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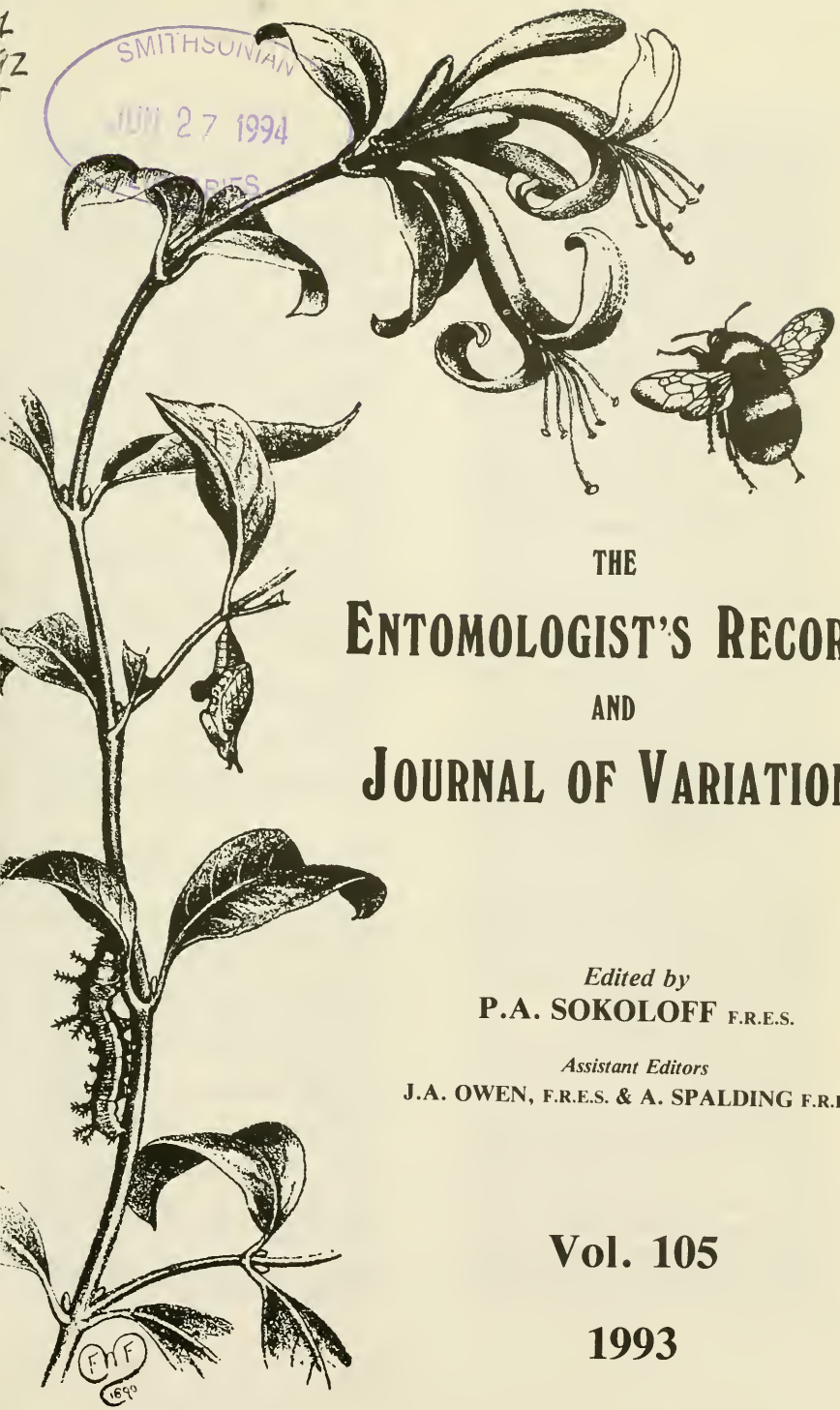

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by
P.A. SOKOLOFF F.R.E.S.

Assistant Editors
J.A. OWEN, F.R.E.S. & **A. SPALDING** F.R.E.S.

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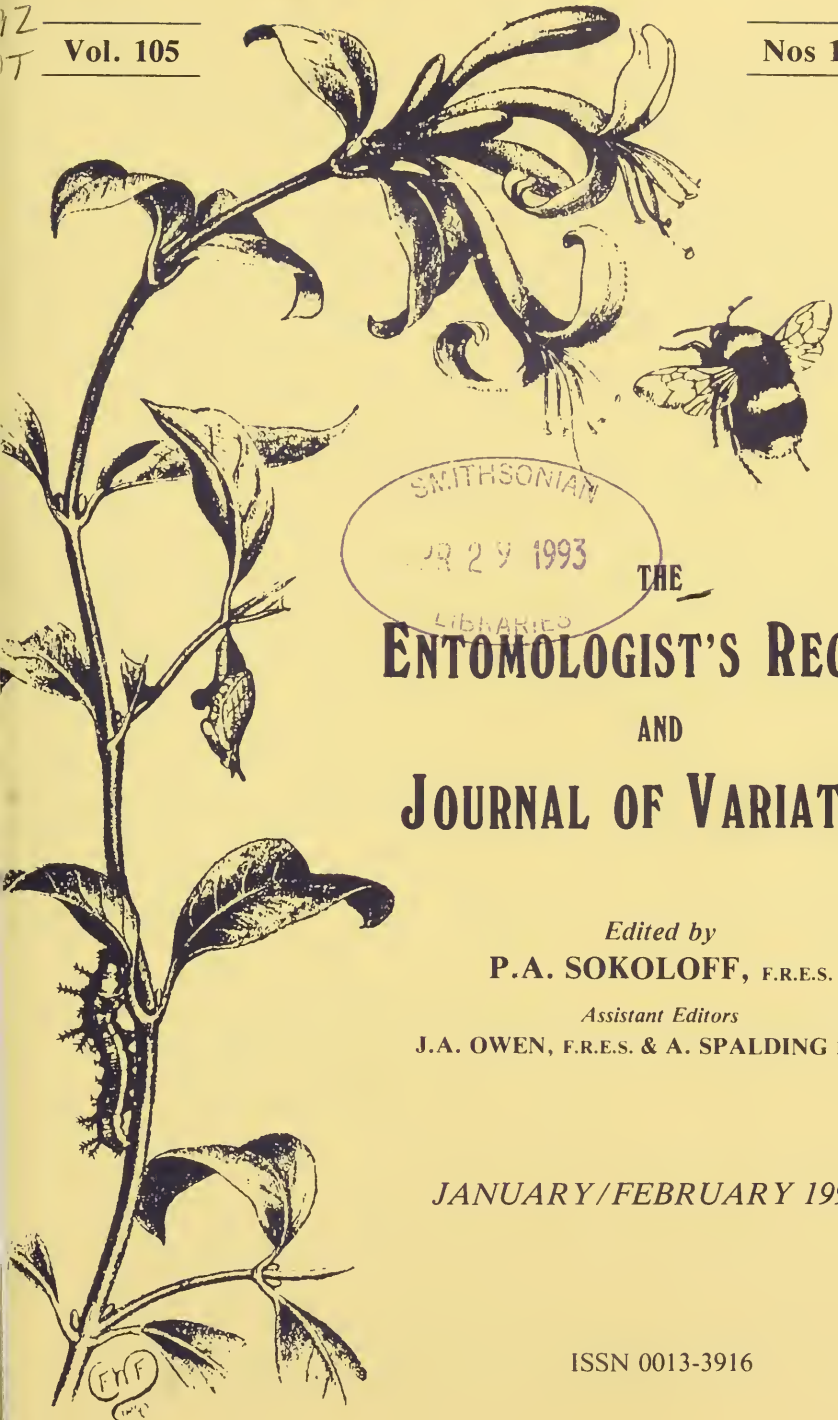

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SYCAMORE: AN UNDERRATED PABULUM FOR INSECTS AND SOME BEETLES ASSOCIATED WITH IT

RICHARD A. JONES F.R.E.S., F.L.S.

13 Bellwood Road, Nunhead, London SE15 3DE.

SYCAMORE (*Acer pseudoplatanus* L.) is usually regarded by entomologists as rather a "weed" tree; the convenient but second-rate choice of the borough planner, planted simply for its cosmetic value as a fast-grower, providing merely some green cover to hide the unsightly mounds of spoil from road cuttings or the latest supermarket megastore site. Its value as a foodplant, or a forest tree of any entomological worth is regarded by most naturalists as approaching zero, and the dying, dead or fallen timber is regarded by many as useless, except for firewood. Rackham (1986) comments that the tree is "difficult to destroy", echoes that "most conservationists disapprove of sycamore" and concludes that "although it is chiefly a menace in Wales and western England, it is a tree which no responsible person should plant without carefully considering the long-term consequences"! However, study of the beetles of Nunhead Cemetery, a small Victorian burial ground in south-east London, has convinced me that sycamore is arguably one of the most interesting and important tree species in the area, and a much underrated source of entomological interest.

The tree's modern municiple role has taken over from its previous utility as a "natural" part of the British landscape. A native of central and southern Europe, it was introduced into Britain in the fifteenth or sixteenth centuries[1] (Clapham, *et al,* 1987; Rackham, 1986) and soon became completely naturalised. Examination of the distribution map in Perring and Walters (1962) shows that few plants, let alone trees, occur across a greater area of the country. Ironically it was early disregarded as an ornamental tree because of the ravages of insects (Marshall, 1785). Nevertheless it was widely used as a timber tree, mainly for wood-turning, and its salt-hardiness made it ideal for protecting homes, crops and woods from buffetting sea winds. Being self-seeding, it has spread everywhere, but large stands are usually the result of plantations. Large trees are often in hedgerows or in the vicinity of existing or the remains of buildings.

