *Mentha pulegium*, *Satureja nepeta* and *Echium plantagineum*. Looking down a ravine, we noticed that the *Cedronella* was still in bloom and that several *G. cleobule*, mostly females, were patronising the flowers. In this locality we found several caterpillars of different sizes on *Teline microphylla*; they had short hair and were greyish black with a greenish dorsal and a yellow lateral stripe. We took a few that were fully grown and after a few days they formed silken cocoons covered with their own excreta. The moths started emerging on the 7th of October and turned out to be *Uresiphita limbalis* Denis & Schiffermuller.

5th September. As in former years, we did not want to miss a visit to Puerto de la Cruz, if not for the butterflies at least for the ever-changing panoramic view from the coach all along the 38km journey. After a two-hour drive through hamlets, small towns and many banana groves, we reached our destination. We passed through Taoro Park, or rather what was once a park as now it is a parking site and sports centre. Still, *D. plexippus* and *C. florella* were flying in the gardens. We again saw *Z. knysna* flying over a vetch and on another half-dry leguminous plant two *L. phlaeus* tried to sip what they could from the remaining flowers. We went to an hotel for a cup of coffee and in the garden we saw *Pieris cheiranthi* Hubner resting on the only nasturtium (*Tropaeolum majus*), a plant which in previous years had covered the whole area; then pupae of this butterfly had abounded on the nearby walls and the empty cases were still to be seen. We waited briefly until the butterfly left the plant and to our delight found a cluster of newly laid eggs on the underside of a leaf. *C. florella* and *D. plexippus* were in good numbers by the swimming pool. We had a look at the *Cassia* trees and found two larvae of the former. One, which was quite big, pupated on the 10th and the butterfly emerged on the 19th, a female of the whitish form. The other was much smaller and, after being fed on *Cassia* taken with us to England, pupated on the 21st; the butterfly emerged on the 4th of October, having taken longer in the pupal stage owing to the difference in climate.

6th September. Senor M. Morales Martin and his son drove us in their car to parts of the island we had not visited so far and where small colonies of *G. cleobule* were still thriving. We visited Las Vueltas de Taganana and went down to Culuzo del

Tejo at the very northern tip of the island. We returned to Santa Cruz taking the road from El Bailadero to San Andres, an area mostly barren except for several species of *Euphorbia*, hoping to come across *Danaus chrysippus* Linnaeus which we had not encountered during our visits in 1977 and 1979. We were very grateful to our friends for, besides providing the enjoyable drive, they pointed out to us places like isolated hamlets and the Dutch village, accessible only from the sea, which we would never have located on our own.

GOMERA

In 1979 we visited the island only for a couple of hours as no accommodation was obtainable. This time, a week later, rooms were available and we were happy to spend two fruitful days on this wonderful island.

7th September. The ferry reached San Sebastian, the port and capital of Gomera, at 11.25 a.m. Luckily we found the same taxi driver whom we had hired two years before and who knew what we were after. We checked in at the hotel and then drove straight to El Cedro where the forest which registers most of the rainfall provides the right habitat for the flora and fauna. We wanted to visit an area further north of La Laguna Grande, where on our last visit we had found a mass of butterflies, especially *G. cleobule*, feeding on a carpet of *Cedronella*. To our surprise, all the flowering plants had been uprooted and heather trees planted instead. Thus the ecology of the area had completely changed and, with no flowers at hand, the butterflies and other insects had had to move elsewhere. This being so, we drove down to El Cedro. Here, unlike those in Tenerife, the *Cedronella* was still in bloom in shady localities. It was not long before *G. cleopatra cleobule* started flying out of the forest in search of the flowers; females were predominant that morning and most of the males had passed their best. *Pandoriana pandora* Denis & Schiffermüller was frequently seen crossing the road at a considerable height and the few that settled were seen to be badly worn. As in Tenerife, *C. webbianus* and *L. boeticus* were very common and very small. A few battered female *M. jurtina* f. *fortunata* were still on the wing and we saw two *C. crocea*, one *P. daplidice* and several *P. xiphioides*. The only moths we came across were *Macroglossum stellatarum* Linnaeus hovering over the flowers; they seemed quite fresh.

8th September. After a restful night we were ready for another visit to El Cedro. The sky was overcast and the weather discouraging. Two years previously we also experienced this type of weather and it had gradually cleared up; so we decided to go ahead. Fortunately the same thing happened and by 11.30 a.m. the clouds had drifted away and the sun was shining brightly. This time more male than female *G. cleopatra cleobule* were seen and most of them were quite fresh. This variation in the condition of specimens could arise from there being two broods, but a more likely explanation is that the adult life-span of *Gonepteryx* species is rather long and, since the

females vary in their time of leaving hibernation and egg-laying, the emergence of the butterflies is prolonged. Derry & Derry (1979), who visited Tenerife and Gomera in July, two months ahead of us, also encountered worn and fresh imagines. All the other species seen on the first day were on the wing again with the addition of *A. cramera* and *P. xiphioides*. We saw very few other insects as the season was almost over. *Bombus terrestris canariensis* Perez, *Cerceris concinna* Brulle and *Podalonia tydei* Le Guillou were still on the wing, the same species as we had seen in 1979, but in smaller number.

In the evening we caught the ferry back to Tenerife and returned to our hotel at Santa Cruz.

9th September. We spent a restful day at the hotel evaluating what we had seen and enjoyed most in Gomera.

10th September. We chose a different locality on the mountains, Pico del Inglis, but as it was windy we moved to a lower and more sheltered place where some wild plants were still in bloom. We waited and waited for butterflies to appear. The only sign of life, besides the isolated chirping of some birds, was an unusual number of large dragonflies (*Anax* sp.) parading up and down the smooth road. They came very close to us but not within our reach. Naturally they were after food, but, not being close to water, it was not easy to find any. At last, as a male *G. cleobule* flew down from the forest, its golden wings shining in the sun, down dived one of these predators, snatched it with its legs and mouth and tried to fly away to the nearest tree. It was not so easy as in its efforts to escape the butterfly kept flapping its wings and pulling down the unkind snatcher. Both whirling in the air, they soon disappeared among the trees. We moved further on but there were still no butterflies so we concentrated on smaller fry. Beating the vegetation, we disturbed several micros, *Agriphila trabeatellus canariensis* Rebel and *Endotricha rogenhoferi* Rebel, both endemic, *Pyrausta amata* Scopoli, *Psara bipunctalis* Fabricius, *Pselnophorus albiodactylus* Milliere and *Crombrugghia laetus* Zeller. *B. terrestris canariensis*, *P. tydei* and *Anthidium manicatum* Linnaeus were quite common.

LA PALMA

11th September. La Palma is the most westerly of the Canary Islands. Its area is 730 sq.km. and it is extremely rugged with the highest peak at 2483m. Laurel forests dominate the more northern slopes. Our flight took 20 minutes: On arrival at Santa Cruz de la Palma, we went straight to San Miguel Hotel which offers a fine view of the city, its harbour and bay, as well as the imposing mountains which encircle it. Taking a taxi, we drove north-eastwards to the forestal area of the island where we hoped to see *Gonepteryx palmae* Stamm and *P. cheiranthi*. The journey uphill took just one hour round many awkward and dangerous bends, but as we were in the hands of an expert driver it was enjoyable. This island was the greenest of the three we had so far visited. All sorts of trees and bushes, evergreen and deciduous,

decorated the road; *Lantana*, *Nicotiana*, *Ricinus* etc. were everywhere; higher up, peach and chestnut trees loaded with still unripe fruit were plentiful, while there were banana plantations at a lower level on the slopes of the ravines. Every cottage on the route provided a colourful garden with the flowers of the season, *Hibiscus*, *Plumeria* and morning glory adding further attraction. However, we were too late in the season to see many wild flowers, although a few were still in bloom in the forested area. It was some time before the butterflies started to appear; they were high up in the almost vertical slopes of the wooded mountains and unless the sun shone they would not fly out. It was an exciting moment when the first *P. cheiranthi* came down from such a height, floating freely with spread wings showing the large black spots on its forewings. *G. palmae* followed, floating down rather more quickly. *P. xiphioides* was still on the wing with females predominating. *C. webbianus* flew from flower to flower and they seemed larger than those from the other islands. We saw one *C. crocea*, a couple of *P. pandora* and a single *Vanessa indica vulcania* Godart. Two battered *M. jurtina* f. *fortunata* patrolled a stretch of ground all the time. As in the other islands, *P. rapae* was the most common butterfly. Other insects seen that day were *B. terrestris canariensis*, *Paravespula germanica* F. and the ubiquitous *Apis mellifera* L.

12th September. We visited the same place again as we assumed it was the best location for the time of year when most of the wild flowers were over; moreover, other areas were inaccessible owing to a lack of roads and tracks. It was not until 1.00 p.m. that we had a sunny period; during that short spell several *P. brassicae cheiranthi*, mostly worn males, flew down to the flowers together with a single *G. palmae*. By 3.45 p.m. it was getting cold so we went straight to the airport for the flight back to Tenerife.

We were puzzled by the presence of *P. cheiranthi* as no nasturtium, the principal foodplant of the caterpillar, was growing in the thick forest or nearby. This suggests an alternative foodplant. We also noticed that the La Palma butterflies lacked the subcostal black spots on the underside of the forewing characteristic of those in Tenerife. This suggests some biological difference between the stock of the two islands.

13th September. A dull, rainy day kept us indoors after the two energetic days at La Palma.

14th September. Again a dull day. In the afternoon we drove to the fountain, Fuente Joco, at a height of 1900m where on our two previous visits we had seen *Pseudotergumia wyssii* Christ in good numbers. As this butterfly is active in dull weather and both early morning and late afternoon, we hoped to get a glimpse of it before our departure. Much to our dismay, not only was the butterfly absent but the fountain too was not in its former state; there had been no water running all the summer and it had been tampered with by an irresponsible person. The bees and wasps which had buzzed round our mouths two years before when we tried to drink had all gone: desolation reigned. So we drove down to Cumbo de Arafo at 1600m. Though already late in the afternoon, *A. cramera*,

L. phlaeas and *C. webbianus* were still flying. Turning over some stones, we found the largest earwig in the island, *Annisolatus maxima* Brulle, several beetles, mostly *Heteger transversus* Brulle, and the staphilinid *Creophilus maxillosus* spp. *canariensis* Bernhauer. We also disturbed the common grasshoppers *Aiolopus strepens* Latreille, *A. thalassinus* Fabricius, *Calliptamus plebeius* Walker, *Ariagona margaritae* Kr. and a *Plalycleis* species.

15th September. We returned to England, both satisfied with our enjoyable and fruitful holiday on the three picturesque islands we had visited.

We would like to record our grateful thanks to Dr. A. Machado and Senor M. Morales Martin for their warm hospitality and great help. For a full bibliography see Allcard & Valletta, 1978 and 1981.

References

- Allcard, H. G. & Valletta, A., 1978. A week of collecting in Tenerife, Canary Islands, in September 1977. *Entomologist's Rec. J. Var.* 90: 91-94, 1981. The Canary Islands revisited in 1979. *Ibid.* 93: 120-125.
 Derry, N. J. & Derry, A. C., 1979. Tenerife and Gomera, July 1978. *Ibid.* 91: 275-278.

MOMPHA LACTEELLA STEPHENS: A POSSIBLE DISTINGUISHING CHARACTER. — I recently dissected a *Mompha* which I had suspected might be *lacteella* and this proved to be the case. I took it on 5th. June 1976 in the late afternoon at Lutton, Devon. It was in good condition, sitting on a leaf of *Corylus* at the edge of a cornfield. There was no evidence anywhere in the area of *Epilobium hirsutum*, the foodplant given by Emmet (1979, *A field guide to the smaller British Lepidoptera*).

Lacteella is very similar to *propinquella*. In his key to the genus *Mompha*, Meyrick (1928, *A revised handbook of the British Lepidoptera*) separates the two on the colour of the thorax and basal blotch. He describes this as being ochreous-white in *propinquella* and pale ferruginous-ochreous in *lacteella*, a distinction which I find hard to interpret.

I have bred several *propinquella* and fresh specimens appear to have the thorax and basal blotch the same colour as *lacteella*. However his description of *lacteella* states "thorax pale ferruginous-ochreous, anteriorly sprinkled dark fuscous." Mr. S. N. A. Jacobs' coloured figure (1945, Wakely, Notes on the genus *Mompha*. *Proc. Trans. S. Lon. ent. nat. Hist. Soc.* 1944-45: 81-84, pl. V) shows this on the tegulae in his illustration of *lacteella*. In my specimen the tegulae are very strongly marked anteriorly with the blue-black ground colour of the forewings. None of my *propinquella* has such markings.

As I have only one specimen of *lacteella* I do not know whether this is a good character for separating the two species. I would welcome others' observations. — R. J. HECKFORD. 67, Newnham Road, Plympton, Plymouth.

NOTE ON *PACHYNEMATUS ARCTICUS*
(LINDQVIST) (HYMENOPTERA,
TENTHREDINIDAE)

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By ANDREW D. LISTON*

An excursion to Ben Heagsarnich (1076m), Perthshire, made by Mr. J. M. Nelson and the writer on 24.-25.6.1981 yielded only five sawfly specimens, one being of great interest. Collecting commenced on the evening of the 24th on the high slopes of Heagsarnich (ca. 900m.) in an area of heavily grazed *Festuca-Vaccinium* grassland. *Dolerus aeneus* Hartig was the only sawfly encountered here (1 male, 1 female). On the summit, *Salix herbacea* L. formed large patches amongst the snow-influenced vegetation. Numerous leaves bore young galls of *Pontania crassipes* Thomson, and one adult female of this species was collected together with a male *Pristiphora staudingeri* (Ruthe). Both *crassipes* and *staudingeri* are arctic-alpine Nematinae, occurring on many of the higher Scottish hills.

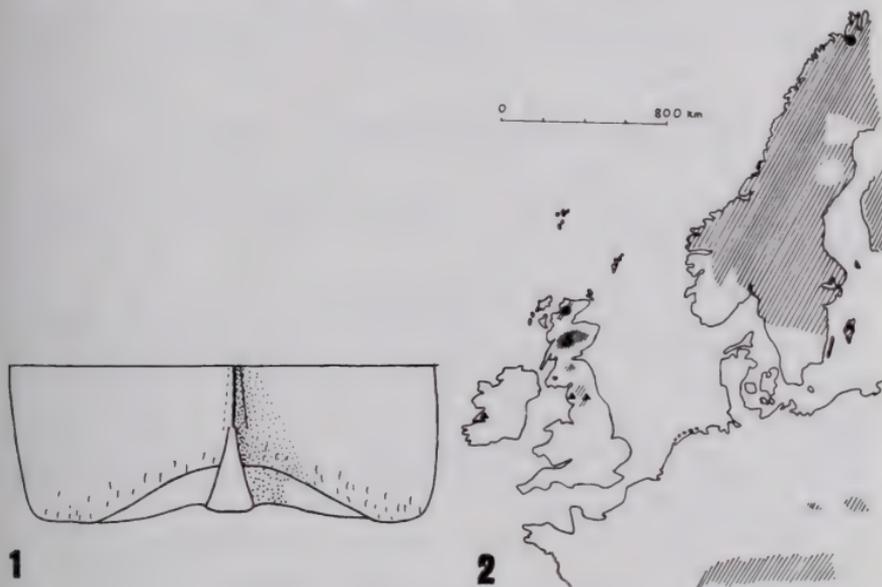


Fig. 1. 8th tergite of male *Pachynematus arcticus* (Lindqvist).

Fig. 2. European distribution of *Pachynematus arcticus* (dots), *Potentilla crantzii* (shading) and *Potentilla fruticosa* (triangles).

Early in the morning of the 25th we investigated the fauna of the ungrazed ledge and steep-face herb communities on the south-facing crags of Ben Heagsarnich. The rock is calcareous Dalradian schist and because of this, the dominant plants are montane calcicoles such as *Dryas octopetala* L., *Salix reticulata* L., *Vaccinium uliginosum* L. and *Potentilla crantzii* (Crantz) Beck. Prolonged searching of many patches of *Salix reticulata* revealed no *Pontania* galls, but this was no surprise since the only gall-maker occurring on it has not been recorded in Britain. Sweeping was generally

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difficult, but on a broad ledge with a rich variety of herbs, a single male of *Pachynematus arcticus* (Lindqvist) was obtained.

P. arcticus is a very slender species only 4-5mm long. Its size and very dark colouration probably often cause it to be overlooked. It was described as *Mesoneura arctica* by Lindqvist (1958) from a male collected by Richard Frey in the alpine zone of Malla Field, north-west Norwegian Lapland in July 1943. Benson (1961) transferred the species to *Pachynematus* and recorded that he had caught a male at Inchnadampf, Sutherland. A second male was taken at the same locality by Mr. E. C. Pelham-Clinton a few years later (Benson, 1964).

The venation of the type was abnormal, a frequent occurrence in arctic sawflies, leading Lindqvist to describe it as a *Mesoneura*, a decision which was certainly wrong (Benson, 1961). The male's penis-valve is completely unlike that of any other *Pachynematus*, but more resembles those of certain *Pristiphora* spp. In fact, independently from Benson, Hellen (1960) indicated that *arcticus* was not a *Mesoneura*, but a *Pristiphora*. Apart from the penis-valve (Lindqvist, 1958, fig 3; Benson, 1961, fig. 1), the 8th tergite of the male is also closer to the *Pristiphora* type than to a *Pachynematus* (fig. 1). However, the costa is barely expanded at its apex and the clypeus is only very weakly emarginated, both of which are important characters leading to *Pachynematus* rather than *Pristiphora* in Benson's (1958) key.

Lindqvist (1970) described *Pachynematus incisus* on the basis of two females reared by Wershutskij from *Potentilla fruticosa* L. near Irkutsk in the Baikal region of Siberia. Wershutskij's collection of Siberian Nematinae, sent to Lindqvist for identification, also contained a male *P. arcticus* (Lindqvist, 1972). These two papers should be consulted for descriptions and figures of the female *arcticus* (= *incisus*), which possesses a distinctive sawsheath resembling those of certain *Pristiphora*.

The rearing of the female *arcticus* from *Potentilla fruticosa* (Rosaceae) is also most interesting and remarkable. Other groups of Palaearctic *Pachynematus* are associated chiefly with Gramineae, Cyperaceae and Coniferae, with only a couple of species feeding on Salicaceae and Polygonaceae. The association of *arcticus* with Rosaceae is once again reminiscent of *Pristiphora*. I suspect that in Europe the larva of this species should be looked for on *Potentilla crantzii* (Alpine Cinquefoil), a local arctic-alpine plant whose British stations include both localities where the *Pachynematus* has been found.

More information on the biology and distribution of *arcticus* would be valuable in resolving its generic position. At present, it is best retained as a distinctive species-group within *Pachynematus*. It is possible that it has been consistently overlooked because of its unusually late flight season.

Figure 2 shows the known European distribution of the sawfly and its probable foodplants.

Acknowledgement

I thank Mr. J. M. Nelson (Nature Conservancy Council, Edinburgh) for arranging our visit to Ben Heasgarnich.

References

- Benson, R. B., 1958. Hymenoptera Symphyta. *Handbk. Ident. Br. Insects*, 6 (2c): 139-252.
- Benson, R. B., 1961. *Pachynematus arcticus* (Lindqvist) Comb. Nov., a new British Sawfly in Sutherland (Hym., Tenthredinidae). *Entomologist's mon. Mag.*, 96: 137-138.
- Benson, R. B., 1964. *Pachynematus glabriceps* Lindqvist, a new British Sawfly and a note on *Empria liturata* Gmelin (Hym., Tenthredinidae)., *Entomologist's mon. Mag.*, 100: 263-4.
- Hellen, W., 1960. Die Nematinen Finnlands (Hym., Tenthred.). I. Tribus Pseudodineurini, Cladiini und Nematini part. *Notulae Ent.*, 40: 1-18.
- Lindqvist, E., 1958. Neue Blattwespen aus Fennoskandien (Hym., Tenthred.). *Notulae Ent.*, 38: 68-72.
- Lindqvist, E., 1970. Neue Nematinen aus dem Pribaikal-Gebiet, Siberien (Hymenoptera, Tenthredinidae). *Notulae Ent.*, 50: 97-104.
- Lindqvist, E., 1972. Zur Nomenklatur und Taxonomie einiger Blattwespen (Hymenoptera, Symphyta). *Notulae Ent.*, 52: 65-77.

Notes and Observations

A STRANGE CASE OF LARVAL DEPRAVITY. — 1981 was not the most productive season I can remember as the half-filled setting boards in my drying-cabinet will testify, but imagine my anger when perusal of these boards late in September revealed damage to many of the specimens. I searched diligently for the tell-tale exit holes and small piles of minute frass that betrays the presence of *Anthrenus museorum*, the 'Collectors-friend'. Instead of the characteristic dry powder I found large, moist pellets of a lepidopteran origin. Minute examination revealed the half-inch long culprits. The larva, a noctuid, was dining out at the expense of his deceased brethren, so I confined his attentions to a large corpse of *Hyloicus pinastri* Linn., upon which he fed until pupation in late November.

I was rewarded for my labours on 26 February this year with the emergence of a fine, though rather dark, example of *Caradrina clavipalpis* Scop. I believe this is the first time that a noctuid larva has been reared exclusively upon a diet, although the habit is well established amongst some of the Oecophoridae, namely *Hoffmanophila pseudospretella* Stt., and *Endrosis sarcitrella* Linn. — MARK HADLEY, 2 Thompson Street, New Bradweel, Wolverton, Bucks.

PHYLLONORYCTER SAPORTELLA (DUPONCHEL) (HORTELLA FABRICIUS) IN EAST NORFOLK. — On the 8th of November 1981 my wife and I were making records in the Redgrave-Lopham area, where vice-counties 25, 26, 27 and 28 meet. There are fine roadside oaks on which I have found eight species of nepticulid, including the local *Ectoedemia quinquella* (Bedell). On this occasion, however, we were searching for *Caloptilia* cocoons; the early stages of *C. alchimiella* (Scopoli) and *C. robustella* Jäckh seem to be indistin-

guishable and I wanted to rear adults for recording purposes. At approximately TM 047802, just inside VC27, I picked several cocoons, one on a leaf which also bore a *Phyllonorycter* mine. The leaves were overwintered in a nylon stocking lying on the ground and were under snow during the severe weather. I brought them indoors on the 11th of February and four *C. robustella* emerged between the 9th and 13th of March. The *Phyllonorycter* mine produced a female *P. saportella* on the 26th of March.

This is apparently the first example of this species to be obtained in Britain since May, 1949, when Mr E. C. Pelham-Clinton found two adults on tree-trunks in Cambridgeshire, one near Madingley and the other near Gamlingay. In *The Field Guide* we stated "Not recorded in recent years" and this has not been contradicted. It has been suggested that the mines are seldom found because they occur high up on the oaks; that may sometimes be the case but this one was within easy reach.

The mine is situated on the margin of the leaf extending inwards from the tip of a lobe, the leaf-edge being completely folded over so as to conceal it. The lower epidermis is therefore almost obscured but appears to have numerous small creases. There is no central green patch on the upper surface because none of the palisade tissue has been eaten right through to the epidermis. The mine somewhat resembles that of *P. heegeriella* (Zeller) but is more strongly folded and is larger, measuring 12mm as opposed to 10mm or less in length. This account tallies with that given by Hering (*Bestimmungstabellen der Blattminen von Europa* 2: 826). For obvious reasons, the feeding was not described by Harper & Langmaid (*Ent. Rec.* 90: 162-166). If my mine is typical, there should be little difficulty in recognising other examples, providing they can be found. The mine is probably the hardest to detect of the oak-feeding *Phyllonorycter* because the pale lower surface is hidden and there is no discoloration on the upper side; at first sight, it looks more like a fold than a mine. I cannot describe the cocoon since I have given the mine unopened to Dr Ian Watkinson who is covering the genus in MBGBI Vol. 2.

Collectors have been searching assiduously but in vain for this species for many years: I bring a single mine home because it happens to be on the same leaf as something else and rear it by accident and unexpectedly. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF. 28.iii.1982.

MAGDALIS VIOLACEA L. (COL.: CURCULIONIDAE): CORRECTION OF A RECORD. — Although this species has now (probably correctly) been removed from the British list, there is a mid-century published record (G. E. Woodroffe, 1951, *Ent. mon. Mag.* 87: 255) of which I feel it incumbent on me to say something in clarification — in order to set the record straight and because the specimen in question is now in my collection. It was swept from broom at Culbin Sands, on the Moray Firth, 21.vi.51. Subsequent to publication, the late captor — a well-known hemipterist, who gave away most of his coleopterous captures — most kindly presented me with the insect, whose identification, he said, had not been and still was not free

from doubt as between the two closely allied species *duplicata* Germ. and *violacea* L. Some while later I came to the conclusion that the single tenuous British record of the latter species (cf. Fowler, 1891, *Col. Brit. Isle.*, 5:398) was most likely based on confusion with *M. duplicata*, so that probably we did not possess *violacea*; and that the Culbin specimen was in fact a very small *duplicata*. This last species is now known as a regular, though scarce, inhabitant of the Scottish Highlands. — A. A. ALLEN.

BOOK TALK FIVE. — A book of unusual historic interest is Rennie's *Conspectus*; or, to give it its full title, *A Conspectus of the Butterflies and Moths found in Britain*, by James Rennie, Professor of Zoology, Kings College, London, and published in 1832 by William Orr at 7s. 6d. Apart from a title page with a curious engraving of *Papilio machaon* together with its larva and pupa, this minute octavo no bigger than a 12mo and measuring only 150mm x 90mm is unillustrated, but contains 327 pages of small print treating of the entire Order. To a marked extent the book is an epitome of the well known and relatively expensive *Illustrations of British Entomology (Haustellata)* whose author, James Francis Stephens, was engaged in a lawsuit with Rennie for alleged piracy of the *Illustrations* in the *Conspectus*. Although Rennie won the case, many scientific men showed sympathy for Stephens by subscribing to defray the heavy legal costs of the action following his defeat. On page 4, the Wood White is described as *Leucophasia loti* Rennie, a name seemingly overlooked by the authors of that most useful of lists of British lepidoptera viz., "Kloet & Hincks" (1972), but was nevertheless cited in W. F. Kirby's monumental *Synonymic Catalogue of the Diurnal Lepidoptera [of the World]* (1872). At least one author followed the nomenclature of the *Conspectus*, as witness E. H. Burnell in his "List of Lepidopterous Insects found in the Neighbourhood of Witham, Essex", published in 1837 in *Magazine of Natural History*, new series, 1: 601-604.

To those interested in entomological bibliography, the Royal Entomological Society has for sale a limited number of copies (which offer is not restricted to Fellows of the Society) in original wrappers, of G. C. Champion et al. (1893), *Catalogue of the Library of the Entomological Society of London*, pp.i-iv, 1-291; and *Supplement* (1900), pp. i-iv, 1-147. On estimation, the work contains fully 8500 items, and the price per copy (including the *Supplement*) is £1 plus postage, obtainable from the Librarian, 41 Queen's Gate, London SW7 5HU. — J. M. CHALMERS-HUNT.

UDEA DECREPITALIS H.-S. (LEP.: PYRALIDAE) IN WALES. — On 6th June 1978 I was collecting at m.v. light on the banks of a lake near Talybont on Usk, Brecknockshire, Wales (SO 0166). The night was fairly cool and misty and little interest in the way of Lepidoptera visited the lamp apart from *Lampropteryx suffumata* D. & S., *L. otregiata* Metcalf and a pale pyralid moth which I could not immediately identify. Upon setting the moth later I came to the conclusion that the specimen (a male) was probably *Udea decrepitalis* H.-S., but thought the record required confirmation because of the locality. Recently I prepared a genitalia slide from the speci-

men and was convinced that my original identification was correct. This supposition was kindly confirmed by Mr. M. Shaffer of the Department of Entomology at the British Museum (Natural History).

To my knowledge this alpine species has not been recorded before from the British Isles outside Scotland. If I had realised the significance of the record at the time I would have tried to identify the food plant. There were a large number of fern plants growing near the lake but I did not know to what species they belonged. — P. J. JEWESS, Boyces Cottage, Newington, Sittingbourne, Kent ME9 7JF.

NINETEENTH-CENTURY ISSUES OF SMITH AND ABBOT, "THE NATURAL HISTORY OF THE RARER LEPIDOPTEROUS INSECTS OF GEORGIA" (1797). — In an initial study of "Smith and Abbot" (93: 213-218) I suggested that the work had a long printing history, and that its plates (some with new imprints) were available as late as three decades after the original publication. I have since been conducting a census of copies of the entire work to collect additional data.

It has long been known that some copies of the book included plates printed on paper with watermarks dated as late as the 1820s. Preliminary results of my census (based on thirty-five copies at the moment of writing) suggest that copies were made up from the original sheets of text, watermarked 1794, and successive impressions of the plates. Later copies (still with the 1797 title and initial printing of the text) have plates with watermarks dated from 1817 to 1827, and some of these copies include one or more of the original plates with 1794 watermark dates. So "new" copies of the entire "1797" work were being issued as late as 1827 and perhaps later; one of the "R. Martin" plates in the dos Passos set without text, discussed in my paper cited above, bears an 1828 watermark.

Further data could well revise these estimates, and indicate an even more interesting bibliographical history. Hopefully more will be learned about the Martin imprints. A more complete report on the printing of "Smith and Abbot" will appear in time, and I would appreciate hearing from owners of copies I have not examined. — RONALD S. WILKINSON, 228 Ninth Street, N. E., Washington, D. C. 20002.

CACOECIMORPHA PRONUBANA HBN. (LEP.: TORTRICIDAE): SUCCESSFULLY REARED ON ARTIFICIAL DIET, WITH A NOTE ON ITS DIAPAUSE REQUIREMENTS. — This species is generally polyphagous with a preference for *Euonymus japonica* (Bradley et al., 1973) and West (1982) while detailing some further foodplants, including imported foreign species, has pointed out that local preferences for food may be shown. In October last year I was given some unidentified ova which were laid on Oleander (*Nerium oleander* L.) growing in the London Butterfly House, at Syon Park, Middx. Similar eggs had also been laid on other plants. When these eggs hatched the young larvae resolutely refused to eat the Oleander leaves and those left with no other choice all died. When it was clear that they were not eating, the larvae were offered a choice of cabbage or artificial diet. The larvae immediately started feeding on both these foodplants, fed up and pupated successfully and the

resultant imagines proved to be *C. pronubana*. The artificial diet used was the cabbage formulae normally used for rearing *Pieris brassicae* L. It was formulated and used according to the methods described by Gardiner (1978).

The moths obtained readily paired and the next generation was again reared on the diet or on cabbage. For convenience it was found that the moths readily oviposited on the sides of 60 ml plastic vials, into the bottom of which freshly-made diet could be poured. For ease of starting these very small larvae, it was found advisable to roughen the surface of the set diet by intensive scratching with a large needle, which was the most convenient instrument to use. The larvae were then changed onto fresh diet when they reached their final instar. At a temperature of 20-25°C the total development period was six weeks, with no difference between the natural food-plant, cabbage, or the diet-fed larvae. Most of the larvae were kept under a photoperiod of 18 hours light, 6 hours dark per day. A number however were kept on a 12 hour light 12 dark regimen and, the imagines not having emerged after two months, can now be concluded to be in diapause, thereby proving that *C. pronubana* has a facultative, light controlled diapause requirement. It is normally (Bradley et al, 1973) a bivoltine species in this country, so this is not perhaps surprising.

I have not previously seen a record of this species from any *Brassica*, and it can now be added to the ever-increasing number of species that can be successfully kept in culture on artificial diet. I suspect that it is not really necessary to use a cabbage-flavoured one however.

References: Bradley, J. D., Tremewan, W. G., Smith, A. (1973) *British Tortricid Moths*. pp 251. Ray Soc., London. Gardiner, B.O.C. (1978) The preparation and use of artificial diets for the rearing of insects. *Ent. Rec. & J. Var.* **90**, 181-184, 267-270, 287-291. West, B. K. (1982) *Cacoecimorpha pronubana* Hbn., (Lep.: Tortricidae): Larval foodplants including damage to *Skimmia japonica* Thunb. *Ent. Rec. & J. Var.* **94**: 38. — B. O. C. GARDINER, UICP, Dept. of Zoology, Downing Street, Cambridge.

THE CHEQUERED SKIPPER: *CARTEROCEPHALUS PALAEMON* PALLAS IN ENGLAND, 1976. — In view of the considerable importance of this Journal as a historical record, may I point out that on the 6th June, 1976, I did see one newly emerged specimen of this butterfly on the site where it had been seen by other observers in 1975. — A. ARCHER-LOCK, 4 Glenwood Road, Mannamead, Plymouth, Devon PL3 5NH.

A FEBRUARY DYTISCUS (COL., DYTISCIDAE). — I have rarely found beetles of this genus in my light-trap and was most surprised to find a female *Dytiscus marginalis* Linnaeus amongst the small catch of 1st/2nd February 1982 in the trap in my Axminster garden. Dr. Anthony Eve, who is collecting records of water-beetles from light-traps, tells me that this species flies mainly on hot nights and that this exceptionally early date is worth publication. — E. C. PELHAM-CLINTON, Furzeleigh House, Lyme Road, Axminster, Devon, EX13 5SW, 22.ii.1982.

WHAT'S IN A NAME? A SUGGESTION. — Having read A. A. Allen's article (*Ent. Rec.*, 94: 4) with interest, I am sure I will not be alone in suggesting the answer to his quiz question is *aprilina*. Why *aprilina* he asks, for an autumn-flying moth? Well, he says himself that some names are atrociously misspelt. Could this one really be *aphilina*, without love? If so, we could call him the Unloved, instead of the Merveille du Jour. In any case why "du Jour"? He flies at night! — A. J. SHOWLER, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks.

THE RED ADMIRAL ON THE WING IN DECEMBER 1981. — On December 26, at 11.15 AM. GMT., a dull cold morning, with the temperature a little above freezing, following two weeks of arctic weather, I saw a specimen of *Vanessa atalanta* (Linn.) fluttering on the outside of my conservatory window. On February 6, a fairly mild day, I saw the Peacock Butterfly, *Inachis io* (Linn.) on the wing in my garden. — S. C. S. BROWN, 158 Harewood Avenue, Bournemouth, Dorset.

NEW HOSTPLANT RECORDS FOR *CIONUS HORTULANUS* (GEOFF.) (COL., CURCULIONIDAE) AND *CHRYSOLINA FASTUOSA* (SCOP.) (COL., CHRYSOMELIDAE). British species of the genus *Cionus* typically feed on species of *Scrophularia* and *Verbascum* (Scrophulariaceae), but their ability to colonise introduced species of *Buddleja* (Buddlejaceae) is well known (Read, 1977, *Entomologist's Gaz.*, 28 : 183-202). In 1937 Scott (*Entomologist's Mon. Mag.*, 73 : 29-34) recorded *Cionus scrophulariae* L. infesting *Phygelius capensis* E. Mey, The "Cape Figwort", at Charlbury, Oxfordshire. I am aware of only one more recent British record of *Cionus* on this South African member of the Scrophulariaceae. G. H. Ashe (1949, *Entomologist's Mon. Mag.*, 85 : 74) remarks "in my garden" (at Gribblesmead, Colyton, South Devon) "*Phygelius capensis* is regularly devastated by *Cionus* spp". On 5 July 1981 I collected a single female *C. hortulanus* (Fourc.) on *P. capensis* in an herbaceous border of the yard of the disused school at Longtown in the Olchon Valley, Hereford (SO 321 290). E. Milne-Redhead (*pers. comm.*) reports seeing a species of *Cionus* on *P. capensis* in August 1974 on the terrace of the house of Cmdr. R. M. Richards at Caerynwch, near Dolgellau, Gwynedd (SH 7617). Unfortunately he did not take a specimen.

Chrysolina fastuosa (Scop.) is known to feed on Labiatae, especially species of *Galeopsis* and *Lamium* (Freude, Harde & Lohse, 1966, *Die Käfer Mitteleuropas*, 9: 165). In June 1980 I was sent some specimens to identify from the garden of Mrs B. Will at the White Hills of Monymusk, by Inverurie, Aberdeen (NJ 61). *C. fastuosa* was present in such numbers on the labiate *Prunella vulgaris* L. that it became a pest on gooseberry bushes, *Ribes uva-crispa* L. This exemplifies the facility of some insects to accept non-related food plants when locally high populations "eat out" their usual host. *Ribes* spp. are not only in a different family, Grossulariaceae, but also in a different order, Tubiflorae. — R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs., PE17 2LS, 19.ii.82.

A REVIEW OF BRITISH BUTTERFLIES IN 1981

By Dr. C. J. LUCKENS*

For most species of butterfly in Britain 1981 seems to have been a poorer than average year. A fine warm spell in August possibly saved the season from complete disaster, but the indifferent weather which prevailed from late Spring, until late July was probably largely to blame for the general paucity of butterflies. Among the Satyridae, *Maniola jurtina* L. and *Pararge aegeria* L. were exceptions to the general rule and did well nearly everywhere in Southern England. There were particularly good reports of *jurtina* from Wiltshire (around Warminster) and several aberrations turned up in this area. In Dorset also, *jurtina* was up to strength, but only average numbers were reported from East Sussex. *P. aegeria* was noticeably common in the Summer brood in Dorset in August, and I saw it everywhere in the scrubby areas of the coastal valleys around Worth and Swanage. This butterfly was also common in Hampshire and Wiltshire, and though the first brood was very sparse in Sussex, the second brood was up to normal strength. *Melanargia galathea* L. also had a fairly good year and has apparently increased its range in the Chilterns recently. In East Sussex however, it was reported to be below average and very local in 1981. The hot weather in August brought out a good hatch of *Maniola tithonus* L. but *Eumenis semele* L. I found very scarce in the Swanage coastal area. It is now very local on the East Sussex downs but in the few sites remaining it produced reasonable numbers. Reports from East Kent suggest that it still possibly occurs on the cliffs between Dover and Folkstone, where its continued presence has been in doubt recently. *Semele* was common, though worn, on the New Forest heathland around Beaulieu and Dibden during the last week of August. *Aphantopus hyperantus* L. has declined markedly in many areas in the South East over the last few years. In mid Sussex, in particular, the reduction has continued and the Ringlet is now very local. A similar situation seems to have occurred in Kent, and, to a lesser extent, in South Hampshire. It was locally common in East Wilts in 1981 with some *arete/caeca* forms turning up in the County.

The commoner *Nymphalidae* such as *Aglais urticae* L. and *Nymphalis io* L. had a patchy year. There were large numbers of the latter on our garden buddleias in Southampton but *urticae* was uncommon, and the temporary residents, *Vanessa atalanta* L. *Vanessa cardui* L., were almost non-existent until very late in the year and then there was a small sprinkling of each species. All recorders remarked on the scarcity of *Polygonia c-album* L. both broods in 1981. *Limenitis camilla* L. was late in appearing but in average numbers in the Wilts woods. In Sussex it apparently had a very bad year with only four to five seen during several hours observation in perviously favourable sites. Of *Apatura iris* L. there were somewhat

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conflicting reports. I saw none in mid-August in the woods on the East Wilts and Hants border (where there has been extensive devastation) and I was informed by one of the wardens that very few had been seen this year. Other reports however, were of numerous sightings in the same area, and also, over the Hampshire border near Romsey, *iris* was reputedly frequent in at least two woods. The Purple Emperor apparently held its own in the West Sussex woods around Plaistow. It is pleasing that this magnificent butterfly continues to thrive in these areas in spite of vagaries of weather and forestry policy. *Argynnis paphia* L., also the subject of somewhat conflicting reports, was recorded from Wilts as up to strength but late and still flying up to the second week of September. In East Sussex it is local but still present in reasonable numbers around Lewes. In the Plaistow area around fifty could be seen in a few hours' walking. There are no signs of serious decline further West in Devon and South Wales (Breconshire). *A. aglaia* L. had a patchy time, with poor numbers on the downs and woods west of Salisbury; but I saw a fair number in August in the East Wilts woods where the recent felling has harmed *iris* but possibly encouraged this fritillary. *Aglaia* was also plentiful in the Lulworth area of Dorset and in the Grange area in the Lake District. I have virtually no reports of *Argynnis adippe* D. & S. but that it was scarcer than usual in its West Wilts haunts.

In South Hampshire the smaller fritillaries were common in one wood near Fareham which has been coppiced in two large areas and is currently in prime condition for both *Clossiana selene* D. & S. and *C. euphrosyne* L. The latter butterfly was the dominant species of the two, but both were abundant. In contrast, *euphrosyne* was uncommon in Crab Wood west of Winchester and in poor numbers in the Whiteparish area. Further east both continued to decline; particularly *selene*, which may now be absent from Kent and was reported as scarcer than for some years in East Sussex. Moderate populations of both still occur in the West Sussex woods but even here both have declined in the last few years. Further West *selene* tends to do better and in Breconshire is apparently holding its numbers quite well. The parlous state of *Mellicta athalia* Rott. in the West Country where only two colonies apparently now exist, has made it the subject of legislation. In Kent however, good numbers were recorded in mid-June in the Thornden area of the Blean woods. *Euphydryas aurinia* Rott. is impossible to assess on anything other than a strictly local basis. I saw a good number of male Marsh Fritillaries on June 6th in a locality unfortunately threatened with development, near Ringwood. In August there were plenty of larval webs in the same site. Earlier on in mid-April I found several larvae in a riverside locality near Tavistock. I heard however, that *aurinia* was scarcer than usual in some of the Argyllshire coastal colonies.

Hamearis lucina L., formerly common in West Wood near Winchester, has gradually declined over the last few years, but 1981 was the first season I failed to see it there at all. The woods

still look suitable in several places however, and the butterfly might well survive at low density there. In East Sussex and Kent *lucina* was reported as local and rare in 1981. The weather patterns in general favoured the late summer broods of Lycaenidae and several of the blues did quite well in August and September. Happily, this applied to *Lysandra bellargus* Rott. which appeared in good numbers in coastal Dorset, from Swanage westward to Lulworth. I saw this jewel of a butterfly in half a dozen places around Worth during the last week in August and early September. There were also encouraging reports from Kent where reasonably good numbers flew at Queenborough and Detling, though at the Folkstone grounds it was still rather low. There is apparently only one surviving colony in Wilts where it is holding its own, but in the Sussex localities it has declined and *bellargus* was described as local and rare in both broods. In Surrey it occurs near Guildford and here also it appears to have stabilised its position in 1981. *L. coridon* Poda on the other hand, did not share in this modest resurgence and appears to have been relatively uncommon nearly everywhere. I have records from Dorset, Sussex, Wilts and Surrey all painting the same picture of greatly reduced numbers. Only in Kent is it described as fairly common in 1981. This presumably refers to the Folkestone area where it has been low for a number of years and so, perhaps, represents an improvement. I thought the populations near Winchester showed reasonable promise in early August but *coridon* is slowly recovering from a low ebb here since 1977, and I did not expect great things. In the first brood, *Polyommatus icarus* Rott. seems to have been disastrously low in most areas, but in the second brood the numbers were much better. *Aricia agestis* D. & S., on the other hand, was about in fair numbers in both broods, though its congener, *A. artaxerxes* Fab., was reported to be lower in numbers than usual in North West England around Morecambe Bay. Further north in Central Scotland it apparently enjoyed an average year. *Cupido minimus* Fuessl. was still present in early June on St. Catherine's Down near Winchester, where it seems to just hang on year after year; I had only one report of a second brood and that was from Westbury in Wiltshire. *Celestrina argiolus* L. was virtually un-recorded in 1981; I saw a single specimen near Romsey in early May, but none at all in the usual places around Worth Matravers in August. *Thecla quercus* L. seemed very low in the Wiltshire woods in August, and in a favoured Romsey wood I found only small numbers of ova during the Winter. *Thecla betulae* L. on the other hand had the exceptionally fine weather during its flight period, and ova were found in good numbers in the Hampshire and West Sussex localities I visited during December. *Strymonidia pruni* L. I am informed was very late and low in numbers in Northamptonshire. I have no information regarding the colonies around Oxford or from over the border in Buckinghamshire where I found it commonly at the end of June in 1980.

The Spring Pierids were present in good numbers in South Hampshire in late April, but then declined, and the Summer broods

were surprisingly low in spite of better weather. *Pieris brassicae* L. was common at the end of August at the Winspit, however *Anthocharis cardamines* L. benefited from a good spell during its flight period in late April early May, and produced numerous imagines in this area. It showed up early in the season in South-West Surrey also, but in East Sussex the butterflies were very little in evidence though ova could be found easily. In general I believe the Orange Tip did not suffer unduly in 1981. The Brimstone also had an average season throughout the South and unusually good numbers of larvae were reported from mid Sussex. In some cases these virtually defoliated small buckthorns. *Leptidea sinapis* L. was both late and scarce in Salcey forest and a similar situation prevailed in the Durdold area of Surrey. I visited the sea cliffs between Seaton and Branscombe in South Devon in early June and found this delicate butterfly quite commonly on the rough grassy slopes. The last time I had visited these localities was in late July 1967, when several larvae were found on *Lathyrus pratense* but I failed to see imagines. The habitat did not seem to have suffered unduly in the interim. The small wood near Fareham which holds the thriving colonies of fritillaries also provided excellent conditions for *Erynnis tages* L. and *Pyrgus malvae* L. Both skippers were common in the open, coppiced parts of this wood. Elsewhere I have reports only from Sussex where both species were very local and scarce. *Thymelicus lineola* Ochs. continues to increase its range in Southern England, though numbers were not as good as usual in 1981. It was reported from Pewley Down near Guildford for the first time and has appeared recently in several other places in West Surrey where it was previously unknown. Its congener, *T. actaeon* Rott., was common in late August around Swanage and Worth Matravers — especially at the Winspit. It was also reported to have increased in numbers in the Lulworth area in comparison to a previous count in 1979. *Hesperia comma* L. had an unremarkable year though records from the Dover area suggest it is perhaps gaining strength there. It is extremely local in East Sussex (one or two sites only) but, within these limits, produced an average brood in August. I have no data from Surrey, but in Hampshire numbers were maintained fairly well last year. In the West Highlands, *Carterocephalus palaemon* Pall. was in fairly good form last year, particularly in the colonies along the Great Glen. One of the Argyllshire sites was reported to be getting overgrown, but, in general, the butterfly is far more widespread in this area than formerly believed, and new colonies seem to turn up nearly every year.