Nunhead Cemetery

Nunhead Cemetery was consecrated and opened for burials in 1840, one of seven great Victorian cemeteries established around the outskirts of London. (Highgate is perhaps the best-known of these.) Nunhead Hill was carefully landscaped and planted, gate-houses and chapels were

[1]. There is still some debate between botanists about the arrival of sycamore to our shores, but Rackham (1986) is almost dismissive of the suggestion that it came over with the Romans.

commissioned and built. With the Victorian fashion for grand memorials, the cemetery soon boasted its share of obelisks, catacombs, mausoleums and delicately carved statuary. At its height towards the turn of the century it was fashionable for the local gentry to promenade there, in the summer sunshine amidst the well-tended avenues and gardens.

After the First World War, people began to spend less money on burials, the cost of maintaining the existing graves became too great and the cemetery slipped into decline. In 1969, the company which had run it since its foundation withdrew from reponsibility and closed the cemetery. Vandalism was rife, and without any appreciable maintenance for several decades, the cemetery was completely unkempt and overgrown. The London Borough of Southwark bought the cemetery in 1975. The walls and fences were mended, and repairs made to broken graves, but no large-scale clearance of what had now become a wood, was carried out. Today, parts of the more open areas are still managed for burials, but the major portion of its 50 or so acres is under the control of the local parks department who have designated it (albeit in a rather low-key way) a nature reserve.

The avenue of limes has now reached maturity and the planted oaks, beeches, poplars and horse-chestnuts have become large and ancient trees. Despite the occurrence of some of Harding and Rose's (1986) saproxylic "indicator" species such as *Abdera biflexuosa* (Curt.) *Anisoxya fuscula* (Ill.), (both Melandryidae), *Biphyllus lunatus* (F.) and *Diplocoelus fagi* Guér.-Mén. (both Biphyllidae), the locality comprises decidedly secondary woodland. The old elms met their demise in the 1970s when Dutch elm disease took its toll, but the species survives as young trees about five metres tall. Ash is common, and a few older trees are surrounded with self-seeded sapplings. There are also a few aspens, birches, hornbeams, alders, field maples and some ornamentals, but the predominant tree species is sycamore, most being young trees 10-20cm in diameter.

Beetles under sycamore bark in Nunhead Cemetery

During the last few years (1988-1992), an increasing number of sycamores have died. The dead trees have remained standing, but the bark very soon started to peel away revealing areas of a powdery black smut of mould resembling soot, the so-called sooty bark disease, an ascomycete fungus, *Cryptostroma corticale* Ell. & Ev.

Under the peeling bark, sometimes in association with this fungus, are a large number of insects and invertebrates. Some are only casuals, sheltering in any available site: earwigs, *Forficula auricularia* L.; and woodlice, *Oniscus asellus* L. and *Porcellio scaber* Latr.

On the other hand, most of the beetles are obviously associated with the tree and the fungus, and others occur so regularly under the bark that it seems incomprehensible that there should not be some sort of association. So far, the following interesting variety of beetles has occurred: *Dromius*

meridionalis Dej. and *D. quadrimaculatus* (L.), (Carabidae); *Anobium punctatum* (Deg.) and *Ptilinus pectinicornis* (L.), (Anobiidae); *Enicmus brevicornis* (Mann.), (Lathridiidae); *Mycetophagus quadripustulatus* (L.), (Mycetophagidae); *Synchita separanda* (Reit.) and *Cicones undata* Guér.-Mén. (Colydiidae); *Rhinosimus planirostris* (F.), *R. ruficollis* (L.) (Salpingidae). Three of these deserve further comment.

Synchita separanda Reit.

This beetle was previously confused with *S. humeralis* F., until Allen (1964) pointed out that there were two species occurring in Britain. He gave two localities: Windsor Forest, Berkshire and Knole Park, Sevenoaks, Kent. I was amazed, therefore, to find *S. separanda* in large numbers under the bark of a small sycamore log in my garden in Peckham in May 1986 (Jones, 1987). The beetle had also been found under sycamore bark, at its Windsor locality (Mendel & Owen, 1987). Although I have moved house since first finding the beetle, I have continued to live in approximately the same area, and have continued to look for the insect in Nunhead Cemetery where there has been some small amateur clearance of sycamore saplings, and where there have been apparently suitable sycamore logs.

On 13th July 1991 I was rewarded by finding several specimens on a cluster of medium-sized trees, each 20-25cm in diameter, which were dead, but still standing and heavily dusted with the black soot-like smut. Small ivy stems 10mm in diameter still clung to the peeling bark and by gently pulling these off, the beetles sheltering under the short ivy roots were revealed. *Synchita* was present on several successive visits to the same trees throughout July and August.

Synchita separanda is accorded Red Data Book 3 (rare) status (Shirt, 1987).

Cicones undata Guér.-Mén.

Cicones undata was described, new to Britain, from specimens taken under sycamore bark in Windsor Great Park, Berkshire in 1984 (Mendel & Owen, 1987). On 20th October 1991 my amazement grew when I found two specimens under sycamore bark in Nunhead Cemetery (Jones, 1992). A further specimen from another group of trees occurred on 4th April 1992.

The beetle's addition to the British list came after the publication of the Red Data Book (Shirt, 1987), but it is given RDB1 (endangered) status in the recent review of the rare and threatened Coleoptera (Hyman & Parsons, 1992).

Enicmus brevicornis Mann.

Fowler (1989) recorded *E. brevicornis* from only the New Forest and Cannock Chase, and until about the 1950s it was regarded as a rare beetle. Allen (1981) was the first to comment on the beetle's subsequent increase

Fig. 1. Trunk of a dead sycamore infected with the sooty bark disease, showing the channels through the "soot". The trunk is about 25cm in diameter. The larger marks in the sooty fungus were made by the removal of the bark with a large knife.

and its association with sycamore and the sooty bark disease. It is now widely recognised as quite a common beetle.

When I found *Synchita separanda* in Peckham, *E. brevicornis* was present in hundreds (Jones, 1987), and I have recently found it in Nunhead Cemetery in its thousands.

On 17th July 1991, my attention was drawn to what seemed to be fine channels through the thick sooty mould of a sycamore trunk (Fig. 1). These were evident where bark had previously fallen off, and also under the bark where it was still precariously attached to the tree[2].

E. brevicornis was present in enormous numbers, in larval, pupal and adult stages (Fig. 2), with densities approaching 60-80 per square inch. Although I watched for nearly an hour, I could not make out whether the channels that I had observed through the "soot" were being made or used by either the larvae of adults. They were certainly the right size, and my only thought was that the channels could have been made by the larvae under the bark; when the bark was removed, the larvae crawled about without regard for them.

The larvae varied in shade from white to dirty grey. The greatest concentration of larvae was just under the edges of the loose pieces of bark, where the "soot" was thickest (Fig. 3). Here also was the greatest variety in

[2]. Some trees showed other markings, numerous sets of short, broad, parallel grooves in the sooty bark, made by the teeth of grey squirrels!

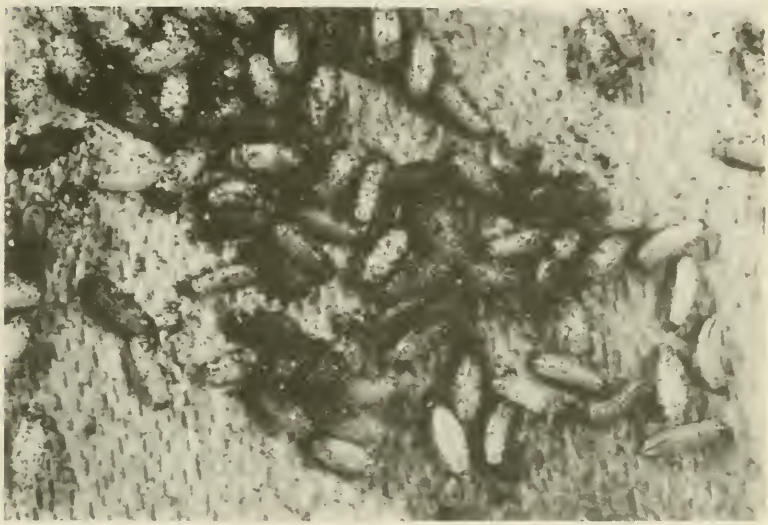

Fig. 2. Larvae, pupae and recently-emerged adults of *Enicmus brevicornis*. The adults are approximately 2mm long.

larval size, ranging from about 0.5 to 2.3mm (maximum length of a few larvae examined under a microscope graticule). The different sizes suggested to me that this is where the larvae may have been feeding, but pupation seemed to be occurring elsewhere, under less sooty bits of bark (Fig. 2). The larger larvae were very active, crawling at about 50-60mm per minute, and although I disturbed some by removing the bark, it was soon apparent that they did not show any tendency to avoid the light or seek cover under the remaining bark. In fact they were active on neighbouring trees, crawling over the bark and exposed parts of the subcortical wood regardless of aspect or shade.

The adults were obviously just emerging from pupae, their colour varying from white, through pink and orange, to black. Some were quite active, crawling about with the larvae over the surface of the trees, but many of the darker, presumably slightly older, specimens had taken to congregating along cracks in the bark (Fig. 4). The bark here was tougher and less affected by the sooty disease, but I could observe nothing in the cracks or immediately under the bark which might have attracted them.

The beetle is given "notable" status in the recent review of scarce and threatened Coleoptera (Hyman & Parsons, 1992).

Fig. 3. The larvae of *Enicmus brevicornis* amongst the black "soot" of the sooty bark disease after a piece of bark has been removed to expose them. The largest are approximately 2mm long.