It is hoped that this report will continue on an annual basis and that in future there will be slightly less bias toward the Southern half of the country. I appreciate that there are many demands on the time and patience of lepidopterists regarding requests for information but I would be grateful if readers could find the time to send me records and general news of butterfly populations in 1982.

I would like to thank the following lepidopterists for their contributions to this paper: Messrs K. N. Baskcomb, R. D. G.

Barrington, R. F. Bretherton, J. M. Chalmers-Hunt, F. Clouter (per J. M. Chalmers-Hunt), R. M. Craske, T. Melling, C. J. Randall (per J. M. Chalmers-Hunt), R. C. Revels, P. Sankey-Barker (per J. M. Chalmers-Hunt), P. Summers.

I owe a special debt to the late Maj.-Gen. C. G. Lipscomb who, only a few days before his death, sent me a detailed report on Wiltshire butterflies.

COLEOPHORA BINDERELLA KOLLAR – A NEW FOODPLANT. – Whilst collecting cases of *Coleophora serratella* L. which were feeding on the roadside *Carpinus* hedge to Finch Wood, Bonnington, Kent, on 21st. May 1981, I noticed a tricolorous case larva also feeding on the Hornbeam. It was reared on Hornbeam from the garden and the moth which subsequently emerged on 9th. July 1981 was referred to the British Museum whereupon Dr. J. D. Bradley kindly confirmed the species as *Coleophora binderella*. As far as I am aware *Carpinus* has not previously been recorded as a foodplant for this species in Britain. – N. F. HEAL, Fosters, Detling Hill, Nr. Maidstone, Kent.

A NOTE ON TWO BRITISH TRACHYPHLOEUS SPP. (COL.: CURCULIONIDAE). – *T. scabriculus* L.: this is peculiar among our species in possessing a marked sexual difference in the anterior tibiae, one sex having strongly developed tooth-bearing digitate projections at the apex rather as in *T. spinimanus* Germ., while in the other they are almost simple with much smaller teeth. Fowler (1891, *Col. Brit. Isl.*, 5: 184) assigns the smaller teeth to the female, but that is incorrect, as may be easily proved by dissection; the large development of these structures is in fact a female character. Victor Hansen (1965, *Danm. Faun.*, 69: 46) figures them for both sexes. Joy (1932, *Pract. Handb. Brit. Beetles*, 1: 180) makes no mention of a sexual difference; his figure of the tibia (2: 50, fig. 7) is of a male. Consequently a user of the book, unaware that such a disparity exists, might well find himself puzzled.

T. digitalis Gyll.: some coleopterists, both here and abroad*, have tended to look on this as a small form of *T. spinimanus*, and it is on the whole not well understood. The distinctions, not very fully stated in our literature, are slight but appear constant: *digitalis* is always smaller and of shorter form, with less numerous and less erect elytral setae which are much shorter, about twice as long as broad and thus scale-like – in *spinimanus* about four times, and thus bristle-like. The latter decisive character is figured by Hansen (*l.c. supra*: 47, figs. e,f). Further, Mr. J. A. Parry informs me that the spermatheca is quite different in the two species. *T. digitalis* is little recorded with us and is perhaps mostly Kentish. It formerly occurred very sparingly with others of the genus in the chalk pit at Darenth; and I took one at the base of the cliffs at Freshwater, Isle of Wight (v.48), possibly a new locality. It is worth noting that males of *digitalis* are unknown, whilst those of *spinimanus* (known from mountain areas in France) are not found in Denmark (Hansen, *l.c.*: 49) and probably not in Britain. – A. A. ALLEN.

*e.g. R. Frieser in Freude, Harde & Lohse, 1981, *Die Käfer Mitteleuropas*, 10: 238.

LEPIDOPTERA IN IRELAND

By the Rev. DAVID AGASSIZ*

In the summer of 1981 my family and I spent our holiday in Ireland: a week in the Burren of Co. Clare, followed by a week each in Tralee, Co. Kerry and Roche's Point, Co. Cork. It was not primarily an entomological trip, but several specimens were taken which seem worth recording. Four years previously I had followed the same tracks spending a week collecting in the Burren with Barry Goater & Dr. John Langmaid, after which I stayed for two weeks at Roche's Point with my family. Records made then have not been published so they are included now. In both visits to the Burren the base was a caravan on Fanore Strand. The precise dates were for the Burren: 6 - 12 August 1977 and 24 - 31 July 1981; for Tralee: 1 - 6 August 1981 and for Roche's Point: 13 - 29 August 1977 and 7 - 13 August 1981.

For Co. Clare I include records of species which are not included by Bradley & Pelham-Clinton (1967), though there may well be other records, published or unpublished. Fanore is abbreviated F., other localities are specified. For one species, *Dichomeris marginella* Fabr. taken at Black Head, 11-vii-77 I have not traced any previous Irish record. Other species are: *Nemophora minimella* D. & S., F. '77, Murroogh & Caher River '81; *Rhigognostis annulatella* Curt., F. 25-vii-81; *Agonopterix subpropinquella* Stt., F. bred '81; *Epagoge grotiana* Fabr., Rinnamona '77; *Olethreutes schulziana* Fabr., Rinnamona '77; *Cydia gallicana* Guen., Caher River 30-vii-81; *Scoparia subfusca* Haw., F. '77 & '81 + Black Head '77; *Mecyna asinalis* Hübn., Ballyvaughan & Black Head '77; *Perizoma alchemillata* Linn., F. '81; *Eilema griseola* Hübn., Ballyvaughan '77; *Axylia putris* Linn., Ballyvaughan '77 & F. '81; *Graphiphora augur* Fabr., F. 26-vii-81; *Mythimna pallens* Linn., F. '77 & '81; *Mesoligia furuncula* D. & S., F. & Black Head '77; *Hoplodrina alsines* Brahm, Black Head '77 & F. '81 and *Abrostola trigemina* Werneb., F. '81.

In addition, on both visits *Paraswammerdamia spiniella* Hübn. was recorded and I feel it must be this Blackthorn-feeding species rather than the Birch-feeding *Swammerdamia caesiella* Hübn. which was intended by Bradley & Pelham-Clinton when they recorded the latter.

For the other localities I am including only such vice-county records as are not given by Beirne (1941), these are also supplementary to those I published previously (Agassiz, 1977).

Records from North Kerry (vc. H2), Tralee: *Psychoides filicivora* Meyr.; *Phyllonorycter nigrescentella* Logan - mines; *Plutella porrectella* Linn.; *Coleophora benanderi* Kanerva; *Eulamprotes atrella* D. & S.; *Blastobasis lignea* Wals.; *Cnephasia conspersana* Dougl.; *C. stephensiana* Doubl.; *Gypsonoma dealbana* Fröl.; and *Eurhodope advenella* Zinck.. Also from Kerry Head *Lobesia littoralis* Humph.

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& Westw. and from the Slieve Mish Mountains: *Digitivalva pulicariae* Klim. and *Epinotia mercuriana* Fröhl.

Records from East Cork (vc. H5). Two species are not included in Beirne's list so these may be the first Irish records: *Monopis imella* Hübn., Roche's Point 9-vii-81 and *Zeiraphera ratzeburgiana* Ratz. Rostellan 20-viii-77. Other species: all from Roche's Point: *Stigmella aurella* Fabr. '77 & '81; *Phyllonorycter messaniella* Zell. mines '81; *P. rajella* Linn. '81; *Digitivalva pulicariae* Klim. '77 & '81; *Schreckensteinia festaliella* Hübn. '81; *Coleophora discordella* Zell. '77 & '81; *C. trochilella* Dup. '77; *C. benanderi* Kanerva '81; *Hofmannophila pseudospretella* Stt. '77 & '81; *Agonopterix ulicetella* Stt. '77; *A. nervosa* Haw. '81; *Caryocolum blandella* Dougl. '77; *Aproaerema anthyllidella* Hübn. bred '81; *Acompsia cinerella* Cl. '81; *Anarsia spartiella* Schr. '81; *Brachmia rufescens* Haw. '81; *Eupoecilia angustana* Hübn. '77; *Cochylys pallidana* Zell. larvae '81; *Archips podana* Scop. '77; *Clepsis consimilana* Hübn. '77; *Bactra lancealana* Hübn. '81; *Epinotia tenerana* D. & S. '77; *Epiblema roborana* D. & S. '81; *E. scutulana* D. & S. '77; and *Cydia splendana* Hübn. '77.

References

- Agassiz, D. J. L., 1977, Lepidoptera in the South of Ireland, *Ent. Rec.*, **89**: 73f.
- Beirne, B. P., 1941. A List of the Microlepidoptera of Ireland. *Proceedings of the Royal Irish Academy*, XLVII, pp. 53-147.
- Bradley, J. D. and Pelham-Clinton, E. C., 1967. The Lepidoptera of the Burren, Co. Clare, W. Ireland, *Ent. Gazette* **18**: 115-153.

ZYGAENA LOTI SCOTICA ROWLAND-BROWN ON MULL, 1981. – On 20th June, 1981, I revisited a locality for *Zygaena loti scotica* on the west coast of the Isle of Mull to which I had not been since the mid-1960s, when I paid three visits. On going to the chief haunt I found to my dismay that the areas of the hillside which were still free from bracken in the 1960s had been completely invaded by this tiresome fern and the flowery areas had completely disappeared. I realised this danger of course, but had hoped that the rock was too near the surface in the flowery areas for bracken to encroach any further. *Z. purpuralis caledonensis* Reiss and *Z. filipendulae* L. were also present in the 1960s. Neither of them could exist there now. I knew of a flowery bank not far away so I made for this spot, and to my great relief I found *Z. loti scotica* flying in good numbers. Their favourite flower was undoubtedly the Fragrant Orchid, *Gymnadenia conopsea* on which I was able to photograph the moth. No other burnets were there – too early no doubt – and the only other lepidoptera seen were a few *Polyommatus icarus* Rott. and *Odezia atrata* L. I went again to the site on 27th June on our return from spending a week on Iona, but all the burnets had gone. The area is very small, and bracken is threatening here too. The slope is steep and the rock is certainly very near the surface; but how long can this tiny colony last? – Rev. J. H. VINE HALL, "Rivendell", 3 The Green, Melmerby, Penrith, Cumbria CA10 1HG.

SYNCOPACMA LARSENIELLA (GOZMANY):
A HITHERTO UNDER-RECORDED SPECIES

By R. J. HECKFORD*

As a result of making some genitalia slide preparations in 1981, I discovered that all my specimens of a *Syncopacma* which I had previously determined as *cinctella* (Clerck) in fact were *larseniella* (Gozmany). My specimens came from Cornwall, Devon and Somerset. Goater (1974) does not record *larseniella* from either Hampshire or the Isle of Wight and Emmet (1981) does not record it from Essex, although both record *cinctella*. However neither state whether the records were confirmed by examination of the genitalia.

As I could find little published about *larseniella* I hope that the following note is of some interest.

Stainton (1867), in describing *taeniolella* (Zeller), recognized *ligulella* (*larseniella*) and *vorticella* (*cinctella*) as distinct species, but stated that they were not readily distinguishable from each other. *Taeniolella* differs from both in that the distinct white fascia on the upper surface of forewing extends to the under surface and forms a costal spot on the hindwing.

Meyrick (1928) sank *ligulella* as a synonym of *vorticella*. However Pierce and Metcalfe (1935) showed that *ligulella* was a good species. Wolff (1958) then discovered that the type of *ligulella* in Zeller's collection was a specimen of *vorticella*. He named the now unnamed species *larseniella*. Gozmany was writing a paper on the *Syncopacma* at the time and knew of this. Therefore he named the species *larseniella* (Wolff). However Gozmany's paper was published first, so the species must be named *larseniella* (Gozmany).

Wolff illustrated only the male genitalia of the *Syncopacma* he described because of uncertainty of obtaining correctly determined females. He stated that *larseniella* "can hardly be separated from *vorticella* without examination of the genitalia." I do not have any specimens of *cinctella*, but have compared my *larseniella* with *cinctella* in the British Museum (Natural History) and can find no macroscopic differences.

The two species are readily distinguishable on the genitalia. I have bred both males and females from one small locality and they agree with Pierce and Metcalfe's illustrations of *larseniella*, save in two respects in the male. Wolff's illustrations of the male are more accurate. Pierce and Metcalfe show the pegs at the uncus in two straight lines. Wolff shows them as two diamond shaped groups and my specimens agree with this. Also, Pierce and Metcalfe show the vinculum arms as broad and rounded, but they are long and narrow (as shown by Wolff) although depending on the mounting they can look similar to Pierce and Metcalfe's illustration.

I failed to make a description of the larvae but noted that generally they agreed with Meyrick's description of *taeniolella*. I took several larvae, which were nearly full grown, at three localities at Plympton, Devon between 25th. and 28th. May 1979. They were

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feeding between spun leaves of *Lotus uliginosus*. The adults emerged between 19th. and 23rd. June 1979. It seems that in the wild they emerge later, as the previous year I had taken several adults at one of the localities late in the afternoon on 21st. and 22nd. July.

On 20th. June 1979 I found two larvae between spun leaves of *Lotus uliginosus* at Shapwick Heath, Somerset, whilst on a Nature Conservancy Council survey. These produced two adults on 10th. July 1979. My only specimen from Cornwall was taken at M.V.L. at Saltash on 11th July 1971.

Dr. J. R. Langmaid has since dissected some of his *cinctella* and these have proved to be *larseniella*. They were taken in Hampshire, Petworth, Sussex and Ramsey, Essex. All of those which were bred were taken on *Lotus uliginosus*. Mr. E. C. Pelham-Clinton has one specimen from Hampshire and two females bred from *L. uliginosus* from Fingringhoe, Essex.

I suspect that dissection of many presumed *cinctella* may show them to be *larseniella*. Perhaps *larseniella* is the commoner species. There are now confirmed records of this species from Vice-Counties 2, 3, 6, 11, 13 and 19.

I am grateful to Messrs J. R. Langmaid and E. C. Pelham-Clinton for allowing me to refer to their unpublished records.

References

- Emmet, A. M., 1981. *The smaller moths of Essex*, 158pp. London.
 Goater, B., 1974. *The Butterflies and Moths of Hampshire and the Isle of Wight*, xiv, 439pp. Faringdon.
 Meyrick, E., 1928. *A revised handbook of the British Lepidoptera*, 914pp. London.
 Pierce, F. N. and Metcalfe, J. W., 1935. *The genitalia of the Tineid families of the Lepidoptera of the British Islands*, xxii, 116pp., 68 pls. Oundle, Northants.
 Stainton, H. T. et al., 1867. *The natural history of the Tineina*, 10, ix, 304pp, 8 col pls. London.
 Wolff, N. L., 1958. Further notes on the Stomopteryx group. *Ent. Meddr.* 28: 224-281, 62 figs, 2 pls.

ALOPHORA S. S. HEMIPTERA (FAB.) (DIPT., TACHINIDAE)
 IN VC 69. — On 2 July 1982 I was collecting diptera visiting flowers, mainly Umbelliferae, on the edge of Holker Moss (SD 3579). During my visit I took two specimens of *A. hemiptera*, both females, and saw others but did not catch them. F. I. van Emden (*Handbk. for the Identification of British Insects*, X: Pt. 4 (a): 27) reports *hemiptera* as occurring from Yorkshire southwards. My record is not however the most northerly for Britain as T. H. Pennington (*Entomologist's mon. Mag.* 113: 256) records the species from Stirlingshire and also draws attention to the record by Crowson et al. (*Entomologist's mon. Mag.* 102: 71) of specimens taken in central Ayrshire. — Dr. NEVILLE L. BIRKETT, Kendal Wood, New Hutton Cumbria LA8 OAQ. 28.iv.1982.

OBSERVATIONS ON LEPIDOPTERA IN THE
CÉVENNES, EASTER 1981

By J. S. E. FITZWELL, Ph.D., F.R.E.S., F.L.S., M.I.Biol.¹ and
G. N. BURTON, B.A., F.R.E.S.²

Our study trip to the Cévennes in France (Gard, 30, & Hérault, 34) for the week 11 - 20 April 1981 revealed some interesting observations on larval foodplants, dwarfs, predation and parasitism, and some general notes on butterfly abundance and behaviour.

Foodplants

1. Southern Festoon (*Zerynthia polyxena* D. & S.)

In one riverside mulberry meadow regularly grazed each week by goats, we found about a dozen freshly-emerged Southern Festoons lazily flying about and resting on various plants. The plants in the meadow were very diverse and included: Salad Burnet (*Poterium sanguisorba*), Cowslip (*Primula veris*), Red Clover (*Trifolium pratense*), Spring Cinquefoil (*Potentilla tabernaemontani*), Jack by the Hedge (*Alliaria petiolata*), all of which were in flower, while others like Soapwort (*Saponaria officinalis*) were pushing up. Scattered throughout the meadow were many groups of a very easily overlooked but distinctive member of the Birthworts (*Aristolochia rotunda*) on which the Southern Festoons were ovipositing; ova being laid on both the upper and lower surfaces of the leaves and on the stems. The species was also observed in another riverside meadow, about two miles from the first. It was, again, ovipositing on *A. rotunda*, which was not uncommon in small patches. Almost every leaf had at least one ovum on it and the largest accumulation found was fifteen on one leaf. An effort, on the part of G.B., to rear a limited number of ova proved very difficult and ultimately failed, despite the generous help afforded by Mr. Robert Goodden (Worldwide Butterflies) and Mr. J. S. Keesing (Living Collection Division, Royal Botanic Gardens, Kew). A sufficient supply of *A. rotunda* or *A. clematitis* was unobtainable and other *Aristolochia* spp. were not accepted with any real interest.

2. Morocco Orange Tip (*Anthocharis belia* L.)

Further South, near St. Guilhem-le-Désert, in Hérault, *A. belia* and Cleopatra (*Gonepteryx cleopatra*) were in abundance. Females of *A. belia* were observed ovipositing on the tall but thinly-branched yellow crucifer *Biscutella lyrata*. They seemed to prefer to deposit their eggs on the tightly-closed panicles and fluttered all the time, while depositing their single eggs very quickly. When ova were removed for rearing purposes, it was found that they fed quite happily on one of the normal foodplants of *A. cardamines*, *Sisymbrium officinalis*. We have not found this listed as a foodplant of *A. belia*.

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3. Cleopatra (*Gonepteryx cleopatra* L.)

A female of *G. cleopatra* was seen ovipositing on the leaves of an oak species which had already lost its early Spring flowers. We have been unable to identify leaves removed for the purpose and the two ova collected failed to hatch.

4. Fritillaries.

Not many fritillaries were on the wing. Only a single specimen of the Queen of Spain (*Issoria lathonia* L.) and a fair number of Violet Fritillaries (*Clossiana dia* L.) were seen, but a large number of Fritillary larvae were found feeding on the leaves of Ivy-leaved Toadflax (*Cymbalaria muralis*) and Rock Speedwell (*Veronica fruticans*). The larvae continued to feed avidly on *C. muralis* in captivity. Fifteen were reared through to the final instar; two died, eight proved to be parasitised and five pupated safely. The latter emerged in May, proving to be *Mellicta deione* Geyer the Provençal Fritillary. The parasite cocoons and resultant hymenoptera were submitted to Dr. Mark Shaw (Royal Scottish Museum) for identification. They were *Apanteles melitearum* Wilkinson (a regular parasite of *Euphydryas aurinia* Rott. and *Melitaea cinxia* L. in Britain and of *Melitaea* and *Mellicta* spp. in France.). *A. melitearum* is double-brooded on a single host generation. The first brood come out soon after the hosts break diapause, quickly emerge from the pupa and then re-parasitise the same host generation a couple of instars later.

Dwarfs

Small specimens of five species were seen on the trip. Both species of Orange Tip, in which dwarfs are often recorded, were seen; a small female *A. cardamines* L. was seen feeding on Honesty (*Lunaria annua*) but was unmeasured and a male *A. belia* proved to have wingspan of 15mm. (from centre of thorax to tip of forewing), — normal: 20mm. A Green Hairstreak (*Callophrys rubi* L.) had a wingspan of 10mm. (normal: 15mm.) and a Scarce Swallowtail (*Iphiclides podalirius* L.) one of 30mm. (normal: 40mm.). The Baton Blue (*Philotes baton* Bergstrasser) was very variable in size — ranging from 10 - 15mm. The underside colouring was equally variable.

Abundance

It is worth drawing attention to the abundance of certain butterflies and moths, as the degree of abundance fluctuates from one year to the next. For instance, this Spring the Large White (*Pieris brassicae* L.) and the Orange Tip (*A. cardamines*) were extremely common compared with previous Springs. So too were two Mediterranean species, the Southern Festoon (*Zerynthia polyxena*) and the Nettle-Tree Butterfly (*Libythea celtis* Laicharting) which feeds on the Nettle Tree (*Celtis australis*). The latter has seen a steady increase in numbers over the last few years, such that it can now

be regarded as frequent rather than rare. The Scarce Swallowtail (*Iphiclides podalirius*) is still very common; while the Swallowtail (*Papilio machaon* L.) is always infrequent. A figure of at least 50 : 1 in favour of *I. podalirius* can be put on these two Swallowtails, although there is an abundance of Fennel (*Foeniculum vulgare*) and Wild Carrot (*Daucus carota*) in the valley.

Two species which are rare in England were frequent in the Cévennes : The Camberwell Beauty (*Nymphalis antiopa* L.) found mostly flying in sheltered valleys, where there was an abundance of Willows, and the Large Tortoiseshell (*Nymphalis polychloros* L.), many specimens of which were bedraggled.

Other items of interest

1. In one of the Southern Festoon meadows we saw a Mallow Skipper (*Carcharodus alceae* Esper) which had been caught by a yellow spider lurking in the head of a Dandelion (*Taraxacum* sp.).

2. We observed a fourth instar larva of *Mellicta deione* being parasitised by a small black hymenopteron (see above). The latter was securely fastened to the larva towards the anal end and the larva was writhing about in its efforts to dislodge the parasite, which remained in position for about thirty seconds, only flying away when the larva wriggled off the stone it was on in a wall and fell to the ground.

3. On one occasion a Camberwell Beauty (*N. antiopa*) flew for some time along the road in front of our car and, with no particular effort, maintained a speed of about 26k.p.h. (17m.p.h.).

Heterocera

The surprise at the MV lamp was the appearance of the large Saturniid *Saturnia pyri* D. & S. a species that, up to this year, has been rare. It has not always appeared at the MV lamp, being seen in previous years at lighted windows. Two males were attracted to the light on the 12th., two on the 15th., and three on the 17th. Only one female came to the light, on the 12th. Our neighbour, M. Patrick Ducros, who has operated the light in our absence, has only recorded the moth once in six years. One of us (J.F.) has only seen the large green larva once in the area, when it was floating down a swollen river in 1968.

The Emperor moth (*Saturnia pavonia* L.) was out, but not at the light. M. Patrick Ducros recorded a pair *in cop.* at Cambulon on the 11th. April and a fresh female was found flying by day on the 12th. This latter failed to attract males, although she was placed outside for almost a week.

One of the other attractions at the light was the Double Lunar Stripe (*Minucia lunaris* D. & S.) which is always very common and exists in two colour forms, a slate blue and a grey.

Although we ran the MV lamp every night, the cold, clear weather and full moon resulted in very limited catches, only one

other species being of interest. On the 14th. we caught a Noctuid which we were quite unable to identify. It appeared similar to the Middle Eastern tribe *Armadini*. It was finally identified by Mr. M. R. Honey (B.M.N.H.) as *Aleucanitis cailino* Lefebvre, a species whose range extends from the French Mediterranean littoral to the Southern Mediterranean and the Middle East (Syria). The species is not uncommon at Cabane Vieille as M. Patrick Ducros had taken several specimens in this and preceding years.

Rhopalocera

Overall we recorded 35 species, full details of which are given below.

HESPERIIDAE

Pyrgus malvae malvoides Elwes & Edwards, quite common.

P. onopordi Rambur, two or three only.

Carcharodus alceae Esper, common.

PAPILIONIDAE

Papilio machaon L., two or three only; rare.

Iphiclides podalirius feisthamelii Duponchel, common.

Zerynthia polyxena cassandra Hübner-Geyer, common in two meadows only.

PIERIDAE

Pieris brassicae (L.), very common.

Artogeia napi (L.), very common.

Artogeia rapae (L.), common, but less frequent than the preceding two species.

Anthocharis cardamines (L.), very common in Gard and Hérault.

Anthocharis belia euphenoides Staudinger, very common in Hérault.
Absent from Gard.

Colias crocea Geoffroy in Fourcroy, a few only.

Gonepteryx rhamni (L.), very common in Gard & Hérault.

Gonepteryx cleopatra (L.), very common in Hérault, less so in Gard.

Leptidea sinapis (L.), a few only.

LYCAENIDAE

Lycaena phlaeas (L.), fairly common.

Heodes tityrus Poda, not uncommon in Gard; not seen in Hérault.

Callophrys rubi (L.), common.

Cupido minimus Fuessli, a few only.

Everes alceas Hoffmannsegg, two only in Hérault.

Celastrina argiolus (L.), common.

Pseudophilotes baton Bergstrasser, common. Size very variable (10-16mm.)

Polyommatus icarus Rottemburg, two only in Gard.

LIBYTHEIDAE

Libythea celtis Laicharting, quite common.

NYMPHALIDAE

Nymphalis polychloros (L.), quite common in Gard. Not seen in Hérault.

N. antiopa (L.). Not uncommon in Gard. One only seen in Hérault.

Inachis io (L.), common.

Vanessa atalanta (L.), several seen in both Départements.

Aglais urticae (L.), common.

Issoria lathonia (L.), one only in Gard.

Clossiana dia (L.), common in Gard. Not seen in Hérault.

Mellicta deione Geyer, larvae very common in Gard on *Cymbalaria muralis*.

SATYRIDAE

Coenonympha pamphilus (L.), a few in both Départements.

Pararge aegeria (L.), a few in both Départements.

Lasiommata megera (L.), common.

Acknowledgements

We would like to thank especially for their help:— Mr. R. F. Bretherton, for his advice on foodplants; M. Patrick Ducros, for supplying information about his moth-trap captures; Mr. R. Goodden & Mr. J. S. Keesing, for providing *Aristolochia* spp.; Mr. M. R. Honey, for determination of *Aleucanitis cailino*; Dr. M. Shaw, for determination of and information about *Apanteles melitearum*.

References

- Bretherton, R. F. 1966. A distribution list of the Butterflies (Rhopalocera) of Western & Southern Europe. *Trans. Soc. Brit. Ent.*, 17 (1): 1-94
- Feltwell, J. S. E. 1977. Check list of the Rhopalocera of the Parc National des Cévennes, *Ent. Gaz.* 28: 85-97.
- Gómez-Bustillo, M. R. & Fernández-Rubio, F. 1974-1978. *Mariposas de la Península Ibérica, I-IV*. ICONA, Madrid.
- Herbulot, C. 1965, 1972. *Lépidoptères de France*, II, III. N. Boubee et Cie, Paris.
- Higgins, L. G. & Riley, N. D. 1970. *Butterflies of Britain and Europe*. Collins, London.
- Higgins, L. G. 1975. *The Classification of European Butterflies*. Collins, London.
- Fitter, R., Fitter, A. & Blamey M. 1974. *The Wild Flowers of Britain and Northern Europe*. Collins, London.

THE HISTORY OF *EUCHROMIUS OCELLEA*
(HAWORTH) (LEP: PYRALIDAE)
IN BRITAIN

By BERNARD SKINNER*

It was the capture of a specimen of *Euchromius ocella* in November 1981 that prompted me to research the past history in Britain of this rare immigrant Pyrale. Since the first published record in 1812, several authors, namely South (1890), Donovan (1932), Beirne (1952) and Huggins (1958), have attempted to publish up-to-date accounts of this species' history; without exception each of these accounts contains at least one or more important errors and it was because of this that I decided to compile a, hopefully, accurate list of all the twenty five British records. In each case, the original published record was checked, and where conflicting dates or localities appeared in print, then reference was made either to the data attached to the specimen or to the captor's field diaries.

Although the life history of *ocellea* remains unknown, there is little evidence to support the views expressed by earlier authors that the larva might be associated with stored food products and that its occurrence in this country is due to accidental importation. On the contrary, a number of the *ocellea* to visit this country have arrived in the company of recognised immigrant species, proving its status beyond doubt. On two occasions, in 1967 and 1981, it appeared on the same night as *Tathorhynchus exsiccata* (Lederer), a Noctuid species suspected of originating from either South-East Europe or North Africa, and of which only nine specimens have been recorded from the British Isles.

The Records

One in garden, early Spring *circa* 1812, London Suburbs, captor not named, (A. H. Haworth, *Lepidoptera Britannica* (1812) p.486).

One while sallowing, mid March 1861, Glamorgan, captor not named, (H. T. Stainton, *Ent. Ann.* 1862: 110).

One at light, first week of September 1865, near Dumfries, Mr Lennon, (G. J. Hearder, *Ent. mon. Mag.*, 3: 139).

One, 20th January 1867, St. Helens, Isle of Wight, J. Rogers, (A. E. Wright, *Entomologist*, 65:80).

One while beating, February¹ 1869, Eastham Wood, near Liverpool, Cheshire, T. J. Roxborough,² (C.S. Gregson, *Entomologist*, 4: 249).

Two, February 1869, Cheshire Coast, captor not named, (C. S. Gregson, *Entomologist*, 4: 263).

One male at rest on grass stem, 4th August 1879, Folkestone

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¹Repeatedly given as March.

²One assumes that the erroneous reference to the county of Roxborough in Beirne (1952) derived from the name of the captor of the first Cheshire specimen.

Warren, Kent, S. Webb, (Webb, *Ent. mon. Mag.*, **16**: 101).

One, 21st February 1899, New Forest, Hants, H. Ashby, (Ashby, *Entomologist*, **32**:258).

One at window light, 5th October 1921, Grange-over-Sands, Lancs. A. E. Wright, (Wright, *Entomologist*, **55**: 38).

One, 22nd May 1923, Charmouth, Dorset, W. D. Lang, (N. D. Riley, *Entomologist*, **57**: 90).

One disturbed during day, 11th September 1928, New Forest, Hants. E. S. Craske, (J. W. Metcalfe, *Entomologists*, **62**: 78).

One on the wing at night, 23rd January 1932, Timoleague, Co. Cork, G. E. Lucas, (C. Donovan, *Entomologist*, **65**:67).

One at light, 17th February 1950, Hawley, Hants, A. W. Richards, (Richards, *Entomologist*, **83**: 278).

One at m.v.l., 10th March³ 1957, Maidencombe, Devon, F. H. Lees, (S. T. Stidston, *Trans. Devon Assc.* **90**:202).

One at m.v.l., 30th May 1958, Martyr Worthy, Hants, D. W. ffennell, (ffennell, *Entomologist*, **91**: 262).

One male at m.v.l., 7th September 1958, Dungeness, Kent, D. More, (H. C. Huggins, *Entomologist*, **92**: 26).

One at m.v.l., 13th September 1958, Maidencombe, Devon, F. H. Lees, (R. A. French, *Entomologist*, **92**: 176).

One at m.v.l., 13th June 1964, Mitcheldever, Hants, C. H. Dixon, (Dixon, *Ent. Record.*, **76**: 243).

One, 31st January 1966, Horrabridge, Devon, R. J. Revell, (H. A. Kennard, *Trans. Devon Assc.*, **98**:56).

One, 30th January 1967, Torquay, Devon, H. E. Marshall, (R. A. French, *Entomologist*, **104**:217).

One at m.v.l., 3rd February 1967, Martyrworthy, Hants, D. W. ffennell, (ffennell, *Ent. Gaz.* **18**: 56).

One female at m.v.l., 23rd January 1969,⁴ Burlesdon, Hants, I. A. Watkinson, (B. G. Goater, *Butts & Moths of Hampshire* (1974), 175).

One at m.v.l., 14th October 1978, Usk, Monmouthshire, G. A. N. Horton, (Horton, *Ent. Rec.*, **91**: 26).

One male at m.v.l., 22nd November 1981, Wye, Kent, (B. Skinner).

Acknowledgements

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References

- Beirne B. P., 1952. *British Pyralid and Plume Moths* Pp. 68-69
 Donovan C., 1932. The Crambid, *Eromene ocella* in co. Cork. *Entomologist*, **91**: 123-5.
 South R., 1890. Additions to the British List of Deltoids, Pyralides, and Crambi, since 1859. *Entomologist*, **23**: 300.

³Recorded in error as the 12th February in *Trans. Devon Assoc.* **90**: 202.

⁴Recorded in error as 1970 in *Proc. Brit. Ent. & Nat. Hist. Soc.* **4**: 11.

THE IMMIGRATION OF LEPIDOPTERA
TO THE BRITISH ISLES IN 1981, INCLUDING THAT
OF THE MONARCH BUTTERFLY:
DANAUS PLEXIPPUS L.

By R. F. BRETHERTON* and J. M. CHALMERS-HUNT **

(Concluded from page 87)

ANNEXE III

The Monarch or Milkweed Butterfly (*Danaus plexippus*
L.) in 1981.

The records listed below are essentially of sightings only, since few of the butterflies are known to have been caught. Almost half of them came from the numerous watchers in the Isles of Scilly who were primarily engaged in studying the simultaneous immigration of at least a dozen species of North American birds. We understand that, as with the birds, multiple sightings of the same butterfly were as far as possible eliminated from the daily totals; but in the limited areas of the islands repetitive sightings of the same insect must surely have been frequent during some 20 days of record spread over five weeks. The largest number mentioned as having been seen in one spot simultaneously was three or four round an apple tree on St. Agnes on September 26/7, though there are also references to "several" roosting collectively on various days among Monterey pines near the airport of St Mary's. Some duplication may also have occurred as the Monarchs moved about on the mainland of Cornwall and South Devon and elsewhere. It is therefore not possible to estimate how many individuals are represented by more than 130 sightings listed. It is however safe to say that the immigration of 1981 was of at least the same order as those of 1933 (40 records) and 1968 (65), which were by much the largest since the species was first noted here in 1876.

Four forerunners of the invasion were seen on September 24, curiously spread between the Isle of Man after a severe south-westerly night gale, Co. Kerry, St Mary's, Scilly, and one observed 100 miles further south at sea off Ushant, which perhaps did not reach Britain. On September 25 there were over a dozen sightings, with Scilly in the van but with singles in Cumberland, West Cornwall, South Devon, South Hampshire, Pembrokeshire, and even co. Wexford, all in near-coastal localities; in the three following days, September 26 to 28 over 40 were reported, including nine in Pembrokeshire, one in Dorset and a single presumably fellow travelling American Painted Lady (*Cynthia virginicensis* Drury) in Glamorgan. Weather maps and wind directions show September 24, 25, and daylight hours of 26 as the most likely period for actual arrivals of

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Monarchs in south-west Britain; on the night of September 26 and until 30 there was a clear-cut influx of nocturnal immigrants, mainly *Herse convolvuli* and *Rhodometra sacraria*, which probably originated in Spain or North Africa, and came with a rather more southerly air stream. Further arrivals of Monarchs in October seem unlikely; a pronounced recovery in the number of sightings from October 4 to 7 is probably attributable to better weather and more observation over the week-end.

Many reports indicate that the first instinct of Monarchs after arrival was to feed at almost any garden or wild flowers available; buddleia, michaelmas daisies, sedum, golden rod, fuchsia, hydrangea, heather, gorse are all mentioned as attractive to them. In Scilly a number seem to have settled down, and the records of them continue until October 27. Their habit, noted by several observers, of roosting gregariously upside down on Monterey pines agreed with American experience of their preparations for hibernation in the south; a watch for possible survivors even in Scilly should be kept in the spring of 1982. Others, including that seen at sea between Scilly and Penzance on September 28, moved on. The paucity of October records in mainland Cornwall and South Devon may be due to outward movement, which reached far enough along the South Coast to provide four sightings in Sussex between September 30 and October 10; two seen in Merioneth on October 1 and 4 probably came north from Pembrokeshire. About the only example reported far inland, one seen near Thame, Oxfordshire there is doubt, as it had been suggested that this may have resulted from local rearing of larvae in captivity.

The simultaneous presence of so many North American birds makes it clear that this compact invasion of Monarchs originated there, and not in the other possible sources in the Canary Islands or Madeira, from which, to judge from their associations with other immigrant species, a few examples may have come in other years. Meteorological information shows that some of the annual southward movement of Monarchs in North America must have been diverted, probably in the states of New Hampshire and New York on September 20 or 21 by very strong west and south west winds which blew in a broad arc round a very deep depression, which moved quickly across the north Atlantic and gave fronts which crossed Britain on September 24 and 25. This implies a flight of about 3,500 miles taking about three or four days. It is apparently not known how far Monarchs use mainly gliding flight or add substantially to wind speed in such migrations; but American evidence has shown that their flight is impaired at temperatures below 50° F., so that they are unlikely to travel at high altitudes. Since on trans-Atlantic flight they cannot pause to feed, their net consumption of fat must be large, and this may diminish their powers of long survival after they have arrived; at least it explains their observed urgent desire for refreshment then.

The invasion of 1981 differed somewhat from the last big influx, which was in 1968 (J. F. Burton, *Animals* 12: 122-6; R. A. French, *Entomologist* 105: 260). The four forerunners were noted

from August 9 to September 24, and the main arrivals, which began on October 2, were probably less concentrated in date and had their points of impact in south east Devon and Dorset, which provided 45 of the 65 records. These included, however, two reports of ten seen together, on October 6 and in mid October; and the trail of records lasted until November 11. The internal spread was much wider, with single records far inland in Gloucestershire, Worcestershire and Yorkshire.

Since then, two *D. plexippus* were reported in 1969 and singles in 1971, 1972, 1974 and in each year from 1977 to 1980, not all of which are above suspicion of being escapes or releases from captivity. There was a small but definite immigration in 1970, when seven or eight were seen, as well as two *C. virginianensis*, and another in 1973, of which there were over a dozen reports. As some of these records from 1969 to 1980 have not been published, they have been listed at the end of this note.

The Record

AT SEA. Off Ushant, 46° N 58° 7'02" W, September 24, 3.30 pm., flying round s.s. Canberra, one; an American Purple Martin also seen (R. Burrige per M. Rogers); seen from m.v. Scillonian midway between Penzance and Isles of Scilly, September 28.

CORNWALL, ISLES OF SCILLY. Daily numbers sighted by bird-watchers (per D. Hunt and R. D. Penhallurick): St Mary's, September 24 (1); 25 (6 plus); 26 (5 plus); 27 (1 plus); 28 (2); 30 (5); October 1 (1); 4 (1); 5 (6 plus); 6 (2); 7 (4); 10 (1); 11 (5); 12 (3); 13 (2); 14 (1); 15 (1); 18 (3); 22 (1). St Agnes, 25 (1); 27 (3); 28 (1); October 5 (1); 6 (1); 7 (1). Gugh, September 25 (1). St Martin's, October 5 (1). Treco, September 26 (1); 27 (2); 30 (1); October 4 (1); 12 (1). Other records, some probably included in the numbers above: St Mary's September 24/27, one seen on several occasions (Prof. Harvey per D. Agassiz), 28. one seen on a tamarisk hedge by St Nicholas church, Old Town (M. J. Zealley per RDP); October 13 and 18, one seen beside the airport (M. Sell per R. I. Lorimer); 13, one watched by J. Randall near the airport, imbibing resin from a pine tree; other reports of these Monterey pines serving as a roost and base for flights during bright days (Archer-Lock, *Ent. Rec.*, 93: 201); 27, one gliding along young pines; settled; flying into mature pines (Foggitt, *Ent. Rec.*, 93: 202). St Agnes, September 26/27, four reported around an apple tree, which also contained an American Magnolia Warbler (Foggitt, *ibid.*). St Martin's, September 26 or 27, one followed along the coast from opposite Plumb Island to White Island (K. & J. Jamieson per D. Hunt).

CORNWALL, W. Kynance, September 25 (or possibly 24), a.m., one watched crossing the stream and settled on montbretia (Mr & Mrs Marrifield per RDP); 25, Nancledra, one watched on fuschia and buddleia (E. M. P. Simpson per RDP, and Smith, *Ent. Rec.*, 93: 201); 26, Lizard Downs, about noon moving

south and feeding on *Erica vagans* (Major-Gen. P. G. Turpin per RDP); St Levan near Lands End, by Mr. Garceau (Smith, *ibid.*, and RDP); 27 Ashton near Breage, on buddleia and hydrangea (J. Fairbrass per RDP); Mylor Harbour, sighted from boat (J. Cook & M. Hillyer per RDP); Kennack, 28.9, before noon, flying and settling on a hedge with buddleia nearby; Hayle, before noon, flying over lucerne (Mrs C. Cook per RDP); Lamorna, seen for ½ hour about noon, mostly on escallonia; photographed; flew westwards (D. Tangye per RDP); Loe Pool, Porthleven, 3 p.m., flying along a path and among reeds (Major-Gen. P. G. Turpin per RDP); between Lizard and Housel Bay, 30, 3p.m., one seen from cliff path being blown along the cliff face towards Housel (Mr & Mrs R. J. Williams per RDP); Mount Hawke, late September, on a bush by the main street (Mrs Battersby per RDP); 29 or 30, Housel Bay, one seen flying south west on the cliffs at Housel Bay east of Lizard, finally turning inland and disappearing near the lighthouse (D. Wills per B. Elliot).

CORNWALL, E. Near Black Head, St. Austell, September 27, about noon, one settled on heather (Dr G. Potts per G. M. Spooner); Nare Head, 6 p.m., settled on gorse, then flying off in relaxed flight and returning eastwards (G. P. Gill per RDP); 28, near Gorran Haven, a male picked up dying in the road (Miss F. Dunn per RDP); 30, Duchy Nurseries, Lostwithiel, a damaged female found on brambles and taken home, where it was still alive on November 1 (B. Jackson per RDP).

CUMBERLAND, Sellafield, on coast north of railway station, September 25, one female caught by F. Downton (Kydd, *Ent. Rec.*, 94: 37).

DEVON, N. Tunnels Beach, Ilfracombe, early October, one captured by K. Wilson and retained (*Western Morning News*, 6.x. 1981) Lundy Island, 25.9, one arriving over the sea at the landing beach, then again flying inland; seen frequently by other observers during the following week (C.W. Dee).

DEVON, S. September 25, Noss Mayo, one seen at close quarters on buddleia and flying northwards (G. M. Spooner per RDH); 25 or 26, one seen in Plymouth City Centre (per Plymouth City Museum); 26, Plymstock, about noon, one flying eastwards ahead of car (Dr. Q. Bone per G. M. Spooner); 27, Kingsbridge, one seen over michaelmas daisies, and another at Prawle Point among bracken (V. Tucker per RDP, and Archer-Lock, *Ent. Rec.*, 93: 199); 27, near Slapton Ley, probably three insects in several hours, one of which frightened a stonechat from its gorse perch; another, found damaged on the beach, remained alive in Plymouth Museum for about two weeks (A. Archer-Lock, V. Tucker and other observers); ? 26 or 27, Arretton Gifford, one reported by telephone (G. M. Spooner per RDH); 28, Prawle Point, four seen between 1 and 6 p.m. on the same ground as on 27 (P. J. Hopkin); Slapton, October 6, one seen (per RDP); no exact date, Newton Ferrers, two (per RDP).

DORSET. Winspit, Worth Matravers, September 26, one seen and identified (Dr R. Green); undated, Portland Bill, two, and another nearby (per RDH).

HAMPSHIRE, S. Lymington, September 25, a female caught flying in a neighbour's garden and retained (A. Harmer); 27, one seen closely after flying in from the sea at Pennington Marshes (Mr & Mrs R. Allison per B. Goater); 30, Fareham, one at buddleia at 11.30 a.m. and the same one (or another) the following day (Mrs. J. Carpenter). October 13, one flying over the seawall, then NNE inland (G. R. Elliott).

ISLE OF MAN. Ballakaighan, Castletown, September 24, in SW wind after severe south westerly gale, one, probably male, hovered briefly over golden rod, settled on a willow tree, and moved northwards over open farmland (Hedges, *Ent., Rec.*, **93**: 202).

[OXFORDSHIRE. Long Crenden near Thame, no exact date, one seen flying in a garden by Mrs B. Woodell (per Brian Wildridge; *Guardian*, 20.x.1981 refers). Possibly an escape.]

SUSSEX, E. Pett, October 1, one (M. Cowell per CRP); Rottingdean, 8, one (J. Woodman per CRP).

SUSSEX, W. Kingston Gorse, Worthing, 30.9, one watched by Col. Searle on nettles for 2½ minutes (Col. Searle per Church, *Ent. Rec.*, **93**: 202); Church Norton, Pagham Harbour, October 10, one watched flying about churchyard and into adjacent clump of conifers (E. Rayner *pers. comm.*; *Guardian*, 21.x.1981 refers).

WALES

CARMARTHENSHIRE. Pembrey, September 28, four seen on sedum and michaelmas daisies (Mrs Watson per J. Comont).

GLAMORGAN. Penrice Castle, Gower, September 28, one American Painted Lady (*Cynthia virginianensis* Drury) seen on flowers and ground (Lipscomb, *Ent. Rec.*, **93**: 242).

MERIONETHSHIRE. Dyfi N. N. R., October 1, one seen flying south west over the estuary (R. Bovey per J. Heath); 4, Penmaen Pool, Dolgellau, one seen in a garden by Dr P. I. Clark (Kydd, *Ent. Rec.*, **94**: 37).

PEMBROKESHIRE. Dale Fort Marine Field Station, Dale Point, September 25, one feeding at flower bed (M. Rodgers). St Ishmaels, September 26, one (N. Young per J. Comont); St Clears, one (R. Howells per JC); 27, Littlehaven, one (G. Brace per JC); 29, Skomer Island, one (Mrs R. Alexander per J. Heath); October 4, Gelliswirk, one (Mrs Rusper per JC); 5, Preseli, one landed on car near the ITV mast (Mrs Connor per JC) 7, Haverfordwest, one in garden (per JC).

IRELAND

CORK, W. Cape Clear Island bird observatory, September 29, one (per R. F. Haynes).

GALWAY. Galway City, October 2, one seen in a garden (per R. F. Haynes).

- KERRY, S. Inch Sound near Killarney, September 24, one resting on Marram grass, and seen again by others later that day (J. Kirsley).
- WEXFORD, Gt. Saltee Island, September 25, one (per R. F. Haynes).
The authors are especially grateful to R. D. Penhallurick of the Royal Institution of Cornwall, Truro; to John Heath, National Biological Records Centre; to J. Comont, Haverfordwest, Dyfed; to D. Hunt, of Scilly, and R. F. Haynes, of Killarney, for their help and advice for the preparation of this list. It is, however, certainly far from complete, and further records will be very welcome for later publication.
- 1969 - 1980
- 1969 NORFOLK, E. Ditchingham, 7.9. (per French). HANTS, S. Winchester, 9.9. (per French).
- 1970 CORK, W. Fota Is., end May/early June (per French).
CORNWALL, W. Ruan Minor, August, three or four seen on buddleia, one later on hydrangea (L. A. Bean in RDP, *The Lizard*, 1975: 24). DORSET, Weymouth, 25.9. (per French). SOMERSET, N. Ashcott, end Aug./early Sept. (per French). SUSSEX, W. Pagham, Sept, 1st week (Gammon in Rayner, *Nat. Hist. of Pagham Harbour*, 2: 65).
- 1971 CORNWALL, W. Carlyon Bay, July, one seen on cliffs (Miss M. E. Matthews in RDP, *ibid.*).
- 1972 DORSET, Greenhill, 23.8 (per French).
- 1973 SCILLY, St Mary's Garrison Walk, 4.10, one seen by five people (French in C-H, *BENHS* 7: 58); 7/14.10, probably three (P.R.G. Marriott in RDP, *ibid.*), St. Agnes, mid 10 (R. P. Demuth, *Ent. Rec.*, 86: 72); CORNWALL, W. Porthleven, 20.9, on cliff, identified by A. J. Moore (French in C-H, *ibid.*; Lieut. Comdr. P. A. E. Bland in RDP, *ibid.*) St Ives or Carbis Bay, early 10, one said to have been seen (RDP, *ibid.*). CORNWALL, E. between Halton Quay and Weir Quay, flying over Tamar (Dr. F. H. N. Smith in RDP, *ibid.*); Fowey School, 19.9., mid-day, female caught and photographed, now in BM (Nat. Hist.) (J. T. O'Neill in RDP, *ibid.*). DEVON, N. Porlock, 30.9, female caught (H. M. Chappel in C-H, *ibid.*). HANTS, N. Kingsclere, early July, one seen by Mrs D. Freeman (C-H, *ibid.*). SURREY, Oxted, 19.10, one photographed by Mrs J. Batchelor (C-H, *ibid.*) CARDS, Yspty Ystwyth, 16.9, 2 p.m., caught (J.J. Richards per French).
- 1974 KENT, W. Eltham, 15.9, at flowers (A. Palmer, per de Worms, *Ent. Gaz.* 26: 38).
- 1977 GLOS, S. Ryeford, 17.9, one seen and identified (G. H. Mansell, *pers. comm.*).
- 1978 SURREY, Epsom, 11.9, male seen in garden by Mrs. Y. Stevens (P. Holdaway, *Ent. Rec.* 91: 27).
- 1979 ISLE OF WIGHT, Yaverland, 6.7, photographed on escallonia in garden (J. Churcher in RFB & C-H, *Ent. Rec.*, 92: 95).
- 1980 WESTMORLAND, Grange-over-Sands, 12.10, one seen in garden by Mr and Mrs Bellorby (DWK in RFB & C-H, *Ent. Rec.*, 94: 48).

Plate III



Charaxes gallagheri van Son. 1. Final instar larva (Actual length 19mm).
2 Pupa (Actual length 18mm.)

A CONSOLIDATED HISTORY OF THE DISCOVERY OF
CHARAXES GALLAGHERI VAN SON 1962
(LEPIDOPTERA : NYMPHALIDAE): ITS HABITS,
HABITATS AND EARLY STAGES

By J. C. O. CHITTY*

Since the first discovery in 1956 of this very distinct species a fairly comprehensive portfolio of knowledge concerning its life-cycle, habits and habitats has been built up. It has also become apparent that, although its range of flight and seasonal appearances are limited, the species is widespread in Zimbabwe/Rhodesia and can be relied upon to appear with the greatest regularity in its chosen habitats in proximity to its foodplant.

Much of the information concerning this insect has been published piecemeal over the years and references to some of the literature on the subject are given at the end of this paper. However, it has occurred to me that a consolidation or summary of the gradual acquisition of knowledge of *gallagheri*, particularly of the early stages, might be of general interest to lepidopterists. Historically, the first known capture was a female taken by B. D. Barnes in 1934. However, this specimen was erroneously identified as *Ch. aubyni australis* van Someren & Jackson (1957), to which it bears a superficial resemblance, by van Someren & Jackson in 1957.

The original male from which the new species was described was caught by R. J. Gallagher, settled on mud, on 19th March, 1956. The specimen was sent to Dr. G. van Son at the Transvaal Museum, Pretoria, who named it for its discoverer.

The capture of another male on the same day by T. W. Schofield only a few miles away in the Sabi Valley remained unrecorded for some years owing to the failure by Schofield to appreciate that this specimen was of a then undescribed species.

These two simultaneous first records of a hitherto unknown species occurring within 10 miles of each other can only be described as an astonishing coincidence. It is also notable that both specimens were taken settled on mud. Virtually all subsequent captures have been either in trapnets or on trees in proximity to the foodplant, or on the wing.

The next known record was of a male trapped on 6th March, 1961, at Mapembi, near Odzi, by that veteran naturalist Harold Cookson. This locality is within 15 miles of the first captures. All three are at an altitude of approximately 900 metres in msasa savannah country studded with granite kopjes. Later in 1961 a new locality was discovered some 250 km away at Christon Bank, 30 km from Salisbury towards Mazoe. On 5th December, 1961, I netted a male settled on a twig about 3 m above ground at the summit of a granite kopje about 1,500 m above sea level. Further males were taken at the same spot during that month. Thereafter, many males were taken by a number of collectors both by handnets and in traps,

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at Christon Bank and certain other locations. There were, however, no known female captures until one was trapped by, appropriately enough, Harold Cookson at Mapembi on 31st March, 1962 in the vicinity of his earlier male capture. This specimen was used for the description of the female of the species by Dr. G. van Son, in 1963. However, it is believed that the females had apparently been recorded from Christon Bank by Dr. C. B. Cottrell prior to Cookson's captures.

Over the next few years, further females were taken in all areas where males had been recorded but their numbers were very small by comparison with the males.

Extensive collecting of the species since 1962 has revealed the very constant nature of its habits which, in brief, are set out below:—

- (1) The species is double-brooded, appearing on the wing in mid-March until late April and again from mid-November until late December.
- (2) The habitat is granite kopje country, normally associated with the foodplant, at altitudes of between 900 m and 2,000 m.
- (3) Its distribution is widespread, records extending from near Salisbury, eastwards through Melfort to Umtali, south via Odzi to Zimbabwe and on to Botswana.
- (4) The species is slowflying, bearing little resemblance in mode of flight to its near-congeners *Ch. chittyi* Rydon, 1980 and *Ch. guderiana* Dewitz (1879) both of which can be observed flying in company with *gallagheri* at Christon Bank.
- (5) The males exhibit quite remarkably constant preferences for the same perches year after year on the same trees where they will sit, with wings half-open sunning themselves at about 3 m from the ground, rarely taking flight unless disturbed.
- (6) The females are comparatively rarely seen except in proximity to banana bait and, as with many other *Charaxes* species, do not have the male habit of returning to the same perch after flight.

Some years were to pass before the foodplant and early stages of the butterfly were to be discovered. In October, 1966, having observed the behaviour of a number of females at Christon Bank, I sent Dr. van Son at the Transvaal Museum in Pretoria a sample of the bush which I believed to be the foodplant. This was identified by the South African National Herbarium as *Diospyros natalensis* ssp. *nummularia* (Brenan) (Ebenaceae). However, despite thorough searching over an extended period I was unable to find any larvae with which to substantiate my belief that this indeed was the foodplant. Confirmation was only to come some years later when that wizard of *Charaxes* breeding Mr. Ivan Bampton, having been shown the location and the actual bush which had been identified by Dr. Van Son, had little or no difficulty in finding, in May 1975, what were almost certainly *gallagheri* larvae, probably 3rd instar, on that and other examples of *nummularia* in the vicinity.

Three larvae were left in my care in May, 1975 and it was thus necessary for them to be brought through the winter, either as larvae or pupae, before reaching the imago stage as the November/December brood. A further three larvae, two from Christon Bank

and one from Zimbabwe (Lake Kyle) were received from Ivan Bampton in August of the same year. In the event this episode ended in failure, all the larvae dying before pupation in spite of regular supplies of fresh food on an almost daily basis. Behaviour indicated a semi-hibernatory period during the mid-winter months when little or no growth or feeding took place. It is reasonable to assume that these larvae should have pupated in November emerging later as the November/December brood. This experience indicated quite clearly a diapause probably in the 4th instar stage between June and September when very little feeding or growth takes place. This is in contrast with later experiences with the summer brood when larval growth remains strong throughout the warm weather prior to emergence in March/April.

In February, 1976, a further 10 larvae were secured by Bampton from both Christon Bank and Lake Kyle (Zimbabwe) areas and again left in my care. Nine were successfully brought through to the imago stage. Of these, four were males, all of which emerged first, and five were females. This would seem to indicate that, in nature, females are in numbers at least equal to, if not greater than, males although apparently much scarcer to the collector, and that there is a preponderance of earlier male emergences. Photographs of final instars and pupae were taken and have been used by Mr. G. A. Henning (1977) as the basis for his published description of the early stages of the species.

Subsequently, in November 1976, I was successful in bringing through to the imago stage two further larvae, also collected by Bampton at Christon Bank. The discovery of the egg stage came subsequently to the above series of events and the ovum has been described by Henning (1977).

Finally, one can only comment that it seems almost incredible that a species so distinct, so constant in its habits and so easy of capture when these are known, can have remained unknown and undescribed for more than half a century of entomological exploration in this country. Perhaps the answer may lie in the comparative difficulty of access to the summits of the granite kopjes which are its normal habitat and to its very definite reluctance to move more than a short distance away from the foodplant. It is certainly true that the development of Christon Bank for residential purposes, however much this may be regretted in relation to the potential threat to the fauna and flora of the area, has provided easy access to some particular spots yielding some remarkable entomological records.

The following is the description of the ova and final instar larva as given by Mr. Graham Henning in 1977:—

Ova: Usual *Charaxes* shape, yellowish white with brown ring if fertile. They are laid singly on both the upper and undersides of the leaves of the foodplant.

Final Instar Larva: Headshield green, with a faint, light green facial margin; horns long, with the upper two-thirds dark pinkish brown; dorso-medial spines black. Body

green with broad dorso-lateral somite bars on segments 6, 8 and sometimes 10. The somite bars are pinkish-white, anteriorly edged with black spotted with blue; the dorsosomatic spots on segments 6 and 8 are blue. Lateral ridge green and anal processes short and square.

Pupa: Plain green in colour.

The imago has been illustrated in so many publications already that a further description seems unnecessary.

Acknowledgements

I would like to thank Messrs. W. H., S. F. & G. A. Henning for reading the manuscript and Mr. I. Bampton for the provision of the early stage material.

References

- Henning, G. A. 1977. Observations on the Early Stages of Ethiopian *Charaxes* with notes on Life Histories (Lepidoptera: Nymphalidae). *Ann. Transv. Mus.* **30** (19): 219-230
- Pennington, K. M. 1978. *Pennington's Butterflies of Southern Africa*. Edited by C. G. C. Dickson, with the collaboration of D. M. Kroon. 1-669, 198 pls. Johannesburg, Ad. Donker.
- Van Someren, V. G. L. 1966. Revisional notes on African *Charaxes* (Lepidoptera: Nymphalidae). Part III. *Bull. Br. Mus. nat. Hist. (Ent.)*. **18**: 45-101, 5 maps, 16 pls.
- Van Son, G. 1962. New African Butterflies, 1 *J. ent. Soc. sth. Afr.* **25**: 140-148.
- 1963. New African Butterflies, 2. *Novos Taxa ent.* **29**: 1-11.
- 1979. The Butterflies of Southern Africa. Part IV. Nymphalidae: Nymphalinae. Revised and edited by L. Vari. *Transv. Mus. Mem.* **22**: 1-286, 76 pls.

LARVAL VARIATION IN THE PINE BEAUTY: *PANOLIS FLAMMEA* HBN. — The larva of the Pine Beauty, *Panolis flammea* Hbn. is normally dark green dorsally and laterally, with a series of five longitudinal white stripes, and pale green ventrally with three thin cream stripes. A form in which the dark and pale green is replaced by dark and light brown is also known to occur. Whilst rearing this species I obtained evidence to suggest that the brown form is genetically controlled and is inherited as a unifactorial autosomal recessive. I also noted that the two types of larvae behave differently, in that when not feeding they take up different positions on the foodplant, *Pinus sylvestris*. Thus, the green larvae tended to rest lying along the needles, whilst the brown larvae rested on the pine twigs. The difference in behaviour has obviously evolved to increase the camouflage of the respective forms, and it would be interesting to hear if anyone else has noted similar behavioural differences in other species which show the same type of polymorphism, e.g. the Pine Hawk, *Hyloicus pinastri* Linn., or the Bordered White, *Bupalus piniaria* Linn. — (Dr.) MICHAEL E. N. MAJERUS, Dept. of Genetics, Downing Street, Cambridge.

THE DELICATE: MYTHIMNA VITELLINA HBN. IN MAY. — Several rather faded *M. vitellina* appeared in my light trap at Chyehal near Penzance, Cornwall on the 30th and 31st May 1982. — M. W. F. TWEEDIE, Barn House, Rye, Sussex TN31 7PJ.

A SCUTTLE FLY (DIPTERA: PHORIDAE) THAT
 APPEARS TO BE A PARASITOID OF A SNAIL
 (STYLOMMATOPHORA: ZONITIDAE) AND IS ITSELF
 PARASITISED BY A BRACONID (HYMENOPTERA).

By R. H. L. DISNEY*

OBSERVATIONS

On 7 June 1980 while collecting snails from Druids Coombe, Somerset (Grid ref. 31/006 378), with a party of colleagues led by Dr. R. A. D. Cameron, I mentioned the possibility of finding shells occupied by the puparia of Sciomyzidae as opposed to snails. I was rewarded by being passed two shells of *Vitraea crystallina* (Müller) collected by John Hall. Both shells contained identical puparia lodged in the last whorl, in an identical orientation (Fig. 1). Unlike the puparium of a Sciomyzid, however, there were conspicuous respiratory horns protruding into the space just inside the aperture of each shell (Fig. 1). The specimens were placed in rearing tubes and subsequently each produced a male Phorid belonging to the species *Megaselia fuscinervis* (Wood), the first emerging on 26 June and the second on 29 June 1980.

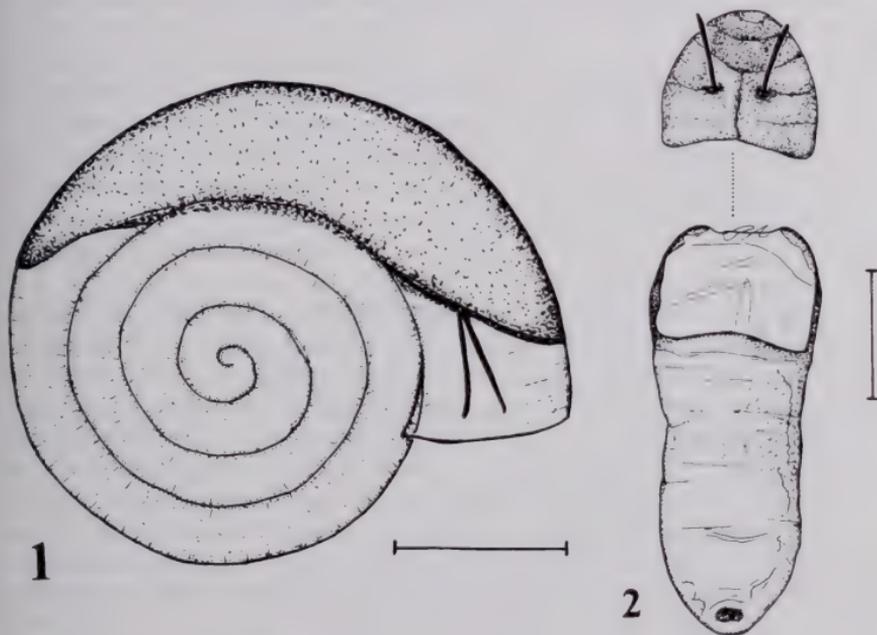


Fig. 1. Puparium of *Megaselia fuscinervis* inside shell of *Vitraea crystallina* (scale line = 1 mm).

Fig. 2. Empty puparium of *Megaselia fuscinervis*, with detached dorsal plate bearing respiratory horns. (Scale line = 1 mm)

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Further collections of small snails, and their shells, were made on the Malham Tarn Estate, North Yorkshire in July and September 1980 as follows.

In July collections were made for the Westside Wood (Grid ref. 34/8867). The only species of snail shell found to harbour puparia of *M. fuscinervis* were *Vitraea crystallina* and *V. contracta* (Westerlund). 21 shells of *V. crystallina* were collected with empty puparia and 8 shells with live puparia. Only 1 shell of *V. contracta* with an empty puparium was collected. All the puparia were identical to those collected in Somerset and were positioned in the same way in the shells (Fig. 1). Of the 8 live puparia 7 were kept alive in rearing tubes and one was preserved. From the 7 puparia 2 females and 1 male *M. fuscinervis* were reared. Two of the puparia gave rise to a single Braconid each and two died. The Braconids have been identified by Mr. T. Huddleston (British Museum, Natural History) as *Aspiloba inops* (Foerster). Stelfox and Graham (1950) refer to this species as *Panerema inops* but Fischer (1970) gives *Panerema* as a synonym of *Aspilota*.

In July collections were made from the Tarn Close ungrazed limestone grassland (Grid ref. 34/894 671) and again puparia of *M. fuscinervis* were only found in shells of *V. crystallina* and *V. contracta*. Two shells of *V. crystallina* had empty puparia and 1 had a live puparium. One shell of *V. contracta* had a live puparium. A further collection was made on 4 September. One shell of *V. crystallina* had an empty puparium and I had a freshly dead snail along with a larva. The larva was preserved in alcohol and subsequently mounted on a slide in Berlese's Fluid. Although it proved to be the penultimate instar its cephalopharyngeal skeleton showed clear affinities with the remains of this structure in the remnants of the last instar larvae extracted from shells containing puparia of *M. fuscinervis* (see below).

All live *Vitraea* snails from Westside Wood and Tarn Close were examined for larvae and then placed in rearing tubes. It was considered unlikely that early larval instars would be easily detected through the shell. It had been the moving black cephalopharyngeal skeleton that revealed the presence of the one larva that was found. It was considered worthwhile, however, to keep shells known to have been harbouring live snails at the time of collection to see if any might subsequently be found to contain detectable larvae or puparia of *M. fuscinervis*. This experiment was unsuccessful as the snails died and were found to be infested with nematodes. These occurred in two sizes. The larger measured 1.7 – 2.0 mm in length and 0.1 mm maximum breadth, and had the anterior fifth tapered to a truncated point but the tail end more-or-less rounded. The smaller, presumed juveniles of the larger, measured 1.0 – 1.3 mm x 0.05 mm and had a more pointed tail end. Infestation of a dead *Vitraea* seemed to be initiated by the smaller nematodes and the larger ones only appeared later. By the time the snail was nearly completely consumed large numbers of small ones were observed leaving the shell. The shell with the larva of *M.*

fuscinervis in it also contained a few small nematodes. Shells of *Vitraea* found in the field with some remains of a dead snail still present were mostly infested with both sizes of nematode. In future experiments it will clearly be necessary to isolate individual snails in single tubes and to take precautions to exclude material likely to be contaminated with nematodes.

THE PUPARIUM AND LARVA OF *Megaselia fuscinervis*

The puparium of *M. fuscinervis* is illustrated in Fig. 2. It is unusually thin-walled, apart from the plate which detaches at the time of adult eclosion. This plate is so shaped that it precisely occludes the last whorl of the *Vitraea* shell, like an operculum in a prosobranch mollusc. By being positioned a little way back from the rim of the shell aperture (peristome) the respiratory horns are able to protrude forward while still being within the shell (Fig. 1). The puparium is generally brownish in colour with a dark brown detachable plate and the almost black, more-or-less straight, respiratory horns. The posterior spiracular processes are closer together than is usual in the genus *Megaselia*, and thus avoid any risk of being against the walls of the shell.

At high magnification the puparial integument is seen to be covered in evenly-spaced pointed denticles (resembling the bases of the micro-setae found in some species of *Megaselia*). The whole puparium is boat-like, with the anterior and posterior ends curving dorsally (Fig. 1). In order to prepare this drawing the specimen was slide-mounted in Dimethyl Hydantoin Formaldehyde Resin. This renders the shell more translucent without actually dissolving it. To prepare Fig. 2 a specimen was soaked in Berlese's Fluid to dissolve the shall and the extracted, empty puparium was then mounted on a slide in Berlese's Fluid.

The larva proved to belong to the penultimate instar but was evidently nearing moult, as the mouth hooks of the final instar were already forming above the functioning pair. This makes for a confusing picture. Discernible characteristics include the bifurcation of both the dorsal and ventral wings of cephalopharyngeal skeleton posteriorly and a conspicuous fenestration of the anterior bridge linking the anterior edges of the dorsal wings. The mouth hooks each have a single, down-curved, anterior tooth.

The larva was situated in the shall with its posterior end towards the aperture of the latter and its mouth-hooks probing the remains of the snail. The larval remains in a shell occupied by a puparium are to be found amongst the residue of the snail in the apex of the shell.

DISCUSSION

Megaselia fuscinervis adults have previously been recorded in Britain in the months of April, May, June and July (Wood, 1908, Parmenter, 1965, 1966, Disney, 1978). Otherwise the natural history was unknown. Recently, however, Dr. R. Szadiewski has sent me a specimen he had reared from forest soil in Poland in July 1980.

The observations presented above clearly indicate that *M. fuscinervis* puparia are not uncommon in shells of *Vitraea crystallina* and they also occur in shells of *V. contracta*. The precise positioning of the puparium and its modifications indicate that this is no accidental association. The finding of a larva consuming a snail showing no obvious signs of putrefaction further suggests that *M. fuscinervis* larvae are parasitoids of *Vitraea* snails in a manner reminiscent of of Sciomyzid larvae in larger snails (e.g. Berg, 1964). Furthermore the apparently invariable infestation of dead *Vitrea* by nematodes suggests at the least that these nematodes would be likely to demolish dead *Vitraea* before they could be exploited by the larvae of *M. fuscinervis*. Whether these nematodes will actually attack and kill healthy snails is not known.

The parasitisation of *M. fuscinervis* puparia by *Aspilota inops* provides the first host record for this Braconid. Stelfox and Graham (1950) give capture dates for this species in July, August and September.

Acknowledgements

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References

- Berg, C. O. 1964. Snail control in Trematode diseases: the possible value of Sciomyzid larvae – snail-killing Diptera. *Advances in Parasitology* 2: 259-309.
- Disney, R. H. L. 1978. Some scuttle flies (Dipt. Phoridae) from North Wales. *Nature in Wales* 16: 25-31.
- Fischer, M. 1970. Die Alysini der Steiermark. *Mitt. Abt. Zool. Bot. Landesmuseum. Joanneum Graz.* 34: 1-44.
- Parmenter, L. 1965. Notes on the distribution of Phoridae (Diptera) in Britain. *Proc. S. Lond. ent. nat. Nist. Soc.* 1965: 35-42.
- Parmenter, L. 1966. *Megaselia (Megaselia) largifrontalis* Schmitz (Dipt., Phoridae) new to the British List and some other Phoridae taken in April to July 1965. *Entomologist* 1966: 257-260.
- Stelfox, A. W. and Graham, M. W. R. De V. 1950. On *Panerema inops* Forst. and allied species of the genus *Aspilota* (Hym., Braconidae, Alysini), with descriptions of two new species. *Entomologist's mon. Mag.* 86: 289-293.
- Wood, J. H. 1908. On the British species of *Phora* (Part II). *Entomologist's mon. Mag.* 44: 215-218.

BLOMER'S RIVULET: DISCOLOXIA BLOMERI CURTIS AT WESTON-SUPER-MARE. – This species was of regular occurrence here prior to the advent of Dutch Elm disease. As I had not noticed it for several years I was pleased to see a fresh specimen in my moth trap on May 20 last, so hope that it is about to revive in numbers again. – C. S. H. BLATHWAYT, Amalfi, 27 South Road, Weston-super-Mare, Somerset. 21.v.1982.

Editorial

With this issue Mr. P. J. Renshaw relinquishes his duties as Treasurer, and we take the opportunity on behalf of all our subscribers to offer him our gratitude for having so ably managed the finances of the *Record* over the past nine years. He is succeeded by Mr. P. J. Johnson to whom we extend a hearty welcome and to whom all subscriptions should now be sent.

Current Literature

The Rewell Wood: A Survey of its Southern Habitats – A West Sussex Wildlife Recording Group Report by E. C. M. Haes and others. 17 drawings, 133pp., wrappers, ring binder (1981). Price £1.50 plus 40p p. & p. from M. Edwards, Lee-side, Carron Lane, Midhurst, Sussex.

Many authors have contributed to this enterprising report which, apart from various non-entomological disciplines, treats of the Thysanura, Orthoptera, Mecoptera and Dermaptera (by E. C. M. Haes) and Hemiptera (by W. Eley et al.) albeit briefly; then the Coleoptera (11pp.), Diptera (12pp.) and Hymenoptera (19pp.) (by M. Edwards, W. Eley et al.) and Macrolepidoptera (21pp.) (by S. Church et al.)

Among noteworthy species listed are: Hemiptera Heteroptera, *Aradus depressus*; Coleoptera, *Saprosites mendax*, *Tomoxia biguttata*, *Mordella aculeata*, *Strangalia aurulenta*, *Dirhagus pyamaeus*, *Elater cinnabarinus*, *Epitrix atropae*; Diptera, *Evibrissa vittata*; Hymenoptera Aculeata, *Crossocerus exiguus*, *Arachnospila wesmaeli*, *Laslioglossum brevicorne*, *Osmia pilicornis*; Lepidoptera, *Apatura iris*, *Hamearis lucina*, *Polyploca ridens*, *Odontotia carmelita*, *Ptilodontella cucullina*, *Acrionicta alni*, *Lampropteryx suffumata*, *Trichopteryx polycommata* and *Dasychira fascelina*, though one suspects the latter is an error for *D. pudibunda*. – J. M. C.-H.

Garden Wildlife by Derek Jones and others. 152pp., numerous colour and b/w illustrations. Boards. Ebury Press 1981. £7.95

This large-format volume is very much intended for the general reader with a strong interest in "nature". A number of specialists have contributed including three well-known entomologists: J. F. Burton, W. R. Dolling and M. Tweedie.

There are chapters on the garden environment, birds, mammals and reptiles and a welcome seven chapters on invertebrates. Whilst there is some practical advice the book concentrates on providing interesting backgrounds to the creatures encountered in the garden. (much more solid practical advice is to be found in the "Back-garden Wildlife Sanctuary Book" reviewed in this Journal 93 : 228). Although a number of sweeping generalisations are made the text is readable, informative and well balanced – comments which can rarely be made about books intended for the "mass" market. The book is pleasantly illustrated by Phil Weare. – PAUL SOKOLOFF.

Obituary

Charles Herbert Dixon

Bertie Dixon who was born on the 2nd of May 1890, sadly died on the 10th March 1982. He farmed at Micheldever, Hants for most of his working life, and entomology took up the greater part of his spare time. His fine collection of British moths containing many rare and interesting species, including a remarkable drawer displaying parasites bred from doomed larvae and pupae, has been presented to the Hampshire County Museum. His collecting was concentrated on the Macrolepidoptera of the British Isles including Eire. He kept meticulous diary records of all specimens taken for his collection, as well as daily recordings of species found in his M.V. trap at Micheldever, and these records will also be held by the Museum.

A feature of his lifetime's work in entomology was the authenticity of his material: his collection contains only specimens which he himself had caught or reared, and was formed with scrupulous care and accuracy. Much of his collecting was carried out in the company of his great friends the late R. C. Edwards and Baron de Worms, and his work was often mentioned in the latter's reports in *The Record*, and he also made a substantial contribution to Goater's *The Butterflies and Moths of Hampshire and Isle of Wight*, in which he recorded for V.C.12. He was an inspiration to my sons and myself, as in recent years he imparted to us some of his great knowledge, and we shall greatly miss his advice and expert eye on our own entomological activities. — David Owen.

Notes and Observations

PALPIFER SEXNOTATUS MOORE (LEP.: HEPIALIDAE) IN BRITAIN. — In January 1981, three tubers of the arum lily *Arisaema speciosa* were procured from a Kent plant merchant. One of these did not develop and was found to contain a larva of the above species, which spun up at the beginning of May to produce an imago at the end of the month. The larva as first seen was 15mm long, with shape similar to that of a fully fed Tortricid larva, and of a greyish-white colour with pink suffusion and pale brown chitinous mouth parts. When about full grown, the larva was 55mm in length and similar in appearance to that of *Hepialus humli* L., except for the colour since it still retained its pink suffusion. Due to shortage of the original pabulum, the larva was transferred to tubers of *Arum maculatum* and finally Desiree potato. Prior to pupation, the larva formed a substantial cocoon of yellow silk 50mm long which was located vertically in the soil. The top of the cocoon was sealed with a few strands of silk just below the surface, and consisted of a tube 10mm long and 5mm in diameter, which led to a gradually widening pupal chamber of maximum diameter 9mm. At emergence time the pupa worked its way to the surface of the soil, so that the final segments alone remained within the cocoon.

A. speciosa occurs in the temperate Himalayas and the plant merchants advised me that the tubers were imported to Britain from India via Holland. As the plant is nearly hardy in southern Britain and popular with gardeners, further records of *P. sexnotatus* might be expected in the future. Record cards in the British Museum (Nat. Hist.) indicate that the type specimen of *P. sexnotata* came from Darjeeling, and the B. M. collection includes specimens from several parts of India. My thanks are due to Dr. Gaden Robinson and Dr. John Bradley for their help in identifying this insect and providing access to the relevant museum records. Ref.: *R. H. S. Dictionary of Gardening*, vol. 1, 2nd edn., 1956. — P. J. BAKER, Mount Vale, The Drive, Virginia Water, Surrey.

LAGIA ATRIPES MULS. & GUIL. (COL.) IN THE NEW FOREST, ETC. — There seem to have been but few references to this beetle in our literature since it was added to our list by me in 1948 (*Ent. mon. Mag.*, 84: 287); the only one I have seen being in Buck, 1954, *Handb. Ident. Brit. Ins.*, 5 (9) : 3, where its differences from the common *L. hirta* L. are clearly set forth. (At the time of my record I had not seen the male.) *L. atripes* is now known to occur in a second East Kent locality — Ham Street Woods, where my late friend A. M. Massee first took it — besides the original one, Blean Woods. There are also two previously unpublished records for the New Forest, Hants., mentioned by Buck (*l.c.*) on my authority but without details, to which I would now draw attention. They were communicated by Dr. Massee and relate to a ♀ taken by him in New Park Inclosure, 27.v.38, and a ♂ by the late H. W. Daltry in Wilverley Inclosure, 3.vi.36. Both must previously have passed as large examples of *hirta*. The existence of the rarer species in Hampshire in the decade before it turned up in E. Kent is of interest in making the hypothesis of a recent arrival from the Continent far less likely than might have appeared originally.

In the year after bringing forward the species I received an interesting letter from Mr. Angus Fraser of Tankerton, near Whitstable, in which he reported having taken both sexes of *atripes* recently, not only at Blean but also at Tankerton, on the sea front on open waste ground, some 4 miles north of Blean. (There is no question here of mistaken identity, as the rest of the letter amply proves.) This last capture seems very strange for an insect that otherwise gives every indication of being an inhabitant of woodland; and unless others were noted there subsequently, affording evidence of breeding on the spot, I think they must be regarded as stragglers "out of their element". Almost certainly, by now, the beetle occurs in other E. Kent woods besides the two already noted. — A. A. ALLEN.

LARVAE OF ANARTA MYRTILLI L.: BEAUTIFUL YELLOW UNDERWING (LEP.: NOCTUIDAE) AND AN ADULT BOREUS HYMALIS L. (NEUROPT.: BOREIIDAE) ON WINTER SNOW IN THE SCOTTISH HIGHLANDS. — During spring and summer months, the finding of insects on high altitude snow is a fairly regular occurrence both in the Scottish mountains and the Alps, though little has been written on the subject (see Masutti, L., 1979, *Insetti e nevi stagionale. Riflessioni su reperti relativi alle Alpi Carniche e Giulie.*

Boll. Ist. Ent. Bologna, 34: 75-94). In the majority of cases the insects are winged adults whose presence on the snow can often be attributed to transport by wind or thermals. Sizeable aggregations are frequently observed on buttresses and cols above gullies or steep valleys which funnel the wind upwards (Bruce, W.S., in Thornley, A., 1896. On some Coleoptera from the summit of Ben Nevis, collected by Mr. W. S. Bruce. *Ann. Scott. Nat. Hist.*, 5: 28-31). The two cases described below are apparently of a different nature and therefore perhaps worthy of notice.

While walking on the Scottish mountains during the winter, one seldom observes any insect life. However, whilst walking near Ben Macdui (Cairngorms. NO 005965) about ten larvae of *Anarta myrtilli* were seen, still living and moving, on the snow between the point where the Allt Carn a' Mhaim joins the Luibeg Burn (560m.) and just below Sron Riach (1100m). A couple of others were accidentally kicked out of *Calluna* which was projecting through the snow. The temperatures over the preceding few weeks had been exceptionally low, my walk taking place during a comparatively mild spell with freezing conditions perhaps only attained above 800m. on that particular slope. One wonders whether the larvae, which are known to overwinter, had been "tricked" into premature activity by the rapid rise in temperature.

My other observation concerns a single female snow flea, *B. hyemalis*, found sitting (inactive though still alive) on ice on the ridge west of Am Bodach (Glencoe, 900m., NN 163582). Though I frequently encounter *Boreus* in the Highlands, I have never previously done so at such a high altitude. It seems likely to me that it was carried up to the ridge by the very strong winds of the day before. — A. D. LISTON, 99 Clermiston Road, Edinburgh, EH12 6UU.

THE RECENT SPREAD OF *APION CERDO* GERST. (COL.) IN S. E. ENGLAND. — It is perhaps not yet widely known among coleopterists, except those living in the south-east of the country, that this weevil — for long restricted in our area to northern England, southern Scotland, and Ireland — has of late been turning up rather frequently in Kent and East Sussex. These captures seem to have begun with a specimen taken by Mr. E. G. Philp, of Maidstone Museum, on the sandhills at Deal (1963, *Ent. mon. Mag.*, 99: 71) and confirmed later by Mr. Colin Johnson, whose very useful paper on this species and its allies (1965, *Entom.*: 80-2) greatly facilitates their correct recognition. At the end of this work it is suggested that quite possibly the southern records of *A. cerdo* may be erroneous: apart from Mr. Philp's to which this does not apply, I have seen none such published, but if there are any much earlier ones I agree that this is indeed likely. Since the species is now certainly breeding in the south-east — but not, apparently, in any midland county which might suggest a link with the northern populations — it is probably safe to conclude that the recent appearance of *A. cerdo* in Kent and Sussex is due not to a southward spread from the northern centres but to an invasion from the Continent.

From the following data (given in somewhat compressed form)

one may trace, roughly, the north- and south-westerly progress of this *Apion* from its presumed arrival at a point on or near the coast in the Deal area shortly before 1962. *East Kent*: Deal, vii. 62; Brook, near Wye, vi. 63; Dungeness, vii. 64; Chiddingstone, vii. 69; again at Deal, vii. 69; Wittersham (Rother Levels), ix. 69; Sandwich Bay, viii. 78 in some numbers on *Vicia cracca*, all records of E. G. Philp, who has found it also more recently in a good many other E. Kent localities. *East Sussex*: Milton Street (bank of R. Cuckmere), xi. 73; Little Horsted, vi. 74; Friston Forest, frequent, vi. 75-78; Plashett Wood, vi. 78 on *Lathyrus pratensis* (probably) in numbers; all records of P. J. Hodge, who tells me that *A. cerdo* appears now to be general in his part of the county, equally with its nearest relative *A. subulatum* Kby. On 21.vi.70 I swept a ♀ *cerdo* from a clump of the tufted vetch in the Devil's Dyke area of Brighton Downs; but it was getting late and there was no time to investigate further, and in any case the insect was passed as *subulatum* until much later. Mr. Hodge points out that this is farther west in Sussex than any of his captures, and also that the species has by now probably reached Surrey.

Finally I can report *A. cerdo* from S. E. London and W. Kent, where I took it last year: Woolwich Common, 1 ♀, 31.v.81, and Crockenhill, near Swanley, 2 ♀♀, 4.viii.81. In both places it was swept from mixed leguminous plants, including in the latter locality a little *V. cracca*.

I am obliged to the above-named gentlemen for sending me their records and suggesting that I publish them. — A. A. ALLEN.

JOHN ABBOT'S DRAWINGS AND NOTES FOR A PROPOSED SUPPLEMENT TO SMITH AND ABBOT, "THE NATURAL HISTORY OF THE RARER LEPIDOPTEROUS INSECTS OF GEORGIA" (1797). — Since completion of my paper on "Smith and Abbot" (93:213-218) I have had relevant correspondence with Mr. J. E. Traue, Chief Librarian, The Alexander Turnbull Library, Wellington, N. Z. We agree that the Turnbull Library set of Abbot drawings is quite probably the one sent by Abbot to William Swainson in 1818 and is not, as Parkinson (Turnbull Library *Record*, 11, 1978, 26-36) supposed, the "book of Drawings" shipped to Swainson in 1835. The Turnbull set was intended to be published as a supplement to "Smith and Abbot," and Abbot also supplied Swainson with manuscript "Notes to the Drawings of Insects" as he had done when collaborating with Smith. (Actually Abbot furnished a number of customers with sets of drawings and notes which he 'advertised' as supplemental to the Smith volumes, but these appear to have been the only ones meant to be published as such.)

The identity of the drawings with those sent in 1818 is suggested by their number, 103 (one of the total of 104 to match "Smith and Abbot" having been lost; Swainson, *Taxidermy*, 1840, 99-100) and their relatively small size, 34.5 x 21 cm. As explained in my previous paper, Swainson objected that the drawings were not as highly finished as those used by Smith, and chiefly that they were "much smaller in size so that they can never be bound uniformly with that work." In addition to his plans for publication, Swainson wished to bind his original Abbot drawings to match a book which

averages 41.5 cm. in height. Abbot promised a larger set, and could hardly have made the same 'error' again.

Another proof is the content of the Turnbull drawings (Parkinson, 1978). In their correspondence, Swainson initially agreed to Abbot's idea of including drawings of "some of the other Genera of Insects" in the set of *Papilio* and *Sphinx*, writing on the 25th October 1817 that "A few drawings of the other Genera of Insects would also be welcome, if accompanied by their metamorphos." The Turnbull drawings do indeed depict other insects, and not all Lepidoptera. These must have been the drawings Swainson complained about on the 28th January 1819 when he wrote (contradicting himself): "I only wish to have drawings of the Papillios & Sphinxes which are not in Smith."

Perhaps the replacement set was never provided, for when reporting the abandonment of the project in *Taxidermy*, Swainson mentioned only the short set of 103 drawings. The location of the 1835 "book of Drawings" is unknown, and it is uncertain whether these figured in the publication scheme at all. At least we know from the drawings and notes in the Turnbull Library (Parkinson, 1978) what the two supplementary volumes to "Smith and Abbot" would have contained had Swainson been satisfied with Abbot's efforts at the time.

In his article Parkinson mentions the manuscript "Notes" as "in a hand which may be Abbot's." I have obtained photocopies which prove that the notes are certainly in Abbot's distinctive hand, and in character are much like the observations used by Smith. — RONALD S. WILKINSON, 228 Ninth Street, N. E., Washington, D. C. 20002.

SWIMMING BEHAVIOUR IN *HYPERA RUMICIS* (LINNAEUS) (COL: CURCULIONIDAE). — During May 1981 I tested a few species of weevils (Curculionidae) for swimming ability, and among some other species I discovered that *Hypera rumicis* (Linnaeus) was capable of swimming quite efficiently. When a few adults of the weevil were placed in a small water filled plastic dish they were, after a brief period, observed to swim through the water fairly rapidly by making a definite breast 'stroke action' with all six legs. The actual swimming was performed by extending the forelegs first in a wide arc then the mid and hind pairs were brought into action at the same time, thus providing the necessary forward movement. Progress through the water was mainly by alternating movements of each pair of legs, but the greatest effectual stroke was made by the forelegs. The specimens of *H. rumicis* were also capable of performing the same swimming stroke while on their backs. Movement through the water was quite rapid in either position and this was especially noticeable when the temperature of the water was raised slightly.

The swimming action in *H. rumicis* was very similar to that of *Ceutorhynchus viduatus* Gyllenhal previously reported by me. (1978, *Entomologist's Gaz.* 29: 76) and it also appears to resemble, to some extent the motion and style performed by *Litodactylus leucogaster* (Marsham), as described recently in a paper dealing with

the general biology of this species by G. R. Buckingham and C. A. Bennett., (1981, *Ann. Entomol. Soc. Amer.* 74: 451-458.).

This adaptation in *Hypera rumicis* is interesting and rather intriguing as it is a weevil which is not usually associated with aquatic habitats or found in really damp situations.

In my experience of the species in West Cumbria I nearly always find it on Curled Dock, *Rumex crispus* L., and to a lesser extent on Broad leaved dock, *R. obtusifolius* L. where the plants grow in comparatively dry habitats and away from water. However, it is interesting to note that *H. rumicis* is known to feed and develop on the Great Water Dock, *Rumex hydrolapathum* Huds., so it would be very worthwhile to discover if the same swimming ability is also developed in individuals colonising this plant as well.

Swimming in certain species of Curculionidae is not uncommon, and a number of members in the subfamily Ceuthorhynchinae are known to be well adapted for a semi-aquatic life. One example is *Eubrychius velutus* (Beck) which is known to possess a very efficient plastron respiration system as described by W. R. Thorpe and D. J. Crisp, (1949, *J. exp. Biol.* 26: 219-260) and this adaptation enables the adults to stay submerged for long periods.

At the same time as I tested *H. rumicis* for swimming I also experimented with three other members of the genus, *H. dauci* (Olivier), *H. nigrirostris* (Fabricius) and *H. plantaginis* (Degeer). When these species were placed in water they made no attempt to perform any recognizable swimming stroke, but just merely floundered about in the water.

This would appear to be the first recorded observation on the swimming behaviour in *H. rumicis* and also the first on a member of the subfamily *Hyperinae*. — R. W. J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria, CA28 8RF.

THE USE OF THE TERM 'POCK-MARK' IN ENTOMOLOGY. — Subscribers with a medical background will have been interested in Mr. Chalmers-Hunt's note in the March/April 1982 issue of the *Record*.

I wonder if they, as I, have searched unsuccessfully for cases of *Coleophora varicella* (sic.) on the bodies of their patients who have previously suffered from chickenpox? — DR. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants PO4 ONH.

SENTA FLAMMEA CURTIS (THE FLAME WAINSCOT) AT WYE, KENT. — Two *Senta flammea* appeared on separate nights in early June 1982, in the trap I run at Wye College. Since a number of other migrant species were appearing at the same time, I assumed that the *S. flammea* had arrived from France on the southerly winds which had been blowing for several days. However, when a *Mythimna obsoleta* Hbn. also appeared, and bearing in mind that two *Arenostola phragmitidis* Hbn. had turned up the previous summer, I began to suspect that these *Phragmites* feeders might be of local origin, and therefore sugared and ran a Heath trap in the largest reed bed in the area. I was rewarded by finding six *flammea* and five *M. obsoleta* (one at sugar, the rest at light). So it seems rather likely that both species exist as breeding populations in the Wye area. — M. A. ENFIELD,

New Cottage, Warren Farm, Boughton Aluph, Ashford, Kent TN25 4HW.

DEFOLIATION IN NORTHAW GREAT WOOD, HERTFORDSHIRE, 1982. — Over a 25/30 acre area the oaks, birches and hornbeams in Northaw Great Wood are as bare as at midwinter. The chief culprits were *Hybernia defoliaria* Clerck, *Apocheima pilosaria* D. & S., *Operophtera brumata* L. and, of course, *Tortrix viridana* L. On a recent visit, at the foot of every tree trunk 20 or 30 larvae were laboriously ascending — to nothing. Adjacent woodland has been comparatively unharmed. — R. LOVELL-PANK, 33 The Highlands, Hatfield Road, Potters Bar, Herts EN6 1HU. 7.vi.1982.

CURIOUS BEHAVIOUR OF TWO EGG-LAYING AGLAIS URTICAE L. — On the 14th June 1982, I saw two *A. urticae* on a nettle bed, which from where I stood on a path I at first thought were *in cop*. I slowly approached them through the nettles and was surprised to find two females egg-laying on the same leaf. Their abdomens were less than a half inch apart and their heads about an inch apart. Nettles cannot be at a premium in this area, since this particular bed follows the river Nene near Northampton for at least a mile and is several yards wide all the way. — D. STOKES, 97 Mendip Road, Northampton NN5 6BA.