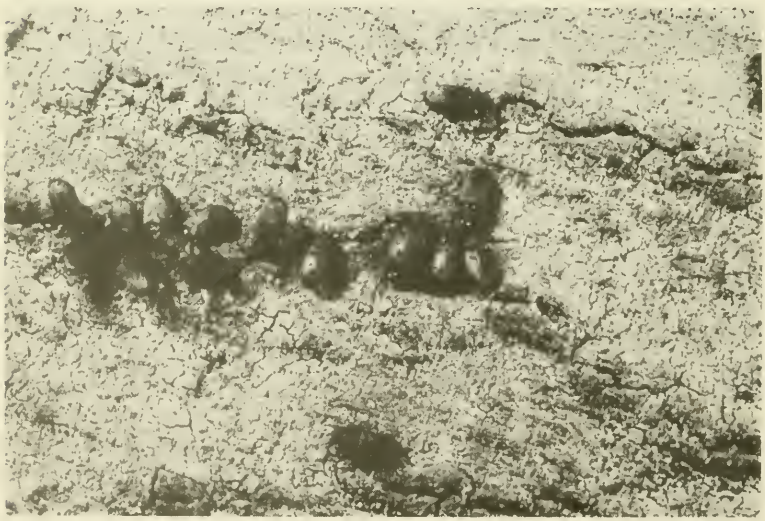

Fig. 4. Adults of *Enicmus brevicornis* congregating around cracks in the sycamore bark.

Discussion

Much work has been done to try to relate the numbers of insect species feeding on particular tree species to the abundance of the host plants. Initial data produced by Southwood (1961) suggested a strong relationship, and one which was maintained in a reappraisal 23 years later using more detailed analysis (Kennedy & Southwood, 1984). However, Claridge & Evans (1990) recently suggested that any such relationship between species numbers and host plant area was still very inadequately understood. Nevertheless, in all the analyses, sycamore shows up as under-represented as an insect host plant. This might seem to support the notion that sycamore is good for nothing, and certainly not good for insects, however, there are quite a number of well-documented insect and invertebrate associations.

Stroyen (1977) lists four species of aphid and Claridge & Wilson (1981) seven species of leaf-hopper as feeding on sycamore.

Emmet (1988) lists 15 "smaller" British Lepidoptera associated with the tree and Emmet & Heath (1991) give nine of these together with four more ("larger") moths in their extensive life history charts.

Two eriophid mites make the two common types of sycamore leaf galls (Darlington, 1968, Bevan, 1987, Stubbs, 1986).

Walsh & Dibb (1954) include "*Acer* - sycamore, maple" in their list of plants and place against it *Rhyncolus truncorum* Germ. and *Trypodendron* spp., but admit that these are really maple-feeders. Their list is primarily intended to allow coleopterists to locate some of the more local beetles from their limited host plant preferences, so some polyphagous species which might feed on sycamore are not included. Cooter *et al.* (1991) barely mention *Acer* spp. and as far as I can see make no specific reference to sycamore at all.

Hickin (1975) gives sycamore timber as a recorded breeding medium for six British wood-boring beetles together with an American bostrychid.

Close associations of other beetles with sycamore have come as a bit of a surprise. Majerus & Williams (1989) were bemused to report the association, now widely observed, between sycamore and the mildew-feeding "orange ladybird" *Halyzia sedecimguttata* (L.). They questioned the beetle's status as an indicator of ancient deciduous woodland and suggested that its foodplant preference may have recently changed (evolved?).

Although Allen (1981) drew attention to the increase of *Enicmus brevicornis* and its association with sycamore and sooty bark disease, his expectation that "we shall doubtless be hearing more about it before long" has not been followed by any appreciable number of published observations. The beetle is common and widespread, but most specimens are taken by general sweeping.

In an extensive review of mycophagous insects, Hammond and Lawrence

(1989) do however associate *Synchita* and *Cicones* with *Cryptostroma,* and Dajoz (1981) found *Enicmus brevicornis* associated with a similar subcortical fungus, *Numularia bielliardi* in France and Tunisia.

How ironic that *Cicones undata* should be found in the ancient forest of Windsor, yet under the bark of a decidedly non-ancient forest tree. Mendel & Owen (1987) considered the beetle to be "an unlikely introduction" and wondered whether it might turn out to be associated with field maple *Acer campestre* L.; there are a number of old field maples in Windsor. There are also a very few field maples at Nunhead, but they appear to be sound and show no signs of having any insects associated with them, unlike the sycamores![3]

Conclusion

The number of insects associated with sycamore appears to be increasing, though whether these are new introductions or examples of expanding hostplant choice remains to be determined. A distinction also has to be made between truly phytophagous species feeding on the tree itself and mycophagous species feeding on associated fungus. Nevertheless, far from being the invasive pest that everyone has come to expect, sycamore has a valid contribution to make to the ecology of mixed woodland[4].

A once equally disparaged tree, the London plane, has recently become the source of *Phyllonorycter platani* (Staud.), new to Britain. In introducing it to the British list, Emmet (1991) describes how this moth, a native of south-east Europe "has steadily been expanding its range . . . its arrival in Britain was deemed to be just a matter of time". Lepidopterists had eagerly anticipated the moth, and had sought out plane trees in search of it. We should see sycamores in a similar light — as the potential host plants of new and exciting entomological discoveries.

[3]. Subsequently, I found a single specimen of *Cicones undata,* dead, under loose sycamore bark in Dulwich Upper Wood, Crystal Palace, London SE19 on 21.v.92, some two or three miles from Nunhead, and Mr T.D. Harrison has recently found it in considerable numbers in woodland near Reading, Berkshire (pers. comm., manuscript in preparation).

[4]. Following complaints that important dead-wood habitat was being taken and burnt in Windsor Forest, a suggestion that it would be "all right" to burn sycamore logs was met by a rebuttal from Professor J.A. Owen that even sycamore was an important dead-wood substrate. The list of records in support of this claim is given in the form of an appendix to this paper.

Acknowledgements

My thanks to Professor J.A. Owen for commenting on a draft of this paper and for providing me with the Windsor Forest list given in the appendix and to A.B. Drane, T.D. Harrison, P.J. Hodge, H. Mendel and D.A. Porter for allowing me to publish their records.

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Appendix. Beetles associated with sycamore at Windsor

Records as reported by permit-holders, supplied by A.B. Drane, P.J. Hodge, H. Mendel, J.A. Owen and D.A. Porter. RDB = "Red Data Book" status (Shirt, 1987).

Scydmaenus rufus Muller & Kunze (Scydmaenidae), one at root of dead tree, v.85, H.M.

Siagonium quadricorne Kirby (Staphylinidae), many under bark, 10.viii.86, P.J.H.; under bark ix.86, D.A.P.

Lacon querceus (Herbst) (Elateridae), RDB1, one under bark, probably a straggler, 16.v.87, J.A.O.

Ampedus rufipennis (Steph.) (Elateridae), RDB2, adult and larvae in dead tree, iii.85, J.A.O.

Megatoma undata (L.) (Dermestidae), one on dead tree, 6.vii.85, H.M.; larvae in wasps' nests in dead tree, various occasions, H.M.

Notolaemus unifasciatus (Latr.) (Cucujidae), RDB3, three dead adults under sycamore bark, 27.ix.87, J.A.O.

Enicmus brevicornis (Mann.) (Lathridiidae), on dead tree, 27.iv.85, P.J.H.; one under bark, 8.vi.85, A.B.D.

Corticaria alleni Johnson (Lathridiidae), on dead tree, 27.v.85, J.A.O.; several on dead tree, 27.ix.87, J.A.O.; one under bark, 10.viii.86, A.B.D.

Cis fagi Gyll. (Cisidae), one under bark, 27.iv.85, A.B.D.

Synchita separanda (Reitt.) (Colydiidae), RDB3, three under bark, vii.84, J.A.O.; several under bark, 8.vi.85, P.J.H. and A.B.D.; under bark of dead tree, 6.vii.85, P.J.H.; one under bark, 1985, D.A.P.

Cicones undata Guér.-Mén. (Colydiidae) RDB1, two on tree, ii.84, J.A.O. and H.M.; two under bark in different area, vii.84, J.A.O.; under bark of dead tree, 27.iv.85, P.J.H.; under sycamore bark, 8.vi.85, P.J.H.; under bark, 1985, D.A.P.; several under bark, ix.86, D.A.P.; several on dead tree, 16.v.87, J.A.O.

Cicones variegata Hellwig (Colydiidae), one on dead tree, 16.v.87, J.A.O.; one on dead tree, 27.ix.87, J.A.O.

Leptura scutellata F. (Cerambycidae), pupae in dead tree, v.84, J.A.O. and H.M.

THE INCIDENCE OF MELANISM IN THE MACROLEPIDOPTERA AT DARTFORD, KENT

B.K. WEST

36 Briar Road, Dartford, Kent DA5 2HN.

DARTFORD is situated immediately to the east of London. "Industrial melanism has tended to spread from industrial centres eastwards with the prevailing winds" (Ford, 1955). Although there is evidence that some melanic forms are increasing in numbers, others are declining due to effective legislation concerning atmospheric pollution, changes in energy sources, decline and relocation of industry.

Melanism was dealt with by E. Ford (1955 and 1964) and B. Kettlewell (1973) in their well-known text books, but subsequently in the spate of publications dealing with specific areas of Britain melanism has received scant attention. The following survey is an attempt to remedy this regarding one specific locality in N.W. Kent. Much of the information has been gleaned from twenty-three years' records from my garden trap which is favourably situated near the margin of a large area which for centuries had been deciduous woodland. Unfortunately, after World War II much of it was destroyed by the Forestry Commission, and replanted with conifers, especially Corsican pine. However, recently the Commission has relinquished its interest, and the area is reverting to its former state under the auspices of the Woodland Trust. I understand that vandalism, especially fire, was a reason for the Commission releasing the land — a curious case of beneficial hyper-vandalism somewhat analogous to hyper-parasitism!

In detail the nature and incidence of melanism recounted below is specific. Locations only a mile or so away usually have a quite different pattern. Thus melanic *Odontopera bidentata* Clerck was noted regularly at Bexley, less than three miles to the west, before appearing here; this would be in accord with the low rate of dispersal noted in this species (Kettlewell, 1973). Many of the melanic forms recorded here are classed as Industrial Melanics by Kettlewell, and are genetically dominant. However, a number of species have provided just one or two melanic specimens over many years, and these are mainly recessive forms. Although many melanic forms are black or very dark, contrasting strongly with the normal insect, in some species melanism is characterised merely by a slight darkening, often variable in intensity, e.g. *Acronicta psi* L., or two distinct melanic forms may occur, one darker than the other. Thus normal *Peribatodes rhomboidaria* D. & S. is uncommon, its place being taken by the slate grey ab. *perfumaria* Newman, and more rarely the black ab. *nigra* Adkin.

I have categorised the species as follows:-

(a) where change to a melanic form is complete.

(b) where a melanic form co-exists with the normal one.

(c) where only an occasional melanic has occurred.
(d) species in which melanism occurs as a slight darkening only.

(a) Species occurring entirely as melanics.

Stauropus fagi L. although appearing only once at my garden light, was found frequently a mile or so to the east at Farningham Wood, where all have been ab. *obscura* Rebel.

Tethea duplaris L. occurs commonly as ab. *obscura* Tutt. However, the majority of specimens appear to be intermediate between this form and the normal form with well-marked cross lines.

Nycteola reveyana Scop. was not noticed until 1983 since when it has appeared more commonly each year. Almost all are the intense black form *nigrescens* Sheldon, but in the last two years several grey and blackish banded specimens have been noted, perhaps due to the larger sample or to a decline in melanism.

Craniophora ligustri D. & S. has only been noted three times, but all have been the melanic ab. *coronula* Tutt.

Archanara geminipuncta Haw. not surprisingly has been seen at the garden light only twice, but I have bred moths from pupae obtained from the Dartford Marshes. All have been very dark moths, abs. *fusca* Tutt, *fusca-unipuncta* Tutt and *nigricans* Stgr.

Aporophila lutulenta D. & S. appears as the dark, blackish form now so familiar in which the central band is barely visible. However, a specimen bred from a feral larva from Dartford Heath which emerged on 20.ix.1973 is grey, with a slightly darker central band, ab. *cinerea* Burrows, which was the dominant form in S.E. England early in the nineteenth century, but is now a great rarity.

Hydriomena impluviata D. & S. is noted each year in small numbers; with one recent exception all have been melanics, ab. *obsoletaria* Schille.

Eupithicia abbreviata Steph. is represented mainly by ab. *hirschkei* Bastelberger, dark grey with dull, obscure markings; in much smaller numbers is ab. *nigra* Cockayne, no more than 10%.

Chloroclystis rectangulata L. was often noticed in the 1930s in my parents' garden at Dartford Heath on trunks of fruit trees and trellis work, and the green forms were common. Since about 1950 I have seen no green specimens in the Dartford area, although the species is a very common visitor at my garden light. The melanic ab. *nigrosericeata* Haw. is the commonest form, the extreme black form *anthrax* Dietze being much less frequent.

Alcis repandata L. is very common in a variety of forms all of which can be considered melanistic, and all are darker than the usual specimens one sees in the woodlands of East Kent. Most are blackish, to a varying degree, but with the markings plainly visible; less common is ab. *fusca* Lempke with

the markings almost obliterated, but retaining the pale submarginal line. Ab. *nigra* Tutt, which is devoid of all markings, is rare; it is more often encountered in the woodlands around Wateringbury in mid-Kent.

(b) Species where a distinct melanic form co-exists with the normal form.

Tethea ocularis L. Kettlewell (1973) suggests that this is the only species in Britain in which an industrial melanic has first occurred by immigration. My garden trap yields melanics, probably ab. *fusca* Cockayne which is variable in expression, to the extent of about 20%, which I find no higher than that for the woods of E. Kent.

Calliteara pudibunda L. abs. *concolor* Stgr. and *obscura* Lempke have contributed 13% of the *pudibunda* at my garden light for the six years 1985-1990. The former, more extreme melanic, with virtually all markings obliterated, forms only a small proportion of the melanics.

Acronicta rumicis L. I dealt with melanism in this species in *Ent. Rec.* **97**: 107 (1985). The melanics *salicis* Curtis and *lugubris* Schulz were noted as forming about 20%, but from 1985-1991 the proportion was 6.5%, perhaps signifying a decline in melanism in this species here.

Orthosia incerta Hufn. Despite this common and interesting species having a remarkable range of forms, mostly readily named, their incidence which varies considerably geographically seems to have received scant attention. Chalmers-Hunt (1968) virtually ignores this aspect of *incerta,* and Kettlewell (1973) merely mentions two melanic forms. At Dartford melanics predominate — *fuscatus* Haw., *subsetaceous* Haw., *angustus* Haw. and *melaleuca* Lenz. Together these supply over 75% of the moths; *melaleuca,* lustrous blackish grey with a well-defined submarginal line is the commonest form, *fuscatus* (shining black) and *subsetaceous* (dark slaty grey) are frequent, but the reddish black *angustus* is comparatively rare.

Allophyes oxyacanthae L. ab. *capucina* Mill. from 1977 to 1990 formed 58% of the total at the trap (S:224). The intense black form with markings limited to the white crescent has been noted twice. Normal *oxyacanthae* here are duller and show less green than specimens from Co. Clare.

Xestia xanthographa D. & S. Kettlewell suggests that the intense black form *obsoleta-nigra* Tutt, although a geographic melanic, is appearing around London. I have this form from Dalwhinnie, Inverness-shire, but it is quite different from the blackish grey insects that are frequent here, which are paler and possess obscure markings. The cline of moths of a reddish hue has its darkest form named *obscura* Tutt, and this too is common. In general a larger proportion of individuals at Dartford are dark compared with those from further east in Kent.

Conistra vaccinii L. ab. *suffusa* Tutt has much of the forewing suffused with black; according to Tutt (1892) it is rare, and Chalmers-Hunt does not

list it for Kent. However, it is not uncommon at ivy bloom here, although I have never observed it at the garden m.v. light.

Luperina testacea D. & S. ab. *nigrescens* Tutt is frequent, although most specimens are what might be termed normal — brownish or brownish grey, but the palest forms are absent.

Apamea remissa Hb. is not as common as formerly. Most specimens are form *obscura* Haw., the remainder being *submissa* Treit. This contrasts with the 1930s when the species was abundant at night on bell heather (*Erica cinerea*) on Dartford Heath, and f. *remissa* was frequent.

Apamea crenata Hufn. is uncommon, having appeared at the trap about a dozen times, the melanic ab. *alopecurus* Esp. forming a minority of specimens (less than 40%). This contrasts with industrial areas of Yorkshire where the figure is above 70%.

Nonagria typhae Thunb. although only a casual visitor to the trap breeds commonly on the Dartford Marshes and in the disused chalk quarries. The melanic ab. *fraterna* Treit. forms about 20% although some small batches of pupae have produced over 30% melanics.

Abrostola triplasia L. has a very dark form *plumbea* Cockayne which I think has caused some confusion. Thus Chalmers-Hunt writing in 1968 makes no mention of *plumbea* for Kent, except to mention a dark specimen from S.E. Kent, yet Chatelain (in Kettlewell) for the year 1956 quotes the figure 100% for melanics for Orpington, the same as for Bradford, Yorkshire. Can this be correct? At Dartford ab. *plumbea* is a rarity; I have one labelled 28.viii.1988. Some specimens approach this form to some degree, but usually the darkening is slight only.

Cyclophora albipunctata Hufn. is much scarcer than formerly, most specimens being dark grey with normal markings. The two melanics, *subroseata* Woodforde and *decoraria* Newman, both recessive forms, occur regularly, to the extent of about 15% together.

Chloroclysta truncata Hufn. "Dark forms predominate in N.W. Kent." Chalmers-Hunt accurately summarises the situation at Dartford, which contrasts with that of E. Kent where typical *truncata* remains the commonest form. Ab. *nigerrimata* Fuchs, intensely black and without markings when fresh, reveals a slightly darker central band later; Ford (1955) states that it is semi-dominant. I have reared small broods from feral females many times always to get 100% *nigerrimata*. Two other melanic forms occur commonly — *nigrobrunneata* Heydemann with deep black median and terminal areas on a brown ground, and *perfuscata* Haw. Together these contribute about 65% of the total.

Thera obeliscata Hb. Kettlewell mentions two melanic forms — *nigrescens* Lempke and *obliterata* Bch.-White. Together these give less than 20% of the total, but of the remainder many dull, dark grey and dark brownish specimens form a considerable proportion.

Hydriomena furcata Thunb. a decade ago was represented by almost 100% melanics, presumably f. *obscura* Prout, almost black when fresh but in the cabinet eventually deteriorating to lose depth of colour producing a dull, dark mottled effect. Now increasingly specimens with green on them are reappearing although the proportion of melanics remains over 70%.

Eupithecia subfuscata Haw. Melanics are less common than typical specimens, occurring to about 20%, both *obscura* Dietze which retains the pale subterminal line, and *obscurissima* Prout.

Semiothisa liturata Clerck. Despite the nearby coniferous plantations, mainly Corsican pine, this species attends the trap mainly in single figures each year. From 1988 to 1991 inclusive 43 *liturata* produced 18% melanics, f. *nigrofulvata* Collins.

Odontopera bidentata Clerck. The first melanic to appear was *medionigra* Cockayne on 11.v.1974, followed by *nigra* Prout on 21.v.1978. After another *nigra* both melanic forms have been represented by a specimen or two each year, and from 1983 to 1991 inclusive have formed 12% of the total *bidentata*.

Biston betularia L. Melanism from 1969 until 1989 is dealt with by me in *Ent. Rec.* **100**: 39 and **102**: 175. The decline considered in the latter note has continued; the following table gives percentages for the various forms for 1970, 1990 and 1991, but it must be kept in mind that differentiating between many "type" *betularia* and *insularia* has a subjective element.