TROPIDIA SCITA (HARRIS) (DIPTERA: SYRPHIDAE) IN VC 69. — I took a female specimen of this rather uncommon species on the edge of Holker Moss (SD 3579) on 3 June 1981. It has previously been recorded from just south of this area in VC 60 by Skidmore (*Entomologist's mon. Mag.* 98: 184) who captured the species at Storrs Moss near Silverdale on 17 June 1956. I also have taken the species in that locality on 23 May 1964. — DR. NEVILLE L. BIRKETT, Kendal Wood, New Hutton, Cumbria, LA8 0AQ. 28.iv.1982.

APPARENT EXCESS IN NUMBERS OF FEMALE ANTHOCHARIS CARDAMINES L. (ORANGE-TIP) IN DUMFRIESSHIRE. — On the 22nd May 1982, just north of the small village of Tynron, Dumfriesshire, I came across several dozen of this butterfly on a small willow marsh which was well carpeted with Lady's Smock (*Cardamine pratensis*). The curious fact about this colony was the ratio of at least 15 females to each male, and I wish to make it clear that I was not confusing female Orange-tips with Green-veined Whites. Returning to the site ten days later not a single Orange-tip was to be seen, and I found much to my regret that all the Lady's Smock had been cropped by sheep. — R. H. MILLER, Oakmere, South Street, Garlieston, Wigtownshire.

THE CLOUDED YELLOW: COLIAS CROCEUS (GEOFFROY) IN JUNE 1982. — A single butterfly was seen on the 5th June by the road that runs parallel to the South Downs at the village of Westmeston, East Sussex. — D. DEY, 26 Manor Avenue, Hassocks, West Sussex BN6 8N.

THE PAINTED LADY: CYNTHIA CARDUI L. IN JUNE 1982. — On the 4th June, while walking along the lane here opposite my house, I observed a Painted Lady sunning itself on the grass verge. — T. NEWNHAM, The Victory, Staplefield, Haywards Heath, Sussex RH17 6EU [We have also received reports of the Painted Lady having been seen this June in Kent, Surrey, Dorset, Cornwall and Devon. Editor].

EARLY APPEARANCES OF *Callophrys rubi* L. AND *Pyrgus malvae* L. IN WORCESTERSHIRE. — Several *Callophrys rubi* were seen on the Malvern Hills on 25th April 1982, an exceptionally early date for this species in this part of the country. *Pyrgus malvae* was seen by Mr Tom Parker at Trench Wood near Droitwich on 26th April this year, and there was another sighting of this species in Wyre Forest on the following day. — J. E. GREEN, 25 Knoll Lane, Poolbrook, Malvern, Worcs WR14 3JU.

FURTHER KENTISH RECORDS OF THE DOTTED RUSTIC: *Rhyacia simulans* HUFN. — Continued spread of this species is evidenced by 1981 m/v appearances at Dungeness on 9th July and at my home on an exceedingly exposed area of the North Downs on 4th. Aug., 5th Aug., 15th Sept. (2), and 24th. Sept. Migratory insects frustratingly avoid Detling Hill, however the regularity of reported sightings of this species elsewhere in the county must surely indicate it now to be firmly established as a resident. — N. F. HEAL, Fosters, Detling Hill, Nr. Maidstone, Kent.

Current Literature

Collins Handguide to the Butterflies of Africa by R. H. Carcasson, embracing more than 100 colour plates illustrating some 350 species and, in many cases, their early stages, together with some line-drawings of the anatomical structures of Lepidoptera, and a map of the world's faunistic regions, etc. The softback edition has XIX + 109pp., the hardback XIX+188pp., the latter containing a "simplified provisional check-list of the butterflies of the Afrotropical region." Publishers: Collins, St. James's Place, London, 1981. Price: paperback £4.95; hardback £7.95.

This beautifully-illustrated little book is — to quote its author — "meant to be no more than an introduction to the study of African butterflies." It is clearly a labour of love and as such it has considerable intrinsic merit, even if one disagrees with the use of English names for the species figured in it, in preference to the Latin ones which all serious students of African butterflies should try to memorize from the start, as most African butterflies do not have English names and the ones they do have tend to differ in the popular books dealing with them.

The book contains a few systematic oddities, such as: *Amauris albimaculata* (on p. 72) being unnecessarily emended to *A. albi-maculatus* (as if Dr. Butler, who described it, did not know his Latin genders!) the genus *Bebearia* (on p.45) being made a subgenus of *Euphaedra* — an action not supported by van Son/Vári in Pt. IV of "The Butterflies of Southern Africa" (1979: 116-117); the exclusively Afrotropical genus *Sallya* being made a subgenus of the Neotropical *Eunica* (on p. 57), even though their early stages are quite different; and the sinking of the Afrotropical genus *Elymnopsis* (on p.65) to synonymy with the Oriental *Elymnias*, despite the fact that Dr. L. D. Miller (1968) maintained the former as a distinct species in his authoritative monograph on the higher classification of the Satyridae. No mention is made by Dr. Carcasson,

in his book, of the "Noble Swallowtail" (*Papilio nobilis*) being found in Tanzania, even though its type-locality is stated to be "German East Africa, Paré" by Aurivillius in his "Rhopalocera Aethiopica" (1898:464), and I myself have collected it in the Kahé Forest, south of Moshi, in northern Tanzania. Finally, in the index, I see that y comes before x!

In his "simplified provisional check-list of the butterflies of the Afrotropical region", at the end of the hardback edition of his book, Dr. Carcasson would have done better if he had brought the tribal groups of his "Nymphalinae" in line with the more up-to-date arrangement of van Son/Vári's in Pt. IV of "The Butterflies of Southern Africa" (1979), and if he had placed all the species of the various genera, especially those of the larger genera such as *Charaxes*, *Acraea*. etc., in alphabetical order rather than in the higgledy-piggledy disorder that one finds them in at present!

Despite these criticisms, I really must recommend students of African butterflies, and anyone visiting Africa who is interested in its butterflies, to purchase a copy of Dr. Carcasson's book, since he is an acknowledged expert on African Lepidoptera, and his book contains invaluable information about them — A. H. B. RYDON

The Life of the Meadow Brown by W. H. Dowdeswell.

165pp., paper. Heinemann Educational Books Ltd., London. 1981. £5.95.

There are few books on a single butterfly and for that reason alone "The Life of the Meadow Brown" is welcome. It begins with a short section on the biology of the species, the following chapters giving an extensive account of the ecological genetic work which has been undertaken by Dowdeswell and others since 1938 — Beginning an ecological study; The mainland stabilizations; The meadow brown in Europe; Studying island populations; The significance of spotting; Conclusions and implications.

Professor Dowdeswell's knowledge and experience of the genetics of the underside hindwing spotting of these butterflies is clear. His accounts of the research findings of other workers are not so satisfactory. For example, Scali did not include Roumania in the western group of European populations as a result of his work on the enzyme phosphoglucomutase (p. 134). There are other errors, most of them small. Schrank described the genus *Maniola*, not *Linnaeus* (p. 6). More seriously, there is little mention of the morphological variation, either wing markings or genitalic structures, on which much has been written and which offers many interesting research possibilities in the field of population biology.

While this little book is well written and presented, those interested in butterflies who purchase it expecting a text on 'the life of the meadow brown' will be disappointed: it is an account of ecological genetics research. The meadow brown just happens to be the organism which proved most suited to the problems posed. Dowdeswell writes more on the 'background to a piece of biological research' than on the significance of such phenomena as sympatric evolution, character displacement and hybrid zones. For this reason the book is probably at a level too elementary for undergraduate and postgraduate research students of biology. In spite of these criticisms, it is well worth reading. — G. T.

EPIERUS COMPTUS (ERICHSON) (COL.: HISTERIDAE)
NEW TO BRITAIN

By DAVID R. NASH*

Whilst engaged in a long-term survey of the Coleoptera of Grovely Wood, an area of mature woodland near Salisbury, Wiltshire (SU 03) on August 1st, 1980, I took from under the bark of a fallen, mature beech, a single example of an Histerid beetle whose size and general facies I did not associate with any of our native, subcortical species. Having arranged to stay with my friend Mr. C. Johnson of Manchester Museum almost immediately upon my return from Wiltshire, I did not have time to study the beetle in detail, but took it with me for his comment. He suggested the beetle was *Epierus comptus* (Erichson), a determination with which I fully agreed after studying the specimen upon my return to Essex. As Manchester Museum had no comparative material, I sent the beetle to M. Jean Théron of Nîmes who kindly verified the determination. A search of the beech trunk in August, 1981, failed to reveal further specimens. There can be little doubt, however, that the species is truly indigenous since the locality is totally isolated from any possible source of importation. Although the beetle appears to be of rare occurrence throughout its range, it seems surprising that it has not been found in the New Forest which lies only some 20 km or so to the south-east of Grovely Wood.

In its typical microhabitat, *Epierus comptus* should not be confused with any of our other native subcortical Histeridae, its relatively large size (2-3mm), broad oval shape and multidenticulate front tibiae separating it easily from *Teretrius*, all Abraeinae and *Paromalus*. Apart from the structure of the tibiae, in colour, size and general form it bears quite a striking *superficial* resemblance to *Carcinops pumilio* (Erichson), a species which, although a member of the Denrophilinae and easily distinguished on the subfamilial characters given below, was described by Stephens in his 'Manual' (1839, p.152) as an *Epierus* before the creation of the genus *Carcinops* by Marseul in 1855. *Carcinops pumilio*, however, has seven striae on each elytron and the elytra are normally broadest at the humeral callosity and thence usually distinctly narrowed to the apex. The elytra and pronotum unite to form a slight, but evident, external angle, and the anterior tibiae are dilated with two distinct, widely-separated teeth on their outer margin, and a very large terminal hook on their inner margin. *Epierus comptus* has only six striae on each elytron and the insect is more-or-less evenly rounded from the anterior pronotal angles to the pygidium, the sides of the pronotum uniting with those of the elytra to form an almost uninterrupted curve. The anterior tibiae are gradually widened from base to apex and are armed with many small spines on their outer margin and have only a small terminal spine on their inner margin. The whole insect is also plainly somewhat broader.

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In view of the confusion which exists in most British works concerning the taxa within the Histeridae, it would seem important to define clearly the position of *Epiurus* within the family and the taxonomic characters which determine this position.

Following Wenzel (1944) and the majority of modern workers on the Histeridae (but not Witzgall, 1971), the genus *Epiurus* is here considered to be located within the Tribalinae and not the Histerinae. The Tribalinae may be characterised as follows: prosternal lobe present; protibiae multidenticulate i.e. with fine spines on their outer margin; antennal cavities situated in the anterior thoracic angles and at least partially closed beneath by the prosternal alae; labrum with setigerous punctures (unlike all Histerinae); antennal scape 'normal' i.e. not expanded or angulate as in, for example, *Hetaerius*. The subfamily is closely related to the Dendrophilinae, but the members of the last named taxon may be recognised by their completely open antennal cavities which are usually situated just anterior to the procoxae, the deeply and longitudinally incised prosternal alae (for reception of the antennal funicle), and their paucidenticulate protibiae.

The Tribalinae is composed of two tribes — Onthophilini and Tribalini. In Europe, the Onthophilini is only represented by the genus *Onthophilus* which contains three species easily recognised by their longitudinally keeled elytra and pronota. The Tribalini, on the other hand, is represented by two genera in Europe — *Tribalus* and *Epiurus*, which may be recognised by their multidenticulate protibiae and the absence of a marginal stria on the frons. All of the European species appear to be rare and to have a predominantly southern distribution. In view of the discovery of a species belonging to a tribe whose known distribution would appear to militate against the occurrence of *any* of its species with us, it would appear useful to provide a key which includes not only *Epiurus comptus*, but also others of the tribe which might occur in Britain.

Key to European Tribalini

1. Elytra with short, indistinct traces of dorsal striae. First ventral segment between hind coxae without deep longitudinal striae. Brown to black; antennae and legs reddish. Length 1.3 - 1.8mm *Tribalus minimus* Rossi (Under stones near water, especially by rivers. Southern Europe. ?Middle Europe).
- Elytra with entire, distinct dorsal striae. First ventral segment between hind coxae with a deep, longitudinal stria on each side. Black; antennae and legs brown-red. Found under bark. Very rare *Epiurus* Erichson.
2. Elytra with six striae which are more deeply impressed than in the following species. Prosternal striae slightly diverging towards the front. Frons not impressed between the eye tubercles. Length 2 - 3mm *comptus* (Erichson) (South and south-west Europe; ? Middle Europe.)
- Elytra with a well-formed seventh subhumeral stria and the two innermost striae on each elytron united to form an arch in

the scutellary region. Prosternal striae strongly diverging towards the front. Frons impressed between the eye tubercles. Length 3mm *italicus* (Paykull) (South-east Central Europe; most frequent in southern Europe.)

The above key is based freely upon that of Witzgall (*op. cit.*) who questions the occurrence of *Tribalus minimus* and *Epierus comptus* in middle Europe. Winkler (1924-1932) in his 'Catalogue', however, gives the distribution of the three species as follows: *T. minimus* — Mediterranean, China; *E. comptus* — Austria, Hungary, southern Europe and the Caucasus; *E. italicus* — Italy, Austria, Hungary, and the Balkan Peninsula. M. Théron (*in litt.*) informs me that *E. comptus* appears to be of truly southern distribution in France, as he has recorded it during a lifetime's collecting from only two departments viz. du Val and the Maritime Alps. He also has specimens from Syria and Iran.

There are probably only three or four Palaearctic species of *Epierus*, the genus having its main centre in the Neotropical region with 56 described species. It is also known from North America (11 spp.), the Oriental and Indo-Malaysian region (11 spp.), and New Guinea (3 spp.). Two species — *E. antillarum* Marseul and *E. pulicarius* Erichson, have recently been recorded in association with the fauna of bat guano in Cuban caves (Decou and Théron, 1977).

Acknowledgements

My sincere thanks go to M. Jean Théron of the Musée d'Histoire Naturelle, Nîmes for his generosity in supplying reprints, much helpful correspondence, and confirmation of the identity of the *Epierus*. I also thank Mr. C. Johnson of Manchester Museum for providing the initial tentative determination. Finally, I thank the Earl of Pembroke for allowing me to study on the Wilton Estate and his Estate Manager Mr. R. H. Mellish for his unfailing help and courtesy.

References

- Arnett, R. & Wenzel, R. L., 1962. Fascicle 26 — Histeridae in Arnett, R. H. *The Beetles of the United States*, 4th printing, 1973, pp. 369-378. American Entomological Institute.
- Decou, V. & Théron, J., 1977. Histerides hypogés de Cuba. *Résultats des expéditions biospéologiques Cubano-Roumaines à Cuba*, pp. 403-405. Editura Academiei Republicii Socialiste România, Bucuresti.
- Stephens, J. F., 1839. *A Manual of British Coleoptera*. London.
- Wenzel, R. L., 1944. On the classification of the Histerid beetles. *Field Mus. Nat. Hist. Zool. Ser.* 28 (no. 2, publ. no 545): 51-151. Chicago.
- Winkler, A., 1924-1932. *Catalogus Coleopterorum regionis palaearticae*. Vienna.
- Witzgall, K., 1971. Histeroidea in Freude, H. et al. *Die Käfer Mitteleuropas* 3: 156-189. Goecke & Evers. Krefeld.

THE SCARCE SWALLOW-TAIL:
IPHICLIDES PODALIRIUS (L.) IN BRITAIN

By RONALD S. WILKINSON*

II: Haworth's *Prodromus* and *Lepidoptera Britannica*

In the initial part of this survey of recorded captures and sightings of *podalirius* in Britain (Wilkinson, 1975), I discussed the very meager evidence of the seventeenth and eighteenth centuries. John Ray reported in the posthumous *Historia Insectorum* (1710) that "in *Etruria* invenimus, atque etiam, ni male memini, in Anglia"; he had encountered *podalirius* during his Italian travels in the 1660s, and also, unless his memory failed, in his home island. John Berkenhout was more decisive in the first volume of his *Outlines of the Natural History of Great Britain and Ireland* (1769); *podalirius* was indeed a British insect, "Rare, in woods." Berkenhout's unsubstantiated statement was perpetuated in second (1789) and third (posthumous, 1795) editions. Haworth eventually suggested a possible source for the assertion.

Although no authentic or even supposed British specimens were known to the community of aurelians as the new century approached, the London naturalists were spurred on to find *podalirius* by their reading of such contemporary writers as Donovan and Lewin, who perpetuated the hope of its capture. Much had been learned about the lepidopterous fauna, but this knowledge was chiefly about the environs of London and the southeastern counties, and naturalists were very aware that little of the rest of Britain had been entomologically explored. One such view was that of the jeweller and collector John Francillon who wrote in 1785 to the Manchester manufacturer John Leigh Philips in hopes of securing native *podalirius*, *virgaureae*, *daphidice*, *palaeno*, *lathonia* and other gems, arguing that "as you are at such a great Distance from London, I think you must meet with specimens we have not got . . . as I find if I go only 20 or 30 miles from London I am sure to meet with something new, therefore I think my argument holds good the further the Distance" (British Library, Add. Mss. 29533, f. 63v.) The climate of opinion was enthusiastic indeed in the golden age of British entomology; surely in time *podalirius* and other desirable insects would be traced to their haunts in those vast areas distant from the metropolis.

But not until the publications of Adrian Hardy Haworth was fresh evidence introduced to suggest that *podalirius* really could be found in Britain. Haworth (1768-1833) was an accomplished botanist whose collateral pursuit of entomology led to the foundation of the third Aurelian Society and the publication of a checklist as well as a classic study of the British Lepidoptera. His seemingly curious treatment of the Scarce Swallow-tail in *Prodromus Lepidopterorum Britannicorum* (1802) and *Lepidoptera Britannica*

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(1803[-28]) is explained by the complicated printing history of these titles. In the text of the *Prodromus*, *podalirius* is among the asterisked species which Haworth had "not yet absolutely seen alive," but the species name was not printed in italics, as were those "desiderata to the cabinet" of British insects belonging to the Aurelian Society. Perhaps the reason is typographical; *podalirius*, as the first entry in the check-list, has its name in large and small capitals.

In fact we know that the Aurelian Cabinet did not have a supposed British *podalirius*. While the main text of the *Prodromus* was in press, Haworth obtained so much additional information that an addendum with a preface of its own was printed and added to the primary check-list. Haworth explained that in the interim "Real British specimens of the whole [list] have been recently and carefully examined . . . except only Pap. *Podalirius* and Bomb. *Pinus*, which are admitted upon the assurance of two . . . Entomological friends, that they once beheld alive and at large both of these rarities in Britain."

At that time Haworth was well along in the writing of the first volume of *Lepidoptera Britannica*. When the volume was published in 1803, the textual entry for *podalirius* (which had, according to Haworth, been printed some time before) did not include such an assurance by entomological friends. Haworth referred only to the two classical references to *podalirius* as British: "Exemplarium absolute Britannicum nunquam vidi. Locus in Lepidoptera Britannica auctoritatibus Berkenhouti et Raii (quae ultima satis ambigua est) praecipue pendet" (p. 6.) But Haworth was able to add new and welcome information before the volume was issued. In the preface, sent to the press last and dated July 1803, he announced that "Since the body of this work was printed, my friend the Rev. Dr. Abbott of Bedford has informed me that he took in *May* last, near Clapham Park Wood in Bedfordshire, a specimen of *Papilio Podalirius* in the winged state: and that he also took in *June* last, in White Wood near Gamlingay, Cambridgeshire, the *Papilio Daplidice* (in a faded state) and likewise *Papilio Lathonia*. These are three extremely interesting species, and there is not a British specimen of any of them now extant, except the above.

"*Podalirius* . . . has not been seen alive in Britain, since the time of Ray; unless Berkenhout possessed it, which he probably might, because I have heard of his giving a high price for a rare *Swallow-tail Papilio*, said to be taken in Cambridgeshire, which was probably the identical specimen of *Podalirius* that he has described in his *Synopsis*

"An ingenious and practical Aurelian friend has informed me that he took *two sorts of swallow-tailed Papilios*, near Beverley in Yorkshire, five-and-twenty years ago, but no specimens of them are now extant; a fire which unhappily destroyed great part of his property, having consumed them likewise. Now, as we have only two swallow-tailed species in Great Britain, one of the above in all probability was *Podalirius*. I know *Machaon* . . . breeds near Beverley yet" (Haworth, 1803, xxvi-xxvii.)

Haworth's fortunate friend "the Rev. Dr. Abbott" was Charles Abbot (1761?-1817), cleric and sometime Fellow of New College, Oxford, who took the degree of D. D. in 1802. Like Haworth, Abbot was a botanist and Fellow of the Linnean Society; his *Flora Bedfordiensis* was published in 1798. An Abbot specimen of *podalirius* is still extant, in the Dale Collection, Hope Department of Zoology (Entomology), University Museum, Oxford. It is in somewhat poor condition, with antennae missing, and is labelled "Clapham Park wood May - 1803? Nr. Bedford Dr. Abbot? Mus. Abbot" in the hand of James Charles Dale (1792-1872), a respected figure in nineteenth-century British entomology (Walker, 1907). The question marks imply that at some time Dale had doubts about the provenance of the insect which he obtained as part of Abbot's cabinet (purchased in 1817: Dale, 1830).

The Abbot specimen is the only *podalirius* in the Dale Collection, which was bequeathed by Charles William Dale to Oxford with the diaries and records kept by his father and himself. One of the manuscripts mentions the capture. J. C. Dale compiled an "entomological calendar" from Abbot's original notes (Walker, 1907), and I am informed by Miss Pamela Gilbert, British Museum (Natural History), that the page containing the records for 1803 includes the entry "May-? Papilio Podalirius? Clapham-Park wood Bed's -." Again those troublesome question marks appear. The elder Dale seems to have had no problems with the attribution of Abbot's 1803 capture of *daplidice* and *lathonia*; the specimens are in the Dale Collection *ex* Abbot, and bear Dale labels without question marks (Walker, 1907). Perhaps Abbot had not specifically labelled his *podalirius* as being the May 1803 capture described to Haworth.

At any rate, in late 1838 or early 1839 Dale assured Peter Rylands that he then possessed the Abbot *podalirius* to which Haworth referred, "a ♀ not in very fine order" (Rylands, 1839), presumably the same specimen now in the Dale Collection. And Dale, one of the more knowledgeable collectors of the period, cited the Abbot capture as part of the extensive information about *podalirius* which he furnished to Rylands and which the latter claimed would "convince any *unbiased* person that *podalirius* ought to be entered in the British Fauna." Rylands (1839) also revealed that "Mr. Haworth told Mr. Dale that 'Dr. Abbott had informed him [Haworth] by letter of his having *seen podalirius two or three times*' previous to the capture."

There is no reason to suppose that Charles Abbot's claims were spurious - or, to phrase that conclusion in a more guarded manner, we have no evidence that he deceived his entomological friends. Certainly he recorded a number of Lepidoptera which were considered exceptional prizes, and all within a relatively brief period of time; his good fortune was not limited to the capture of *podalirius*, *daplidice* and *lathonia* (Haworth, 1802, 1803). However Abbot was considered to be a trustworthy naturalist, and his colleagues called attention to his successes as examples of the progress of British entomology. One may argue that those were more credulous times, in which entomologists accepted one another's records without the

more careful scrutiny which would characterize the Victorian era. That was often true, but even so, Abbot must be considered innocent in the absence of proof to the contrary; and, as we shall see, a number of other collectors quite certainly did take *podalirius* in England after his death.

In his 1803 preface, Haworth chose not to name the "ingenious and practical Aurelian friend" who captured "*two sorts of swallow-tailed Papilios*" near Beverley, Yorkshire a quarter of a century before. But he continued to believe his friend's account; writing of *podalirius*, Samouelle (1819) reported that "Mr. Haworth is yet in hopes of receiving indigenous specimens from Yorkshire." Haworth returned to the subject of *podalirius* in 1828 when preparing a postscript to be published with the sheets of the fourth part of *Lepidoptera Britannica*, which had been printed a number of years before. *Inter alia*, Haworth related that "Mr. Rippon of York has informed the writer that he saw the wing of a *P. Podalirius* found in Yorkshire" (p. 588.)

Rippon's identity has been a mystery until now, and indeed he has led two historians (the late P. B. M. Allan and myself) on a merry chase. He appears in the recently discovered manuscript 'articles of incorporation' of Haworth's Aurelian Society as "John Rippon, Precentor's Court, York," the twelfth Aurelian to sign the document. So quite probably John Rippon was the "Aurelian friend," and he certainly was the Rippon of the *podalirius* wing. J.C. Dale (1830) credited the Beverley captures and the account of the wing to "Mr. Rippon?" several years before Haworth's death, and we may suppose that Dale was not corrected by his old friend, for Rylands (1839) unhesitatingly named "Mr. Rippon, of York" as the collector at Beverley, ca. 1778, and one suspects from the first paragraph of Rylands' paper that he had his information from Dale. The circumstances of the supposed captures were repeated again and again in the literature, but the actual facts are scanty enough. We now know Rippon's given name and address, but nothing has been discovered about his collecting activities and the specimens which were consumed by fire. Hopefully a search of local records will reveal more.¹

By the time Haworth wrote his 1828 postscript he was able to record several more captures of *podalirius*. These properly belong to a third part of this survey, which will begin with the curious adventures of the Rev. Frederick William Hope and conclude at mid-century.

¹John Rippon of York was not John Rippon, D. D. (1751-1836), Baptist divine and compiler of the famous collection of hymns, who served his London parish for nearly 64 years and who appears in the *Dictionary of National Biography*. Our Rippon was not Precentor of York Minster, and the Dean of York, who graciously conducted a search of the appropriate records, discovered no official affiliation with the Minster. Precentor's Court, earlier called Precentor's Lane, opens into High Petergate, and evidently Rippon occupied one of the private residences in the Court.

References

- Abbot, C. 1798. *Flora Bedfordiensis*. Bedford.
Aurelian Society. Rules and regulations for the establishment and continuance of the . . . society. Ms., June 1801 *et seq.* Newington District Library, London.
- Berkenhout, J. 1769. *Outlines of the natural history of Great Britain and Ireland*. I. London.
- Dale, J. C. 1830. Notice of the capture of *Vanessa Huntera*, for the first time in Britain, with a catalogue of rare insects captured. *Mag. Nat. Hist.*, 3: 332-334.
- Francillon, J. to J. L. Philips, 4th February 1785. Add. Mss. 29533, British Library, London.
- Haworth, A. H. 1802. *Prodromus lepidopterorum Britannicorum*. Holt.
- , 1803 [-28]. *Lepidoptera Britannica*. London.
- Ray, J. 1710. *Historia insectorum*. London.
- Rylands, P. 1839. Statement of the claims of *Papilio podalirius* to rank as a British insect. *Naturalist*, 4: 227-229.
- Samouelle, G. 1819. *The entomologist's useful compendium*. London.
- Walker, J. J. 1907. Some notes on the *Lepidoptera* of the "Dale Collection" of British insects, now in the Oxford University Museum. I: Rhopalocera. *Ent. mon. Mag.* 43: 93-101, 130-134.
- Wilkinson, R. S. 1975. The scarce swallow-tail: *Iphiclides podalirius* (L.) in Britain. I: The evidence before Haworth. *Entomologist's Rec. J. Var.*, 87: 289-293.

THE BRIMSTONE: GONEPTERYX RHAMNI L. APPARENTLY IMBIBING AT HYDRANGEA FLOWERS. — On September 6th, 1980, I was surprised to see a female brimstone butterfly alight upon a sterile flower of the head of a Hortensis type *Hydrangea* with pale blue flowers, and probe for some time the calyx tube. This behaviour was repeated on several flower heads before the insect moved on to the bright pink flowers provided by a hedge of *Lathyrus latifolius*, the everlasting pea, which over the years has been noted as the most favoured flower attraction for this species here in my garden. Two days later the visits were repeated.

So far as I am aware *Hydrangea* flowers of this type do not produce nectar, neither were the flowers wet, nor host to aphides. Work by D. Ilse quoted in *The Pollination of Flowers* by Proctor and Yeo, 1973, showed that the brimstone's natural flower preference was for those coloured blue, and that approach was visual rather than olfactory.

This explains the visit to the *Hydrangea*, but what is not clear are its lengthy visits with apparent feeding. Regarding colour selectivity, violet and purple are also attractive to the brimstone, according to Ilse, while few visits are made to red, orange and yellow flowers. In my garden another pink flower commonly attracting the brimstone is *Sedum spectabile*, although I associate this more with *Aglais urticae*, the small tortoiseshell, which Ilse finds most attracted by flowers of yellow or blue colouration, and which also use a visual approach — B. K. WEST, 36 Briar Road, Bexley, Kent.

BUTTERFLIES IN EASTERN SWITZERLAND 1980,
WITH A NOTE ON *EREBIA PLUTO* DE PRUNN.

Dr. C. J. LUCKENS*

In mid-August 1980 Dr. T. W. Tolman and I, accompanied by my two older sons, spent several days at Pontresina in the Engadine. The weather was unremittingly wet as we travelled through France but, apart from one unsettled day, we had beautiful weather for the duration of our stay in Switzerland.

In spite of the late date in the Alpine butterfly season, we saw a good variety of species, including many that we had met with there over a month earlier the previous year.

The two *Erebias*, *melampus* Fuessl. and *tyndarus* Esp. for example, were swarming in the pastures of the Val Roseg on August 17th and many were in excellent condition. Flying with them were *Coenonympha gardetta* de Prunn. and the fritillaries *Fabriciana niobe* L., *Argynnis aglaia* L., *Brenthis pales* D. & S., *B. napaea* Hoffmannsegg, and *Clossiana titania* Esp. I observed a female *titania* ovipositing on the dry moss at the base of a drystone wall where *Viola ssp.* grew among the crevices. *Aricia nicias* Meig. was locally common at the foot of one stony slope and we saw many *Colias phicomone* Esp. and *Cyaniris semiargus* Rott. — all of these being butterflies we had encountered in early July 1979. Other species seen included a few *Polyommatus eros* Ochs. and *Erebia montana* de Prunn. (usually at the edge of the screes) and excellent numbers of *Heodes virgaureae* L. of a small bright form which frequented the woodland clearings.

In one such clearing, in 1979, we had found *Euphydryas intermedia* Menetries and I was very keen to look for the early stages of this local species. To my surprise and delight I found a batch of very young *Euphydryas* larvae on a small web at the tip of a *Lonicera* leaf on one of the first bushes investigated. After this early success no more were found in spite of intense search by my sons who were spurred on by promises of generous rewards. Approaching the Roseg Hotel near the head of the valley *Parnassius phoebus* F. became quite common, favouring especially the rocky ground beside the river.

This beautiful butterfly was also conspicuous on the higher slopes of the Albula Pass which we visited on three occasions — the 18th, 20th and 21st August. The 20th was the day of rather uncertain weather and we were forced to descend to the meadows around Preda to escape the cold misty rain at the top of the pass. Here *Erebia pronoe* Esp. was found and a few *Erebia manto* D. & S. (not the high altitude f. *pyrrhula* but similar to the type) as well as *Palaeochrysophanus hippothoe* L. *C. titania* and a single fresh *Mellicta athalia* Rott.

The other two days were brilliantly sunny and we spent most of our time at around 6000ft a little way down the north side of the pass. *Colias palaeno* L. was flying swiftly over the *Vaccinium-*

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covered slopes and a few of those netted were surprisingly still in fresh condition. A pair of *Vacciniina optilete* Knoch was also noted. On a patch of alluvial mud we encountered a swarm of the little alpine blues *Agriades glandon* de Prunn. and *P. eros* and we were able to select a small series of each of these species. These mud visitors were almost exclusively male however, and we had to work hard to find the females on the nearby grass slopes. The dark, violet-suffused females of *B. napaea* were also frequent in this riparian habitat. Still higher up on the scree slopes a few *E. pronoe* and one or two *Erebia gorge* Huebner flew with worn but very active *Pontia callidice* Huebner, but the prize was the large sooty *Erebia pluto* de Prunn. We risked multiple fractures pursuing these magnificent butterflies over the unstable grey stones. *Pluto* had the habit of inconsequentially skipping down as if to investigate the waiting net only to veer off suddenly when just beyond range. Then the stones would clatter and ring under foot as the unequal chase began! One female however settled a few feet in front of me on the scree and curving her abdomen she deposited an *ovum* on the underside of a small rock. I marked this and then searched carefully all around but the nearest living blade of grass I could detect was at least ten feet away. Occasionally *pluto* would approach the grassy areas at the edge of the rock slides but as soon as the insect found itself away from the scree it would show signs of alarm and a much faster flight pattern would be maintained until it found itself once more over the bare stones.

I have noticed a very similar habit among the males of *Erebia lefebvrei* Boisd. on the screes of the Sierra del Cadi in Spain. This *Erebia* occupies the same ecological niche in the Pyrenees and adjacent Sierras of northern Spain as does *pluto* in the Alps. Both butterflies are intensely dark and therefore perhaps share the facility of quickly absorbing heat reflected from the pale rock surfaces of scree. Rapid transfer of energy in this way may be essential to efficient flight at the high, relatively cool altitudes that both species frequent.

LEPIDOPTERA AT CANNA IN 1982. — The arrivals of the migrants here has been as follows: *Cynthia cardui* L., first seen on 9th June; a number of larvae found later, *Vanessa atalanta* L., first seen 11th June; others seen later, and larvae found; now frequent around buddleia in the garden. *Autographa gamma* L., first seen 9th June, others later; a pupa found on a thistle. *Nomophila noctuella* D. & S., in trap on 29th July.

All the resident butterflies have flourished in the hottest and driest summer I can remember here; this particularly applies to *Pieris napi* L., *Argynnis aglaja* L., *Boloria selene* D. & S., *Pararge aegeria* L. and *Hipparchia semele* L. On the other hand, moths have been less numerous, and trap catches disappointing. The only interesting capture has been a specimen of *Deilephila elpenor* L. on 25th June. Recently there has been an outbreak of *Cerapteryx graminis* L., and visitors repeatedly report seeing *Abraxas grossulariata* L. which has been common this year. — J. L. CAMPBELL, Farm Office, Isle of Canna, Hebrides.

SOME SAWFLIES FROM WHITLAW MOSS NATURE RESERVE, SOUTHERN SCOTLAND, WITH A SPECIES NEW TO BRITAIN (HYM.: SYMPHYTA)

By ANDREW D. LISTON*

Abstract

30 spp. of sawfly are recorded from Whitlaw Moss National Nature Reserve in Southern Scotland. *Pristiphora micronematica* Malaise is an addition to the known fauna of the British Isles; 7 other rare or local species are discussed.



Fig. 1. Penis valve of male *Pristiphora micronematica* Malaise

Introduction

On 22.5.81 and 3.7.81 Mr. J. M. Nelson and the author visited Murder and Blackpool Mosses (NT 505285 and NT517290) in order to sample the sawfly fauna. Aided by good weather during these visits, several noteworthy species were found.

The two mires form part of the Whitlaw Moss National Nature Reserve, situated in Roxburghshire and Selkirkshire. Their interest lies in their wide range of rich-fen communities fed by base-rich ground water. These range from closed *Salix* carr (mainly *cinerea* with some *pentandra*) to open bryophyte-rich carpets and tall-herb communities. Though the reserve was created primarily to safeguard the unique plant communities, several interesting insect species have since been found there: for example, *Coniosternum tinctinervis* Becker (Diptera, Scathophagidae) and *Hydroporus glabriusculus* Aube (Coleoptera, Dytiscidae) were first found in Britain at this locality (Nelson, 1972; Sinclair, 1976).

A considerable boreal element appears to be present in both flora and fauna: e.g. *Dactylorchis purpurella* and *Corallorhiza trifida* (Orchidaceae), certain *Carex* spp. (Cyperaceae) and a large number of insects. This can be explained partly by the relatively high altitude (274m.) and partly by the relict nature of the mosses. *Pristiphora micronematica* Malaise, here introduced to the British list, together with *Phyllocolpa acutiserra*, *P. excavata* and *Nematus*

monticola are all species with markedly boreal distributions. The other sawflies have wider distributions, occurring throughout most of northern and central Europe. All of the boreal sawfly species so far recorded at Whitlaw are associated with the *Salix*, particularly *S. pentandra* which itself is a typically northern plant. Of the species feeding on the plants in the herb communities, most are widespread, but a few are more characteristically southern in distribution (*Allantus calceatus*, *Perineura rubi*). It is interesting that all of the sawflies found at Whitlaw occur in Finland (Saarinen, 1950) and most reach at least as far north as southern Lapland.

All but three specimens were captured during the visits made on 22.5 and 3.7.81, mostly by sweeping. The three others were trapped in orange bowls during May 1980 by Mr. Nelson. The material is now in the author's collection.

Species new to Britain

Pristiphora micronematica Malaise, 1931

= *Lygaeophora leucostoma* Lindqvist, 1952

1 ♂ from *Salix* 22.5.1981.

Full descriptions of both sexes of this species are given by Lindqvist (1952), as *L. leucostoma* Lindqvist. The British specimen was at first thought to be the male of the related *P. lanifica* (Zaddach & Brischke), recently added to the British list on the basis of some females from Edinburgh (Liston, 1981). Further examination showed that it could not possibly be a male *lanifica*, but that it was likely to be a representative of *micronematica* Malaise. It corresponds well with Lindqvist's description of *leucostoma*, and the structure of its penis valve confirms its identity. The sawfly will key to the "C Groups" in Benson (1958). *P. breadalbanensis* (Cameron) and its close allies bear a superficial resemblance to *micronematica*, but examination of the penis valve (Fig. 1) will safely separate the latter.

Below are summarised the most important external characters for the separation of *P. lanifica* and *P. micronematica* as set out by Lindqvist and checked as far as possible against the specimens available to me:

lanifica (Z. & B.) ♀ and ♂. Always with pale marked mesopleura. Underside of abdomen usually with several sternites pale marked. Mesopleura as densely sculptured as lateral lobes of mesonotum. Claws bifid. 3rd and 4th antennal segments subequal in length.

micronematica Malaise ♀ and ♂. Mesopleura always completely black. Underside of abdomen completely black except for hypopygium. Mesopleura feebly sculptured and more shining than lateral lobes of mesonotum. Claws with small inner tooth. 3rd antennal segment much shorter than 4th.

Differences in the saw and sawsheath of the female and the penis valve of the male are also useful (see figures in Lindqvist, 1952). Lindqvist (*l.c.*) records that the femora of most of his Finnish specimens are black. Those of the Scottish male are completely

pale. Variation of this sort is widespread in the Nematinae and seldom of significance.

Benson's (1958) "C Groups" of *Pristiphora* comprise an ecologically fascinating assemblage of smaller, unrelated species-groups whose only common characteristics are their boreal and arctic-alpine distributions and their (usually) sculptured mesopleura. Benson's synthetic groupings of *Pristiphora* species are nevertheless very convenient. More formal division of the genus into several genera or subgenera (eg. Konow, 1902 & 1904; Lindqvist, *l.c.*) has invariably proved inadequate because such groupings have mainly been based on arbitrary ranges of similarity in genitalia. Neither the importance of other morphological characters nor the value of biological data have been taken into account, and one often finds that species with very similar saws for example, can not possibly be closely related. I can see no useful purpose in the retention of these so-called subgeneric names, which in the past have been applied to mere species-groups. Though Lindqvist (*l.c.*) was able to define his subgenus *Lygaeophora* in both sexes using fairly distinctive features (Liston, 1981), I follow Smith (1979) in treating it as synonymous with *Lygaeonematus* Konow, which itself is best treated as a synonym of *Pristiphora* Latreille. In such a large genus as this, synthetic groupings of species such as adopted by Benson (1958) are less cumbersome than the use of subgeneric names of doubtful validity.

Malaise (1931) described *micronematica* from Kamtchatka. Lindqvist (1952) erected a new species, *leucostoma*, for Finnish specimens which had previously been called *micronematica* by various authors. Lindqvist (1971) realised that his *leucostoma* was a form of *micronematica* and synonymised the species. Since the publication of Lindqvist's (1952) revision, *P. micronematica* has been recorded under the name *leucostoma* in northern Canada by Benson (1962). Further records indicate that *micronematica* occurs in Swedish Lapland, Norway and northern Russia (Kontuniemi, 1965). It appears to be the commonest species of the group in Finland, and is particularly abundant in the southern provinces. It is therefore not a particularly surprising addition to our fauna. Perhaps *micronematica* will be found to be a more widespread species in Britain than the less easily overlooked *P. lanifica* (Z. & B.).

Hellén (1975) wrongly synonymised *micronematica* with *lanifica*, but there are numerous biological differences apart from those morphological ones mentioned above. The larva of *micronematica*, briefly described by Lindqvist (*l.c.*), is a solitary leaf-edge feeder on smooth-leaved boreal *Salix* spp. Those of *lanifica* are semi-gregarious leaf-edge feeders on rough-leaved *Salix* (Liston, in press).

Species of special interest

Empria pumila (Konow)

1♀ 22.5.81. Benson (1952) records this species in various southern English counties, Ireland, Perthshire and Invernesshire.

Allantus truncatus (Klug)

1♀ May 1980 (Nelson), trapped in orange bowl placed in *Phragmites*. 1 ♂ 3.7.81. Benson (1952) records this species as uncommon in S. England, and notes that Cameron took it at Rannoch, Perthshire. The Whitlaw female has an entirely black abdomen, thus causing it to resemble *A. melanarius* (Klug), but it does not seem to differ in any other way from typical white-banded *C. European truncatus* females. Conversely, the male, which normally has a completely black abdomen, in this case has its 5th tergite white-marked.

Amauronematus fallax (Lepeletier)

1♀ 22.5.81. Probably local throughout Britain and Ireland, but there are no previous records for Scotland south of Perthshire.

A. fasciatus (Konow)

1♀ 22.5.81. Local and scarce north to Invernesshire, and in Ireland (Benson, 1958).

Phyllocolpa acutiserra (Lindqvist)

1♀ 22.5.81. Single previous British specimen is from Isle of Rhum (Benson, 1958). Whitlaw seems a surprising locality for this species, but the saw of the specimen is unmistakable. *P. acutiserra* is typically arctic-alpine, occurring in Norway, Finland, Scotland, Austrian Tirol, North Russia and Canada. Vikberg (1970) records *Salix lapponum*, *S. glauca* and *S. hastata* as foodplants, but the range is probably wider.

P. excavata (Marlatt)

1♀ 22.5.81. Previously in Yorkshire, Roxburghs., W. Lothian, Midlothian, Stirlings., and Ireland.

Nematus monticola (Thomson)

1♀ 22.5.81. Previously known from Malham Tarn (Yorks.), Clydesdale (Benson, 1958) and Moor House NNR in Westmorland (Nelson, 1971). Rare in Europe at widely separated localities from northernmost Lapland (Inari) to the Yugoslavian Mts. (Kosovo).

Other species

Trichiosoma lucorum (L.), *Dolerus cothurnatus* Lepeletier, *D. aeneus* Hartig, *D. niger* (L.), *Empria alector* Benson, *Allantus calceatus* (Klug), *Eutomostethus luteiventris* (Klug), *Monophadnoides geniculata* (Hartig), *Perineura rubi* (Panzer), *Tenthredo moniliata* Klug, *T. velox* F., *Sharliphora amphibola* (Förster), *Pristiphora pallidiventris* (Fallén), *P. sp. near quercus* (Hartig) (*Betula* "race"), *Amauronematus tillbergi* Malaise, *A. histrio* (Lepeletier), *Euura mucronata* (Hartig), *Phyllocolpa coriacea* (Benson), *Pontania col-lactanea* (Förster), *P. bridgmanni* (Cameron), *P. viminalis* (L.), *Nematus bergmanni* Dahlbom.

Acknowledgements

I thank Mr. J. M. Nelson (Nature Conservancy Council, Edinburgh) for making my visits to Whitlaw possible, for collecting specimens and for advice on the manuscript. Dr. K. P. Bland and Dr. M. R. Shaw also kindly gave me specimens collected during the second visit.

References

- Benson, R. B. 1951. Hymenoptera Symphyta. *Handbk. Ident. Br. Insects*, 6 (2a): 1-49.
- Benson, R. B. 1952. Hymenoptera Symphyta. *Handbk. Ident. Br. Insects*, 6 (2b): 51-137.
- Benson, R. B. 1958. Hymenoptera Symphyta. *Handbk. Ident. Br. Insects*, 6 (2c): 139-252.
- Benson, R. B. 1962. Holarctic Sawflies (Hymenoptera: Symphyta). *Bull. Br. Mus. nat. Hist., Ent.*, 12: 379-409.
- Hellén, W. 1975. Die Nematinen Finnlands IV (Hymenoptera, Tenthredinidae). Gattung *Pristiphora* Latreille. *Notulae Ent.*, 55: 97-128.
- Konow, F. W. 1902. Die Nematiden -Gattung *Pristiphora* Latr. (Hymenoptera, Tenthredinidae), soweit dieselbe bisher aus der palaearktischen Zone bekannt ist, systematisch und kritisch bearbeitet. *Ann. Mus. Acad. Sc. St. Petersb.*, 7: 161-187.
- Konow, F. W. 1904. Revision der Nematiden-Gattung *Lygaeonematus* Konow. *Z. syst. Hym. Dipt.*, 4: 193-208.
- Kontuniemi, T. 1965. Die Sägewespen des ostlichsten Fennoskandiens und einiges über ihre Chorologie. *Ann. Ent. Fenn.*, 31: 246-263.
- Lindqvist, E. 1952. Über alte und neue *Lygaeonematus*-Arten (Hym., Tenthredinidae). *Notulae Ent.*, 32: 80-119.
- Lindqvist, E. 1971. Einige von R. Malaise aus Kamtschatka beschriebene Nematinen (Hym., Tenthredinidae). *Notulae Ent.*, 51: 124-129.
- Liston, A. D. 1981. *Pristiphora (Lygaeophora) lanifica* (Zaddach, 1882) new to Britain (Hymenoptera, Tenthredinidae). *Ent. Gaz.*, 32: 181-184.
- Liston, A. D. in press. Neubeschreibung der Larve von *Pristiphora lanifica* (Zaddach) (Hym., Tenthredinidae). *Ann. Ent. Fenn.*
- Malaise, R. 1931. Entomologische Ergebnisse der schwedischen Kamtschatka-Expedition 1920-22. 35. Beitrag (Tenthredinidae). *Arkiv. Zool.*, 33A(8): 1-68.
- Nelson, J. M. 1971. The Invertebrates of an area of Pennine Moorland within the Moor House Nature Reserve in Northern England. *Trans. Soc. Brit. Ent.*, 19: 173-235.
- Nelson, J. M. 1972. *Coniosternum tinctoris* Becker, a Scatophagid Fly new to Britain (Diptera). *Ent. Gaz.*, 23: 247-248.
- Saarinen, A. 1950. A check-list of the sawflies of Eastern Fennoscandia. *Suom. Hyönt. Aikak.*, 16: 71-83.
- Sinclair, M. 1975. *Hydroporus glabriusculus* Aube (Col., Dytiscidae) new to the British Isles. *Entomologist's mon. Mag.*, 111: 117-121.
- Smith, D. R. 1979. in Krombein, K. V., et al., Catalog of Hymenoptera in America North of Mexico. 1: 3-137. Smithsonian Institution, Washington, D. C.
- Vikberg, V. 1970. The genus *Pontania* O. Costa (Hym., Tenthredinidae) in the Kilpisjärvi district, Finnish Lapland. *Ann. Ent. Fenn.*, 36: 10-24.

G. R. SUTTON. — As we go to press, we hear of the sad news of the death on the 3rd of June, in the Southend General Hospital after a brief illness, of Mr. Gresham Rhodes Sutton of Westcliffe-on-Sea, Essex. Born on the 21st of May 1898, Mr. Sutton was thus 84 years of age at the time of his death. His interests were in the lepidoptera and coleoptera. — J. M. C.-H.

ARGYRESTHIA TRIFASCIATA STAUDINGER, 1871
(LEP.: YPONOMEUTIDAE) IN BRITAIN

By A. M. EMMET*

Mr. R. A. Softly took an example of this species in a Heath actinic light-trap on or about the 3rd of June, 1982 at Hampstead. The trap is situated on the top balcony of a block of flats, facing south and overlooking the British Rail station of Hampstead Heath (map reference TQ 274856). It is some 40 feet above ground level and 20 or 30 feet away from the crowns of sycamores and a poplar. Although canopy-feeders come to this elevated trap (*Microthrix similella* (Zincken), seldom encountered anywhere, turned up once on the 7th of July, 1980), in certain weather conditions small low-flying species also occur in numbers; for example, as many as 30 *Lyonetia clerkella* (Linnaeus) have appeared on a single night. It follows that the unusual siting of the trap is not necessarily of significance for this capture.



Fig. 1 *Argyresthia trifasciata*, Hampstead vi.1982. Enlarged approx. x 8.

The trap is run regularly by Mr. Softly for recording purposes. When a species of Microlepidoptera turns up which belongs to a family with which he is not familiar but is distinctively enough marked to be readily identifiable, he retains it for reference to a fellow entomologist. *Argyresthia trifasciata* fell into this category; it is described by Frey (1880: 385) as a charming little creature which is extraordinarily easy to recognise. Mr. Softly showed it to me and when I expressed the opinion that it was an *Argyresthia* new to Britain, he left it with me for further research. I described it over the telephone to the Rev. D. J. L. Agassiz, who is specialising in the Yponomeutidae, and he at once suggested that it was *A. trifasciata*. I then sent the moth to the British Museum (Natural History), where Dr. J. D. Bradley confirmed the determination.

The species was discovered by Anderegg in the Swiss canton of Valais and described by Staudinger (1871:425). It has since been found also in the French Alps and in Ardèche, a department in the extreme south-east of the Massif Central (Lhomme, 1939-46).

*Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

According to Lhomme, the foodplants are *Juniperus sabina*, *J. phoenicea* and *J. thurifera*. All three occur in Britain as naturalised introductions, having been first imported in 1548, 1683 and 1752 respectively. However, only *J. sabina* thrives; it is to be found in many gardens and is commonly stocked by nurserymen (Dallimore & Jackson, 1923: 259). Fresh supplies are probably obtained periodically from the Continent and *A. trifasciata* may have been accidentally imported on its foodplant. This explanation has already been offered for the presence of *Gelechia sabinella* Zeller (Gelechiidae) which feeds on the same foodplant (Agassiz, 1978). There is a nursery stocking juniper species only a quarter of a mile from the site of the trap, which may have been the source of this specimen; its supplies are obtained from a grower in Hertfordshire but it is not yet known whence the latter firm acquires its stock.

Lhomme does not say how the larva feeds. We have five species of *Argyresthia* in Britain which have our native juniper (*J. communis*) as their host plant; two feed in shoots, two mine needles and one feeds in late summer in green berries. One of these methods of feeding is likely for *A. trifasciata*. The adults fly in France from late April until June, possibly rather too early for the larva to have mined young shoots. The species is not listed as a leaf-miner by Hering (1957), but this may be due to absence of information and is not conclusive. This leaves the fruits as marginally the most likely pabulum.

Description of the imago

Wingspan c. 9mm. Head with vertex rough-haired, white. Antenna whitish, annulated black, the annulations obsolescent beneath; labial palpus pale golden. Thorax and tegulae glossy golden. Forewing glossy golden; white fasciae at one-fifth and two-fifths, both direct, and one at three-fifths, inwards-oblique; irregularly-shaped subapical and tornal white spots tending to coalesce to form a fourth, inwards-oblique fascia; subcircular white spots on costa at one-half and at apex; cilia concolorous with wing. Hindwing pale grey.

The species should follow *Argyresthia ivella* (Haworth) and be given the log book number 409a (Bradley & Fletcher, 1979).

Mr. Softly, at whose request I am writing this paper, has presented the specimen to the British Museum (Natural History). He is to be congratulated on making this interesting and attractive addition to the British list. My thanks are due to the Rev. D. J. L. Agassiz and Dr. J. D. Bradley for making and confirming the determination respectively. I also thank Dr. Bradley for the photograph, and Mr. E. S. Bradford for preparing it for publication.

References

- Agassiz, D. J. L., 1978. *Gelechia sabinella* (Zeller) (Lepidoptera: Gelechiidae), a species new to Britain. *Entomologist's Gaz.* 29: 136-138.

- Bradley, J. D. & Fletcher, D. S., 1979. *A recorder's log book or label list of British butterflies and moths*, 136pp. London.
- Dallimore, W. & Jackson, A. B., 1923. *A handbook of Coniferae*, 570pp, 120 text figs, 31 pls. London.
- Frey, H., 1880. *Die Lepidopteren der Schweiz*, xxvi. 454pp. Leipzig.
- Hering, E. M. 1957. *Bestimmungstabellen der Blattminen von Europa*, 1 & 2, 1185pp., 3, 221pp., 725 figs. s'Gravenhage.
- Lhomme, L., 1939-46. *Catalogue des Lepidoptères de France et de Belgique*, 2(2): 173-487. Le Carriol, par Douelle (Lot).
- Staudinger, O., in Staudinger, O. & Wocke, M. F., 1871. *Catalog des Europaeischen Faunengebeits*, xxxviii, 426pp. Dresden.

AGONOPTERIX ASTRANTIAE HEINEMANN IN HAMPSHIRE. —

On 9th June 1982 I found six larvae of this species on *Sanicula europaea* in a beech wood near East Meon. The moths emerged from 25th - 27th June, and this is the first record of *astrantiae* in Hampshire. During the last instar many of the larvae bite partially through the upper part of the leaf stalk causing the leaf to wither, and then continue to feed in the wilting folded leaf. This may explain why so few larvae had previously been found, because the leaf then droops below the level of the healthy leaves of the foodplant necessitating careful parting of the leaves in order to find the larvae. This habit was observed independently this year by H. N. Michaelis. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants PO4 ONH.

LOW NUMBERS OF LEPIDOPTERA IN 1981. — My impression Cumbria is that 1981 was about the poorest year for Lepidoptera on record. Admittedly owing to advancing years I did far less hunting around than I used to do; but it is certainly indisputable that when I was out around I could find very few specimens of even the commoner species. For instance, on a visit to an area of limestone grassland near the Fair Steps, Beetham, where there is usually an abundance of Lepidoptera in warm sunshine on July 12th the scarcity was most depressing. I expected to find *Aricia artaxerxes salmaceis* Stephens still out in good numbers, but saw just one. Usually in this area of what used to be South Westmorland, this butterfly is out from about June 15th to July 20th. Other butterflies were very scarce, but two moths helped to save the situation. *Zygaena filipendulae* L. and *Phoethedes captiuncula* Treits., both of which were in good numbers. I even got a photograph of *P. captiuncula* sitting on a leaf — I had almost despaired of ever managing to photograph the moth, for when it is not wildly flying it usually dives deep down in the grass and is disturbed at the slightest touch of the vegetation — a most elusive insect.

The same story of paucity is true of my Mercury Vapour Trap, which I have admittedly operated only spasmodically. But on nights which I selected for operation the results were very sparse, and there were no surprises except negative ones! For instance, I never saw one *Amathia xanthographa* D. & S. Perhaps the nearest to a positive surprise was *Dasytopia templi* L. on October 1st. Does my experience tally with that of most other Lepidopterists? — Rev. J. H. VINE HALL, "Rivendell" 3, The Green, Melmerby, Penrith, Cumbria CA10 1HG.

FLYING CROOKED

By J. S. PHILLPOTTS*

The butterfly, a cabbage white
(His honest idiocy of flight)
Will never now, it is too late,
Master the art of flying straight,
Yet has — who knows as well as I? —
A just sense of how not to fly:
He lurches here and here by guess
And God and hope and hopelessness.
Even the acrobatic swift
Has not his flying crooked gift.

Robert Graves

The enormous area of a butterfly's wings must be there for some better purpose than advertisement to its mate. It also advertises itself to all the birds in the neighbourhood and is often attacked by them.

One advantage of these large wings is that they allow the butterfly to use relatively slow, deliberate wing beats, which are under excellent control. A meadow brown will fly through the close stems of tall grass without touching them and butterflies can sail straight through fruit cage netting and out the other side without hesitation. Both these feats require co-ordination between eye and wing of a high order.

This leads on to a flying butterfly's tactics as it is attacked by a bird. Like the slow flying enemy aeroplanes in the last war it is more manoeuvrable than they are 'it lurches here and here by guess' and they miss it over and over again. When they do manage to strike from above it closes its wings in the bird's face and the bird may remove a symmetrical portion of both wings or leave a mark as it tries to obtain a better grip and the butterfly escapes. (E. B. Ford, *Butterflies*, plate 10f and p.244). In attacks from the side only one wing is used for protection and a piece may be removed. The bird frequently attacks from the rear where the body is least well protected by the wings (apart from in front, which has its own disadvantages) but even then it usually escapes by its flying crooked gift. If only small areas of wing are missing it can avoid capture but if sufficient had been removed its agility is reduced and eventually it is caught and brought to the ground to be torn to pieces and eaten. Small butterflies are obviously at more risk from aerial attacks from birds, and in fact they usually fly near the ground.

These tactics give good defence against birds, which fly fast. (Do herons ever take butterflies on the wing? With their long necks and

*11 Little Warren Close, Guildford, Surrey.

beaks they might well do so if their paths coincided) but they are not so good against bats whose slower flight has something of the same character as the butterflies', and perhaps this is one reason why so few butterflies fly at night.

Summary

Butterflies' large wings have obvious disadvantages but two chief advantages:—

- (1) To attract mates. At a distance sight is often a better advertisement than scent, though this is disputed.
- (2) As a defence against attacks by birds. The mechanism of the latter is discussed.

Acknowledgements

I should like to thank E. B. Ford and Collins Publishers for permission to quote from *Butterflies*. I also acknowledge Robert Graves' permission to include the poem "Flying Crooked" from his *Collected Poems*.

TWO FURTHER RECORDS OF *BARYPEITHES SULCIFRONS* (BOHEMAN) (COL.: CURCULIONIDAE) FROM WEST CUMBRIA. — My first record of *Barypeithes sulcifrons* (Boheman) from Cumbria was based on one dead specimen found at Silecroft, (1979, *Entomologist's Record*, 91: 27). I can now add two further localities for this species from the county. Several live adults were taken by general sweeping along the edge of a field near Kirksanton Haws, SD13/79 on June 16th 1980. The vegetation at this site consisted mainly of grass, with a good deal of *Rumex acetosella* L. and *R. acetosa* L. My second locality was on Black Come, SD13/84. On March 13th 1982 I found one specimen resting on the undersurface of a small flat stone lying among short grass turf and Bilberry, *Vaccinium myrtillus* L., at about 411 metres on a steep south east facing slope, above Black Crags.

Some remains of dead specimens of *B. sulcifrons* were also found at the base of other bulberry plants growing close by. It is possible that these individuals may have fallen prey to some large spiders which were observed under stones in the immediate vicinity.

On a previous visit to Black Combe I collected a few other interesting beetles and among these was the typical montane weevil, *Otiorhynchus nodosus* (Muller, O. F.). On 4th April, 1980, I took a few individuals from under small stones and also at the base of heather, *Calluna vulgaris* (L.) Hull, in an area of boulders and sparse vegetation near the summit at about 480 metres. *O. nodosus* was recorded from the county by F. H. Day, (1923, *Trans. Carlisle Nat. Hist. Soc.*, 3: 99) and specimens in the Day collection held in the Tullie House Museum at Carlisle are from Grisedale Pike, (NY12), Cumrew Fell, (NY55) and Crossfell. So far I have not discovered any published records of *O. nodosus* from the extreme west of the county. — R. W. J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

A REVIEW OF THE INDIGENOUS BRITISH
MACROLEPIDOPTERA FOR 1981

PAUL SOKOLOFF*

This review is intended to complete the quartet of annual reviews covering the butterflies, microlepidoptera, macrolepidoptera and immigrants. 1981 will be remembered for the generally dismal nature of the season for larger moths, but a number of features deserve mention – the publication of two new books, the discovery of a Geometrid moth new to Britain, and the coming of the Wildlife and Countryside Act 1981. This act probably represents the most sinister development to affect entomologists for many years. Five species of moth are “protected” – *Thetida smaragdaria* F. (Essex emerald); *Zygaena viciae* D. & S. (New Forest burnet); *Pareulype berberata* D. & S. (barberry carpet); *Acosmetia caliginosa* Hbn. (reddish buff) and *Siona lineata* Scop. (black-veined moth). Fines of up to £1000 can be levied for each specimen taken or possessed illegally. Offending entomologists therefore risk almost certain penury and possible incarceration from the injudicious use of their nets in certain localities. A more objective view of the Act is given by Stubbs (1982 a and b) and Lonsdale (1982).

Two major publications dealing with the macrolepidoptera were launched in 1981, the first being “An Identification Guide to the British Pugs” – a much needed volume featuring excellent colour plates, informative text and genitalia drawings. The second was a limited edition of “The Larvae of the British Lepidoptera not Figured by Buckler”, by G. M. Haggett. 35 colour plates illustrate some 78 species or sub-species, with detailed text. Both were published by the BENHS. A number of interesting papers have appeared in other journals – a detailed discussion of genetic explanations for all-female broods of *Philudoria potatoaria* L. is worth reading (Majerus, 1981a). Dr Majerus also discusses the genetics of the attractive form *subroseata* of *Cyclophora albipunctata* Hufn. (Majerus, 1981b). Foodplant and parasite differences between our two copper underwing species *Amphipyra pyramidea* L. and *A. berbera svenssoni* Fletch. are dealt with by Shaw (1981). Of passing interest to British entomologists are two Danish papers (Kaaber, 1980 and 1981) on the bionomics and systematics of some Danish *Eupithecia* species. These detailed, illustrated papers conclude that *Eupithecia goosensii* Mab. is only a sub-species of *E. absinthiata* Clerck, and that *E. fraxinata* Crewe is a sub-species of *E. innotata*.

From a field entomologist's point of view the year as a whole could be described as “poor”, although little weight can be given to such subjective descriptions. The only quantitative data that can be offered stem from a static trap in Kent which yielded 9.6% fewer species than 1980 and 9% fewer individuals. Some correspondants were pleased to report depressed numbers of *Noctua pronuba* L. and *Apamea monoglypha* Hufn., although some species were noted

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in enhanced numbers – for example *Mormo maura* L. in Southern Counties and *Tyria jacobaeae* L. in Northern England. *Clostera anachoreta* D. & S. became newsworthy in 1979 when a significant number of individuals and larvae were captured at Dungeness, Kent. More were seen in 1980, and many thousands of bred larvae were released at Dungeness that year. Very few were reported in 1981, all during August with no reports of first brood specimens of this supposedly bivoltine species. Because of the numerous releases it is impossible to assess the status of this species but presumably it can be classified as temporarily established following an immigration in (?) 1978. In a broadly similar category is *Deltote bankiana* F. which was noted again from Sandwich in Kent.

In times of general ecological doom it is pleasing to see insects extending their range and colonising new habitats. *Idaea vulpinaria* H.-S. continues to spread into Kent and Essex from the Thames Estuary, often occurring in new localities in considerable numbers. The foodplants of this species were reviewed by West (1980). *Lithophane leautieri* Boisd. continues to occur in new localities throughout Southeast England, and northwards to Warwickshire where a second specimen was noted in 1981. The early larvae of this species are reputed to require the flowers of *Cupressus macrocarpa*, and the spread of the moth has been linked with the progressive maturation of planted *macrocarpa* specimens. Associated with the same foodplant is *Eupithecia phoeniceata* Rambur whose easterly spread along the south coast is well documented. The moth is now reported well established in Eastbourne, Sussex. There are scattered records for Kent (although none for 1981), and a single specimen recorded from Tilbury, Essex, in August 1981.

Rhyacia simulans Hufn. continues the southerly extension of its range into Kent, being recorded from many localities in Northern Kent, with a single specimen from Dungeness. *Aporophyla nigra* Haw. is also advancing into Kent from Surrey, although at a more leisurely pace, occurring in good numbers in a few localities. Other notable captures during 1981 include a gravid female *Catocala fraxini* L. in Hampshire, *Schrankia costaestrigalis* Steph. from Dartford, Kent (the first record here for around 70 years) and *Hypena crassalis* Fab. from the same locality, far away from its normal bilberry habitats. An article by Brian West on the foodplants of *Camptogramma bilineata* L. provoked a brief correspondence, and as a result five new natural foodplants for this common species were reported. One wonders how much useful, unpublished information on larval foodplants still languishes in the diaries of entomologists. *Nola confusalis* larvae were also noted feeding on lime-blossom in Norfolk. *Hemaris fuciformis* L. was noted in many of its known localities in Southern England, but no reports of *H. tityus* L. reached the reviewer's ears. Surprisingly for such a poor year a number of species were recorded on rather perverse dates ranging from a *Phlogophora meticulosa* L. on 17th January to *Miltochrista miniata* Forst. on 16th September.

Three species were added to the British list in 1981: two of these being accidental imports – *Antichloris eriphia* Fab. (Ctenuchi-

dae) bred from banana and *Palpifer sexnotatus* Moore (Hepialidae) bred from tubers of arum lily. However the most outstanding discovery of the year was the feathered beauty, *Peribatodes secundaria* D. & S. in a Kentish woodland popularly known as "Ham Street". The moth was noted in considerable numbers and one wonders how such a large moth resident in such a well-worked locality escaped attention. All credit to Bernard Skinner whose illustrated paper on this species (Skinner, 1981) separates *secundaria* from its congener *P. rhomboidaria* D. & S.

It is hoped that future years will produce a more balanced coverage of the country, and correspondants are invited to send details of interesting 1982 observations as soon as convenient. My thanks to those entomologists who provided comments on 1981, in particular, N. Birkett, R. G. Chatelain, F. H. Clouter, N. F. Heal, S. M. Jackson, M. Parsons.

References

- Kaaber, S., 1980. Om artsretten for *Eupithecia goosensiata* Mab. og *E. fraxinata* Crewe. *Lepidoptera* NS.3:307-311
- Kaaber, S., 1981. *Eupithecia innotata* Hufn. og dens danske former. *Lepidoptera* NS. 4: 41-49
- Lonsdale, D., 1982. The Wildlife and Countryside Act 1981. *Bull. Amat. Ent. Soc.*, 41: 123-130
- Majerus, M. E. N., 1981a. All female broods of *Philudoria potatoria*. *Proc. Trans. Br. Ent. Nat. Hist. Soc.* 14: 87-92
- Majerus, M. E. N., 1981b. The inheritance of *Cyclophora albipunctata* Hufn. form *subroseata* Woodforde. *Entomologist's Gaz.* 32: 161-164
- Skinner, B., 1981 *Peribatodes secundaria* D. & S. in Kent: a species new to Great Britain. *Entomologist's Rec. J. Var.* 93: 181-182
- Shaw, M. R., 1981. Possible foodplant differences of *Amphipyra pyramidea* L. and *A. berbera svenssoni* Fletcher and a note on their parasites. *Entomologist's Gaz.* 32: 165-167
- Stubbs, A. E., 1982a. The Wildlife and Countryside Act 1981. *Entomologist's Rec. J. Var.* 94: 57-59
- Stubbs, A. E., 1982b. The Wildlife and Countryside Act 1981. *Bull. Amat. Ent. Soc.* 41: 130-138
- West, B. K., 1980 *Sterrha vulpinaria* H.-S. and a second natural larval foodplant. *Entomologist's Rec. J. Var.* 92: 31-32
- West, B. K., 1981. Larvae of Yellow Shell in nature on *Cardamine flexuosa*. *ibid.* 93: 198

THE STRIPED HAWKMOTH IN DEVON IN 1980. — A single specimen of *Hyles lineata livornica* Esper was taken by a Robinson M V light trap (125 watt) operated by Mrs. L. J. Craik at "Aberlemno", Down Road, Tavistock, Devon on 4 June 1980. It was photographed and released. The record should be added to the comprehensive records (two other specimens in Britain in 1980) given by Bretherton & Chalmers-Hunt in *Ent. Rec.* 93 47-54. — Dr. J. C. A. CRAIK, Dunstaffnage Marine Research Laboratory, P.O.Box 3, Oban, Argyll, PA34 4AD.

SOME NOTES ON BREEDING
CONISTRA STAUDINGERI DE GRASLIN
(LEP.: NOCTUIDAE) FROM THE E. PYRENEES

By B. GOATER*

The hamlet of St. Marsâl lies in the foothills of the Pyrénées Orientales a few km. to the north of Amélie-les-Bains Palada. On the night of 15-16 April 1981 I obtained at m.v. light there a female *Conistra* which I identified as *C. rubiginea* Denis & Schiffermüller. Knowing that this species is given to considerable variation in the south of France, I kept the moth in a plastic box provided with scored twigs of apple (*Malus*), and fed her nightly with sugaring mixture. On 28 April, it was observed that a number of eggs had been laid during the previous night on the twigs; more were deposited during the next few nights, and the young larvae started to hatch on 10 May. By 14 May, 50 had been found and transferred to another box where they were provided with apple leaves. They took to these readily, preferring the withering leaves that were starting to rot, and growing into what seemed to me to be typical, hairy, sluggish larvae of *C. rubiginea*, a species I had bred before from Surrey. Unfortunately, therefore, I neglected to observe closely and to take detailed notes of the structure and progress of the larvae, except to record from time to time that they were continuing to thrive. On 23 June, the first of them began to spin cocoons in vegetable debris on the surface of soil with which they had been provided, and even the stragglers had done so by the end of the month. The larvae remained unchanged in their cocoons until mid-August at least. Four moths emerged on 25 September, and a few (never more than five) almost daily until 21 October, the last during the fourth week of the month when I was away.

The moths that emerged, 51 in all, were extremely variable, and it soon became apparent that they were not *C. rubiginea* but *C. staudingeri* de Graslin, a species known from Portugal, Spain, E. Pyrenees, S. E. France and Switzerland. *C. staudingeri* is a smaller species than *C. rubiginea*, the wingspan in my series ranging from 30-32mm. compared to 34-36mm. in *C. rubiginea*. It is thus about the same size as *C. ligula* Esper, and indeed some specimens could easily be mistaken for it, though the forewing is slightly narrower, the costa straighter and the anterior half of the termen very straight, whereas in *C. ligula* it is very slightly concave and in *C. rubiginea* it is convex. The underside of the forewing possesses features which are helpful in distinguishing the three species:

In *C. rubiginea*, the ground colour is pale straw; the discal area is suffused with fuscous except along the veins and contains a large, blackish discal spot measuring c.1 x 2mm; the fringe is strongly chequered and there is a row of small dark terminal dots opposite the dark components of the fringe; the postmedian line is represented by a series of elongate fuscous spots.

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The hindwing, too, is pale straw coloured, with a fine, wavy postmedian line which is most conspicuous anteriorly, a series of large, fuscous, subterminal spots and a large, broadly crescentic discal spot.

In *C. staudingeri*, the ground colour is greyish buff and is devoid of contrasting markings; there is a delicate fuscous discal suffusion which fades abruptly at the almost invisible postmedian line and anteriorly about 2mm. before it, so there is a highly characteristic square-shaped pale area here, continuous with the pale terminal region, which just includes the very small, narrow discal spot; the whole wing is highly glossy.

The hindwing is finely freckled and is marked by a weakly undulate postmedian line, a few indistinct markings in the subterminal region and a large, crescent-shaped discal spot.

In *C. ligula*, the ground colour is reddish tinted, the whole of the basal region of the forewing to the postmedian line evenly suffused fuscous, and the outer part of the wing suddenly paler at the evenly curved postmedian line which runs from costa to dorsum.

The hindwing is heavily freckled reddish fuscous, the dark, narrow postmedian line moderately distinct, but the discal spot small and weakly developed.

My bred series of *C. staudingeri* may be classified as follows:

i) forewing deep fuscous brown, markings indistinct; costa sometimes with two small pale patches and up to six blackish dots, median line sometimes just visible as a strongly elbowed darker line, and dark patch in dorsal region of reniform stigma also sometimes just visible — ab. *obscurior* Oberthür (23 specimens)

ii) forewing very deep glossy reddish brown, without markings except for indications of pale and dark spots on costa (1 specimen)

(iii) forewing light reddish chestnut with fine, broken crosslines and speckles moderately distinct, with dark dorsal dot in reniform stigma and indication of elbowed median line — ab. *vaccinioides* Oberthür (10 specimens)

iv) forewing coloured and marked much as in *C. rubiginea*, the ground colour rather darker, in one specimen heavily suffused reddish fuscous in median area — ab. *multiscripta* Warren (3 specimens)

v) greyish fuscous, with yellowish tint, markings distinct, including small round orbicular stigma and reniform stigma, which contains a blackish dorsal spot — ab. *scortina* Staudinger (1 specimen)

vi) deep blue-grey, the area between antemedian and postmedian lines intensely suffused black; thorax deep reddish black (1 specimen)

vii) forewing dove-grey, markings reddish, moderately distinct; fringe reddish; thorax reddish — ab. *eos* Oberthür (7 specimens)

viii) forewing darker grey, markings fuscous, with little tint of red; fringe dark fuscous; thorax dark fuscous — ab. *livina* Staudinger (4 specimens)

ix) an individual resembling ab. *vaccinioides*, but with forewings reduced to one third the normal area (1 specimen).

The pupa (described from exuvia) of *C. staudingeri* is c. 14mm.

long, short and broad, rounded anteriorly and tapered posteriorly, the integument reddish chestnut, thin and highly glossy, with very fine puncta on abdominal segments and striae on wing cases; spiracles small, slightly raised; cremaster with two fine, closely set spines, the tips of which curl outwards. It is enclosed in a firm, oval cocoon of silk interwoven with fragments of soil and vegetable débris.

This work was carried out under MAFF licence No. PHF 30/37 issued under the Import and Export (Plant Health) (Great Britain) Order 1980 and the Plant Pests (Great Britain) Order 1980.

THE LARVA OF PERIBATODES SECUNDARIA D. & S. — A morning's hard beating in Orlestone Forest, Kent on 1st May 1982 produced one small larva of this moth from Norway Spruce. I believe this to be the first record of the larva in the wild in this country. — R. G. CHATELAIN, 65 East Drive, Orpington, Kent.

PHYLLONORYCTER DUBITELLA (H.-S.) AND COLEOPHORA LIMOSIPENNELLA (DUP.) IN SOUTH YORKSHIRE. — During a visit to Denaby Ings, near Mexborough on 17th July 1981 I collected a few *Phyllonorycter* mines from *Salix caprea* and from these three moths emerged in late July and August. As they appeared to be *P. dubitella* I made a search for further mines in October and November. They were not common for I found only about a dozen and from these seven moths were reared in March and April 1982. These latter moths had all the strigulae a golden colour without any trace of white, strongly edged inwardly with black and in this respect did not agree with the description in Bradley, Jacobs & Tremewan (*Ent. Gaz.* 20: 18) who state 'pattern pure white'. However Ffennell (*Ent. Gaz.* 21: 252) commented that his moths showed considerable variation in the amount of white, in some specimens this being much reduced both in area and brightness. I sent specimens to the Rev. D J. L. Agassiz and I am grateful to him and to Dr. I. Watkinson for confirming their identity. According to Agassiz (*Proc. Brit. Ent. Nat. Hist. Soc.* 13: 81) *dubitella* has previously been recorded only as far north as Worcestershire and Huntingdonshire.

In late June 1981 I found two cases of *C. limosipennella* on elm at Sprotbrough, near Doncaster and on 1st June 1982 I found twelve cases at the same locality on a roadside sapling elm. On an adjacent leaf to one of these cases was the excision made at the base of the leaf by the larva for its final case with the vacated overwintering case attached to the edge of the cut-out on the underside. Although there is evidence of larval feeding on this leaf it is not possible to determine whether this occurred before or after the excision of the final case. In his notes on the pre-hibernation history of this species Emmet (*Ent. Rec.* 92: 133-4) drew attention to the gap in our knowledge of the larval habits in spring prior to the final cases appearing in midsummer. Uffen in Emmet (1979:81) gives the distribution as 'south-east England' and this record appears to be the most northerly to date. — H. E. BEAUMONT, 7 Brampton Road, West Melton, Rotherham, South Yorks., S63 6AN.

FURTHER NOTABLE DIPTERA
FROM WINDSOR FOREST

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

The present contribution is a longer sequel to my short paper (Allen, 1965, with an addendum in 1968) recording some Syrphidae and other flies from this classic locality — in which I expressed the intention of adding to it in future years. Little was known of its Diptera at that time beyond a few remarkable discoveries made by the late H. Donisthorpe while investigating its Coleoptera, together with sporadic records by others. Since then, however — though no doubt much still remains to be done, even in the better-worked groups — great advances have been made. Mr. P. J. Chandler in particular has worked the Forest in recent years and published his captures in two papers listing the flies of certain families found in the Middle Thames area, bringing together also most of the previous records or captures of note from Windsor Forest (Chandler, 1971-2). (The second of these is devoted entirely to the Empididae.)

At about the same time, my late friend G. Shephard and I were enabled to make a series of collecting-trips to the Forest, with the kind assistance and support of the Nature Conservancy who desired information on the state of its insect fauna. Coleoptera being our primary object much of the time, Diptera had often to take second place; and, while I regard the results in that Order as quite satisfactory, it is likely that many further interesting species might have been found had we been able to give more time to it. The Nematocera (other than Bibionidae) and the more obscure and difficult Acalypterate families were not, or hardly, collected; and Mr. Shephard concerned himself only with the more conspicuous forms. Our visits extended over the better parts of the summers of 1971-3, but had perforce to be rather erratic and at times few and far between. We were fortunate, however, in meeting with most of the dipterous specialities of the area known from an earlier period; in the Syrphidae (the most prominent family) the principal exceptions are *Psilota anthracina* Mg. and a few species recorded by me in 1965 but not found by us in the 1970s.

I have not thought it necessary to list here species already dealt with in 1965, unless there is something noteworthy to add. Naturally, many of our captures were of such species. Those included are marked by brackets round the entry heading, indicating that, unlike the remainder, they are not additional to those already published by me. This being only a selection, and for reasons of space, I in general omit all that appear not to be either uncommon or very local — whether or not there happens to be a previous record for the area. I have tried to avoid merely repeating or 're-hashing' many of Mr. Chandler's records, which the present notes are designed as far as possible to complement. All our captures at Virginia Water (in the southern end of the Great Park) were on

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the Berkshire side. With one or two exceptions, nomenclature follows the 1976 Check List.

The following abbreviations are used: — H. Hill = the forest north of the Winkfield Road at or near Highstanding Hill; the Park = Windsor Great Park; G. S. = the late Mr. G. Shephard.

BIBIONIDAE

Several species of *Bibio* were met with, but there is a great dearth of up-to-date information on the British species and their distribution. *B. leucopterus* Mg., with its very dark-looking females, is not uncommon at H. Hill in late spring; the large and distinctive *B. pomonae* F., very local in the south-east, occurs sparingly about Badger's Bridge further north in the Forest in July; *B. varipes* Mg. and *B. lepidus* Lw. may also be worth a mention, the latter autumnal species from ivy in the Park (♂, 30.ix.64). The common and familiar *B. marci* L. (St. Mark's Fly) was bred freely from pupae found in a very rotten stump (Allen, 1974), apparently an unusual circumstance.

STRATIOMYIDAE

Oxycera pulchella Mg. — This very striking fly turned up twice, singly: by a small pool lacking vegetation, in the Park, 15.vii.72; and by the lake at Virginia Water, 16.viii.72. Like most of its congeners it is of very local occurrence.

RHAGIONIDAE

Chrysopilus laetus Zett. — Another handsome fly (little known abroad) of which the few British specimens had all been bred: the first from a puparium found in mud round a pond in the Park, 18.vi.36, by Donisthorpe (Oldroyd, 1939); in 1968 several were reared from larvae in rotten wood in the Forest by A. E. Stubbs and P. J. Chandler (Oldroyd, 1969:46 & Chandler, 1971:20). On 30th July, 1972, I caught one settled on a log in the Park, which seems to be the first British example taken at large. All so far have been females. The original specimen was recorded as the closely-allied *C. nubecula* Fall., an error corrected soon after (Collin, 1939). It should be noticed that the leading key-character used by Oldroyd (1969) is inconstant, it having since been found that the dark wing-clouds are not always developed; the orange body of *laetus*, however, is diagnostic among our few species.

TABANIDAE

Hybomitra bimaculata Mcq. (f. *bisignata* Jaen.). — A woodland horsefly; females not very scarce in the Forest about July. I first took one in 1940, and we found it (or rather, it found us!) sparingly in 1971-2. One was swept from rhododendron flowers, unusually for a Tabanid.

Tabanus bromius L. — Females occur both in the Forest (together with the last) and also quite widely in the Park, in July and August (first in 1940) in more open situations, probably feeding on the cattle which roam there freely; often sitting on palings, etc., at the edges of plantations, like the Asilid *Machimus atricapillus* Fall. The record of *T. miki* Brauer from the Park (Chandler, 1971) was incorrect, the specimen having since been found to be *bromius* (teste P.J.C.).

ASILIDAE

Dioctria linearis F. — A well-marked local species not uncommon over a wide extent of the northern part of the Forest in June and July, but we never found it elsewhere in the area.

Neoitamus cyanurus Lw. — H. Hill, apparently not rare. This robber-fly is a typical sylvan insect. One female had caught a *Bibio pomonae*, about as big as itself.

THEREVIDAE

(*Psilocephala melaleuca* Lw.). — A speciality of the area, seldom seen as an adult and still more seldom caught; see Allen, 1965; Chandler, 1971; but finds of the larva (seemingly hard to rear) indicate a wide distribution over the Park and Forest. On 4.vii.71, at H. Hill, I watched a ♀ *Psilocephala* zigzagging rapidly from side to side in front of an old dry red-rotten trunk of oak where a portion of the interior was exposed, a few inches above ground; but something alarmed it before the net could be brought into play, and it was not seen again. A week later, in very hot dry weather, many flies and other insects were congregating about a stretch of the margin of Badger's Brook in the Forest, among which were a few of the present species — the one or two males seen being easily picked out by their silver colour flashing in the sun as they flew. Capture was quite another matter, for not only was any fly that settled to drink quickly disturbed, but the stream-banks were thick with ferociously thorny brambles, making the use of a net most exasperating. However, G. S. with great dexterity succeeded in catching a ♀ in perfect condition, which he generously insisted on my taking. In July 1972 he bred a ♀ *melaleuca* from a full-fed larva obtained earlier that year in the Park, from mould and frass under loose oak bark where there were many larvae of the chafer *Gnorimus variabilis* L. Much more recently (late May 1981) I bred another ♀ from a larva found in red-rotten oak the previous autumn.

EMPIDIDAE

(*Drapetis ephippiata* Fall.). — Only seen previously in a small area of the Park between the Long Walk and Union Gate (Allen, 1968); not listed as from Windsor by Chandler. In July 1972 it was found to occur more widely, but still very locally, among

grass under some large elms perhaps $\frac{1}{4}$ mile from the first place. A very distinctive little fly, which I met with in two places in the Foulden district, Norfolk, in June 1979.

Platypalpus ciliaris Fall. — A frequent woodland species occurring in both the Forest and Park, included here because I bred a few examples from damp mould and debris taken from inside a cut elm stump, emerging in June; I have seen no previous breeding record.

Bicellaria intermedia Lundb. — One swept under oaks in the Park, I.vi.63. It cannot be common, as Collin (1961:257) records it from only five English counties (one of them Berks.). The usual Forest species is *B. nigra* Mg.; the very common *B. vana* Coll. I have not seen there.

Rhamphomyia sulcatella Coll. — A little-known species recorded by Chandler (1966, 1972) as quite general in the H. Hill area of the Forest in early May. Our visits were mostly too late for it, but I have a female taken there on 26.v.73.

Hilara obscura Mg. — A ♀ swept by the lake at Virginia Water, 5.viii.72. Hants. and Surrey are the only southern counties from which Collin records it.

(To be continued)

THE APPEARANCE OF A THIRD BROOD IN THE GREEN-VEINED WHITE : *PIERIS NAPI* (L.), AT MORTON LOCHS, FIFE, SCOTLAND IN 1981. — Since 1979 weekly butterfly transects have been made at Morton Lochs, Fife between April and September each year. The transects are made as part of the national monitoring scheme run from Monks Wood. In each of the three years Green-veined White have been shown to have two broods with the second ending in early September. In 1981, however, I was surprised to find fresh individuals on the wing on 13th September. The last individuals of the second brood which were very tattered had been seen the previous week. Fresh butterflies were seen over three weeks until the end of September when the recording scheme ends. Although there was little suitable flying weather I saw Green-veined Whites into the second week of October. No third broods were reported to Monks Wood from other Scottish recorders. Thomson (1980, *The Butterflies of Scotland*) has suggested that late specimens of this species might be from third broods, but there appears to be no other documented case from Scotland. P. K. KINNEAR, 11 Hillview Road, Balmullo, Fife KY16 0DE.

WHAT DOES ODONTOSIA CARMELITA ESPER EAT? — Does anybody know an alternative foodplant for *O. carmelita*? On 10/11 April, at Kirkclinton in Cumbria, a specimen came to a moth-trap, and I know of no birch within $\frac{3}{4}$ miles. No book I have suggests an alternative foodplant. As a matter of interest it was a night with a sharp frost, and the trap attracted no less than 99 moths. An *Orthosia stabilis* D. & S. that must have been an early arrival and had settled on the grass was actually white with hoar frost. — R. LOVELL-PANK, 33 The Highlands, Hatfield Road, Potters Bar, Herts EN6 1HU, 7.vi.1982.

Letter to the Editor

WHAT IS A TRULY BRITISH MOTH?

Dear Sir,

When I saw the heading "What is a British Moth" in the October 1980 *Record* I read the article enthusiastically, expecting something quite different! While I must agree entirely with Mr. Allen that something exotic that arrives in a box of fruit from some far-away place is of little relevance to the study of the British lepidoptera, I was disappointed not to find something more fundamental, namely "What is the current list of Breeding British Moths" (Not, please note "what was. . ."). I am convinced that there is a real need for such a list. The botanists and ornithologists seem to have a better idea than we lepidopterists of just what species do occur in Britain, either growing wild or breeding as the case may be.

I have found that a frequent question among active lepidopterists is "How many species (of macro) have you still to find?" The question is almost unanswerable at the present time. One distinguished collector said to me "only eight, that's why I concentrate on micros now." When I asked him when and where he last took a certain species (whose capture has since been reported in *The Record*) he replied that he didn't count that one as he considered that it no longer occurred! Another collector and I each had our 'target figures' but they were not by any means the same. There are many species not recorded in the literature in the last ten years, they may be known to some who guard their secret closely but in most cases I doubt it. In question time after I have given a talk on an entomological subject to an audience of general naturalists, I always have a feeling of inadequacy when asked how many species actually occur in Britain and I have to admit that we don't know exactly; surely with so many people collecting and studying moths over the last 100 years we should!

In compiling a county list I am very much aware that we are interested in what occurs now and we aim to record the date of the last capture in the county of anything which we seem to have lost. It is after all only possible to take steps to conserve species that do still occur and I like to look at a local list as a guide to conservation. Surely this principle applies on the National scale.

Given access to existing literature and the Monkswold records it should not be too difficult to agree such a list for the country as a whole. Perhaps *The Record* would be able to find space to publish a "discussion draft" in serial form, the list after all must represent our combined knowledge and not just the prognostication of one or two people. Apart from getting the record straight, it should encourage lepidopterists to search for something we all want to hear about rather than going to the same old place to catch the same old thing. — C. I. RUTHERFORD, Longridge, Macclesfield Road, Alderley Edge, Cheshire SK9 7BL, 10.viii.82.

Current Literature

Natural History Manuscript Resources in the British Isles compiled by G. D. R. Bridson, V. C. Phillips and A. P. Harvey. Pp. xxxvi + 473. 4to. Mansell, London; R. R. Bowker, New York. 1980. £97.

This is a first attempt at a survey of the natural history manuscript sources of the British Isles, and is intended to cover all natural history manuscripts in British repositories. It is not just concerned with British natural history, but also includes foreign manuscript material relating to overseas natural history, that may be found in British collections. We are told that the coverage of the survey includes as wide a definition of natural history and of the term manuscript as possible, and that 'repository' includes such varied places as 'government departments, public corporations, national libraries and museums, local record offices, local libraries and museums, universities, colleges and schools, national and local learned societies, professional institutions and, as far as possible, natural history departments within any organization'. On the other hand, the compilers have made no attempt to include items from privately owned natural history manuscript collections, since the Society for the Bibliography of Natural History has already been sponsoring a scheme to establish a register of these. Broadly speaking, the starting date for material given in the survey is about 1600, although a few 16th century items of special interest are included.

The preliminary pages consist of a foreword by D. E. Allen, who aptly remarks that 'manuscripts are the historians' bread', and that to 'know what manuscripts exist and where they are is crucial to him'. There is a detailed explanatory introduction (pp. ix-xiii), an annotated bibliography of 96 items conveniently arranged in a series of subject categories, a select list of abbreviations and a list of the 443 repositories. The main body of the work or 'The Guide' (pp. 1-376) then follows. Here the repositories are arranged alphabetically under place-name i.e. town or city, and within this geographical sequence by the name of the institution with its address along with other relevant particulars. The repositories are numbered in sequence, and included under each is a listing of the papers of individual natural historians arranged alphabetically and numerically. A name index (pp. 379-450), place index (pp. 451-458), subject guide and subject index (pp. 459-473) complete the work.

Although the survey treats of such a wide range of disciplines, there is much to interest the entomologist (including many entomological surprises) among the some 500 relevant entries classified as hereunder, each of which may involve more than one or even a whole series of separate manuscripts on that particular Order or group. Insecta: general (229), Anoplura (1), Coleoptera (46), Diptera (15), Ephemoptera (1), Hemiptera/Heteroptera (12), Hymenoptera (10), Isoptera (4), Lepidoptera (94), Mallophaga (2), Neuroptera (1), Orthoptera (1), Psocoptera (1), Siphonaptera (3),

Trichoptera (1), Insecta: collections (43) and Insecta: drawings (70). There are also 30 numbered entries referring to the Arachnida.

The compilers appear to have covered the ground pretty thoroughly, but a surprising omission is the failure to mention the British Entomological and Natural History Society, whose library holds important manuscript material, including *The Mollusca of Kent, Surrey and Middlesex* (1884) by T. D. A. Cockerell (1862-1948), and among manuscripts of entomological interest, the *Notebooks* of F. J. Coulson (1878-1965), the *Diaries* of R. A. Jackson (1890-1969) and *Notes on the Lepidoptera for 1917-25* by J. J. Lister (1857-1927). Incidentally, we should point out that the Cambridge entry on p.52 under item 80.24 'HAWKSHAW, ?John. Papers relating to his collection of Lepidoptera.', probably refers to John Charles Hawkshaw (1841-1921), whose collection of Palaearctic Lepidoptera (especially micros) is on record as having gone to the Zoological Museum, Cambridge.

The volume itself is very well got-up, being finely printed on good paper and strongly bound in buckram with gilt lettering. Presentation of the contents is admirably succinct and clear, and arranged in such a way that for ease of reference the book is a joy to use.

This is a most valuable and welcome work with abundant evidence of having been produced with great care and in the correct manner, for which the compilers, the publishers and all others involved deserve high praise. — J. M. C.-H.

Butterflies of the Rocky Mountain States by **Clifford D. Ferris** and **F. Martin Brown**. University of Oklahoma Press, Norman, Oklahoma, 1981 Hard bound \$35. Soft bound \$15.95.

This comprehensive work written by eight contributors and edited by two well known American lepidopterists is a model of its kind.