Year	*% type*	*% carbonaria*	*% insularia*	*sample*
1970	13	79	8	164
1990	34.6	42.4	23	104
1991	27.4	31.1	41.5	164

Pale, sparsely speckled specimens are exceedingly rare. An interesting feature of recent years has been the large number of *carbonaria* which have a black body, i.e. hybrid *insularia* x *carbonaria*; this gives a peculiar effect when the moth is relatively lightly marked.

Apocheima pilosaria D. & S. ab. *monacharia* Stdgr. has declined in numbers, but has never been more than a small proportion of a population composed of distinctly dull, ochreous grey specimens with the markings duller than usual.

Agriopis marginaria Fabr. is less common than formerly, and the several melanic forms, especially the more unicolorous ones, are scarce — *fuscata* Harrison, *infumata* Fuchs, *uniformata* Fuchs and *rufipennaria* Fuchs.

Serraca punctinalis Scop. There is considerable contrast between the Dartford population and those of the woodlands of E. Kent; here all specimens are duller and less contrasting in their markings. Ab. *consobrinaria* Borkh. forms about 20% of the moths, but many others approach it to a varying degree. The more extreme ab. *humperti* Humpert has neither been

encountered here nor bred from feral *consobrinaria* or their second generation. Ab. *humperti* is not infrequently recorded in journals, but I believe usually in error for I have noticed specimens so labelled in collections which are in fact *consobrinaria,* lacking the black body of the former.

Paradarisa extersaria Hb. An extreme melanic, ab. *variegata* Raebel, appeared at the light in 1976; after a second in 1984 this form has been seen regularly among the small numbers of *extersaria* observed each year (*Ent. Rec.* **102**: 160).

Peribatodes rhomboidaria D. & S. Two melanic forms occur along with small numbers of normal individuals. Commonest is ab. *perfumaria* Newman, slate grey with the usual markings. Having bred melanic *rhomboidaria* several times from both *perfumaria* and *nigra* Adkin, I conclude that there are at least two expressions of *perfumaria,* one being considerably darker than the other, and these have arisen from broods obtained from female *nigra.* From 1978 to 1991 inclusive *nigra* has contributed 18.4% of the total (S:536); for the first seven of these years the figure was 35% and for the second seven only 11.3%. All black *rhomboidaria* I have seen at Dartford possess a yellow postmedial line, developed most strongly towards the dorsum; I have not encountered ab. *rebeli* Aigner which lacks this feature but possesses a pale submarginal line.

(c) Common species giving an extreme melanic very rarely.

Cryphia domestica Hufn. ab. *suffusa* Tutt may be seen amongst varied specimens in quantity no more than once a year.

Apamea monoglypha Hufn. Over two decades this very common species has only once produced an extreme melanic at my trap, ab. *infuscata* White; the very dark brown ab. *brunnea* Tutt has over this period been seen about half a dozen times, but I have seen it more often on the Kent coast at Sandwich.

Rhizedra lutosa Hb. ab. *postradiata* Cockayne, Dartford Marshes 7.x.1996.

Xylocampa areola Esp. ab. *suffusa* Tutt, garden trap 6.v.1983.

Catocala nupta L. ab. *nigra* Cockayne bred from a feral larva by F. Lancum, 30.viii.1920.

Lobophora halterata Hufn. ab. *nigra* Warnecke, garden trap 2.vi.1982, otherwise unrecorded from Kent.

Idaea seriata Schrank. Since 1950 I have three times observed blackish specimens with paler fringes, ab. *cubicularia* Peyerimhoff, resting upon fences, being very inconspicuous.

Ennomos fuscantaria Haw. The dusky ab. *perfuscata* was taken in my trap twice in 1988, on 4th and 7th September. With numerous ash trees in the immediate vicinity this is a very common species.

Crocallis elinguaria L. ab. *fusca* Reutti was first observed here in 1977. After a second in 1987 it has become of regular occurrence. An increasing number of melanic *elinguaria* have been exhibited at the British Entomological Society Annual Exhibition over the past few years, from widespread localities in southern England; some have appeared to be more extreme melanics than ab. *fusca*.

Lycia hirtaria Clerck. ab. *nigra* Cockayne, a recessive, has been noted once here on 24.iv.1970. Most *hirtaria* here are much suffused with blackish, ab. *variegata* Lempke, about 65%.

Erannis defoliaria Clerck. is seen in all the usual forms, about half the specimens being ab. *brunnescens* Rebel, while on three occasions I have come across black males, ab. *anomala* West, on Dartford Heath.

Menophra abruptaria Thunb. I have not encountered melanic *abruptaria* although specimens have been recorded from nearby Orpington and Bexley; about 1950 one was taken in Dartford town centre, the details of which I believe were not published. Males however tend to be slightly darker than usual.

Ectropis bistortata Goeze. Two very dark grey (one blackish grey) examples were taken on 13th and 17th July 1988; they seem referable to ab. *defessaria* Freyer.

Gnophos obscurata D. & S. Dartford Heath specimens are medium to dark grey with the usual markings; I have one exceedingly dark, almost black individual with markings visible, taken on 4.viii.1957 from there.

Axylia putris L. ab. *brunnea* Goater, a very rare melanic form, was taken at the garden trap on 11th June 1988.

(d) Species which are slightly darker than normal.

Acronicta psi L. All specimens are referable to the slightly darker grey ab. *suffusa* Tutt. At least 70% of *A. aceris* L. are a darker grey colour than normal, they are mostly ab. *intermedia* Tutt and rather less frequently ab. *candelisequa* Esp. *A. leporina* L. is more suffused with grey than specimens from north and west Britain. There is a record of ab. *melaleuca* Culot, an extreme melanic, being taken at Dartford by Mr Honeybourne, in 1955. The *Acronictas* constitute a curious group in that several species, *A. psi, A. leporina* and *A. megacephala* D. & S. have developed extreme melanic forms in Yorkshire and elsewhere in northern England, but not in the London area, while *A. alni* L. has not appeared here in one of its melanic forms which are more widespread.

Biston strataria Hufn., like *B. betularia* is here relatively well speckled, and so is darker in appearance than specimens from many parts of Britain.

Epirrita dilutata D. & S. at Dartford are invariably rather dull insects with obscure markings, ab. *obscurata* Stgr.

Oligia strigilis L. and *O. latruncula* D. & S., and the *Mesapamea secalis* complex have not been analysed. However, *O. strigilis* occurs commonly in

its bright form with the white submarginal band, but the corresponding form in *O. latruncula* is relatively scarce. The variegated "type" form of *"secalis"* is relatively scarce amongst a great variety of dark mottled and reticulated specimens and intensely black individuals with a prominent white or yellowish reniform stigma.

Two species commonly seen settled on tree trunks are surprisingly no darker here than elsewhere — *Polia nebulosa* Hufn. and *Aethalura punctulata* D. & S. — although the former is much paler in many localities in the far west of Britain. Presumably *Lithophane ornitopus* Hufn. and *Xanthorhoe fluctuata* L., so conspicuous when settled on tree trunks, and fences in the latter case, are adequately protected from predation by birds by resembling bird droppings.

It would seem that this is an account describing a transient phenomenon already past its peak. It is unfortunate that there is not an accurate and detailed description of industrial melanism for the Dartford area at other points over the past hundred years for comparison. At least in one species (*O. bidentata*) the peak of the melanistic trend seems not to have been reached, and fortunately several species with distinct melanic forms visit my garden m.v. light in considerable numbers — *P. rhomboidaria, C. rectangulata* and *H. furcata*. Changes in the character and incidence of melanism in these species will be easy to monitor.

F. Clarke and colleagues have studied *B. betularia* on the Wirral Peninsula for many years and predict that by the year 2010 f. *carbonaria* will have decreased in numbers from over 90% in 1959 to be encountered only as an occasional mutant. In this insect the decline of the more extreme melanic form has been exceedingly rapid, in the Wirral falling from nearly 90% to about 30% in twelve years (1976-1989). At Dartford over this period the corresponding figures were 78% to 46%, and not until 1991 was 31% attained.

This comparison is interesting, showing the decline in the Wirral and at Dartford to be similar, but in the former locality earlier, as might be expected considering their geographic positions.

Acknowledgements

I am grateful to Mr. D. Carter for permitting me to consult the National Collection and relevant literature, to Mr J.M. Chalmers-Hunt for having produced his incomparable, detailed and accurate account of the macro-lepidoptera of Kent, and to Mr B. Skinner for his advice regarding the syntax, character and distribution of many of the melanic forms.

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A note on *Gyrohypnus angustatus* Stephens and *scoticus* Joy (Col.: Staphylinidae), with a record of the latter from Kingussie, Easterness.

It now seems accepted that the genus *Gyrohypnus* Stephens (*Xantholinus* auct.) includes two closely related but distinct species — *angustatus* Stephens, with a smooth pronotum and *scoticus* Joy, with a pronotum roughened by chagrination. This view, however, has not always been held.

Going back a hundred years or so, the problem was to know what name to use for what was then regarded as a single species. The original name was *ochraceus* Gyllenhal, 1810 and this was the name used by Fowler (1888) and Joy (1913) (see table). Ganglbauer (1885) used the name *angustatus* Stephens, 1833 but Joy (1913) argued against this usage on the grounds that Stephens' description was inadequate. Since the beginning of the century, however, opinion both in Britain and on the Continent gradually moved towards the acceptance of Stephens' name and Joy himself followed suit when he wrote his handbook (Joy, 1932).

The next problem arose when it became apparent that two taxa might be involved. Here, the respective views of British and Continental authorities diverged. Reitter (1908) took the form with the rough pronotum to be the type form, probably because it was the commoner form in his experience, and proposed that the form with the smooth pronotum should be named var. *nitidicollis.* Joy (1913), apparently unaware of Reitter's views (Newberry, 1914), took the opposite decision and took the form with the smooth pronotum as the type, perhaps because it was the commoner in Britain; the form with the rough pronotum, which he had recently found in Scotland, he considered was a separate species to which he gave the name *scoticus.* Until recently, Continental authorities (e.g. Lohse, 1962) continued to regard the form with the rough pronotum as the type form. British authorities continued to treat the form with the smooth pronotum as the type form though ironically, as it turned out later, Joy decided when he was writing his handbook (Joy, 1932) that his *scoticus* was a variety rather than a separate species.