The book is divided into three parts. The first is mainly introductory and deals with various aspects of butterfly biology, with discussions on taxonomy, collecting methods and an interesting account of the early history of butterfly collecting in the Rockies. There is also an excellent illustrated survey of the various types of habitat encountered in this region.

The second part is devoted to descriptions of all the butterfly species occurring in the Rocky Mountain States (over 300 species). For each species diagnostic features are listed followed by detailed accounts of range, habitat, life-history and significant sub species. Classification of each genus is discussed, and it is, as far as I am aware, the first time that an American butterfly book has brought the generic names into line with nomenclature current elsewhere. This applies particularly to some of the blues and to the genus *Clossiana* — previously lumped with *Boloria* in American literature. The book is adequately illustrated with black and white photographs of set specimens of each species. There are also four colour

plates of selected species; unfortunately these are less well produced and there is no indication of the scale of the specimens illustrated.

Part three comprises a glossary, bibliography, a guide to genital dissection, a set of distribution maps and locality data, and finally, a very complete index. The book should appeal, not only to those specifically interested in American lepidoptera, but also to European butterfly enthusiasts who will recognise several familiar species in forms virtually identical to those found in the Western Palearctic region. Examples of these are *Parnassius phoebus* F., *Colias palaeno* L., *Clossiana titania* Esp. and *Carterocephalus palaemon* Pall. For anyone actually contemplating a trip to the Rockies, the book should both stimulate interest and also provide an essential identification guide. — C. J. LUCKENS.

Notes and Observations

LARVAE OF THE BUFF-TIP: PHALERA BUCEPHALA L. FEEDING ON SORBUS SPECIES [ROSACEAE] AND ASPEN. — On September 20th, 1979, near the centre of Maidstone I noticed that most of about a dozen trees of *Sorbus aria*, cultivar *lutescens*, had small branches defoliated by *bucephala* larvae, although probably few pupated as the bole of each tree was surrounded by asphalt and a very limited amount of compacted soil. On August 5th, 1976, near Ballintra in Co. Donegal, a colony of these larvae was found upon rowan (*Sorbus aucuparia*). *Bucephala* larvae seem not to have been recorded on *Sorbus* species previously, and there are very few instances for the Rosaceae in general — Wilson, *Larvae of the British Lepidoptera and their Food Plants* (1880), mentions rose, and in *The Lepidoptera of Kent* by J. M. Chalmers-Hunt are records for apple at Petts Wood and cherry at Sittingbourne.

Noted foodplants such as laurel, *Tropaelium major*, rose, maple, sycamore, hornbeam, horse chestnut, evergreen oak and alder are, I believe, distinctly unusual, and beech perhaps somewhat less so. On September 15th, 1963, a colony of these larvae was found on aspen at Dungeness, and another at Dartford on September 10th, 1966 was also on aspen. I can find no previous record of this species on aspen.

E. Newman in his *Natural History of the British Moths* (1869), gives only elm, lime, hazel and other trees, stating that the species is a very general feeder. R. South in *Moths of the British Isles* (1939 ed.) stated that almost any kind of tree or bush appears to be suitable food, although the foliage of elm, lime and hazel is often selected (copied from Newman?). In *The Moths and Butterflies of Great Britain and Ireland* Vol. 9 (1979), ed. J. Heath, the food-plant is stated to be deciduous trees such as oak, willow, elm, hazel and lime.

This moth has a wide distribution in the British Isles, and my observations indicate that it has distinct preferences, plus an adaptability to turn to alternative foodplants when the more favoured ones are scarce or absent. Thus in the urban parts of N.W. Kent there has been a very marked preference for lime and black

poplar, usually pollarded trees, and to a less extent common elm. On Dartford Heath, however, small oak trees are particularly favoured, and less frequently birch is selected, although the roadside limes are also utilized. Elsewhere in the countryside of N.W. Kent, in addition to the trees mentioned, relatively more use is made of hazel, sallow and aspen. At Dungeness and Romney Marsh willow and sallow appear to be most commonly used. In *The Butterflies and Moths of Hampshire and the Isle of Wight* by B. Goater, young birches and sallows are especially noted as the larval foodplant, and this is in accord with my observations for Dartford Heath with reference to both the oak and birch.

It would be interesting to know if there are localities where *bucephala* shows a distinct preference for trees of a different kind from those mentioned above. — B. K. WEST, 36 Brair Road, Bexley, Kent.

PIERIS CHEIRANTHI HBN. IN TENERIFE. — I was interested to read the comments of Messrs. Allcard and Valletta on the occurrence of *Pieris cheiranthi* in the Western Canary Islands last autumn (see *Ent. Rec.*, 94: 112 *et seq.*).

My wife and I and our family spent some weeks in Tenerife in January and February this year. We were actually staying in the south of the island where butterflies are few, but on an excursion by hired car to the north, I saw this butterfly in Puerto de la Cruz and elsewhere in that vicinity, and found a batch of eggs on *Nasturtium* (*Tropaeolum majus*) outside Los Realejos. I saw no larvae or pupae, and I wonder if in spite of the more or less permanent summer climate this species has fixed periods when it flies.

Coincidentally, when I was there I found myself wondering about this species' foodplants. Clearly, *Nasturtium* is what is favoured now, although edible Brassicas are widely grown and presumably also used, but I have noticed that in this part of Scotland, *P. brassicae* is found much more frequently on *Nasturtium* now, whereas formerly it was to be found on Cabbages etc. Could this be natural selection? After all it is much less likely to be persecuted on *Nasturtium* than on plants cultivated for eating.

However, reverting to *P. cheiranthi*, the point is that presumably the cultivated Brassicas arrived with the first humans, and *Nasturtium*, being of South American origin must have come much later. Therefore, unless this species has evolved since the first human settlement, which seems impossible, there must be a native Brassica. Has this ever been investigated? — R. I. V. ELLIOTT, Burnbank, Saline, Fife, 25.vi.1982.

ON THE HOSTPLANT OF CHRYSOLINA POLITA (LINNAEUS) (COL.: CHRYSOMELIDAE). — I read with interest the note by Mr. J. Robbins in *Entomologist's Record J. Var.*, (1981), 93(2):27 concerning the foodplant of *Chrysolina polita* (Linnaeus). In my rather short experience of this species in West Cumbria I have also found the beetle (adults only) in association with *Lycopus europaeus* L. (Gipsywort). Several specimens were swept from some large stands of this plant growing in a damp and shady situation near to common sallow trees, *Salix cinerea* L. on the edge of an old decaying willow carr

at High Sellafield, NY02/04, on June 24th 1981. Some adults were seen feeding on the leaves of this plant nearby and a few others appeared to be resting on the upper surface of individual leaves. I have collected other specimens of *C. polita* in Cumbria usually just by indiscriminate sweeping from general herbage and my localities are, River Ehen, NY00/05, 4.vi.1977, River Bleng, Gosforth, NY09/03, 2.vi.1979, Colmire Sough near Wigton, NY22/50, 10.vi.1978, River Eamont, Penrith, NY56/30, 28.vii.1979 and Barfield Tarn, Bootle, SD11/86, 9.vi.1981.

P. Jolviet and E. Petitpierre (1976, *Ann. Soc. ent. Fr.*, 12 (1): 123-149) in their very extensive work on the trophic selection patterns and host plants of the genus *Chrysolina* records *Lycopus* as a food-plant of *C. polita* along with certain other Labiatae species, including *Mentha*. — R. W. J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria, CA28 8RF.

THE HUMMING-BIRD HAWK MOTH IN LONDON. — Yesterday at about 8 o'clock in the evening I saw a Humming-bird Hawk Moth, *Macroglossum stellatarum* L., feeding on a buddleia in this Close less than one mile from Marble Arch. — THOMAS LUMLEY, 5 Robert Close, Little Venice, London, W.9., 27.vii.82.

AN UNUSUAL ABERRATION OF HAMEARIS LUCINA L.: DUKE OF BURGUNDY. — In May 1979, I noted an aberration of this butterfly at a Somerset habitat, and have coloured photographs of it. The specimen is characterised by having the inner row of pale spots on the upper hindwing of a pure white, the rest of insect being quite normal. One or two *Hamearis lucina* with this peculiarity have been seen there each year since, and the aberration occurs mainly in the females. — R. D. SUTTON, F.R.E.S., 19 Corner Close, Wellington, Somerset.

AUTOGRAPHA BRACTEA D. & S.: GOLD SPANGLE IN KENT. — On the night of the 14th July 1982, I took a male of this moth at m.v. light behind the cliffs at St. Margaret's Bay, Kent. I understand that this is the first record of this species for the county. Also taken there that night was a male *Deltote bankiana* F. (Silver-barred), and on the 16th July with Mr. J. Roche, a female *Rhyacia simulans* Hufn. (Dotted Rustic). — J. PLATTS, 11, Maydowns Road, Chestfield, Kent.

LEPIDOPTERA AT PAGHAM HARBOUR, WEST SUSSEX. — On 2nd July 1982, my wife and myself were at the harbour and as I was searching a large area of red valerian for migrant butterflies, I noticed a single *Macroglossum stellatarum* L. hovering over the flower heads. I watched it for several minutes then we continued on our walk. On our return I took another look at the flowers and found two of these moths busily feeding from the flowers. The biggest surprise of the day was when my wife pointed to a single *Ladoga camilla* L. flying around a mass of honeysuckle not a hundred yards from the sea-shore. This seemed an unusual locality for a woodland butterfly. The day was hot with warm winds coming in from the sea. — D. DEY, 26 Manor Avenue, Hassocks, West Sussex BN6 8NG.

COLOUR CHANGE IN THE GENUS *ADSCITA*. — During the first week in June, whilst busy recording the localities of 'Foresters' in Sussex I collected a number of specimens of *Adscita globulariae* Hbn. and *A. geryon* Hbn., both from the same site on the 5th June 1982. These were subsequently taken home to be photographed in a pseudo-natural pose on some potted *Helianthemum*. As with other active day-flying moths I chilled the adults for five minutes in the freezer prior to arranging my 'set'. However, when removed from the freezer they had changed from iridescent green to a deep maroon colour. As the moths revived and returned to normal temperature in the sun they changed back to green. I assume that the colour change brought about by a temperature drop is connected with the structural colouration of the scales. I have never heard of this happening before in any British species, or read of this phenomenon in the literature. One wonders whether evening temperatures can bring about a colour change in a state of nature, and if so whether the colour change has a selective advantage for the moths in the early morning before they become active enough to evade their avian predators. M. HADLEY, c/o Nature Conservancy Council, 19/20 Belgrave Square, London SW1X 8PY.

THE GRECIAN COPPER: *HEODES OTTOMANUS* LEFÈBVRE AND *CLEOPATRA*: *GONEPTERYX CLEOPATRA* L. IN YUGOSLAVIA. — On 10th April 1982 in the meadow on the island of Lokrum near Dubrovnik I saw a freshly emerged *Heodes ottomanus*. Close-up photographs were taken of uppersides and undersides of wings which confirm identification. Also on the same day at the highest point of the island I definitely saw one *Gonepteryx cleopatra* ♂, then on two later occasions during our holiday I saw further lone ♂ specimens on the nearby Babin Kuk peninsular. These observations may be of interest because the distribution maps in Higgins and Riley, *A Field Guide to the Butterflies of Britain and Europe* do not show these species as occurring in the Dubrovnik area of Yugoslavia. — J. E. GREEN, 25 Knoll Lane, Poolbrook, Malvern, Worcs, WR14 3JU. [It is a rare event to see information about butterflies from Dubrovnik on the Adriatic coast, and Mr. Green's notes are most interesting. Vagrant specimens of *Gonepteryx cleopatra* L. occur probably throughout the Mediterranean area, but breeding colonies are less common. The record of *Heodes ottomanus* Lef. near Dubrovnik, confirms that of Hans Epstein a few years ago, who reported finding an extensive colony a little south of the town. This interesting species is restricted to the eastern Mediterranean, where it seems the colonies are often widely separated. The distribution is not well understood and more information is needed, especially from western Turkey. The entire area, that I used to know as Montenegro, is relatively unexplored, with Albania and its splendid mountains so near but unapproachable at present. I should add that corrected distribution maps for *G. cleopatra* and for *H. ottomanus* were among the many additions and alterations needed for the last (1980) revised edition of the *Field Guide*. — Dr. L. G. HIGGINS.]

ORANGE-TIP ODDITIES. — Two springs ago (Vol. 93: 97-99, Pl. II) I wrote of the pupation of *Anthocharis cardamines*. For the photographs I had collected four larvae, two of which pupated before I was ready and two later; all in July 1980. All pupae were brown, but I added a fifth, a green one, found wild.

Two very soon succumbed to parasites. These emerged from the mid-dorsum of the pupa and dropped to the ground, each leaving a two-inch thread of solidified matter hanging from the exit hole, with the parasite pupa formed below. Large black Tachinid flies emerged within a month, one of which I gave to Dr. Neville Birkett, who kindly had it identified by Mr. H. H. Carter of Reading Museum. It is *Phryxe vulgaris* (Fallén), a common fly with a wide range of hosts and two generations a year.

Two brown pupae and a green one remained to overwinter 1980/1981. Spring and summer 1981 apparently passed without notice and all three overwintered again. In March 1982 they showed signs of life; a female emerged from the green pupa on 23 March and another from one of the brown ones on 12 April. Meanwhile the third coloured up as a male, but died.

Now the interesting observation of R. H. Miller in S. W. Scotland has just appeared (p. 162). It gives rise to a highly unscientific conjecture. Could something odd in early 1981 have caused (a) a widespread postponement of emergence of this species for a year, and (b) failure of the males to emerge? This could account for the preponderance of females in his area, some 80 miles north from here, in spring 1982. — Lt. Col. C. F. COWAN, 4 Thornfield Terrace, Grange-over-Sands, Cumbria. LA11 7DR.

EPERMENIA AEQUIDENTELLUS HOFMANN: DAUCELLUS PEYERIMHOFF (LEP.: EPERMENIIDAE) IN KENT. — While observing lepidoptera at light at Stodmarsh Nature Reserve on the night of the 11th August 1982, I took a smallish micro in fine condition that I did not immediately recognise. On returning home I identified it as *Epermenia aequidentellus* from two examples in my collection bred from Portland, Dorset in 1975, and kindly given me by Mr. J. Roche. The moth is known to range from Sussex to Devon, but this is the first record to my knowledge of the species' occurrence in Kent. — J. M. CHALMERS-HUNT.

EUCOSMA METZNERIANA TREITSCHKE IN HAMPSHIRE. — A rather worn female specimen of this Tortricoid moth came to my m.v. trap here on the night of the 21st June 1982. I believe this to be only the second British specimen. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants PO4 ONH [The only other British *metzneriana* to our knowledge was that taken by R. J. Revell near Cambridge (cf. *Ent. Rec.*, 89: 329, fig.1). — Editor].

EUROIS OCCULTA L.: GREAT BROCADE IN SUFFOLK. — I wish to record that at the meeting of the British Entomological and Natural History Society at Cavenham Heath on the night of 31st July 1982, I noted a male of the continental form of this moth at light. — C. PENNEY, 39 Chaucer Close, Tilbury, Essex RM18 8EG.

THE MARSH FRITILLARY: *EUPHYDRYAS AURINIA* ROTT. AND OTHER LOCAL BUTTERFLIES IN DURFOLD WOODS, SURREY/SUSSEX BORDER in 1982. — On May 25 I saw a freshly emerged Marsh Fritillary, a species I have never before seen in 15 years of visiting the area; also large colonies of the Wood White, *Leucophasia sinapis* L. On July 18, the Silver-washed Fritillary, *Argynnis paphia* L. was abundant and included one f. *valesina* Esp. The White Admiral, *Ladoga camilla* L. was also very plentiful and although not seen by me, a passing acquaintance told me he had seen two ab. *nigrina* Weymer the previous day. Of the Purple Emperor, *Apatura iris* L., several males were seen feeding on decaying material, water etc. and, for the first time for many years, a female was observed flying at low levels when the sun reappeared from behind the clouds. At one time the insect was observed for 1½ hours feeding on something caught in the fork of a branch of a tree — about 20 ft. up — possibly sap or dead carrion. On being disturbed it flew in a slightly uncertain fashion to the top of a young spruce tree where it stayed for a further thirty minutes with its wings open, back to the sun, before flying off. — M. S. HARVEY, Highfields House, Highfields, Ashted, Surrey.

THE LARGE TORTOISESHELL: *NYMPHALIS POLYCHLOROS* L. IN 1982. — On May 9, a Large Tortoiseshell was seen for about 10 minutes at Ranmore Common in a sunlit clearing, flying in and out of trees and settling about 15 ft. up on a trunk. I have observed similar behaviour in this hibernator in the Sierras of Madrid. — M. S. HARVEY, Highfields House, Highfields, Ashted, Surrey.

THE COSMOPOLITAN: *MYTHIMNA LOREYI* DUPONCHEL AND OTHER MIGRANTS IN CORNWALL, AUGUST 1982. — While staying the last two weeks in August on the coast at Portleven near Helston, I recorded the following species. On the morning of the 25th I found a dark specimen of *Mythimna loreyi* Dup. in the m.v. trap, and between the 20th and 25th six specimens of *M. vitellina* Hbn. Larvae of *Heliothis peltigera* D. & S. were quite numerous on the flowers of *Matricaria* on Loe Bar, and nearby I noted seven larvae of *Macroglossum stellatarum* L. and one at Sennen Cove, near Land's End. Of the commoner migrants at m.v. I recorded *Phlogophora meticulosa* L. *Agrotis ipsilon* Hufn. and a number of *Peridroma saucia* Hbn. The migrant butterflies were represented by a few *Cynthia cardui* L., whilst *Vanessa atalanta* L. was quite abundant. — N. GILL, 3 Wentworth Drive, Elmley, Huddersfield.

NOLA AERUGULA HBN.: SCARCE BLACK ARCHES AND *AUTOGRAPHA BRACTEA* D. & S.: GOLD SPANGLE IN SHEPPEY. — The following interesting species appeared in 1982 at the m.v. trap in my garden here; the dates are those of the mornings following the nights when the trap was operated. 14th July, *Nola aerugula* Hbn., three; *Meganola albula* D. & S. (Kent Black Arches), three and two or three every night since; *Autographa bractea* D. & S., one; 25th July, *Eilema pygmaeola* Doubleday (Pigmy Footman), one. — F. H. CLOUTER, Helice, Glendale Road, Minster, Sheppey, Kent, 29.vii.82.

THE RE-OCCURRENCE OF *BISIGNA PROCERELLA* D. & S. (LEP.: OECOPHORIDAE) IN BRITAIN. — First taken in this country in 1976 in two wooded localities in Kent situated only a few miles distant from one another (cf. *Ent. Rec.*, 88: 211-212), we have since hoped to renew acquaintance with this beautiful moth. Such an event occurred on the 10th July 1982, when at 3.15 a.m. a fresh female *B. procerella* came to light at Orlestone Forest, Kent, and at the same spot during the early hours of the 14th July we were again favoured, this time by the appearance of both sexes at light between 1.30 and 3.00. Furthermore, at the same place, Mr. Norman Heaf had the good fortune to capture at light a single *procerella* on the night of the 14th, and three more on the 18th July. The larva is said to feed on lichens and mosses growing on the trunks of trees, and as there seems a chance the species may be resident in that part of Kent, we hope to undertake a thorough search for it next spring when the larva should be full grown. — J. M. CHALMERS-HUNT.

THE CLIFDEN NONPAREIL: *CATOCALA FRAXINI* L. AND OTHER LEPIDOPTERA AT HIGHCLIFFE IN 1982. — August was a poor month for migrants with only a worn *Herse convolvuli* L. to the cliff trap on the 2nd August. In the garden trap a *Catocala promissa* D. & S. turned up on the 4th August, a long way from its normal habitat. Another unexpected species was *Agdistis bennetii* Curtis, three at the cliff and two in the garden on the 1st and 2nd of the month. The nearest salt marsh is four miles away. On the 31st, a beautiful male of *Cyclophora puppillaria* Hbn. came to the garden trap.

September started well. Two *Colias croceus* Geoff. appeared here on the 2nd, and two *Rhodometra sacraria* L., one in each trap, arrived on the 7th with a wave of *Autographa gamma* L., *Peridroma saucia* Hbn. and *Agrotis ipsilon* Hufnagel. A third *R. sacraria* came in on the 9th. On the 10th the cliff trap swarmed with migrants — 245 *A. gamma*, 22 *P. saucia* and 11 *A. ipsilon* with a solitary *Heliothis peltigera* D. & S. There was much less in the garden trap, but a fine *Catocala fraxini* L. was perched on the house wall about 12 feet up. It flew off in a lordly manner when I tried to reach it with a net. Last night conditions looked even better, but there was little in either trap. All the migrants seemed to have moved inland and there was no second wave. One interesting visitor, however, was a fresh female *Hepialus humuli* L. which must surely be a second brood insect in spite of Heath's statement (*The Moths and Butterflies of Great Britain and Ireland*, 1: 167) that it is univoltine in the U.K. — E. H. WILD, 7 Abbots Close, Highcliffe, Christchurch, Dorset BH23 5BH, 12.ix.82.

THE NI MOTH: *TRICHOPLUSIA NI* HBN. IN HAMPSHIRE. — I took a worn specimen of this species here at m.v. on the night of 14th July 1982. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants PO4 ONH.

THE STRIPED HAWKMOTH: *CELERIO LIVORNICA* ESP. — Among 80 species of macrolepidoptera to visit the light in Orlestone Forest, Kent on Midsummer's Eve was a fine *Celerio livornica*. — R. G. CHATELAIN, 65 East Drive, Orpington, Kent.

RESTRICTED DISTRIBUTIONS OF BUTTERFLIES AND PLANT CHEMISTRY. — A. C. Morton's hypothesis (*Ent. Rec.*, 94 : 67-69) that the restricted distribution of the adonis blue, *Lysandra bellargus*, results from the larvae being unable to eat cyanogenic varieties of horseshoe vetch, *Hippocrepis comosa*, is both plausible and testable. In my book *What is ecology?* (Oxford University Press, 1980), I suggest essentially the same hypothesis to account for the restricted British distribution of the black hairstreak, *Strymonidia pruni*. This species occurs in certain woods between Oxford and Peterborough whereas the larval food-plant, *Prunus spinosa* (blackthorn), is found virtually everywhere in Britain. Maps comparing the distribution of the butterfly and its food-plant are given on page 10 of *What is ecology?* On page 180 I write, "Is it possible that the tissues of blackthorn leaves differ in chemical composition in different parts of its distribution and that the black hairstreak is adapted to one particular chemical variety? This is certainly a feasible explanation for the strange distribution of the butterfly. The restriction of the black hairstreak to only part of the range of the blackthorn may represent just one step in the continuous evolutionary jostling between eater and eaten. If this interpretation is correct, the outcome might be either a spread in unpalatability of the blackthorn so that black hairstreaks become extinct, or an extension of the butterfly's distribution as it adapts to eating other chemical strains of blackthorn."

Many different chemical compounds are found in plants which play no direct part in growth and development. Their function seems to be to regulate consumption by herbivores. The cardenolides present in milkweeds and the glucosinolates in brassicas are just two examples of groups of compounds which both attract and repel potential herbivores. There is evidence of much within-species variation in the presence or absence of chemical compounds which could easily account for many of the peculiarly restricted distributions of those species of butterflies whose larvae are specialists on one food-plant. My guess is that Morton's hypothesis will be found to be essentially correct, although it may explain only the restricted distribution of *L. bellargus* and not its recent decline, unless of course there has been a dramatic increase in the frequency of the (postulated) cyanogenic varieties of *H. comosa*. — DENIS F. OWEN, 66 Scraftoft Lane, Leicester LE5 1HU.

SOME UNUSUAL INDIGENOUS MACROLEPIDOPTERA AT NINFIELD EAST SUSSEX IN JULY 1982. — The numbers of species recorded each night during this part of the year seem to be up on the respective part of last year; with this increase there have occurred some more unusual species. *Chilodes maritima* Tausch. (Silky Wainscot) appeared, as a singleton, on the 5th: I have recorded this species only once before in this site, in 1980, the example being ab. *wismariensis* Schmidt; it is probable that both these examples were blown up from the nearby Pevensy Levels, where the species occurs more frequently. On the 8th, one *Bomolocha crassalis* Fab. (Beautiful Snout) was taken at light; this was rather a surprise as to my knowledge there is no Bilberry (*Vaccinium*

myrtilus L.) in the surrounding area. In Colin Pratt's book, "A History of the Butterflies and Moths of Sussex", it is noted that this species since 1976 "has become regular in appearance in several places". However, I have only seen one other specimen from this area, that being recorded some years ago from near Catsfield. *Paracolax derivalis* Hubn. (Clay Fan-foot) in its single annual occurrence on the 14th, along with this, being recorded for the first time here, was a single *Phytometra viridaria* Clerk (Small Purple Barred). Perhaps the most noteworthy catch of the night was a female *Chesias rufata* Fab. (Broom-tip); South mentions this species as occurring in Sussex. Its status in E. Sussex is now considered as "very local" and "very rare". There are quite large patches of Broom (*Sarothamnus scoparius* L.) some distance from the position of the trap, these may be worth further investigation. — M. PARSONS, The Forge, Russells Green, Ninfield, near Battle, E. Sussex.

BUCCULATRIX THORACELLA THUNB. CONFIRMED FOR VICE-COUNTY 11. — I have just taken a fresh specimen of *Bucculatrix thoracella* on the frame of my bedroom window which faces an avenue of tall limes planted some 130 years ago. Goater (*The Butterflies and Moths of Hampshire and the Isle of Wight*, 34) quotes Hervey's List for Hants but cannot confirm the record. Although in Dorset, Highcliffe is in vice-county 11, so it seemed worth confirming its presence here. — E. H. WILD, 7 Abbots Close, Highcliffe, Christchurch, Dorset BH23 5BH, 28.vii.82.

A FEEDING HABIT OF BRACHYOPA SCUTELLARIS (DESVOIDY) (DIPT., SYRPHIDAE). — *Brachyopa scutellaris* does not seem to be a common insect in the north of England. I first took a specimen, a male, when sweeping under trees here at Kendal Wood on 26 May 1979. My second acquaintance with the fly was much more interesting. On 29 May 1981 I was gardening, again at Kendal Wood, and my arms were sweating considerably and exposed when a fly landed on one of them and clearly commenced to imbibe my sweat. The action of the proboscis was clearly visible and the fact of the drinking was quite obvious. I did not immediately have a suitable receptacle for the insect but went into the house to obtain a few tubes. On returning to my gardening activities another fly of the same species landed on my arm and this time was duly caught. It proved to be a female *B. scutellaris*. The following day, 30th., I was again gardening and was visited by two or three *scutellaris* again to imbibe. At this time it was noticed that they were rather sluggish flies and on being brushed off ones arms went to the ground-sheet on which I was kneeling and showed little inclination to fly.

I do not recollect reading of this habit of imbibing sweat by a Syrphid. Most adult Syrphids feed on pollen, nectar or a mixture of the two. The late A. E. Wright of Grange-over-Sands recorded the capture of seven specimens " — taken flying round flowers of Mountain Ash" (*North Western Naturalist* 15 : 242-247). It would be interesting to learn if other entomologists have experience of similar feeding habits by Syrphids. — Dr. NEVILLE L. BIRKETT, Kendal Wood, New Hutton, Cumbria, LA8 OAQ. 28.iv.1982.

SUCCESSFUL REARING OF THE DOTTED RUSTIC:
RHYACIA SIMULANS (HUFNAGEL)
(LEP.: NOCTUIDAE)

By P. CONVEY*

A specimen of *Rhyacia simulans* (Hufn.) was caught in the Winchester College Natural History Society's mercury-vapour trap run in the College grounds on 2nd September 1980. This in itself constitutes an interesting record, the species usually being extremely scarce or absent in the county of Hampshire (Goater 1974), and followed the capture of another specimen on 6th August 1980 in the same trap.

The specimen was kept overnight before its identity was confirmed by Col. D. H. Sterling, and was discovered to be female when several ova were found in the collecting box. The ova, apparently previously undescribed (Heath 1979), are creamy-white at first, flattened hemispherical in shape, finely ribbed. The colour darkens to dark grey a few days before hatching. The female, as mentioned, will lay in an empty container, but when given cut couch-grass and dandelion leaves, lays with much greater readiness, and, over a period of a fortnight, laid approximately 850 ova. These were mostly in strings of from 1 to 10 ova in relatively concealed positions, for instance alongside veins and under the folded edges of dandelion leaves, and along the midrib of couch-grass. Very few were laid on dock leaves which were also provided.

Of the 850 ova, virtually all formed up, but only a third hatched over a period from ten days to four weeks after being laid. Of note is the observation that ova from the same string, laid within seconds of each other, show this variation in hatching period. The larvae have been described elsewhere (e.g. Hagggett 1968), but the rearing technique used may be of interest.

The young larvae were provided with a mixture of cut couch-grass and dandelion. Most fed immediately on dandelion, although a few seemed to take couch-grass in preference. As these matured they all transferred to dandelion. No difficulties were experienced until large losses between the third and fourth instars. The reason for this was not clear, although possible explanations could be: poor foodplant, damping or overcrowding. The two lepidopterists who received some of the ova reported the loss of their complete stock, polluted foodplant being a suggested, but not proven, cause. Larvae ready for pupation left the foodplant and wandered around their box. Some of these were placed on loose peat, where they quickly burrowed. Others, not provided with peat, made a small chamber in the layers of paper lining the box. These were carefully removed to the surface of peat when near enough pupation to have stopped crawling, and more than one third pupated successfully. Six pupae were obtained and ten larvae died just before pupation. Virtually all the larvae allowed to burrow were found to

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have dried up and died. Larval development took two to three months.

The pupa, again previously undescribed (Heath 1979), is approximately 19mm long. In colour, rich reddish brown, darkening to almost black a fortnight to a week before emergence. Glossy, at first, losing this as it darkens. Antennal and limb cases clear but not prominent. Wing cases showing venation clearly, with many minute irrorations. Cremaster inconspicuous, with two slightly divergent fine spines approximately 0.7mm long.

Although all the pupae appeared to develop normally, only one perfect adult emerged on 24th December 1980, six weeks after pupation (not a bad Christmas present!). The specimen is now in my collection. A deformed example emerged on 30th December. The pupae were kept at room temperature, and were not sprayed.

Since I cannot find any reference to the contrary, I assume this to be the first successful rearing of *R. simulans* in Britain at least, albeit with a very low success rate.

References

- Goater, B., 1974. *The Butterflies & Moths of Hampshire and the Isle of Wight*, 439pp., Clasesey.
- Haggett, G. M., 1968. Larvae of the British Lepidoptera not figured by Buckler. Part VIII. *Proc. Trans. Br. ent. nat. Hist. Soc.* I: 57-109.
- Heath, J. (ed.), 1979. *The Moths and Butterflies of Great Britain and Ireland*, Vol. 9, 288pp., Curwen.

DANAUS CHRYSIPPUS L. IN TUNISIA. — On returning recently from a holiday on the Mediterranean coast of N. E. Tunisia my friend Mr. David Tombs gave me the forewing of a butterfly and asked me to identify it. I recognised it as belonging to *Danaus chrysippus*, and on turning to the account in Higgins and Riley's *A Field Guide to the Butterflies of Britain and Europe* (London, 1980) to show him, I was surprised to see the statement: "Not reported from Algeria or Tunisia."

Mr. Tombs informed me that during his stay in Tunisia from June 6th to 10th, 1982 inclusive he saw several hundred of these butterflies sailing about and feeding at a wide variety of flowers in the region around Monastir and Sousse. They did not appear to be moving in any particular direction. Throughout this period an easterly sea breeze was blowing off the Mediterranean.

D. F. Owen, in his book *Tropical Butterflies* (Oxford, 1971), includes the whole of Tunisia and most of Algeria and Libya in his distribution map for the typical form *chrysippus*. The forewing given me by Mr. Tombs appears to belong to this form.

I would be interested to know the true distribution and status of this handsome butterfly in N. W. Africa. — J. F. BURTON, 11, Rockside Drive, Henleaze, Bristol, BS9 4NW.

MATE LOCATION STRATEGIES IN THE WALL
BROWN BUTTERFLY, *LASIOMMATA MEGERA*
(L.) (LEPIDOPTERA: SATYRIDAE):
WAIT OR SEEK?

By ROGER L. H. DENNIS*

Introduction

Male butterflies are generally described as adopting one of two alternative strategies in the process of locating mates; perching, or waiting for them, and patrolling, or actively seeking them in flight (Scott 1974, Shields 1967; Shreeves 1980).

Characteristic sites varying in surface, height and situation, are selected by perchers, where they bask in the sun, and from these they launch themselves at passing insects (cf., Baker (1972) for *I. io* (L.) and *A. urticae* (L.); Davies (1978) for *P. aegeria* (L.); Joy (1902) for *A. iris* (L.) and Peachey (1980) for several species, particularly *H. lucina* (L.)). Distinctions, in height, habitat and speed, also occur for patrolling species as evident from studies of *A. cardamines* (L.) (Wiklund and Ahrberg 1978; Courtney 1980; Dennis in press); *L. sinapis* (L.) (Wiklund 1977, Peachey 1980; Warren 1981); *M. galathea* (L.) and *B. euphrosyne* (L.) (Peachey 1980).

Baker (1972) has argued that the tendency to 'stay put' or perch is the result of some female requirement, for instance nectar sources or oviposition sites, being concentrated; moreover, perching has been likened to territoriality (cf., Davies 1978) in as much as the area is defended, resident males typically intercepting and leading intruders out of the area. Baker extends the argument by pointing out that perching necessarily evolves where the energy used in defence is less than the energy used in patrolling. It follows then that the number of butterflies perching is a measure of the magnitude and concentration of a resource(s) in a particular environment though Baker conceded that the territory: male ratio determines the tendency to share spots as opposed to keep searching, via a raising of the territoriality threshold.

For only one British species have both mate location strategies been noted, — *P. aegeria* (Davies 1978). While some males are perching in woodland clearings, others have been observed patrolling in the canopy. Investigating potential mates and attempted courtships in the canopy identifies the activity as patrolling; — they are not merely waiting their turn for clearing perches. Patrolling in *A. urticae* and *I. io* was not made explicit by Baker, but as mate location is the reason for establishing territories, searching for the latter cannot be easily separated from the former and it implies that both butterflies do engage in patrolling, even if this is enforced.

Davies also discovered behaviour to vary. On sunny days, detailed experiments show there to be a premium on perching sites. Females are more abundant in clearings, and size of sun spot and time of day determine the number of males found there. On

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overcast days, the butterfly patrols regardless of location. Virtual lack of skirmishing points to abandonment of territories, yet the butterfly still attempts to court. As for *A. urticae*, Davies has recognised the readiness of *P. aegeria* males to accept intruders but has been able to link this closely with clearing size.

The present paper explores some comparative data on the closely related Wall Brown butterfly, *L. megera*. This butterfly is a known percher, but does it also patrol? Where does it perch and why are two of a series of related questions, but the emphasis is placed on examining how flexible mate location behaviour can be?

Materials and methods

The study has been conducted mainly at Brereton Heath near Congleton, but also along the Bollin valley, in north Cheshire. Individual behaviour has been determined using a cassette recorder and by making direct observations on seriation in activities and on specific lines of movement. Behaviour and movement over a wider area and on a number of individuals in succession has been conducted using transect (Pollard 1977; 1979) and capture, mark, release, recapture (CMRR) (Ehrlich and Davidson 1960) techniques separately and together.

Behaviour has been reduced to a number of simple categories (specifically flight, feeding, resting, basking, skirmishing, courtship and inspection) to avoid making premature judgements on various activities. Numerical techniques applied to timed activities, – specifically the calculation of behavioural ‘distances’ (E^2 of Edwards (1971)), least space analysis (Coxon and Davies 1980) and cluster analysis (Sneath and Sokal 1973), – have been used in an attempt to distinguish perchers from patrollers.

Results

A simplified tabulation of timed behaviour (Table 1) shows that males spend much of their time basking or resting. When basking the wings are open and angled to the sun and on landing the butterfly usually orientates itself accurately and quickly. The wings are closed during rest. Different surfaces are chosen for these activities (Table 2) but preference is for bare ground along paths, though other topographically distinctive surfaces are selected even newly constructed ranch fencing. Feeding and flight occupy much the same length of time.

	SF	LF	F	BR	SK	I
Total Time (seconds)	298.5	2241.5	1984	8765	584	83.5
Number of observations	132	187	153	162	115	67
Percent of total observation time for all activities	2	16	14	63	4	1

Table 1 Timed activities for *L. megera* males on Brereton Heath during 1981. Symbols as for Figure 1. Total observation time = 3 hrs 53 minutes.

Long flights are generally less than a metre above the ground, but vary according to the surface and are much less for low ground cover. Flights are usually fast, zig-zagging, often circular and typically investigative covering a wide area. Some are brief transects or circuits; others are more directional and long distance movements representing voluntary displacement and change of location.

Surface	Year	
	1981	1982
Path; bare ground	123	45
Grass	5	3
Flowerheads	0	6
Leaves of herbs, i.e. dock and nettle	3	15
Stones, bricks	4	2
Leaves of bushes, saplings and bramble	0	5
Fence posts and bars	0	18
Paper, tin, etc.	1	1
Mossy ground	2	0

Table 2 Sample data on basking and resting (perching) sites adopted by *L. megera* males on Brereton Heath in 1981 and 1982.

Males are continually scanning on the wing, but stop to inspect a wide range of objects apart from flowers. Skirmishing and attempted courtships take place while the butterfly is in flight as well as when basking and resting. Male *L. megera* skirmish with a variety of insects (Table 3); most other male *L. megera* induce much longer interactions varying from short spiral flights lasting 2 or 3 seconds to higher and extended spirals and dives described by Baker for *A. urticae* and *I. io*. Attempted courtships with female *L. megera* are longer affairs (average 35 seconds) and involve distinctive behaviour (Dennis in prep).

Insect	Frequency	Average time (seconds)
<i>L. megera</i> (females)	14	34.7
<i>L. megera</i> (males)	27	9.3
<i>M. jurtina</i> (females)	5	9.0
Bees and wasps	7	1.9
Dragonflies	13	2.2
Other butterflies*	17	2.1

* *O. venata* (Br & Gr)
L. phlaeas (L.)
P. brassicae (L.)
A. napi (L.)
A. urticae (L.)
I. io (L.)

Table 3 Frequency and average time of attempted courtships and skirmishing of *L. megera* males with other insects on Brereton Heath in 1981.

Seriation in behaviour (Figure 1) based on a sample of males emphasises the association of different activities and modes of behaviour. Typical is a feeding mode of regular but short sessions on flowerheads separated by 'hops' or short flights from one flower to another. More significantly the diagram underlines the role of long flights and basking. Skirmishing and courtship are associated with both and males continually investigate in flight; together, this confirms the objective of basking as 'perching' and long flights

as 'patrolling'. This average picture also demonstrates the functional interdependence of basking and long flight, a deduction which seems at odds with more casual observations of 'pure' behaviour of 'perching' and voluntary displacement respectively.

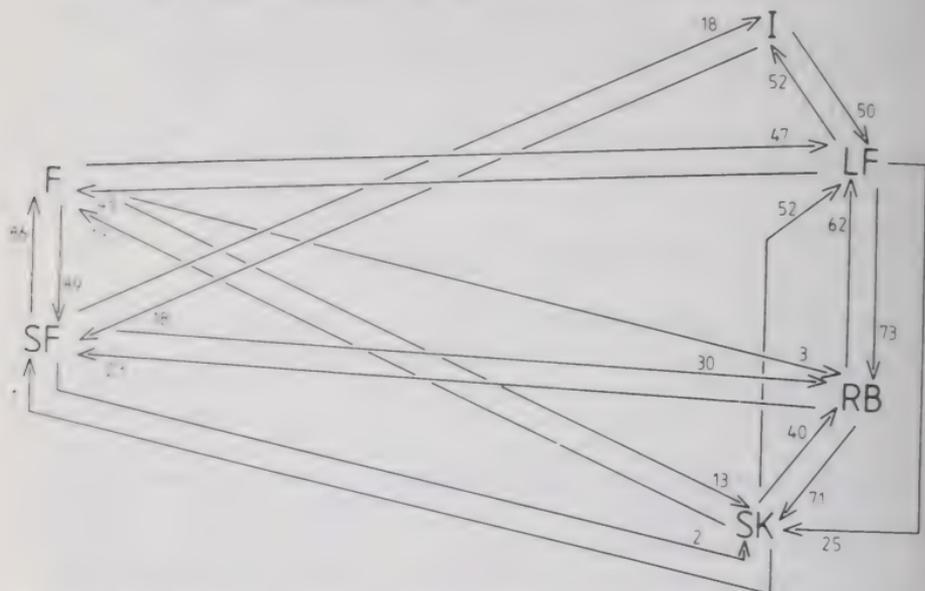


Figure 1 Seriation in male *L. megera* behaviour ($n = 30$), June and August 1981. I = feed from flower, I = inspect, SF = short flight; LF = long flight; RB = resting or basking; SK = skirmishing and attempted courtship. Short flight denotes rapid transitions of activity, whereas long flights revealed searching and investigative behaviour. Halts in flight only are counted as inspections.



Figure 2 A computer map (non-metric 2 dimensional scaling plot) of distances (Edward's I^2) between 23 male *L. megera* based on timed activity. Shading = flights: black = basking/resting; stipple = feeding; white = skirmishing, inspection and courtship. Four sizes of circle represent observation time (minutes): < 300 , 300 - 500; 500 - 1000; > 1000 . Kruskal's stress for the computer plot is 3.9%.

Figure 2 summarises individual behaviour. Three groups of individuals are suggested by maximum linkage clustering but this is not confirmed in the non-metric scaling plot nor by single link clustering. In effect, the array describes a continuum from extremes of perching (basking and skirmishing non-feeders in the main) to patrolling (flying and skirmishing feeders). Intermediate behaviours also occur, that they are not an artefact of the observation period or switches in behaviour is confirmed by time-scaled plots.

Extremes of behaviour and intermediate forms have been monitored and mapped. Confinement of males to small areas, 'territories', is not limited to the perching mode. More varied behaviour involving longer feeding episodes and extensive patrolling circuits has similarly been identified with definite areas – a neat example was provided by a narrow fenced path, some 100 metres in extent, between a barley and ley grass field on Alderly Edge, along which three males patrolled back and forth. On these occasions skirmishing is less demonstrative, no real attempt being made to lead an 'intruder' out of the zone. Yet, extreme perching behaviour is not devoid of voluntary shifts in perching site and inspection tours. For example, of 27 'sorties' effected by one male from a small gravel heap over a 45 minute period, 11 appeared to be unrelated to intruders and involved slower, low inspection flight. At the other extreme, males 'passing through' territories have been observed to undergo long, fast but investigative flights, apparently 'domainless'.

CMRR work demonstrated that male *L. megera* have a propensity to stay in the same location, some throughout a day, others over several days (Dennis, in prep). On the other hand, territories also change hands readily but retain much the same number of individuals. In north Cheshire, males select linear habitats for perching and patrolling, such are hedgerows – despite the crop in the field – roadsides, tracks and paths, bank margins to lakes, even the new lines of ranch fencing recently constructed. The latter has provided some valuable insights into behaviour; more males roost under the horizontal bars of the fence than patrol or perch along its edges at any one time, confirming casual observations of regular spacing for mate location along uniform habitats, such as roadsides, though CMRR work failed to locate precise territorial boundaries in such habitats. Perching and patrolling zones have also been found to be oviposition sites and thus sites of female emergence (Dennis, in prep), the eggs being laid in grass curtains fronting hedges, fences and bushes and recesses along banks.

The frequency of males and females drops significantly over uniform open spaces and those seen are generally moving rapidly in straight lines; however, not all linear habitats are used. Males congregate in sheltered sunny spots, avoiding shade and areas exposed to wind.

Transect data records much the same proportion of basking and long flights from 9.00 am to roosting time (Table 4). The implication is that perching and patrolling occur throughout the day, confirming other observations. A greater inclination to perching is

	Time of day									
	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	
Percent basking	34.2	30.8	26.9	30.5	31.3	39.0	29.3	26.6	52.4	
Percent long flight	34.2	33.9	37.3	40.7	43.8	29.3	39.0	25.0	33.3	
Percent feeding	14.5	18.5	23.9	18.6	12.5	17.1	19.5	21.9	9.5	
Number of separate observations	76	65	67	59	32	41	41	64	21	

Table 4 Percentage of basking/resting, long flights and feeding for male *L. megera* during transect counts on Brereton Heath in August 1982.

suggested in the morning and evening and to patrolling around midday. Proportions of patrollers and perchers also vary from day to day subject to the weather. Precise conditions have not been monitored but remarkable uniformity occurs in the percent of perchers on overcast days (55% – 58%; $n = 4$) compared to bright, cloudless, sunny conditions (12%, 31%; $n = 2$). This is a reversal of observations made on *P. aegeria* and may reflect sensitivity to movement in a linear habitat when energy levels are high. Proportions of patrollers and perchers no doubt changes over a longer time span in response to environmental changes. A number of perching spots were lost in 1982 due mainly to the provision of parking and other recreational facilities on the heath; however, one small area succumbed to vegetation succession.

Discussion

L. megera is a percher and patroller. In the process of obtaining mates, it displays a wide range of behaviour between the extremes of territorial defence and more passive acceptance of competitors while scanning the ground in flight. There is evidence too that we should expect variation in behaviour at the population level, – in respect of habitat differences and population density – within populations, – due to seasonal circumstances including habitat changes, weather and light conditions – and perhaps even at the individual level, – linked to insect age and inherited bias. All this points to the existence of a flexible response system and much additional work needs to be done on this aspect of mate location.

By extension, we should also expect to find variation in mate location behaviour among other butterflies, and because this reflects upon their habitats and other adaptations, there is a tendency to attach simple behavioural labels to species that on detailed examination may be inappropriate. Clear examples of perching and patrolling exist but many species show a wide range of behaviour. All perchers change their location and patrollers stop to feed and it is possible that males are vigilant for mates even on these occasions, as in the case of *L. megera* (cf., Figure 1). *H. semele* (L.) and *M. galathea* among the Satyridae occur at opposite ends of the perching/patrolling spectrum respectively, but *P. tithonus* (L.), *M. jurtina* (L.) and *E. aethiops* (Esper) (Dennis 1982) engage in both activities.