The final word on the matter to date comes from Lohse (1989) whose work has shown that both British and Continental authorities have been mistaken, though in different ways. Firstly he has shown that, contrary to the views recently expressed by British authorities (e.g. Pope, 1977), *angustatus* Stephens and *scoticus* Joy are distinct species with distinct

aedeagi. Secondly, he has shown that Joy's choice of the form with the smooth pronotum as type was correct so that the Continental usage of names requires to be changed, i.e. the *angustatus* of Continental workers becomes *scoticus* Joy while their var. *nitidicollis* Reitter is the true *angustatus* Stephens. Lohse (1989) provides a key separating the species together, with figures of their aedeagi.

In Britain, *scoticus* appears to be much rarer than *angustus*. Certainly, I have been unable to find any recent, published British record for the beetle either as *G. scoticus* or as *G. angustus* var. *scoticus*. I have only come across it once myself, a single specimen taken on 22.3.86 in flood debris on the bank of the river Spey near Kingussie, Inverness-shire. It is perhaps of interest that Joy's original specimens also came from flood-rubbish, collected in 1913 at Struy, Strathglass, Inverness-shire and at Altnahara, Sutherland.

Table. Historical summary of the names used for the two taxa.

Authority	Taxon with smooth pronotum	Taxon with rough pronotum
Gyllenhal (1810)	*ochraceus* nom. nov.	*ochraceus* nom. nov.
Stephens (1833)	*angustatus* nom. nov.	*angustatus* nom. nov.
Ganglbauer (1885)	*angustatus* (Stephens)	*angustatus* (Stephens)
Fowler (1888)	*ochraceus* (Gyllenhal)	*ochraceus* (Gyllenhal)
Reitter (1908)	var. *nitidicollis* nom. nov.	*angustatus* (Stephens)
Joy (1913)	*ochraceus* (Gyllenhal)	*scoticus* nom. nov.
Joy (1932)	*angustatus* (Stephens)	var. *scoticus* nom. nov.
Lohse (1962)	var. *nitidicollis* (Reitter)	*angustatus* (Stephens)
Lohse (1989)	*angustatus* (Stephens)	*scoticus* (Joy)

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Bedstraw Hawks (Lep.: Sphingidae) in Norfolk

My note (*Ent. Rec.* **104**: 44) prompted a colleague of many years' standing to write to me. Tony Palmer has lived in Norfolk for a long while and he tells me that larvae of *H. galii* were seen in each of the years 1956, 1957 and 1958 in the Buxton Heath area, just north of Norwich. The original finder was Robin Harrison and in all about thirty larvae were taken, all of them feeding on Rosebay willowherb.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

CLINETORIA SPILOTA HOPE (COL.: SCARABIDAE). A NEW PEST OF BRINJAL IN KUMAON HILLS OF INDIA

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BRINJAL (*Solanum melongena* L.) is attacked by 59 insect pests from 27 families of seven different orders and four non-insect pests from two families of order Acarina at different stages of the crop in different parts of the country. Among these, only two white grubs (*Holotrichia insulris* Bren and *Protaetia cinerea* Kraatz) have been listed so far (Nair 1986).

During the survey of pests of vegetables in 1989, larvae ("white grubs") of the beetle, *Clinetoria spilota* Hope (Coleoptera: Scarabaeidae: Cetoniinae) were observed feeding on the leaves and flowers of brinjal in Defence Agricultural Research Laboratory, Hawalbagh situated at 1219 Meter MSL in Kumaon Hills of Central Himaliya. Beetles count varied from one to nine in number per plant and infestation was recorded on 27 percent of the plant population. The adult beetle is spotted yellowish on dark brownish background of elytra and measures an average 12mm in length and 6.5mm in width. The beetle is diurnal in habit on the host plant. This insect has been reported to defoliate apple, pear and peach, and gnaws on apple fruit (Gupta *et al.* 1977). Thus the reported insects seem to be the new pest of brinjal in Kumaon Hills of India.

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A new larval foodplant for *Coleophora argentula* (Steph.) (Lep.: Coleophoridae)

On the 18th September 1991 I was on the Imber ranges military training area in Wiltshire. More or less at about dusk I passed by a small and long-disused chalk quarry at ST975485 and indulged in a final spell of collecting for the day. A small stand of Ribwort plantain (*Plantago lanceolata*) caught my eye and so I gathered a small bunch of seedheads. This was pure

and simple prospecting in the hope of something turning up. By the time I reached home it was dark and I immediately placed them in a stocking — this was done in my garden shed without the benefit of illumination — and hung them up under a branch of a "Lawsonia species" conifer in my garden, a situation which incidentally gives me fair results with my breeding attempts. I did not examine the seedheads at this stage since to the best of my knowledge at the time any species present would be feeding internally. At the end of October I brought the stocking and contents indoors for a brief check on their overall condition such as holes in the stocking or problems with earwigs etc. It was immediately evident that *Coleophora* cases were present and at that time I was of the opinion that they were *C. argentula*. Apart from occasionally examining the external condition of the stocking nothing more was done until June 1992 when the seedheads with *Coleophora* cases were removed from the stocking and placed in a container more suitable for securing any newly-emerged adults. Most of the cases remained fixed to various parts of the seedheads but two or three larvae obviously were intent on wandering but curiously I never had the benefit of actually witnessing these larvae in motion. Where a larva "burrowed" between the seed capsules such a case could on occasions be overlooked but most, at least in captivity, were fairly obvious. Over a spell of about a fortnight at the end of July and early August I had a total of twelve adults emerge. On closer examination of the *P. lanceolata* seedheads holes were visible where the larvae had fed on the seeds. Some of the seed capsules had been attacked from directly on top whilst with others a larva had thrust somewhat deeper into the seedhead and gained access on the side of the seed capsules and in this situation the holes were far from obvious. The seedheads have become very brittle and disintegrate readily and it is proving rather difficult to retain intact such evidence. The adults, according to external characteristics, appeared to be *C. argentula* and this was confirmed when Dr J. Langmaid from Southsea very kindly invited my brother and myself to his home and dissected a specimen (a female) on the spot. During correspondence Lt.Col. A.M. Emmet informed me that he could find no reference in any European literature to any other foodplant other than Yarrow *A. millefolium* for *C. argentula*. The particular interest here is that *P. lanceolata* and *A. millefolium* are unrelated plant species.

Just as a matter of general interest to the reader the Imber Range has not seen any agricultural activity for almost 50 years and the locality I referred to at the beginning of this note is on the edge of an area in the southern half of the range which to the best of my knowledge was last under agricultural occupation just over a century ago.

Finally, may I record my thanks to Maitland Emmet and John Langmaid for their assistance in this matter and their forebearance in dealing with other queries.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wilts.

TWO GLACIAL RELICTS AND ASSOCIATED SPECIES OF COLLEMBOLA FROM NORTH CARDIGANSHIRE, WALES

PHILIP M. MILES

Werndeg, Cnwch Coch, Aberystwyth, Dyfed SY23 4LQ.

THE AGE and topography of the Cambrian mountains exposed to an Atlantic climate has given to mid and north Wales the advantage of a fauna and flora extending from the last glaciation to the present day. The botanical diversity and species richness is readily observed but this is not found in the arthropods. High rainfall ranging from 1016mm - 1524mm (40 - 60 inches) per annum, relatively long damp, mild winters 6°C. (43°F.) on the west-facing coastal region provide conditions favouring fungal pathogens which attack insect larvae and pupae. Premature warm dry periods followed by equally cold wet ones, often result in the death of insects advanced to the point of emergence or having emerged are immobilised and die without leaving progeny.

The highland zone has a harsh climate that has preserved some arctic fauna and flora up to the present day, found in niches on exposed almost sunless north-facing mountain scarps from about 610m (2000ft). Cardiganshire has the third highest mountain in Wales — Pumlumon, 752m (2468ft) and its extensive foothills of over 305m (1000ft) dissected by glacial valleys and deep riverine gorges. Some of the prime sites are now National Nature Reserves possessing historical evidence of ancient plant successions and associations, as well as having great geological interest.

Examining habitat samples from three of these reserves, two glacial relict species of Collembola not previously recorded were obtained. The present trend of global warming may further restrict the distribution of relict species in Cardiganshire which are at the southernmost limit of their range in Wales.

Tetracanthella wahlgreni Linnaniemi was represented by a single specimen from six soil samples 12x12x6cm taken on 12th February 1988 from an old heather (*Calluna*) moorland. The quadrats revealed a 12cm deep surface mat of mossy peat overlying rock which influenced the taking of the samples as it was not always possible to obtain a uniform unit at random. *Polytrichum juniperinum* Hedw., *Nardus stricta* L. and *Mollinia caerulea* (L.) Moench were growing amongst the heather which was heavily grazed by sheep. The area sampled is situated on the Mynydd Bach at Cors Bwlch-y-Baed SSI 320m (1049ft) near Tynygraig, "Talfryn Farm" SN 706697. The following widely distributed commonly occurring species of springtails were extracted from the quadrats, total of specimens in brackets. *Friesea mirabilis* (Tullb.) (4); *Protaphorura armatus* group (4); *Folsomia brevicauda* Agrell (2); *Cryptopygus thermophila* (Axels.) (1); *Isotoma olivacea* Tullb. (1); *I. viridis* Bourl. (63); *Isotomurus palustris* (Mull.) (125); *Pogonognathellus longicornis* (Mull.) (23); *Stenacidia violaceus* (Reut.) (13).

Tetracanthella wahlgreni was again found and in good number, 108 specimens being extracted from six 12x12x6cm samples taken on 14th February 1988 from a second locality at a site situated at 716m (2350ft) on the north face beneath the summit of Pumlumon (Plynlimon) Mountain, a harsh environment being completely exposed, with a rainfall of 1524mm (60 inches) — 2032mm (80 inches) per annum so that plant growth on scree from the shattered Ordovician mountain consisting of both sedimentary and igneus strata was *Polytrichum commune* Hedw., *Diphasiastrum alpinum* L., *Rhacomitrum lanuginosum* (Hedw.) Brid. and Mat-Grass *Nardus stricta* L. *T. wahlgreni* was among twelve other species of springtails inhabiting this harsh environment at SN789869.

Schaefferia willemi (Bonet) (2); *F. mirabilis* (Tullb.) (23); *Neanura muscorum* (Templ.) (1); *P. armatus* (Tullb.) (2); *Mesaphorura krausbaueri* (Born.) (1); *Anurophorus laricis* Nic. (1); *Folsomia brevicauda* Agrell (467); *C. thermophila* (Axels.) (59); *I. viridis* Bourl. (59); *I. palustris* (Müll.) (1); *Lepidocyrtus curvicollis* Bourl. (12); *S. violaceus* (Reut.) (7).

A single specimen of *Odontella empodialis* Stach was obtained from six 12x12x6cm soil samples taken on 8th January 1988 at SN747791 Parson's Bridge, near Devil's Bridge, from Coed Rheidol NNR declared in 1956 consisting of 43 ha. of ancient Sessile oak *Quercus petraea* (Mattuschka) woodland situated on the north side of the riverine gorge maximum depth 244m (800ft) through which flows the Afon Rheidol and influences the climate in the gorge. Botanically according to Mr Tansley, Oakwoods of an almost exactly similar type occur (also Ordovician rocks) at Glendalough in the south of Co. Wicklow.

The area sampled was restricted to a few metres in front of a vertical thrust, the result of lateral compression occurring some four hundred million years ago. As a result of frost erosion fragments of thin plates from the fractured parent rock and grits were covered by a thin humus layer of only a few centimetres derived from decayed oak leaves upon which *Polytrichum* and *Vaccinium* were growing.

Collembolan species were well represented here due to the heavy rainfall in excess of 1524mm (60 inches) per annum, high humidity, deep shade, protection by being below the level of the surrounding land mass. This undisturbed post-glacial gorge with its ancient hanging oak woodland is unique.

The wealth of collembolan species alone justifies the protection of National Nature Reserve status given to Coed Rheidol, but it is the botanical interest that is unique. However, sixteen species of springtails in such a limited sampling area is also impressive for this part of Cardiganshire. Even more importantly it is the habitat for the Alpine relict *Odontella empodialis* Stach. in Britain. This species is recorded from Europe in the Central and East Alps to Vienna, also the Italian Dolomites according to Gisin (1960).

Species associated with *O. empodialis* are as follows (numbers in brackets). *P. armatus* (122); *A. laricis* (25); *F. brevicauda* (79); *F. diplopthalma* Axel. (1); *F. quadrioculata* (110); *C. thermophila* (1); *Isotoma notabilis* Schaffer (5); *I. viridis* (22); *Pseudisotoma sensibilis* (107); *L. curvicollis* (28); *L. lanuginosus* (9); *Tomocerus minor* (9); *T. minutus* (Lubb.) (11); *P. longicornis* (4); *S. violaceus (4).*

References

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Hazards of butterfly collecting — good news for Queen Victoria. Sri Lanka, 1984.

In 1979 (*Ent. Rec.* **91**: 221) I published my very first "Hazard" of this series, from the Victoria Park in Colombo. I do not expect readers to remember, so I shall begin with a short summary. In my best "Disgusted, Tunbridge Wells"-tone, I complained that otherwise excellent butterfly hunting in this classical collecting spot was being spoilt by the presence, in every nook and cranny, of courting couples in various stages of undress. Especially the shade-loving Skippers proved very embarrassing to collect, since their shady habitats played host to the shadiest and steamiest scenes. It is late marriage combined, ironically, with Victorian attitudes to sex which have caused the park to become a sexual safety-valve. Queen Victoria would certainly not have been amused at what was going on in her park.

I am delighted to be able to report progress on this matter, after more than ten years. I have in front of me a newspaper cutting from Colombo. There have been heated debates in the City Council on the issue. Strong words were used: Lecherousness, hanky-panky, rampant immorality, scandalous behaviour, nefarious goings-on, corruption of youth, den of iniquity, shameful antics, degeneration of traditional values, blot on the city, *nay on the entire country* (Churchillian emphasis on the clause beginning with nay) — it seems that even the word, dare I whisper it, *sex,* was actually used in public session, *and* minuted. An aggravating circumstance, which had not struck me at the time, doubtless because of youthful naîvety, was that some of the ladies were actually deemed to be of the professional variety. Something obviously had to be done to clean up this seething cauldron of vice, this affront to moral values. And something *was* done!

One pleasant afternoon, when the pernicious activities in this festering sore in our midst were assumed to be at their zenith, serried ranks of riot police moved in. Their fearless water cannon operators flushed clean the

nooks and crannies of vice, foot soldiers with blankets following up to ensure that the tender sensibilities of onlookers were not shocked by any hint of nudity. Those ladies already known to the police as professional were duly "charge-sheeted" and carted off (probably to the subsequent enjoyment of many a policeman). The remainder were cautioned and then, soaked and with clothes in disarray, ran the jeering gauntlet of thousands of cheering bystanders. The operation lasted an hour and a half. There were no casualties. One water cannon operator and two foot soldiers were commended for bravery beyond the call of duty (probably for facing full frontal nudity, or something equally heinous).

I am unsure whether the *Entomologist's Record and Journal of Variation* was cited in evidence, but it would be nice to think that it can assist in solving social evils as well as meeting its primary objectives. I do, however, feel quite sure that this splendid operation has not made the park safe for butterfly collecting, and that both moonstruck and professional lovers are back to their unspeakable turpitudes.

However, the net (no pun intended) result will still be positive. It may be difficult to quantify, but levels of self-congratulatory moral rectitude will have increased considerably among the organisers of this futile gesture.—T.B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

THE HAWK MOTHS (LEPIDOPTERA: SPHINGIDAE) OF HONG KONG AND SOUTH-EAST CHINA

Entomologist's Rec. J. Var. **104**: 88-112

W.J. Tennent

CORRIGENDA

Page 92: at the end of page 92 insert ". . . *Jacquemontia paniculata* (Convolvulaceae).

Acherontia lachesis F.
KF (30), PSO (3), TPK (32), SH (4) *(69)*. This species is found throughout the Territory and a high proportion of specimens taken during the survey . . ."

Page 93, para. 4. Delete "silogramma increta Walker", insert "*Psilogramma increta* Walker"

Page 95, para. 3. Delete "'Hong Shui Kiu", insert "Hung Shui Kiu"

Page 97, para. 3. Delete "TAK (1)", insert "TPK (1)"

Page 102, para. 2. Delete "medial", insert "median"

Page 103, para. 6. Delete "light greasy or white", insert "light grey or white"

Page 109, para. 1. Delete "lachesis", insert "*lachesis*"

Page 110, para. 1. Delete "Freda", insert "Freida"

Page 111. After "Inoue, H., 1973." delete "Illusgdated", insert "Illustrated".

LEPIDOPTERA IMMIGRATION TO THE BRITISH ISLES IN 1987, 1988 AND 1989: A SUPPLEMENTARY NOTE

J.M. CHALMERS-HUNT and the late R.F. BRETHERTON

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This note summarises additions and corrections to be made since the reports and supplements in the *Entomologist's Record and Journal of Variation* as follows:
for 1987 — **100**: 175-180, 226-232 and supplementary note **101**: 133-135;
for 1988 — **101**: 153-159, 225-230;
for 1989 — **102**: 153-159, 215-224.

1987

Additions to Annexe I: Direct recorders. D. Appleton, J.F. Barlow, J.F. Burton, G.D. Craine, M.A. Easterbrook, J. Fradgley, J. King, M.P. Semmens, F.M. Slater, D.Walker.

Additions to Annexe II scarcer immigrant species:
***Platytes alpinella** Hb. DORSET Preston, 14-15.7; Radipole, 14-15.7 (Martin Cade).
Rhodometra sacraria L. DORSET Wimborne, 4.11 (J. Fradgley). HERTS Royston, 1.9 (J. Reid, *Ent. Gaz.* **39**: 172). LANCASHIRE S. Swinton, near Manchester, 11.9, 20.9 (Stephen E. Christmas, *Ent. Gaz.* **40**: 123). SUFFOLK E. Southwold, 1.7 (*Br. Journal Entomology* **1**: 23). CARDIGAN Salem, Penrhyncoch, 8.9 (P.R.Holmes *Br. J. Ent.* **1**: 127).
Agrius convolvuli L. CORNWALL W. Porthgwarra, 25.8, two seen by M.V.N. Jones, 26.8, one, 1.10, a well-grown larva (M.P. Semmens). GUERNSEY St Saviours, 9.9, 10.9; Pleinmont, 19.10 (R. and M. Austin).
Hyles gallii Esp. LANARKSHIRE 30.7, one caught, slightly worn (W. Young, *Bull. Amat. Ent. Soc.* **47**: 153). SOMERSET S. Crewkerne, 21.7, one in trap (J. Reid, *Ent. Gaz.* **39**: 171).
Lithosia quadra L. HUNTS. St Ives, 24.9 (Dr J.H. Clarke).
Mythimna vitellina Hb. HUNTS. St Ives, 4.10 (Dr J.H. Clarke). CARDIGAN Salem, Penrhyncoch, 17.9 (P.R. Holmes, *Br. J. Ent.* **1**: 127).
Spodoptera exigua Hb. DORSET Radipole School, 20.9, one (N. Arnold). GUERNSEY Le Chene, 15.7 (T.N.D. Peet per R. Costen).
Helicoverpa armigera Hb. HUNTS St Ives, 4.10 (Dr J.H. Clarke).