(To be continued)

THE KENTISH GLORY: *ENDROMIS VERSICOLORA*
(L.) AT RANNOCH

By E. C. PELHAM-CLINTON*

A paper in this journal by Marran (1981) discussed the decline and present distribution of the Kentish Glory moth in Great Britain. The author noted the lack of recent records from Rannoch in spite of the abundance of birch in that area.

That this species at Rannoch fed on alder has not been accorded much publicity. Most British publications either give birch only as the foodplant or else a curious list of them: e.g. Morris (1872), who gives 'birch, beech, lime, hazel, &c.', and South (1907, and all later editions), with 'Alder, willow, and lime have also been mentioned as foodplants'. However Allan (1949) includes only birch and alder, stating '*Alnus glutinosa* - Alder (recorded from Scotland only)'. Perhaps continental foodplants are more varied: Rougeot & Viette (1978) list '*Betula, Corylus, Tilia, Alnus, Carpinus, Ulmus*, etc.'.

Evidence of the alder-feeding Rannoch race is provided by the T. E. D. Poore collection and notebooks in the Royal Scottish Museum, Edinburgh (reg. no. RSM NH 1969.81). A series of specimens bred from Rannoch larvae all had alder as the foodplant, the most recent collected as larvae in 1939. Most are from the Allt Druidhe, near the eastern end of the south shore of Loch Rannoch, an area now partly afforested. The Poore notebooks show that larvae were taken from small trees and that one tree was a source of larvae over several years.

The Rannoch moths are on average larger than those from Strathspey and the hindwings of the females have a pinkish flush scarcely to be seen in Strathspey specimens.

It would be interesting to know whether the Kentish Glory ever fed on birch at Rannoch. It seems likely that the sedentary habit pointed out by Marran (1981) would lead to specialized habits in different areas and perhaps to an exclusively alder-feeding population at Rannoch.

The south shore of Loch Rannoch no longer has many small alders, but there are other suitable areas around the loch and further down the Tummel in which the species possibly might still be found.

Acknowledgement

I am grateful to Dr. Mark Shaw of the Royal Scottish Museum for details of the specimens in the Poore collection.

References

Allan, P. B. M., 1949. *Larval foodplants*. Watkins & Doncaster, London.

*Furzeleigh House, Lyme Road, Axminster, Devon, EX13 5SW.

- Marran, P., 1981. Speculative notes on the Kentish Glory. *Entomologist's Rec. J. Var.* **92** (1980): 235-238.
- Morris, F. O., 1872. *A natural history of British moths* 1. Bell & Daldy, London.
- Rougeot, P. C. & Viette, P., 1978. *Guide des papillons nocturnes d'Europe et d'Afrique du Nord. Hétérocères* (partim). Delachaux et Niestlé, Neuchâtel & Paris.
- South, R., 1907. *The moths of the British Isles*. Frederick Warne & Co., London & New York.

THE PIMPINEL PUG: EUPITHECIA PIMPINELLATA HBN. IN WARWICKSHIRE. — After reading the splendid article on British Pugs by Brig. E. C. L. Simson in this journal, I was inspired to search for the larvae of *Eupithecia pimpinellata* amongst the Greater Burnet Saxifrage (*Pimpinella major*), which grows in some profusion at Woodlands Quarry, Hartshill, North Warwickshire. I began searching in 1981 on the afternoon of the 15th September, the date advocated in the article, and soon found a single larva on a flower stem of the foodplant, but despite further searching over the next few days no more larvae were located. The single larva pupated on the 30th September 1981, but the adult has so far failed to emerge this summer. Identification was kindly confirmed by Steven Church and Mark Hadley of the Nature Conservancy Council, from a colour slide of the larva submitted by the writer. This is the first authenticated record of this species for Warwickshire (v.c. 38). — R. J. THOMAS, 23 Trentham Road, Hartshill, Nuneaton, Warks.

SURVIVAL OF LIMENITIS REDUCTA STAUDINGER (LEP., NYMPHALIDAE) IN YORKSHIRE. — During the summer of 1981, I was able to spend a period of time near Montpellier in the Department of Hérault, in Southern France. The Southern White Admiral, *L. reducta*, was widely distributed in the region, and some females which were captured laid ova freely in captivity. These ova subsequently hatched and the larvae began to feed on honeysuckle in a way very similar to that of the larvae of *L. camilla*. (L.), the White Admiral. On returning to Yorkshire, most larvae continued to feed, but about six remained small and were clearly going to overwinter in this stage. Because of other commitments, these small larvae could not be tended carefully over all the winter, and so were placed outside on a honeysuckle in the garden, with no protection whatsoever, in October. During the early part of June 1982 to my surprise, two pupae were found on the honeysuckle. One had a hole in the side and appeared dead. The other, though, seemed perfect. The pupa was left in place, and a female emerged on July 3rd 1982.

The weather in Bradford during the period when the larvae were outside was in no way superior to normal. The fact that the larvae survived to the adult stage cannot, therefore be attributed to favourable conditions, and suggests that this butterfly might be able to maintain itself in the Southern Counties of England if it ever occurred in sufficient numbers. — R. J. D. TILLEY, 15 Shay Close, Bradford BD9 6SJ, W. Yorkshire.

VANESSA INDICA (HERBST) IN WARWICKSHIRE: NEW TO BRITAIN

By KEITH TURNER*

When I lived at Kites Hardwick, near Dunchurch, Warwickshire I made a small collection of British butterflies for display to farmers and others at meetings on conservation topics, the connection between several Vanessid species and nettles being particularly relevant. In early September 1973 I caught in my garden, alighting on flowers including a clump of *Phlox drummondii*, a specimen which I took casually to be *Vanessa cardui*. I papered it almost at once after capture, and it was only when I set it in November that I noticed the "strange" markings, more akin to *V. atalanta*, though the colour seemed right for *V. cardui*. I decided that it was an aberration of one of these species, and made a mental note to show it to a colleague more knowledgeable about butterflies.

However, it was only much later that my friend and colleague Mr. J. Firmin, co-author of "*The Butterflies and larger Moths of Essex*", visited my present house in Gloucestershire in the spring of 1982. He immediately spotted the specimen, and suggested that it could be an example of *V. indica*, which is found in the Far East and also in the Canary Islands and Madeira. He reported this find to the Editor of the *Entomologist's Record*, and his identification has been confirmed by Mr R. F. Bretherton and Dr. L. G. Higgins. The specimen has now been given to the British Museum (Natural History) for a place in the national collection. I understand that it is believed to be the first known record of *V. indica* in Britain.

[This specimen is a large female of 60mm wingspan, the wings slightly rubbed in the basal area, but apparently without fading of colour. The bands on the fore and hind wings are reddish-orange, rather brighter than the colour of *C. cardui* but not approaching that of fresh, or even of faded, specimens of *V. atalanta*; the four white spots on the forewings are large and prominent. Indentation of the margin of the hindwings and of the sub-apical margin of the forewings is slight. Comparison with specimens kindly shown to me by Dr. Higgins in his collection, and also with long series at the British Museum, shows that this specimen almost certainly belongs to *V. i. indica* (Herbst) and not to *V. i. calliroe* Hbn. (*vulcania* Godart) from the Canary Islands and Madeira. In the latter the forewing bands are bright rosy red, though some fading may occur in old or worn specimens; the white spots are usually reduced in size; and the apical and hindwing margins are more deeply indented than in *V. i. indica*, and most specimens are markedly smaller.

The distribution, relationship, and differences of *V. i. indica* and *V. i. calliroe* have recently been fully studied in R. Leestmans, *Problemes de Speciation dans le genre Vanessa: Vanessa vulcania*

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Godart stat. nov. et *Vanessa buana* Frhst. stat. nov., bona species (*Linneana Belgica*, 1978, pars VII, 130-156).

The means of arrival of this specimen in Warwickshire can only be speculative. Examples of *V. i. callire* might possibly reach Britain as immigrants, as probably occurs occasionally in Portugal and south Spain, but for *V. i. indica*, whose nearest known place of residence is north west India, importation in early stages with produce or escape from some unreported breeding in captivity seem to be the least unlikely sources. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 OLE.]

MELANIC FORM OF LOBOPHORA HALTERATA HUFN.: SERAPHIM (LEP.: GEOMETRIDAE). — On 2nd 1982, I took in my garden m.v. trap at Dartford, a melanic male of this moth, black with grey submarginal line. On referring to the comprehensive list of melanic forms found in Britain in Appendix B of Kettlewell's *Evolution of Melanism* (1973), I was surprised to find no mention of this species. Later, while discussing the capture with Mr. R. G. Chatelain, he mentioned that a melanic ab. of this species — ab. *nigra* Warnecke — was referred to in his copy of M. Koch, *Wir Bestimmen Schmetterlinge*. Recently, whilst visiting the British Museum (Natural History), Mr. Chalmers-Hunt kindly checked the species in the private collection there, and found 15 specimens of ab. *nigra*, all taken by E. B. White at Bristol between 1926 and 1935.

This melanic form would appear to be both extremely local and rare in Britain; if it is an industrial melanic it will almost certainly be dominant with homozygote and heterozygote indistinguishable in appearance (Kettlewell, 1973). It would be interesting to know if the Bristol location for ab. *nigra* is still known, if the form still occurs there, and if so, how commonly. — B. K. WEST, 36, Briar Road, Bexley, Kent.

THE FEATHERED BEAUTY: PERIBATODES SECUNDARIA D. & S. IN SUSSEX. — When I visited Mr. S. Church at his home at Plaistow, Sussex on the 14th July 1982, he showed me a female *Peribatodes secundaria* which he had taken in his garden trap the previous night. That evening there I saw a further four *P. secundaria*, all very worn males. It would seem therefore that to Mr. Church falls the distinction of being the first to record this species outside its Kentish locality. — R. G. CHATELAIN, 65, East Drive, Orpington, Kent.

AN EARLY APPEARANCE OF ERANNIS DEFOLIARIA CLERCK: MOTTLED UMBER. — On the night of 6 September 1982 a male specimen of this species was taken in a Rothamsted light trap in Monks Wood National Nature Reserve. Normally it does not appear in Monks Wood until mid October or later. The earliest previous record known to me was a male taken in the same trap on 25 September 1977. — J. N. GREATOREX-DAVIES, The Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs. PE17 2LS.

SCOTTISH MICROLEPIDOPTERA NOTES FOR 1981

By K. P. BLAND *

In spite of the poor weather in the 1981 season, the following records and notes are worthy of mention:—

Micropterix thunbergella (Fabr.). A specimen of this species taken at light on the night of 18/19.v.1981 in Milton of Drimmie Wood SSSI, near Blairgowrie, Perthshire (O.S.Grid Ref. NO/1651; V.c.89) constitutes the northern-most record to date (see Anon. 1981).

Johanssonia acetosa (Stt.). A single imago of this species was reared from its characteristic coiled mines in *Rumex acetosa* L. collected at Aucheninnes Moss, Dalbeattie, Dumfriesshire (O.S. Grid Ref. NX/8460; V.c. 72) on 13.vi.1981. The imago emerged on 28.vi.1981. This appears to be the *first Scottish locality* for this species which previously was not known north of Nottinghamshire (Emmet, 1976).

Adela croesella (Scop.) A single fresh female taken among brambles just behind the salt-marsh of Caerlaverock N.R., Dumfriesshire (O. S. Grid Ref. NY/0066; V.c. 72) on 13.vi.1981 gives us a third locality in Scotland for this rather secretive species. In the immediate vicinity were bramble, raspberry, rose, hawthorn, elder and alder but no privet, sea buckthorn, elm or ash!

Choreutis punctosa (Haw.). Imagines of this species, confirmed by inspection of the genitalia, were reared from larvae feeding on *Scutellaria minor* L. at Gorton Bay, Isle of Coll (O.S. Grid Ref. NM/1753; V.c. 103) on 24.vii.1981. This appears to be a *new food-plant* for this species and currently the most northern record.

Coleophora homigi Toll (= *violacea* Strom). This species is quite widespread in Southern Scotland. A case collected off ALDER in Methven Wood SSSI, Perthshire (O. S. Grid Ref. NN/0526; V.c.88) on 18.x.1980 produced an imago of this species on 16.vi.1981. Further cases referable to this species were found on ALDER at the Endrick Mouth, Loch Lomond NNR, Dumbartonshire (O.S. Grid Ref. NS/4287; V.c. 99) on 4.x.1981 and on HAZEL at Henderland Bank SSSI, Cappercleuch, Peebleshire (O.S. Grid Ref. NT/2423, v.c.78). Alder appears to be a new foodplant for this species.

Coleophora genistae Stt. Several early larval cases and two later larval cases of this species were found feeding on *Genista anglica* L. on Rannoch Moor NR, Perthshire (O.S. Grid Ref. NN/4155; V.c.88) on 19.ix. 1981. This appears to be only the *second Scottish locality* for this species, previously only known from Granish Moor, Inverness-shire (Pelham-Clinton, 1959).

Coleophora argentula (Stph.). Several larval cases referable to this species were found on the dead flowerheads of *Achillea millefolium* L. at Yellowcraigs NR, East Lothian (O.S. Grid Ref. NT/

5285; V.c.82) on 27.ix.1981. This appears to be the *first Scottish record* for this species.

Coleophora sylvaticella Wood. This species appears to be widespread at least in Eastern Scotland. It has now been recorded from Airhouse Wood SSSI, Hartside, Berwickshire (O.S. Grid Ref. NT/4753; V.c.81); Crichton, Midlothian (O.S. Grid Ref. NT/3961; V.c.83); Craighall Gorge SSSI, Perthshire (O.S. Grid Ref. NO/1748; V.c.89) and Colpy, Aberdeenshire (O. S. Grid Ref. NJ/6334; V.c.93).

Phalonidia minimana (Car.). Three specimens of this species were taken at Blackpool Moss, Whitlaw Mosses SSSI, Selkirkshire (O.S. Grid Ref. NT/5129; V.c.79) on 3.vii.1981. Identification was confirmed by examination of the genitalia of one of the two male specimens – the cornutus being longer than half the length of the aedeagus (Razowski, 1970). This is the *first authenticated Scottish locality* for this species; previously recorded from Port Appin, Argyllshire (Bradley, Tremewan & Smith, 1973) in error (Pelham-Clinton, 1982).

Aphelia unitana (Hubn.). A *second Scottish locality* for this species is Whitlaw Mosses SSSI, Selkirkshire (O. S. Grid Ref. NT/5129; V.c.79). The species was quite common in both Murder Moss and Blackpool Moss on 3.vii.1981. Previously it was only known in Scotland from Teviothead, Roxburghshire (Bland, 1980).

References

- Anon., 1981. 1980 Annual Exhibition. *Proc. Trans. Brit. Ent. Nat. Hist. Soc.* **14** (1/2), 22-33.
- Bland, K. P., 1980. Some new records of lepidoptera from Southern Scotland in 1979. *Entomologist's Rec. J. Var.* **92** (7/8), 161.
- Bradley, J. D., Tremewan, W. G. & Smith, A., 1973. *British Tortricoid Moths: Cochylidae and Tortricidae; Tortricinae*. Ray Soc., London.
- Emmet, A. M., 1976. Nepticulidae. In J. Heath, (edit.) *The Moths and Butterflies of Great Britain and Ireland*, **1**.
- Pelham-Clinton, E. C., 1959. Microlepidoptera new to Scotland. *Entomologist's Record J. Var.* **71**, 68-71.
- Pelham-Clinton, E.C. 1982. Correction to published records of *Phalonidia minimana* (Caradja). *Ent. Gaz.*, **33**: 121.
- Razowski, J., 1970. Cochylidae. In H. G. Amsel, F. Gregor & H. Reisser (edits.) *Microlepidoptera palaeartica*, **3**.

DIORYCTRIA SCHUETZEELLA FUCHS IN JUNE 1982. – On the morning of 22nd June a specimen of this moth appeared in my m.v. trap, and on 26th and 27th June Mr. B. Goater visited me and we took several specimens in the spruce plantation in my neighbour's grounds, working with m.v. over a sheet. The species has appeared here just a month earlier than last year, when I took the first specimens identified as British. – M. W. F. TWEEDIE, Barn House, Rye, Sussex. TN31 7PJ.

FURTHER RECORDS OF PHORIDAE (DIPTERA)
FROM COCOONS OF CIMBICIDAE (HYMENOPTERA)

By A. D. LISTON*

I have collected a further two *Cimbex femoratus* (L.) cocoons containing 6 and 17 puparia of *Megaselia giraudii* (Egger) from soil under birches, Whitadder Valley, East Lothian, 13.iv.1979. 2 ♀♀ emerged on 20.iv.1979 and were determined as *M. giraudii* by Dr. R. H. L. Disney. Also one cocoon of *Trichiosoma lucorum* (L.), containing 3 old puparia apparently identical with those of *giraudii*, was removed from a birch twig at Hopes Reservoir, East Lothian, 5.xii.1979.

As previously stated (Liston, 1979), the only reason why Phoridae do not infest *Trichiosoma lucorum* to such an extent as they do *Cimbex femoratus* appears to be because of the site chosen for overwintering. This is in the soil for all *Cimbex* spp. and some *Trichiosoma*, but the cocoon is spun on a twig of the hostplant in *T. lucorum* and *T. tibiale*. The remains of any dead *Trichiosoma euonymphs* in their cocoons above ground desiccate easily while those of *Cimbex* in the soil are kept damp and are presumably more attractive to female phorids because of the odour given off. Only 1 *Trichiosoma lucorum* cocoon containing phorid puparia has been found in over 330 examined. Conversely, I have examined only about 25 *Cimbex* cocoons, 3 of which have contained puparia.

Dr. Disney's determination of *giraudii* confirms his earlier tentative determination made from puparia. Disney (1979) lists numerous rearing of *giraudii* from insects (chiefly Lepidoptera), most of which appear to have been moribund.

References

- Disney, R. H. L., 1979. Natural History notes on some British Phoridae (Diptera) with comments on a changing picture. *Entomologist's Gaz.*, **30**: 141-150.
- Liston, A. D., 1979. On Phoridae (Diptera) from Sawfly cocoons (Hym.: Symphyta). *Ent. Rec.*, **91**: 303-305.

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EGGS LAID BY A DECAPITATED MOTH. — A Muslin Moth, *Diaphora mendica* Clerck, which I caught on the Downs near Beachy Head, Sussex, on 31st May 1982 was unfortunately decapitated as I enclosed it in a box. Arriving home an hour or two later I was surprised to find a few eggs had been laid on the box-side where it was suspended. More were laid later, on the floor of the box, as I watched. Its head was also on the floor. Egg-laying continued for two more days; there were two separate groups as well as the few on the side. The larvae emerged a few days later and were reared on Soft Sowthistle until 1st July when, having to leave home, I released them on Seaford Head. — Miss B. A. KNELLER, 9 Ashurst Road, Seaford, E. Sussex BN25 1AH.

THREE NEW LYCAENID BUTTERFLIES FROM THE SOUTH WESTERN CAPE PROVINCE

By C. G. C. DICKSON, M. Sc.*

Nos. 57 - 59

A new *Lepidochrysops* Hedicke

This is a striking, small, blue member of its group, which was caught by Messrs. V. L. and E. L. Pringle at Toverwater, a highlyling locality in the eastern portion of the South Western Cape Province, about 46 miles from the coast. The first five, male, specimens were captured on 21st November, 1979, and further examples were secured on a second visit to the locality in the following year; also others still later, in 1981. In the short description hereunder in which the butterfly's salient characters only are given, comparisons are made with *Lepidochrysops oreas oreas* Tite (*Entomologist* 97: 4, figs. 4 - 6 (1964)), to which the present insect shows a fairly close relationship and was in fact noted in this paper.

Lepidochrysops pringlei spec. nov.

Male.

The forewings are less produced apically than in *Lep. oreas oreas* Tite.

Upperside.

Compared with *L. o. oreas*, the ground-colour is of a deeper and richer violaceous-blue; there is a broader black distal border to the forewing (some 2-2.5 mm. in width) and in the hindwing a definite and fairly broad black costal border, with some black suffusion extending into at least part of area 6, and some broadening of the narrow black distal border. On the latter wing the submarginal dark marking in areas 3-6 is, however, less well developed than in *L. o. oreas*, or may be hardly apparent in 3-5, but with the black spot in area 2 always well defined.

Underside.

Ground-colour of all wings of a darker (brownish-grey) tone than in *L. o. oreas* and the dark marking in general with finer and rather more clear-cut white edging. In the present taxon there is, in the forewing, a distinct, dark (narrowly white-edged) elongated marking (representing one of the components of the submarginal series) close to the lower angle of the wing which, in *L. o. oreas*, is filled in (or at least virtually so) with white scaling; and this also applies, if rather less consistently, to the corresponding marking in the hindwing. In the forewing the dark discal series is distinctly less sinuous, in most specimens, than in *L. o. oreas* - i.e., in the latter taxon, the upper half of the series is normally more strongly convex outwardly and the lower half, more so inwardly. The components of the series are less prominently white-edged, especially outwardly, than in *L. o. oreas*. The series of sagittate white markings occurring postmedially in the hindwing tending as a whole to be a little less irregular and often, if not always, being narrower and more sharply defined.

Length of forewing: 15.0 - 18.0 mm. (17.0 mm., in holotype).

The body and ancillary parts are very similar to those of *L. o. oreas*, with some of the hairs of the body possibly a little darker.

*"Blencathra", Cambridge Avenue, St. Michael's Estate, Cape Town.

♂ Holotype, SOUTH WESTERN CAPE PROVINCE: Toverwater, 21.XI.1979 (E. L. Pringle); British Museum Reg. No. Rh. 18704.

Paratype in Coll. British Museum: Zwartberg Pass, 9.XI.1946, one ♂ (K. M. Pennington).

Paratypes in author's collection: data as for holotype, 14.XI.1981, one ♂ (E. L. Pringle). Summit, Zwartberg Pass, 29.XI.1969, one ♂ (C. W. Wykeham).

Paratypes in Coll. V. L. and E. L. Pringle: as holotype, 21.XI.1979, three ♂♂ (V. L. Pringle), one ♂ (E. L. Pringle); 14.XI.1981, three ♂♂ (E. L. Pringle).

Paratype in Coll. Transvaal Museum, as holotype, 14.XI.1981, one ♂ (E. L. Pringle).

Paratypes in Coll. C. W. Wykeham: Summit, Zwartberg Pass 29.XI.1969, three ♂♂ (C.W.W.).

As would have been expected in a closely related taxon of the present group, the male genitalia of *L. pringlei* are very similar as regards most of the components to those of *L. o. oreas*, i.e., if some allowance is made for some degree of individual variation in specimens, especially with respect to the distal end of the valves. As discovered in the first place by Dr. C. B. Cottrell, the lateral sclerites at the distal end of the aedeagus can provide useful distinguishing characters in the various species of *Lepidochrysoptera*. After the main dorsal "dip" in each lateral sclerite, in *L. o. oreas*, there is a small, distinct bulge, before the final decrease in width at the extreme distal end of the sclerite. But in a preparation of the genitalia of *L. pringlei* there has been a smooth dorsal outline towards the extreme distal end of each sclerite, without any small, distinct bulge. (The lateral sclerites and valves of *L. o. oreas* and closely allied blue *Lepidochrysoptera* species have been figured and described by Mr. G. E. Tite in *Entomologist* 97: 1-7 (1964)); while the present writer has figured and described the male genitalia of *L. o. oreas* and two related taxa in *Entomologist's Rec. J. Var.* 86 (3): 65-68 (1974)). In the case of *L. pringlei* the lateral sclerites have differed also from those of a taxon which has been described by the writer as a subspecies of *L. oreas* (*op. cit.*).

Toverwater (which can be translated as "bewitched water") is at the eastern extremity of the Zwartberg Range; and the specimens concerned were caught at a high altitude. Mr. Victor Pringle, who has climbed the mountain on several occasions, sometimes with his son Ernest, has referred to the locality, in a letter of 7th February, 1982, as follows:— "The range at this point falls away at the eastern end where the river and railway line cut through it. The north face slopes away steeply in rough broken ground, fairly sparsely covered in short bushes, while the south slope drops sheer in places and then falls very steeply to the valley below, and is covered in rocks and dense scrub, extremely difficult to penetrate.

"Only males of this insect were seen. They appear suddenly and circle and dash around swiftly, and then disappear as suddenly. If not taken quickly the opportunity is lost — they appear to be extremely restless, and are very swift in flight."

As indicated by the data which are included with the description, this butterfly, regarded at one time as a form of *L. oreas* Tite, was captured on much earlier occasions on the main portion of the Groot Zwartberg — as well, however, as specimens which are at least very close to it, and found further westwards, as on the Klein Zwartberg, at Seven Weeks Poort.

The writer has much pleasure in naming this beautiful insect after his friends Messrs. V. L. and E. L. Pringle — both of whom have added so much, over the years, to our knowledge of the South African butterflies.

Grateful thanks are due to Dr. L. Vári of the Transvaal Museum for his courteous and prompt help in loaning specimens which had a bearing on the foregoing study; and to Mr. R. I. Vane-Wright of the British Museum (Nat. Hist.) for his most kind assistance with colour-photographs of specimens of relevant significance.

(To be continued)

A. H. HAWORTH'S ENTOMOLOGICAL "PICTURES". — Among Adrian Hardy Haworth's many revealing comments about the contemporary scene in his *Lepidoptera Britannica* (London, 1803 [-28]) is the observation following his account of the "Clifden Blue", *adonis*, now *Lysandra bellargus* (Denis and Schiffermüller), the Adonis Blue. Haworth wrote that "Adonis, being by far the most lovely of the British Blues, is much sought after by our inferior collectors; who make annual and distant pedestrian excursions, for the sole purpose of procuring its charming males, to decorate their pictures with: a picture, consisting of numerous and beautiful Lepidoptera, ornamentally and regularly disposed, being the ultimate object of these assiduous people in the science of Entomology. These pictures are of various shapes and sizes: I have seen some which have contained 500 specimens" (I, 1803, 44-45.) Also in the *Lepidoptera Britannica*, writing about *Issoria lathonia* (L.), he stated that "my friend Dr. F. Skrimshire [Fenwick Skrimshire of Kettering, Northants, a member of Haworth's third Aurelian Society] assures me, he has seen a specimen of it in some picture, which was taken many years since in his father's garden" (I, xxviii.)

Frames of Lepidoptera, more or less ornamentally disposed, were (and still are) used as wall decorations. Many years ago I discussed the *bellargus* passage with the late P. B. M. Allan, who remembered seeing decorative frames of butterflies in inns and elsewhere during his younger days (he was born in 1884). But neither of us knew of entomological "pictures" so old as to be from Haworth's period, and Mr. Allan felt that Haworth had something in mind other than the dreary constructions familiar (at least by description) to antiquaries. Certainly he was not referring to those entomologists who arranged their insects in geometrical patterns in the drawers of their cabinets, an eighteenth-century conceit. Have any readers of the *Record* encountered English "pictures", especially of such great extent, fitting Haworth's descriptions? — RONALD S. WILKINSON, 228 Ninth Street, N. E., Washington, D.C. 20002, U.S.A.

FLUCTUATIONS IN ABUNDANCE OF COCCINELLIDAE

By DENIS F. OWEN*

Even the casual observer cannot fail to notice that the numbers of ladybirds (Coccinellidae) fluctuate markedly in abundance from year to year. Yet despite this there seems hitherto no attempt to assess the magnitude of such fluctuations over a period of years. This paper describes the results of sampling ladybirds in a Malaise trap operated continuously for ten consecutive years (1972-1981) in a garden in the suburbs of Leicester.

The garden is 55 years old and is therefore mature and well-established. It covers an area of 658 m² and is situated at the corner of a busy road 3.8 km from the centre of the City of Leicester. Like all gardens it is a mosaic of open spaces and shade and contains the rich variety of trees and plants so characteristic of older suburban gardens. A fuller description is given in Owen (1981).

A Malaise trap is an open-sided tent-like construction of fine netting with an internal baffle of netting, supported by poles and strings. Flying insects wandering into the trap tend to fly upwards on meeting the central baffle and eventually fall into a pot containing 70% alcohol at the apex. No attractant is used and so the only insects caught are those that enter the trap of their own accord. All insects trapped are of course killed but the effect of the trap on the garden fauna is negligible because it samples an area of only 2.6 m² to a height of 1.1 m. A colour picture of the Malaise trap set in Leicester garden is reproduced in Owen (1978). During the ten-year period, 4260 ladybirds of eight species were trapped.

Table 1. Fluctuations in numbers of Coccinellidae caught in a Malaise trap in a garden during ten consecutive years.

	1972	1973	1974	1975	1976*	1977	1978	1979	1980	1981	Total
<i>A. 2-punctata</i>	168	324	155	424	346	359	239	30	129	53	2227
<i>A. 10-punctata</i>	4	1	4	9	25	20	8	1	9	4	85
<i>C. 7-punctata</i>	4	—	—	121	564	86	33	17	18	2	845
<i>C. 11-punctata</i>	2	—	1	108	98	12	2	—	—	—	223
<i>T. 22-punctata</i>	1	16	—	14	39	3	—	—	—	—	73
<i>P. 14-punctata</i>	15	8	8	38	346	160	38	149	29	14	805
<i>C. 14-guttata</i>	—	—	—	—	1	—	—	—	—	—	1
<i>C. renipustulatus</i>	—	—	—	—	—	—	—	—	1	—	1
Total	194	349	168	714	1419	640	320	197	186	73	4260

* These figures are slightly higher than those given in Owen (1976b), an article published just before the 1976 season was over.

During the first three years (1972-1974) the weather was not unusual, but in the summer of 1975, particularly in the first two weeks of August, it was unusually hot and sunny and rainfall was

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scarce. Then in 1976 there was a severe summer drought, probably the most spectacular for about 250 years. By mid-August the land was parched and brown, the grass had stopped growing, and the patch-work quilt of many coloured fields, so typical of the English countryside, faded to a uniform pale brown. "Plagues" of ladybirds were reported the length and breadth of the country (Owen 1976a). The summers of 1977-1981 saw a return to the kind of weather experienced in 1972-1974, but the effect of the 1975-1976 weather on the insect fauna of the garden did not entirely disappear until 1980.

What happened to ladybirds in each of the ten years is summarized in Table 1. As shown, there were conspicuous year to year fluctuations in abundance of the six common species (two species appeared once only). In the best year (1976) about twenty times as many ladybirds were trapped as in the worst year (1981), but each species fluctuated in abundance in a different way, as detailed below.

Adalia 2-punctata (L.)

This is the common garden ladybird in most places in England. In the Leicester garden larvae and adults feed on aphids associated with woody shrubs and trees. After hibernating the adults appear on the first warm days in March, mate and lay eggs in May and June, and produce a new generation of adults from July onwards. As shown in Table 1, *A. 2-punctata* was the commonest species in each year except 1976 when *C. 7-punctata* and *P. 14-punctata* became particularly abundant, and 1979 when the population collapsed.

Table 2. Monthly occurrence of *Adalia 2-punctata* in the Malaise trap, 1972-1981.

	Apr	May	Jun	Jul	Aug	Sep	Oct
1972	2	28	18	42	69	9	—
1973	19	72	163	58	11	1	—
1974	3	26	45	28	43	9	1
1975	13	22	113	147	82	34	13
1976	5	39	106	162	23	6	5
1977	1	75	39	68	102	66	8
1978	4	113	77	28	6	8	3
1979	—	4	8	4	10	4	—
1980	8	47	49	20	4	1	—
1981	1	11	6	3	21	6	5
Total	56	437	624	560	371	144	35

Table 2 shows the monthly occurrence of *A. 2-punctata* in the Malaise trap. Those taken in April-June were almost all hibernated individuals from the previous year (in some years, notably 1976, a few freshly emerged adults appeared in late June), while those

taken in July-October were mainly the new generation (with a few hibernated individuals lingering on into early July in some years). Overall, hibernated ladybirds were slightly more abundant ($N = 1117$) than the new generation ($N=1110$), but there are striking differences between years. Thus in 1973, 1978 and 1980 the May-June peak in abundance was followed by a decline in numbers in July-October, while in 1972, 1975, 1976, 1977 and (less obviously) in 1974 the May-June peak was followed by an increase in numbers in July-October. In 1979 and 1981 too few were trapped for any trend to be detectable. Evidently, then, in some years breeding in the garden is less successful and relatively fewer of the next generation are produced than in other years. Alternatively, a substantial proportion of those produced move away quickly and are not trapped. It is also possible, particularly in 1975 and 1976, that some *A. 2-punctata* moved into the garden in July and August to swell the resident population.

Adalia 10-punctata (L.)

The ecological requirements of this species appear to be similar to those of *A. 2-punctata*. It is not known to have bred in the garden but probably does so, at least occasionally. The adults were often seen feeding on the same clusters of aphids as the adults of *A. 2-punctata*. A few were recorded hibernating in dense vegetation. *A. 10-punctata* appeared every year in numbers ranging from one to 25 (Table 1). Records were scattered throughout each summer and even in 1976, the best year, there was no obvious evidence of an influx.

Coccinella 7-punctata L.

This is the common large ladybird which around Leicester feeds on aphids associated with low-growing, herbaceous vegetation, especially field crops. It is the one most often reported as "migratory" (Williams 1958), but whether it is a true migrant is a matter for conjecture. More likely it periodically irrupts and undertakes mass movements.

Table 3. Monthly occurrence of *Coccinella 7-punctata* in the Malaise trap, 1975-1981.

	Apr	May	Jun	Jul	Aug	Sep	Oct
1975	1	—	—	—	95	20	5
1976	1	18	4	321	173	38	9
1977	1	49	11	4	2	14	5
1978	7	24	1	—	1	—	—
1979	—	—	—	—	—	17	—
1980	10	5	1	1	1	—	—
1981	—	2	—	—	—	—	—

Four were recorded in the trap in 1972 but none in 1973 and 1974, although one was seen in the garden in late March 1974, suggesting successful overwintering. The sudden appearance of large numbers in 1975 and especially in 1976, followed by a gradual

decline until 1981 is strikingly different from the annual fluctuations in numbers of *A. 2-punctata*.

Table 3 shows the monthly occurrence of *C. 7-punctata* from 1975 onwards. One was recorded in April 1975, none in May-July, and then suddenly 95 in August, mainly in the first two weeks, with a further 25 in September and October. In August *C. 7-punctata* was extremely common in the garden, but no larvae or pupae had been found earlier in the season, strongly suggesting a movement into the garden from surrounding fields where, I think, the aphid food supply had failed. Substantial numbers remained all winter and were active whenever the weather was mild. Overwintered individuals were trapped in April-June 1976, and enormous numbers were found all over the garden mating and laying eggs. Subsequently larvae and pupae were found on herbaceous plants, providing the first positive breeding records. In July and August, at the height of the drought, adults became extremely abundant everywhere. In these two months *C. 7-punctata* was nearly twice as abundant in the trap as *A. 2-punctata*. Many overwintered and 61 were trapped in April-June 1977; thereafter numbers fell, despite successful breeding, and the species was less common in April-June 1978, and rare in July-October of that year. By the spring of 1979 there were few about and none was trapped until September when there was a considerable movement into the garden. This was followed by many overwintering, their reappearance in April-June 1980, but few records subsequently.

The events of early August 1975 thus started a chain reaction whose effect did not really disappear until the summer of 1980. This ladybird has bred in the garden every year since 1976 until 1981 when it disappeared as a breeding species.

(To be continued)

CARPOPHILUS MARGINELLUS MOTSCH. (COL., NITIDULINAE) OUT-OF-DOORS IN SUFFOLK. — On 1 June, 1978, I found a single specimen of *Carpophilus marginellus* resting on low saltmarsh vegetation at Sutton, near Woodbridge, Suffolk (TM 2748). Mr. A. A. Allen in summarising the British out-of-doors records of this beetle (1958, *Entomologist's mon. Mag.* **94**: 70) suggested that its occurrence in the wild was probably limited to the vicinity of stacks, dumps or other man-made habitats where extra heat from fermentation was available — cf. also subsequent records from Berks. (Woodroffe, G., 1969, *Entomologist's mon. Mag.* **105**: 192) and Wilts. (Nash, D., 1976, *Entomologist's mon. Mag.* **111** (1975): 50). Although the Suffolk specimen may have been a straggler from such a habitat, there is a strong possibility that the beetle could have bred in the decaying, undisturbed tidal refuse which littered the area, and which would also have been able to provide the extra heat for out-of-doors development. Despite much sieving of the latter, no further examples were discovered.

I thank Mr. A. A. Allen for confirming my determination of the specimen. — D. R. NASH, 266, Colchester Road, Lawford, Essex, CO11 2BU.

FURTHER NOTABLE DIPTERA
FROM WINDSOR FOREST

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

(Continued from page 194)

DOLICHOPODIDAE

(Ten or more species of *Dolichopus*, with others of the family, can be taken by sweeping the lakeside vegetation at Virginia Water.)

Hercostomus assimilis Staeg. — One, Virginia Water, vii.72; an uncommon species which I have taken also in N.W. Kent.

Hercostomus chalybeus Wied. — At the same place, scarce and apparently extremely local, vii-viii. 72. I have found it nowhere else. Fonseca (1978) cited this record and one from Old Windsor Wood (taken by Chandler, 16.vii.67) among 14 known localities.

Hercostomus chrysozygos Wied. — Two males of this very local species (easily recognized in that sex) by sweeping in a fire-break near Badger's Brook in the Forest, 24.vii.71.

Medetera ambigua Zett. — Two males on the butt-end of a well weathered portion of large old chestnut trunk left lying on the edge of a cleared part of the South Forest, along with two females of *M. impigra* Coll. (not scarce in the area), 24.vii.71. *M. ambigua* is another uncommon species taken by me in N.W. Kent (one only).

Achalcus melanotrichus Mik. — An example emerged from mould out of an elm stump at H. Hill, 21.vi.71. Not as rare as generally supposed, if sought in the right situations.

PIPUNCULIDAE

Verrallia beatricis Coe. — A female swept a little way inside the forest at H. Hill with 2 ♀ *V. villosa* v. Ros. (a close ally), 8.vi.71. The differences were very clear — the *beatricis* agreeing perfectly with a ♀ from my Blackheath garden.

SYRPHIDAE

Didea fasciata Mcq. — A ♀, only the second individual I have met with of this conspicuous and uncommon genus, was caught at elder blossom, with an *Epistrophe grossulariae* Mg., at the edge of the forest at H. Hill, 17.vi.71. Recorded by Chandler (1971) who tells me that it occurs regularly in small numbers in May and June at H. Hill.

(*Epistrophe diaphana* Zett.) — Recaptured in the Forest on 17.vii.71 — a ♀ visiting hogweed flowers near Badger's Brook. One previously in 1940 (Allen, 1965).

Leucozona glaucia L. — My sole encounter with the species hitherto was on 24.vii.71 — a pair caught at the same spot and in the same way as the last. Taken in the Forest by C. O. Hammond

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(Chandler, 1971). Like *Bibio pomonae* it is common in the north and west but very local in the south-east.

Leucozona laternaria Müll. — Far more general than *glaucia* although found singly as a rule, and mentioned here as Chandler gives no Windsor record. It occurred to us in both the Park and the Forest on umbels of *Heracleum*.

Melangyna guttata Fall. — A male of this rather rare hover-fly on hedge-parsley flowers, H. Hill, 3.vi.71.

Parasyrphus lineola Zett. — At flowers of bramble and stitchwort in June and July; apparently widespread but somewhat scarce, mostly in the Forest but also in the Park. I have not found it elsewhere.

Cheilosia soror Zett. and *C. scutellata* Fall. — Single males of both species in the Forest, June 1940, not determined at the time of writing my earlier paper. As Mr. Chandler remarks, many more species of this genus than have yet been found must occur, including such common ones as *vernalis* Fall. and *impressa* Lw.

(*Eumerus ornatus* Mg.). — A second specimen (♂) of this decidedly infrequent species was netted by G. S. near the 'Xylota clump' (see below under *X. tarda*) at H. Hill, 17.vii.71, only a short distance from where I took the first in 1940 (Allen, 1965); like that one, it was settled on bare ground.

Chrysogaster macquarti Lw. — A few examples of this very local fly occurred on the lakeside at Virginia Water in July 1972 unaccompanied by any of the commoner members of the genus.

Orthoneura nobilis Fall. — Two or three on massed flowers of what may have been *Cotoneaster watereri* (covered with bees etc.) in the Park, 1.vii.72.

Parhelophilus frutetorum F. — In small numbers in company with the last; both must have come from some marshy place or ditch in the vicinity.

Anasimyia lineata F. — Rather common by the lake at Virginia Water. Not recorded by Chandler.

Mallota cimbiciformis Fall. — G.S. believed he saw one in the Park at the place for *P. frutetorum* above (same date), and another (which I too saw) on a wild rose in the Forest near Badger's Bridge (late July).*

Brachyopa pilosa Coll. — Males on sappy beech stumps in the latter area and one from hawthorn bloom, female swept from birch rather high up (all late May); both sexes from small sappy oak stump in the South Forest, June: males always prevalent. *B. bicolor* Fall., which I took in the Park in 1968 (Allen, 1968) did not recur, but Mr. Chandler took a ♂ at H. Hill, 1.vi.80, on a decaying beech with *B. pilosa*.

Brachyopa scutellaris Dsv. — Our most widespread species, but it turned up once only (♂, 3.vi.71, at H. Hill on fallen beech); I have taken but one other, in my old garden at Blackheath. *B.*

* On a recent visit to the Park (20.vi.82) Prof. J. A. Owen drew my attention to a fly on a hogweed umbel in the area referred to above under *Brachypalpus* which, duly netted, proved to be a fine *Mallota*.

insensilis Coll. seems far more frequent, and we found it at H. Hill on a sapping elm (its usual biotope). *B. scutellaris*, however, is not confined to old woods as *pilosa* and *bicolor* tend to be, and Mr. Chandler informs me that he has found it at localities in 10 counties.

Xylota tarda Mg. — A scarce species in southern England and not known from the Forest, until I caught a male at H. Hill on or about rhododendron foliage, 17.vi.71. (We noticed that flies of this genus seemed uninterested in the flowers, but liked to bask on the leaves mostly low down, above all on one particular clump at H. Hill next to a large prostrate beech trunk, when lit by the afternoon sun.) I was on the point of rejecting the *tarda* as only an undersized *segnis* L. (the commonest species), but luckily thought better of it. On that memorable occasion, we took, jointly, all the then known British *Xylotae* within the space of an hour or two.

(*Xylota xanthocnema* Coll.) — This, along with *X. florum*, was to us the least frequent species in the locality after *tarda*. G.S. captured several, including a ♀, at the aforesaid rhododendron clump (4.vii.71), as well as a ♂ on 17.vi, and I netted a ♂ there on 17.vii. The spot is near where my two original males were caught (Allen, 1965).

(*Xylota sylvaram* L.) — Not nearly as common in the area as either *segnis* or *nemorum*. A ♂ settled on a beech trunk in the Park, 24th Sept. 1980, is perhaps worth noting because of the date.

(*Xylota lenta* Mg.) — Not found by us outside the special station at H. Hill where males were not uncommon in June 1971, also occurring singly deep in the shady-forest about beech timber, but for a week or two in that year only. I saw no female at any time.

(*Xylota nemorum* F.) — This proved common throughout the Forest (we did not definitely see it in the Park, except in the woods at Virginia Water), chiefly affecting stacks of cut beech boughs (oak rather less) as well as logs and stumps, and was much less in evidence on foliage — unlike the next two, etc.

Xylota abiens Mg. — More widespread than several of the species, occurring sporadically in the Park (♀, beech stump) and at Virginia Water (♀, swept by the lake), but as with *lenta* etc. its headquarters seemed to be on the edge of the forest at H. Hill; males not rare in early June, sunning on low foliage of rhododendron.

Xylota florum F. — Very local and scarce as a rule, but a good locality for it was discovered by G. S. near Badger's Brook, where he took several males on 17.vi.71 and a few more on later dates, some on umbels of hogweed, others low on sunlit alder foliage; I netted one from the latter on 17th July, and another male from rhododendron foliage some distance away near H. Hill, 17.vi.72. The two specimens referred to *florum* in my 1965 paper were mis-determined, careful re-examination showing them both to be *abiens* (the small ♀ perhaps abnormal); the former species is thus in fact an

addition. (*Note*: in this genus, females are normally much less in evidence than males.)

(*Brachypalpus laphriformis* Fall. (*bimaculatus* Mcq.). — On 21st May, 1972, one was boxed by G.S. as it emerged from under loose bark high up on an oak trunk which he was working with the aid of a ladder, in an area of the Park lying to the north of the main Ascot road. On 2nd June, not far from this spot, we came upon a very few more (all males, I think) flying about and settling on the ground near a large old hulk of oak and low on the trunk of a beech nearby. They were not easily caught and we secured one each. (My 1940 specimen, wrongly recorded as a ♀, was in fact a ♂).

(*Caliprobola speciosa* Rossi). — Somewhat erratic and apparently localized, rare in 1971, much more frequent in the next two years. In the forest at H. Hill, (which we often visited), only one was seen, about an elm stump in early evening, 3.vi.71; but on 2.vi.72, in the Park, at the second spot mentioned under the last entry, we found it not very uncommon, then and on various later occasions that year and the next; though once or twice it failed to appear when conditions seemed right. Its habits here were precisely those of *Brachypalpus*, but it extended over a wider area which took in a large blown-down beech some distance away, in the high broken-off stump of which it was undoubtedly breeding. Most often these splendid flies settled on the ground, less often on the trunks etc., occasionally on nearby tree foliage; they only showed themselves in sunshine. Finally, one was seen to alight upon an oak stump in another more wooded part of the Park near Union Gate, 6.vi.73. Unlike most of those caught at may blossom in 1940, all captured specimens were males in perfect order, with the following exception.

On 3.vi.73, G.S. witnessed the oviposition-behaviour of a female at the broken-off beech already referred to, my note of which is worth quoting: — “The fly appeared hovering in the hollow of the trunk, settled on the surface of the wood-mould that half filled it, and quickly buried itself, scraping away the loose particles with its feet and almost disappearing from view after a few moments. In about half a minute it reappeared and flew straight up into the net placed over it.” The remarkable feature of this observation is surely the rapidity with which the whole process was completed (assuming that an egg or eggs had actually been laid).

(*Criorhina asilica* Fall. — We had the pleasure of meeting with this for the first time at H. Hill on 3.vi.71 (though already found by C. O. Hammond), each obtaining two — mine are both males. Except for one netted by G. S. a little inside the forest about an elm stump filled with wood-mould, they were flying around and alighting on flowers of rhododendron fairly high up at the forest edge. Curiously, we never for certain saw the species again, which seems nearly as scarce in the area as *C. ranunculi* Panz. Like *B. laphriformis* it is a good honey-bee mimic.

(*To be continued*)

THE NORTHERN RUSTIC: *STANDFUSSIANA LUCERNEA* (LINN.) (LEPIDOPTERA, NOCTUIDAE) IN LANCASHIRE.

By E. G. HANCOCK*

Barrett (1896) tells us that the Northern Rustic, *Standfussiana lucernea* (Linn.), is said to be rare in Lancashire; South (1920) merely repeats this statement. Having examined the records available it does appear to be rather infrequently referred to in a Lancashire context. This would be especially so now that Furness and a considerable part of the west pennine moors have been removed to other political entities. Since the evidence for a discussion of the status of *S. lucernea* as a Lancashire insect would almost entirely disappear under the new definition of the county it is decided to retain, mentally at least, the older boundaries. This is further reinforced by the fact that only one of the records is post 1974 (the date of local government reorganisation).

The preferred habitat and behaviour of *lucernea* is described by Goater in some detail (in Heath and Emmet, 1979). There are few sea cliffs on the Lancashire coast and in any case there are no records of *lucernea* from those that do exist. Inland, however, there are numerous natural and quarried rocky areas in the millstone grit of the pennine moors and limestone in north Lancashire. Here the data indicate that these areas are indeed those which support populations of the moth.

What prompted me to look at this species was the finding of a male example in a portable mercury vapour light trap in my own back yard on the night of the 14 July 1981, Astley Bridge, Bolton (NGR: SD 792118). This is a literal statement. The reason for the trap being set in the yard rather than the garden is another story. The house is less than half a mile from moorlands and extensive stone quarries on the north side of Bolton.

In the north west as a whole, the Lake District is an obvious place to find the Northern Rustic although it appears not to be as densely recorded as in North Wales. The only other specimen I have taken personally was at light at Ulverston, in Furness (SD 290788), 20 August 1968. The pennines which are represented by western extensions into Lancashire of the moors around the north and east of Manchester, Blackburn and Burnley are also likely to yield this species. This is obvious from the evidence of the more frequent records from the Yorkshire side in the area of Halifax, Huddersfield and Ilkley, for example.

So it is to the local literature that one must turn for records and after that the examination of public and private collections, followed by verbal contact. The county list of Lepidoptera (Mansbridge, 1923 & 1940) with an update (Smith, 1955) give Catlow, near Nelson (SD 88-36-) as a locality where it is not uncommon, recorded

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by Allan Brindle of Manchester Museum. Albert E. Wright found one "at Burnley" in 1918. Mr. Stuart Coxey, a Bolton collector, sent a record from the "Bolton Mosses". This he tells me (*in litt.* 30 Oct 1981) was a misprint for "moors" and is referable to a specimen in his collection dated 22 July 1951. It was caught at Horrocks Fold where the aforementioned quarries near my own residence are found. J. W. Baldwin, another Bolton naturalist, recorded it at Turton Toppings in Bolton (SD 72-13-) which is also less than a mile from these quarries. No date is given for this record but it is at least before 1875. Baldwin was primarily a conchologist and his collection came to the museum in Bolton. Although I have identified some microlepidoptera as having been collected by him there are no examples of *S. lucerneae* in the museum from any source until the Astley Bridge specimen in 1981.

The Nelson locality is repeated by Woods (1968) and it still occurred in a quarry there at that time. The only other modern record is represented by a post-1960 solid dot on the distribution map given in Heath & Emmet, 1979. This is for the square SJ79 which covers the low lying land around Salford and would appear to be unlikely area for this species. If the record is not in error then the western part of this ten kilometre square includes the remains of some of the famous south Lancashire mosses, Chat and Carrington, where it is conceivable the moth may breed. John Heath informs me (*in litt.* 26 Aug. 1981) that another record had been sent in to the Biological Records Centre at Monkwood for the square SD60. I have traced this record to Mr. Tim Melling of Bolton, a keen amateur collector now studying at Newcastle-upon-Tyne University. He generated the record on the basis of a manuscript note by another collector, Mr. Priddy of Westhoughton. It was only when Tim obtained this man's collection and was able to examine it closely that the record proved to be unfounded. It was based on a worn example of the variable Dotted Clay, *Xestia baja* D. & S. Another manuscript, a list of the lepidoptera of Bolton by Mr. S. Reade of the Bolton Field Naturalists' Society compiled in 1930, does not record the Northern Rustic.

Various friends and colleagues in the north west have provided negative information following a request for recent records. It remains to say that I saw one flying in a classic manner in suitable habitat at Tockholes, near Darwen (SD 6620) on 27 August 1981. The evidence appears to indicate that the Northern Rustic is not widespread but occurs irregularly in its preferred habitat and is probably under-recorded. Skidmore (1964) states that the fauna of moorland is unstable with some insects continually disappearing to be replaced by others, or the same species turning up again after a lapse of some years. *S. lucerneae* is selected as an example of this phenomenon, among other lepidopterans. The records from the Bolton moorland localities would seem to support this theory although there has not been continuous local recording over the last thirty or forty years in sufficient detail to be sure of this.

The national distribution of *lucerneae* is slightly odd. It is recorded from high ground inland in the pennines, Lake District

and Wales. Elsewhere it appears to be restricted to coastal areas. This leaves huge tracts of apparently suitable high ground for this species such as in Scotland, Ireland and the south west of England from which it is absent. Is this a genuine absence and if so for what reasons?

References

- Barrett, C. G. 1896. *The Lepidoptera of the British Islands*, 3: 391.
 Heath, J. and Emmet, A. M., editors, 1979. *The Moths and Butterflies of Great Britain and Ireland*, 9: 155.
 Mansbridge, W. 1923. The Lepidopterous Fauna of Lancashire & Cheshire, *45th/46th Ann. Reports & Proceedings Lancs. & Cheshire Entomological Society*, 90.
 Mansbridge, W. 1940. Supplementary list of the Lepidoptera of Lancashire & Cheshire, *ibid.* (61st-63rd Reports), 254.
 Skidmore, P. 1964. Some aspects of the entomological fauna of a Lancashire Moore, *59th - 61st Ann. Reports, Proceedings and Transactions of the Manchester Entomological Society*, 19-25.
 Smith, S. G. 1955. Records of Butterflies & Moths found in the counties of Lancashire & Cheshire, *77th - 78th Ann. Reports & Proc. Lancs. & Cheshire Ent. Soc.*, 42.
 South, R. 1920. *The Moths of the British Isles*, 1: 213.
 Woods, G. F. 1968. Moths & Butterflies in Caul, R. (editor) *The Natural History of the Burnley Area*, 103.

MARGARET FOUNTAINE: THE FATE OF MANY OF HER BOOKS AND SOME OF HER NOTES. — In her Will in 1940, Margaret Fountaine bequeathed many of her books and some of her notes to 'the youngest member of the Royal Entomological Society'. At that time, this turned out to be a young American, a Mr. J. Dennis Cowper, who returned to the States presumably with much of the background to Margaret Fountaine. His last known address is in Los Angeles, but we have learned that the building has now been demolished.

We should much like to know of the whereabouts of this valuable collection of books and papers, and request anyone with information to write to: The Editor, Entomologist's Record, 1 Hardcourts Close, West Wickham, Kent BR4 9LG, England.

THE SILVER-SPOTTED SKIPPER: HESPERIA COMMA L., A NEW LOCALITY NEAR EASTBOURNE. — On the 21st August 1982, I was pleased to note a single female example of this scarce butterfly on the edge of the South Downs near Eastbourne. To my knowledge this is the first time the species has been recorded at this site which seems ideal for the insect. — M. PARSONS, The Forge, Russells Green, Ninfield, Battle, E. Sussex.

A NEW FOODPLANT FOR SYNTARUCUS PIRITHOUS L. — A single female *S. pirithous*, observed in the wild on Spetses island, Greece, in late August 1982, was seen laying eggs singly on the flower buds of an ornamental climbing *Jasminum* plant. I believe this to be an as yet unrecorded foodplant for this butterfly. — J. G. COUTSIS, 4 Glykonos Street, Athens 139, Greece.

TREASURER'S NOTICE

It is with regret that I have to report that the *Record* has been running at a loss for much of this year, and that a rise in subscriptions will be necessary as from the beginning of Volume 95 (1983). In the coming year, we can expect printing costs to rise at least in accordance with the rate of inflation, and there is also the possibility of increased postal charges. To make matters worse, the decline in interest rates will reduce the income from our deposit account. It has therefore been decided that the subscription rates for next year will be £10.00 (U.K.) and £11.50 (Overseas): the increased differential is due partly to postage and partly to the high cost of clearing foreign cheques. If you pay by Standing Order, please be sure to provide your bank with the new details well before payment will be made.

In order to minimise costs, I make two requests. First, please pay on or before January 1st — the printers are normally paid before the journal is despatched, so the money is needed at the beginning of the month. Unfortunately, we shall not be sending out any copies of the journal for which payment has not been received. Second, if you decide not to renew your subscription, please let me know in good time, as this saves the expense of sending out reminders.

P. J. JOHNSON, Hon. Treasurer.

Notes and Observations

FLIGHT TIME OF RINGLET: APHANTOPUS HYPERANTUS L. IN SCOTLAND. — Over the last five years butterfly numbers have been assessed at two NNR's in east Fife, Scotland using the method described by Pollard (1977). Records were obtained for Tentsmuir Point from 1978 onwards and Morton Lochs from 1979 onwards. These show interesting differences in the flying time of Ringlet between the two sites.

Year	1978	1979	1980	1981	1982
<i>Morton Lochs:</i>					
Annual population index		527	701	609	899
Flight time (weeks)		9	9	9	10
<i>Tentsmuir Point:</i>					
Annual population index	4	49	174	184	572
Flight time (weeks)	4	6	7	7	8

Table 1. Observed flight time (in weeks) in relation population size at Morton Lochs and Tentsmuir Point, Fife.

At Morton Lochs the Ringlet has emerged between 18th and 28th June during the last five years. First emergence is about a week and a half later at Tentsmuir Point. Table 1. shows that although the annual population index obtained from the transect results has varied at Morton the flying period has varied little. In contrast at Tentsmuir where the local population was believed to be severely reduced by drought in 1976, the flight period has extended as the total number in the population has risen. The ten week flying time observed at Morton this year probably represents the maximum for Scotland since east Fife enjoys the highest recorded sunshine in the country. The emergence times reported here are within the range given by Thomson (1980). The flight period given by him, however, is only about one month. The above results suggest that the observed flight period is directly proportional to population size. — References: Thomson, G. 1980. *The Butterflies of Scotland*, Croom Helm, London.

Pollard, E. 1977. A method for assessing changes in the abundance of butterflies. *Biol. Cons.* 12, 115-134. — P. K. KINNEAR, 11 Hillview Road, Balmullo, St Andrews, Fife KY16 ODE

AN ITALIAN BUTTERFLY POSTER. — I have just returned from a visit to Italy (alas not a collecting trip), and I was amused to see in Cremona a poster with some white butterflies of uncertain genus and writing "A clean city brings butterflies", which seemed to me a *non sequitur!* — Canon PETER HAWKER, St. Botolph's Vicarage, 84 Little Bargegate Street, Lincoln LN5 8JL, 26.viii.82.

THE CONVULVULUS HAWKMOTH AND CLOUDED YELLOW IN SOUTH DEVON. — On August 31 a large female *Agrius convulvuli* L. was found in my m.v. trap here following a cold moonlight night. And at Slapton Sands, two *Colias croceus* Geof. were seen on August 12 and one on August 19. — H. L. O'HEFFERNAN, 24 Green Park Way, Chillington, Kingsbridge, S. Devon.

THE CLOUDED YELLOW: COLIAS CROCEUS GEOF., AUTUMN 1982. — Whilst walking along Carlyon Bay, Cornwall (SX 060522) on the morning of 10th September 1982 in dull weather conditions a *C. croceus* flew up in front of me, it settled about 30yds. away which enabled me to confirm the identification. — A. J. BALDWIN, 33 Defoe Avenue, Kew Gardens, Surrey.

RHYACIA SIMULANS HUFNAGEL: DOTTED RUSTIC IN LINCOLNSHIRE. — Back in July 1980 I took a specimen of this species in my Robinson trap at home. This was the first record for the county of this central and southern moth. This year I have taken a total of five examples in and around Lincoln, which suggests that the species is established. Only one of these was at light. The others were found by day, actively fluttering in vegetation. The first was taken on 26th June and the last on 29th July. It would be interesting to hear more of the spread of this insect, which seems to be undergoing a population explosion, judging by other accounts in the *Record*. — M. TOWNSEND, 8 Cornwall House, Ravendale Drive, Lincoln, 22.ix.82.

THE LUNAR THORN : SELENIA LUNARIA D. & S. IN EAST SUSSEX. — A fine male specimen of this species appeared in the home run MV light trap on the 23rd July. This example seemed smaller and richer in colour than most other examples I have seen and presumably represents a second generation moth. — M. PARSONS, The Forge, Russells Green, Ninfield, Battle, E. Sussex.

BUCCULATRIX CIDARELLA ZELLER ON MYRICA GALE IN ENGLAND. — On the 3rd of September, 1982, in the company of Mr. E. C. Pelham-Clinton, Dr. J. D. Bradley and Dr J. R. Langmaid, I found *B. cidarella* feeding in some plenty on bog myrtle (*Myrica gale*) on the Arne National Nature Reserve, Dorset. Alder (*Alnus glutinosa*), the usual foodplant, was nowhere in sight, but the warden of the reserve told us that it occurred plentifully about half a mile away.

This is the first record of *B. cidarella* feeding on bog myrtle in England, the previous records having been made from north-west Wales and south-west Ireland. In most places where alder and bog myrtle occur together *B. cidarella* is confined to the former; when, however, it does accept the latter, it abounds on it. Hitherto it has proved immune from parasitisation when feeding on bog myrtle and this may be the explanation for the success of such colonies. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF.

THE HIGH BROWN FRITILLARY: ARGYNNIS ADIPPE D. & S. IN S. CUMBRIA. — It was satisfying to find good numbers of this species during the 1982 season in one of its strong but geographically isolated colonies in South Cumbria. The site, undisturbed light scrub and woodland on limestone, is extensive and at the height of its flying season in July and early August this year, this was the most prominent and probably abundant butterfly. This supposition was backed up by regular transect counts where numbers were similar to the Small Pearl Bordered Fritillary and to associated grassland species such as Common Blue and Meadow Brown. Netting and release of specimens taken at random showed it to outnumber the Dark Green Fritillary by about 10/1.

At a time when the apparent national trend is for a decline in the species, the present relative abundance is encouraging and it is hoped this butterfly will continue to thrive in this locality. — M. J. Y. FOLEY, 87 Ribchester Road, Clayton-le-Dale, Blackburn, Lancs.

PARARGE AGERIA L. (SPECKLED WOOD) FEEDING ON DAMAGED APPLE. — For the most part the speckled wood butterflies visiting my Dartford garden this year behaved typically, flitting above in partially shaded situations, and on the flower border merely settled upon the leaves for brief intervals despite the profusion of flowers. However, on August 29th 1982, I noticed a specimen feeding upon a bird and wasp-damaged Laxton's Fortune apple hanging in a shaded position about six feet from the ground. On several occasions it left the fruit only to return after a short interval, and on each occasion was seen clearly to be feeding.

I think this occurrence unusual enough to warrant reporting, for the few references I have found of *P. aegeria* visiting fruit relate to blackberries, although actual feeding was not specifically mentioned, and to a plum where imbibing was noted (Bolingbroke, *Ent. Rec.* 65, 291).

In the entomological journals I have found numerous references to *P. aegeria* on the Continent, but no mention of it feeding; is this species seen imbibing from flowers and fruit there as infrequently as its subspecies in the British Isles? — B. K. WEST, 36 Briar Road, Bexley, Kent.

THE FIRST RECORDING OF TRICHOPLUSIA NI HBN. IN WARWICKSHIRE. — The first known recording of this rare migrant moth for Warwickshire, is of one taken by Mr. R. Thomas in his m.v. trap, at Hartshill Hayes in the north of the County on 18th September 1982. A second specimen occurred in my garden trap the following day, followed by another on 20th September. Mr. Roy Allen also recorded one in his garden trap at Marton on 20th September.

Other notable 1982 Warwickshire migrants recorded at Charlcote are as follows: 8th July and 21st August, *Spodoptera exigua* Hbn. (A. Gardner). 29th and 31st July, *Eurois occulta* L. (A. Gardner). 17th (2), 18th and 19th September, *S. exigua* (D. Brown). 19th September, *Macroglossum stellatarum* L. (A. Gardner). 20th September, *Agrius convolvuli* L. (A. Gardner). 23rd and 27th September, *Helicoverpa armigera* Hbn. (D. Brown and A. Gardner). 2nd October, *Orthonama obstipata* F. (D. Brown). — D. C. G. BROWN, Jacksons Farmhouse, 25 Charlcote, Nr. Warwick, Warks.

THE TWO-YEAR LIFE-CYCLE OF COLEOPHORA HEMEROBIELLA (SCOPOLI). — To my knowledge, the first assertion in the British literature that *C. hemerobiella* has a biennial life-cycle was made by R. W. J. Uffen in *A field guide to the smaller British Lepidoptera* (1979). Apart from stating that the final erect and straight case is made in the second spring, he gives no details of timing. The following note may therefore be helpful.

On the 30th of May, 1981, in the company of the Revd D. J. L. Agassiz and Dr J. L. Langmaid, I collected larvae of this species at Grays, South Essex (VC 18). Some were in the final case but four were still in the earlier pistol-shaped case. I sleeved (more precisely, nylon-stockinged) the small cases on a crab-apple in my garden and left them undisturbed for the next 13 months. My observations were intermittent and consequently I can give only approximate dates. By the end of June the larvae had ceased to feed and had fixed for aestivation on the twigs. Aestivation extended into hibernation without a break, the larvae remaining immobile for ten months. Towards the end of April feeding began again on the young leaves and the pistol case was soon abandoned for the final case, excised from the margin of a leaf near its base. I think Stainton (*The natural history of the Tineina* 5: 76) is wrong in stating that the larvae make two straight cases, the second larger than the first; according to my observations, they go straight from the pistol to the final case.

Feeding continued until about the middle of June. At the beginning of July, when the cases were unmistakably fixed for pupation, I opened the sleeve for the first time and brought them indoors. The four moths emerged between the 12th and 20th of July, 1982. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF.

LINCOLNSHIRE BUTTERFLIES. — Recently, there has been the sighting of two *Polygonia c-album* L.: Comma in Lincoln. One by myself on 18th September feeding on decaying pears with about 20 *Vanessa atalanta* L. The other was on 15th September by Messrs. Brian and Andrew Cunnington in their garden at ice plants. These are the first records of the Comma for the area and probably the county since 1971, and of a butterfly that was widespread in Lincolnshire up to about 20 years ago. It would be nice to think of the resurgence of this species in a county which has lost so many nymphalids and others, notably *Argynnis paphia* L., *A. adippe* D. & S., *Boloria selene* D. & S., *B. euphrosyne* L. and probably *A. aglaja* L. and *Euphydryas aurinia* Rott. One nymphalid is still in good numbers in the woods east of Lincoln, *Ladoga camilla* L., which was very early this year. — M. TOWNSEND, 8 Cornwall House, Ravendale Drive, Lincoln, 22.ix.82.

THE MARSH FRITILLARY: EUPHYDRYAS AURINEA ROTT. IN CUMBRIA. — Following up a previous note in this journal (J. H. Vine-Hall, *Ent. Rec.* 91: 24-5) on the status of the Marsh Fritillary in Cumbria, I visited in good conditions in early June this year the four extant sites therein described. At only two of these was the species present, however, and then only noted in very small numbers after prolonged observation (less than five separate individuals sighted at each). The other two colonies were apparently unoccupied although there is one recorded sighting for 1981 at one of these but none since 1979 at the other. A visit to a further previously suspected site revealed the species to be present (again less than five seen) which adds another to the total, and there are at least three other possible sites which need further investigation, discounting two others at which the species is probably extinct.

Thus the butterfly is just hanging on in very small well scattered colonies, and it is surprising that it can survive for long at such a low density. The Cumbria Trust N.C. is aware of the location of the sites, and it is hoped that the habitats can be protected and collecting avoided, so that this species, generally absent elsewhere in Northern England, can build up numbers again. — M. J. Y. FOLEY, 87 Ribchester Road, Clayton-le-Dale, Blackburn, Lancs.

THE DECLINE OF THE DUKE OF BURGUNDY: HAMEARIS LUCINA L. — We are conducting a study of the ecology of this butterfly the object being to determine the precise habitat requirements and habitat management requirements of the species. The study has the support of the Nature Conservancy Council (NCC) and is linked to NCC's 'Butterflies Under Threat' project. Information is urgently required from as many sites as possible and we would be delighted to establish contact with entomologists who are familiar with the species. Please write for further details either to

myself (for sites in eastern England) at the address below, or to Mr. W. G. Shreeves, 5 Butt's Mead, Shaftesbury, Dorset (for sites in the western half of England).

It may be of interest to add that while working on the ecology of the Duke of Burgundy at Selborne during the past few years, some useful discoveries have been made. For example, the main predator on *lucina* is a snail (*Monacha cantiana*) which, seemingly accidentally devours the ova on the Cowslip leaves. Does the same happen to the ova in other localities? So far we have received information from a number of entomologists, and initial indications suggest an alarming recent decline in the number of sites occupied by *lucina*, especially in woods. — M. R. OATES, The Lodge, Wyck Place, Wyck, Alton, Hampshire.

NYMPHALIS ANTIOPA L. AT SEA. — While fishing two miles off the southern coast of the island of Spetses, in Greece, in late October 1981, I observed a single *Nymphalis antiopa* flying about one metre above the sea and heading toward the island.

The only places in that area where this butterfly is resident, are the higher mountains of the Peloponnissos and its appearance near the island of Spetses must be attributed to forced migration due to adverse weather conditions in its natural habitat.

It is assumed that its journey must have started somewhere in the Parnon mountains of eastern Peloponnissos and that the butterfly covered a distance of about 20 kilometres, while flying over the sea. — J. G. COUTSIS, 4 Glykonos Street, Athens 139, Greece.

YPONOMEUTA EVONYMELLA (LINNAEUS) IN SOUTHERN ENGLAND. — I should be grateful for any information regarding the foodplant of this species in the south of England. Further north it feeds on bird-cherry (*Prunus padus*), often in great profusion, whole trees being sometimes completely covered in larval webs and entirely defoliated. In the south, bird-cherry is scarce and the few trees I have seen have not been attacked. Yet *Y. evonymella* occurs at low density even in areas where bird-cherry is apparently absent.

In 1970 I brought a web of these larvae home from Derbyshire. After the branch on which they were feeding had all been consumed, being unable to locate further supplies of bird-cherry, I tried them on leaves of damson-plum from the garden. Finding that they accepted this, I sleeved out half the larvae on the damson-tree. These ceased to feed and all perished. Those in the plastic box, which retained the remains and in particular the smell of the original foodplant, fed on and produced adults, all of which, however, were undersized.

In 1981 two adults appeared here in Saffron Walden at lighted windows. In 1982, when I was lent a light-trap for a few days in July, they were fairly common, about six appearing each night, but settling around the trap in preference to entering into it. The feature which struck me about these moths was that they were all undersized like those I have just mentioned.

It is possible that they had fed on blackthorn (*Prunus spinosa*),

but a specimen I took on the army ranges at Foulness on the 17th of July this year suggests otherwise. On Canvey Island and elsewhere in south-east Essex the brown-tail moth (*Euproctis chryssorrhoea* (Linnaeus)) is kept under control by council workmen. There is no public access to Foulness Island and there this necessary task is not performed. Consequently this pest occurs in unimaginable profusion. In whole areas the blackthorns, hawthorns and roses are literally stripped bare of all their foliage, leaving ugly skeletons festooned with larval webs. In an area where the bushes had been reduced to such a condition in 1981, the larvae had switched to scrub elm in 1982, presumably because the females had found the blackthorns they themselves had helped to defoliate quite unsuitable for oviposition. The blackthorns were beginning to recover but there is little doubt that 1983 will see the brown-tails renewing their assault.

The result is an almost complete absence of other species feeding on these plants. The hawthorn-feeders fare best because there is so much of it that some trees escape. Blackthorn seems to be the favourite foodplant of the brown-tail, and its other associated species, especially the leaf-miners, are absent or excessively rare. For example, of the four *Coleophora* species so common at Benfleet, I have found only *C. anatipennella* (Hübner) very sparingly, this being one which has alternative foodplants. I have never seen *Yponomeuta padella* (Linnaeus) at Foulness, but its close relative, *Y. malinellus* Zeller, abounds on apple-trees surviving from a former orchard. So unless my specimen of *Y. evonymella* had flown in, it is likely to have fed on some foodplant other than blackthorn.

All the Essex specimens of *Y. evonymella* which I have seen — those from Saffron Walden, Foulness and one or two other localities — have a common characteristic: they are undersized like those I fed on damson. What is their foodplant? — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF.

SPHINX LIGUSTRI L. (PRIVET HAWKMOTH): DISAPPEARANCE FROM N. W. KENT. — It is with regret that I comment on the apparent absence of this fine insect from urban N. W. Kent — the conurbation south of the R. Thames from central London to Dartford. The privet hawk moth used regularly to be seen on fences and telegraph poles, or injured on pavements and roads, while every year the caterpillars notified their presence by their excremental pellets beneath privet hedge, or overhanging lilac or laurustinus (*Viburnum tinus*), and beside waste land under saplings of ash. I last saw privet hawk caterpillars in this area in 1972, and the last visits of the moth to the garden m/v trap at Dartford were 1972 (two) and 1975 (two). Chalmers-Hunt in his *Lepidoptera of Kent Supplement* mentions an apparent decline of the species for the county as whole.

In the above-mentioned work the author suggests that the introduced species of privet, *Ligustrum ovalifolium*, is the most favoured larval pabulum in Kent, and states that he had only one record for the native *L. vulgaris*. However, in N. W. Kent the larvae could be found every year on the latter plant also, e.g. on Dartford

Heath, while where a hedge was composed of both species of privet, no preference for either was apparent. It was noticeable that often the same short stretch of garden hedge had caterpillars year after year. Once, in 1946, I found nine larvae at Dartford on snowberry (*Symphoricarpos*), and wonder if the plant was utilized more frequently than records suggest, for rarely do these bushes conveniently overhang the pavement. Finally, although holly is a well-known larval foodplant in the New Forest, and perhaps elsewhere, I know of no record of *S. ligustri* on this in N. W. Kent, where the plant is used commonly for hedging and as an ornamental shrub. — B. K. WEST, 36 Briar Road, Bexley, Kent.

SOME OF THE LESS COMMON SPECIES OF LEPIDOPTERA TAKEN AT BARCALDINE, ARGYLL, IN 1980 and 1981. — The following were among the less common Macrolepidoptera caught by a Robinson M.V. light trap (125 watt) sited at Barcaldine, Argyll (map ref: NM 964414) (on the edge of Barcaldine Forest) and operated almost nightly during the years 1980 and 1981. Critical species were identified by microscopic examination of genitalia. Some of the species listed are common in southern Britain but appear to be rare here and are included for that reason. Numbers of individuals caught in 1980 and 1981 are given in that order.

Trichiura crataegi L. (5:13), *Falcaria lacertinaria* L. (5:0), *Ochropacha duplaris* L. (6:2), *Scopula ternata* Schrank (2:0), *Orthonama vittata* Borkhausen (3:1), *Xanthorhoe munitata* Hbn. (2:2), *Entephria flavicincta* Hbn. (0:1), *E. caesiata* D. & S. (1:0), *Anticlea derivata* D. & S. (0:1), *Lampropteryx suffumata* D. & S. (0:1), *Coenoteophria salicata* Hbn. (7:8), *Cidaria fulvata* Forster (3:0), *Plemyria rubiginata* D. & S. (3:2), *Thera juniperata* L. (1:0), *Colostygia olivata* D. & S. (1:0), *Hydriomena impluviata* D. & S. (0:3), *Perizoma taeniatum* Stephens (13:7), *P. albulata* D. & S. (13:2), *P. flavofasciata* Thunb. (0:1), *P. didymata* L. (0:1), *Carsia sororiata* Hbn. (0:1), *Odezia atrata* L. (1:0) (common by day), *Venusia cambrica* Curtis (26:21), *Trichopteryx polycommata* D. & S. (0:2), *Acasis viretata* Hbn. (0:3) *Abraxas grossulariata* L. (0:1), *A. sylvata* Scop. (10:2), *Semiothisa notata* L. (1:0), *S. liturata* Clerck (0:4), *Plagodis pulveraria* L. (1:1), *Deuteronomos erosaria* D. & S. (2:0), *Selenia lunularia* Hbn. (2:4), *Cleora cinctaria* D. & S. (1:2), *Alcis jubata* Thunb. (62:52), *Cleorodes lichenaria* Hufn. (0:2), *Gnophos obfuscatus* D. & S. (2:1), *Dyscia fagaria* Thunb. (0:2), *Cerura vinula* L. (1:1), *Harpyia furcula* Clerck (0:1), *Pheosia tremula* Clerck (2:3), *Odontostia carmelita* Esper (10:21), *Setina irrorella* L. (0:1), *Diacrisia sannio* L. (2:3), *Spilosoma luteum* Hufn. (3:0), *Nola confusalis* H.-S. (10:12), *Euxoa tritici* L. (2:0), *Standfussiana lucerneae* L. (0:1), *Graphiphora augur* Fabr. (1:0), *Xestia rhomboidea* Esper (0:2), *X. agathina* Duponchel (6:55), *Naenia typicala* L. (5:3), *Eurois occulta* L. (23:36), *Polia bombycina* Hufn. (11:24), *Lacanobia oleracea* L. (1:0), *Hadena confusa* Hufn. (1:0), *Panolis flammea* D. & S. (0:2), *Dasytopolia templi* Thunb. (2:5), *Aporophyla lutulenta* D. & S. (0:3), *Lithomoia solidaginis* Hbn. (0:3), *Xylena vetusta* Hbn. (11:14), *Antitype chi* L. (4:6), *Agrochola helvola* L. (1:1), *Parastichtis suspecta* Hbn. (9:0), *Atethmia centrago* Haw. (0:1) *Omphaloscelis lunosa* Haw. (1:2), *Xanthia citrigo* L. (2:7), *Acrionicta tridens* D. & S. (1:0), *A. menyanthidis* Esper (0:3), *A. euphorbiae* D. & S. (0:1), *Hyppa rectilinea* Esper (2:8), *Apamea exulis* Lefebvre (4:3), *A. ophiogramma* Esper (2:0), *Amphipoea lucens* Freyer (58:732), *A. crinanensis* Burrows (15:61), *A. oculate* L. (0:1), *Celaena haworthii* Curtis (1:4), *Nonagria typhae* Thunb. (0:1), *Hoplodrina alsines* Brahm (0:1), *H. blanda* D. & S. (2:1), *Stilbia anomala* Haw. (10:10), *Eustrotia uncula* Clerck (0:1), *Bena prasinana* L. (1:0), *Autographa bractea* D. & S. (89:115), *Syngrapha interrogationis* L. (5:8), *Schrankia costaestrigalis* Stephens (2:2), *Hypenodes turfosalis* Wocke (2:0).

The following records from this site are also of interest:—

Apocheima pilosaria D. & S. (1) on 11 Dec 1980 (early date); *Peridroma saucia* Hbn. (1) and *Nomophila noctuella* D. & S. (1) on 30 Jan 1981 (early immigrants); *Palpita unionalis* Hbn. (1) on 30 Aug 1980 (immigrant); *Orthonama obstipata* Fabr. (1) on 2 Sept. 1980 (immigrant). — Dr. J. C. A. CRAIK, Dunstaffnage Marine Lab., P.O. Box 3, Oban, Argyll.

FURTHER NOTES ON PHYLLONORYCTER SAPORTELLA (DUPONCHEL) IN EAST ANGLIA. — I have already recounted (antea pp. 119-120) my chance rearing of a single adult of this rare species from South Lopham, Norfolk. Most old records were made from moths found resting on tree-trunks, so my wife and I revisited the locality on the 9th of May to look for further specimens. Within seconds we found four on the trunk of the tree from which I had taken the mine and others were not uncommon on adjacent trees. That night we rang up Dr Ian Watkinson and returned with him two days later. By then many more had emerged and Dr Watkinson counted 20 on a single trunk. Having taken photographs and a few specimens, we extended our search to the adjacent vice-counties. We managed at length to find one each in VCs 25 and 28, each about a mile from the original site, but drew blank in VC 26. The implication is that the colony, although numerically strong, is very localised.

My wife and I made our next visit on the 3rd of July to look for mines. They were easy to recognise amongst many scores of the commoner oak-feeding *Phyllonorycter*, but whereas *P. saportella* had been the most plentiful adult on the trunks in May, its mines were the least common in July. This raises once again the theory that it feeds high up on the trees. I studied the upper branches through field-glasses, but a fresh breeze was shaking the leaves and although I could see *Caloptilia* cones, I failed to spot any *Phyllonorycter* mines. This leaves the problem unresolved but I am inclined to the opinion that *P. saportella* does feed high up and that only a small proportion of its mines are accessible from the ground. It may be significant that not a single leaf was within reach on the tree where Ian Watkinson found 20 adults.

The moths began to emerge on the 14th of July and it would have been better if we had delayed our search until about that date. All the mines were on the leaf-margin. The mines of most other oak-feeding *Phyllonorycter* have a single strong central fold in the lower epidermis. This is normally absent in *P. saportella* which has instead numerous small creases which cause the leaf-edge to curl right over. I was wrong in my previous note when I said that the feeding did not extend through to the upper epidermis; it does so in varying degrees. In some cases only the extreme margin, which is folded under, is stripped of parenchyma, such mines being almost invisible from above. In others the whole upper surface of the mine is blanched. The most important character is the complete absence of frass to reinforce the walls of the cocoon; the only other British oak-feeding *Phyllonorycter* to have this character is *P. roboris* (Zeller) which has a totally different and unmistakable mine. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF.

A POSSIBLE DISCOVERY OF THE FIRST GENERATION LARVA OF *ETAINIA DECENTELLA* (HERRICH-SCHAFFER, 1855). [LEPIDOPTERA: NEPTICULIDAE.]. — On April 12th., 1982, whilst collecting at Mark's Grave, Horseheath, Cambridgeshire (V.C. 29), I found a sycamore tree (*Acer pseudoplatanus*) from the base of which were growing several shoots, the tallest being about 2m high. I noticed that the buds on some of these shoots were much more retarded than on others, so I picked a sample for later examination. On a more detailed study, I found that the retarded bud was always the central one of a group, i.e. the prospective flower bud.

Two buds were dissected. In the first was a hole of diameter $\frac{1}{2}$ mm (presumably the larval exit hole), and the bud had been eaten a little, though only in the most central part; there also appeared to be a mine in the bark of the twig just below the bud, but no egg could be found. There was no sign of spinning, which may indicate non-lepidopterous attack. (Hering suggests, in *The Biology of the Leaf-miners*, that the presence of silk is indicative of lepidopterous activity: it does not, however, follow that the absence of silk is indicative of non-lepidopterous activity). No larva could be found to confirm this. The second bud was similar, but signs of feeding were rather less clear. I kept the other buds in the hope of breeding something, but without success.

The life history of the first generation of *Etainia decentella* (as of all three British *Etainia*) has always been in doubt. The current position is most fully documented in a paper by Emmet and Johnson (*Ent. Rec.* 89: 257-264), where it is suggested that all three species feed in the samaras of their respective species of *Acer* in the autumn generation and in the buds in the spring generation. A particular point of similarity between *E. sericopeza* as there described and the material described above is that the larval feeding is confined to the flower buds. In addition, the inability to find an egg could be explained by its having been on the petiole of a leaf of the previous season: naturally, this would have fallen off by the spring.

Though I cannot claim to have found *E. decentella* as a spring larva, the evidence is suggestive. I write this note principally to encourage others to do what I shall do in March/April, 1983: search *Acer* buds in the hope of finally solving the problem of the spring generation of the *Etainia* species in Britain. — P. J. JOHNSON, 10, Crossfield Road, Hampstead, London, NW3 4NS., 10.ix.1982.

FURTHER NOTES ON AN INTRODUCED "COLONY" OF THE BLACK-VEINED WHITE: *APORIA CRATAEGI* L. IN SCOTLAND. — Further to my notes on this subject in *Ent. Rec.*, 89: 282-283, it may be of interest to record the current position here of the *Aporia crataegi* "colony" which has continued to the present time, although reinforced with "new blood" from the Swiss/Italian border in 1978.

The very fine weather at the end of May and early June caused the larvae that had pupated earliest to emerge as butterflies very early, the first few on the last two days of May. At one point there were literally dozens of them flying about, and I was able to pick up a lot of paired individuals, from which I shall hope to get a very big "crop" next year.

The problem was the abrupt change in the weather which occurred here on the 6th June. So many butterflies had mated that many had laid eggs in the wild, the first batch I saw on the 2nd June. At first, I thought the very cold weather over mid-summer had killed off some of the eggs, but this proved not to be the case; however, they took six weeks, plus or minus a few days to hatch. The tree on which the first batch was laid on 2nd June (a hawthorn) subsequently became almost peppered with eggs, the last being laid on the 21st July, which hatched on the 18th August. This would be on account of the warm period we had here covering roughly the last ten days of July and the first half of August. All the earlier eggs that were kept in the summerhouse took five weeks to hatch.

I have had more time this year to study the habits of the butterflies and their interaction with the rest of the fauna. Particularly when there are a lot around, they are very often heavily persecuted by local birds, but it is always the same birds that do the predating; this year a blackbird, a song-thrush and a great-tit. A pair of spotted flycatchers left them alone. The butterflies have a curious habit of alighting in groups for the night, and are often very conspicuous, particularly the males; the females on the other hand seem to become semi-transparent after a short time flying, and soon look markedly different from the other Pierids. Both sexes are strongly attracted to *Rhododendron* and *Rose-bay Willowherb*. In the past, I was convinced the males mated only once, but I have evidence that at least two males mated twice. The foodplant mostly selected is hawthorn (*Crataegus monogyna*) followed by the apple trees in my orchard. One or two batches have been laid on a group of trees I cannot classify; these grow wild from fallen fruit and produce somewhat tasteless plums like damsons but the wrong colour. This year I found a batch of eggs for the first time on Mountain Ash (*Sorbus aucuparia*). These insects will eat things I suspect the eggs are never laid on, e.g. quince (*Cydonia*) and even the evergreen *Prunus lusitanica*.

Although last winter's experiment proved that the insect can successfully come through the Scottish winter, at least to the extent of about 65% survival rate of those tried, the experiment involved protection by a strawberry net to keep out insectivorous birds. Incidentally, a larva given to Dr. Shaw of the Royal Scottish Museum parasitised by *Apanteles glomeratus* proved to be the only one so affected, with the remaining 38 all producing butterflies. — R. ELLIOTT, "Burnbank", North Road, Saline Fife, 20.viii.82.

A SIGHTING OF *AGRION VIRGO* (LINN.) (ODONATA: AGRIIDAE) IN CENTRAL LONDON. — On the morning of the 4th of September 1982 a solitary male of this species was seen flying south along Queensway W2, towards Kensington Gardens (Nat. Grid Ref. TQ259807). The specimen concerned must have strayed some distance from its breeding site, as the larvae are usually found in swift flowing gravel streams. To my knowledge no such habitat exists in this area of London. — A. P. FOSTER, c/o Nature Conservancy Council, 19-20 Belgrave Square, London, SW1X 8PY.

Obituary

ROBERT LARGEN

Robert Largen died of a heart attack at his home Yew Tree Cottage, Wiston Lane, Wiston, Steyning, Sussex. He was born on the 7th December 1945 and died the 6th August 1982, and so was only 36 years of age at the time of his death.

Robert was a cheerful and unassuming companion, who undertook his collecting in an unhurried manner and never lost patience with the hunt, whether it be hour after hour of searching for larvae at Portland or long hours of night sweeping on the Surrey heaths. A keen all round naturalist, he seemed to have the perfect occupation with the countryside and its wildlife around him, for his work was that of a gamekeeper on Wiston Estate. Although an accomplished taxidermist as his collection of mounted birds show, perhaps his greatest achievement was the superb two tier 34 drawer mahogany insect cabinet, built entirely himself and completed only shortly before his death. His collection of British lepidoptera will be retained as a fitting memorial to him at the cottage where he lived, and it was from it that we exhibited at the A.E.S. and B.E.N.H.S. Exhibitions in October 1982, a drawer containing some of his more interesting specimens.

To all who had the pleasure of his company, Robert will be greatly missed and, speaking for ourselves, we shall find it hard to enjoy moth hunting as much without him. Our sympathy goes out to his widow Daphne, and to his many friends.

S. CHURCH, A. K. BATTEN, S. ODELL and J. PLATTS

Current Literature

Benjamin Wilkes the British Aurelian: Twelve New Designs of English Butterflies and Directions for making a Collection with an Essay by R. S. Wilkinson. Folio (31cm. x 34cm.), 11pp. on 6 leaves, 14 facsimile plates in card folder. E. W. Classey Ltd., Park Road, Faringdon, Oxon SN7 7DR. 1982. Price £20 post free.

We have much pleasure in calling attention to *Classica Entomologica* No. 3, the most recent publication to be issued by the firm of E. W. Classey, which fully sustains the reputation of the four others so far published in this series, all of which have been reviewed in this journal (see *Ent. Rec.*, 82: 64, 91: 223, 332, 93: 80). *Classica Entomologica*, which was started in 1969, consists of a series of facsimile reprints of rare entomological items with biblio-

graphical and/or biographical notes of special appeal to historians of entomology and those interested in entomological bibliography. Six items in the series are scheduled, of which five, including the present one, have already appeared. This latest production concerns two of the rarest of all entomological publications, whose author Benjamin Wilkes flourished some 250 years ago.

Little is known about the early life of Benjamin Wilkes. A. A. Lisney (*A Bibliography of British Lepidoptera*, 121) says he was born towards the close of the seventeenth century, that he was a painter in oils and became interested in entomology following an invitation by a friend to a meeting of the Aurelian Society, of which he became a member, and then proceeded to form his own collection of English lepidoptera. Encouraged by Joseph Dandridge, one of the earliest collectors of natural history specimens and a contemporary of Petiver and Ray, Wilkes began publication of notes on native lepidoptera which he had compiled over a period of ten years, illustrating these with his drawings of the various stages in the life histories of as many species as possible. As far as is known, his only published works are the *Twelve New Designs of English Butterflies, English Moths and Butterflies* and a broadside sheet *Directions for making a Collection*. Four issues (or editions) of the first of the foregoing were published, and it is the facsimile reproduction of the fourth of these as well as the facsimile of the *Directions* that are the subject of this review.

The work consists of an attractive title page and an interesting "Publisher's Preface" by E. W. Classey with background information. Then follows a masterly account in the form of an essay, by that great authority, Dr. R. S. Wilkinson (Pp. 4-11) on the life and times of Benjamin Wilkes as under: Wilkes' apprenticeship in entomology, the 'Twelve new Designs', the 'Collecting Directions' and the English Moths and Butterflies, the whole being furnished with 69 detailed numerical annotations gathered together at the end. Next comes the facsimile of *Directions for making a Collection* (1742), of which only one example is known to have survived being that in the British Museum (Natural History), followed by the facsimile of the exceedingly rare Carrington Bowles' edition of the *Twelve New Designs* dating from the late 1760s, of which only four copies are known to exist, and comprising an elegant decorated title page and 12 engraved plates.¹

Comparison with the originals of both works, reveals that in the reproduction a number of the figures is less well defined, and in the *Directions* some words are blurred. However, except for these minor failings this is a handsome production, with the whole edition printed on a high quality cream-coloured paper, contained in a blue card folder with decorated cover and limited to 475 numbered copies. — J. M. C.-H.

¹ A curious fact regarding the Carrington Bowles' edition and one that appears not to have been noticed before, concerns the title page and the number of lepidoptera figured. It is there stated that 'near 300 different' species are illustrated. Yet the truth is the number of species shown amounts to no more than 82!

SPECIAL INDEX

COMPILED BY M. R. BROWN (LEPIDOPTERA)

AND A. A. ALLEN (OTHER ORDERS)

For British Lepidoptera this Index follows the nomenclature of *A Check List of British Insects*, Part 2 by Kloet & Hincks (1972), brought up-to-date to correspond with the *Label List of British Butterflies & Moths* by Bradley & Fletcher (1979). Where a contributor has used a synonym, a cross reference is given. Any newly described taxa (species, genera, etc.) are distinguished by bold (Times) type, and taxa new to British or newly recognised as British by an asterisk. Moreover, with *Orders other than Lepidoptera*, (1) A bracketed asterisk denotes the reinstatement of a species long omitted from the British list, or the confirmation of one previously doubtful; (2) A formerly subspecific taxon raised to specific rank is treated as an addition to the fauna, but a correction of identity is not; and, finally (3) The "equals" sign indicates a *new* synonym, i.e. published for the first time; italics without this sign, recent synonymy that may be unfamiliar to many.

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