1988

Corrections to Annexe II. **Hymenia recurvalis** Fab. delete Essex entry, substitute DORSET Durlston Head, *c.*22.10 (Down, *Ent. Rec.* **101**: 23).

Lampides boeticus L. BERKS Reading: correct date to 25.5. *Rhodometra sacraria* L. CARDIGAN replace locality by Clarach Bay. *Eurois occulta* L.

delete whole entry. These data refer to 1982: *Mythimna albipuncta* D. & S. DEVON delete whole entry. *Heliothis armigera* Hb. CARDIGAN correct to Clarach Bay, 9.10 (MBD). HANTS Isle of Wight, Freshwater correct dates to 14.10, 23.10, 27.10, 12.11.

Additions to Annexe II. Palpita unionalis Hb. DORSET Durlston Head, 20-22.10, five (D.G.Down, *Ent. Rec.* **101**: 23). NORFOLK E. Winterton, 21-22.10, two males, 23-24.10, two females (A. Foster). *Rhodometra sacraria* L. DORSET Durlston Head, 23.10, one (D.G. Down, *Ent. Rec.* **101**: 24); Wimborne, 23.10 (J. Fradgley). ISLE OF MAN Calf of Man lighthouse, 1.9 (per G.D. Craine). CO. CORK E. Fota Wild Life Park, October, 15 in all (*I.N.J.* **20**: 118); Fountainstown, 9.8, one (*I.N.J.* ibid.). CO. KERRY, 19.10 (*I.N.J.* ibid.). *Orthonama obstipata* Fab. YORKS (v.c.64) Meltham, near Huddlesfield, 23.10, one (Mark Tunmore, *Bull. amat. Ent. Soc.* **49**: 46). *Thera cupressata* Geyer GUERNSEY & ALDERNEY. Note on further occurrences of moths and larvae on *Cupressus macrocarpa* since its discovery in 1985 (P.D.M. Costen, *Ent. Rec.* **101**: 85, 86). *Acherontia atropos* L. CO. CORK (v.c. 8 c.24.5) (per K.G.M. Bond); Charleville, 28.8 (*I.N.J.* **23**: 277). *Agrius convolvuli* L. KENT E. Dungeness, c. 10.9 (R. Morris), 6.9 male in bird trap (S. Clancy). DORSET Durlston Head, 25.10, male (D.G. Down, *Ent. Rec.* **101**: 24). CO. CORK (v.c.4) Cork City, c.13.9 (per K.G.M. Bond). *Hippotion celerio* L. YORKS (v.c.64) Meltham, near Huddersfield, 25.10 (Mark Tunmore, *Bull. amat. Ent. Soc.* **49**: 46). *Mythimna albipuncta* D. & S. KENT E. Dungeness, 17.7, one (M. Parsons & I.R. Morris), 23.8, one (S. Clancy). SUSSEX E. Ninfield, 5.9 (M. Parsons per C.R. Pratt). GUERNSEY St Saviours, 18.9 (R . Austen).

Mythimna vitellina Hb. DORSET Durlston Head, 19.10 (D. Down, *Ent. Rec.* **101**: 23).

Mythimna unipuncta Haw. DORSET, Durlston Head, 22.10, two (D. Down, *Ent. Rec.* **101**: 23). ISLE OF MAN Castletown, 28.10 (G.R. Craine). CO. DOWN Altan, near Belfast, 21.9 (D. Allan & D. Brown). CARMARTHEN Llanelli, 16.6 (I.K. Morgan).

Trigonophora flammea Esp. DORSET On coast near Swanage, 23.10, one at rest near trap (D. Down, *Ent. Rec.* **101**: 24). *Eremobia ochroleuca* D.&S. MONMOUTH Magor, 1.7 (Horton, *Br. J. ent. nat. Hist. Soc.* **2**: 34).

Spodoptera exigua Hb. DORSET Wimborne, 28.8, five (J. Fradgley); Durlston Head, 20/22.10, eight (D. Down, *Ent. Rec.* **101**: 23). KENT E. Dungeness, c.10.9 (I.R. Morris). CORNWALL W. Cury, Lizard, 19.7, three, 20.7, two 27.10 (A.F.G. Gardner); Penzance, 8.9, two, 11.9, 19.9, 20.10, 23.10; Porthgwarra, 9.9 (M.P. Semmens); Cusgarne, 18.10, 21.10, two, 24.10, two, 25.10, 26.10, 28.10, 6.11; Rosewarne, 4.11, one (A.H. Dobson). CO. CORK Fota, 18.10, eight (*I.N.J.* **23**: 118). ISLE OF MAN Castletown, 6.9 (G.D. Craine).

Heliothis armigera Hb. CHESHIRE, Chester, early in 1988, larva in imported tomatoes (G. Witherspoon per C.I. Rutherford). DORSET Durlston Head, 18-20.10, 23.10, twenty in all (D. Down, *Ent. Rec.* **101**: 23, 24.); KENT E. Dungeness Bird Observatory, 20-28.6, seven, 3.7, two, 3.8, 8.8, 9.8, three, 11.8, 23.8, 24.10, 27.10, three (M. Parsons & I.R. Morris). SUSSEX W.Rogate, 27-28.10 (J.A.C. Greenwood); Walberton, 15.10, 16.10, 26.10, 9.11 (J.T. Radford per CRP); Vann Common, 22.10, one (S. Church per C.R.P.); Littlehampton, 12.11 (Mrs R. Pratt). *Heliothis peltigera* D. & S. CO. DOWN, 29.9 (*I.N.J.* **23**: 118).

Of the usually common species *Pieris brassicae* L. owed its abundance and wide distribution largely to frequent large influxes, which were noted especially in Sussex 13.8; Cornwall, where at Polzeath over 1,000 were seen 14.8 on thistles; Carmarthen at Llanelli, 17.9. Its distribution reached Orkney, 25.5; Caithness, 3.6; Fair Isle, 14 & 18.6, and Moray, 24.6 at Nethybridge in large numbers. These invasions seem to have come from the east; in Ireland it was hardly seen. To the unusually scarce *Colias croceus* Fourc. a single in south Essex, the Isle of Dogs in October can be added to the previous records.

1989

ANNEXE II

Records of scarcer species in 1989

PYRALOIDEA

***Cynaeda dentalis** D. & S. LINCS N. Saltfleetby, 27-28.7 (C. Penny, *Ent. Rec.* **102**: 188).

Sitochroa palealis D. & S. SUSSEX W. Thorney Island dates should be 4.7, one, 16.7, three, 20.7, three, 24.7, five, 28.7, two — fourteen in all.

***Ostrinia nubilalis** Hb. SUSSEX E. Ninfield, 12.9, one of several seen this autumn (M. Parsons, *Brit. J. Ent.* **3**: 73). SUSSEX W. Walberton, 11.6, 14.6, two, 17.6, 19.6, 6.7, 20.8, 18.9, two, 21.9, two, 24.9 — twelve in all (J.T. Radford per CRP).

GEOMETROIDAE

***Scopula rubiginata** Hufn. NORFOLK E. Horsey dunes, 23.7 (C. Penny & R.F. McCormick, *Brit. J. Ent.* **3**: 68).

Rhodometra sacraria L. KENT W. East Malling, 21.9, disturbed in a field by day (D.A. Chambers, *Ent. Rec.* **102**: 147). CO. CORK Fota, September, one, October, eight, November, two (*I.N.J.* **23**: 278).

SPHINGOIDEA

Agrius convolvuli L. CO. CORK Douglas, 28.8, one, 5.9, one. CO. WEXFORD Duncormick, 23.9; Ballyfinogue, 25.8, one; Duncannon, 4.10, one, CO. ANTRIM Lisburn, 10.7, two; Ballycastle, 14.6, one; CO. ARMAGH Aghalee, 27.8 (*I.N.J.* **23**: 277).

Acherontia atropos L. CO. CORK Upper Aghada, 9.10, one; Charleville, 28.8, one (*I.N.J.* **23**: 277).

ARCTIIDAE

***Eilema pygmaeola** Doubl. LINCS N. Saltfleetby, 7 & 8.7, four caught in Rothamsted trap. (C. .Penny, *Ent. Rec.* **102**: 172).

Hyles gallii Rott. DORSET Portland, 11.7 (M. Rogers per N.M. Hall). ESSEX N. West Mersea Island, 25.8, one full grown larva on Fuschia (Mr & Mrs S. Luckham per J. Firmin). YORKS (v.c. 62) Eston Hills, Cleveland, 20.8, three full grown larvae (N.W. Harwood).

NOCTUIDAE

***Noctua orbona** Hufn. HANTS N. Crawley, near Winchester, 22.9, trapped with an *l. album* (R.A. Bell). Possibly immigrant, as on same date as several certainly immigrant species.

Mythimna albipuncta D. & S. ARGYLL Island of Mull, 21/26.5 (M.B. Bryan, *Ent. Rec.* **102**: 75).

Mythimna vitellina Hb. DORSET Weymouth, 30.11, one (N. Arnold). SUSSEX W. Littlehampton, 30.10 (B. Skinner).

***Mythimna l. album** L. DORSET Weymouth, 11.7, one (N. Arnold).

Mythimna unipuncta Haw. DORSET Weymouth, 25.9, two 2.10, one; Swanage, 21.9 (P.Q. Winter, *Ent. Gaz.* **41**: 162); Portland, 27.9 (A. Jenkins, *Brit. J. Ent.* **3**: 67); CO. CORK Beara, 9.10 (*I.N.J.* **23**: 178).

***Mythimna obsoleta** Hb. DORSET Swanage, 21.9, fertile female at a very unusual date (P.Q. Winter, *Ent. Gaz.* **41**: 162). This example was of the form found mainly in southern France, and is the first recognised as a probable migrant in Britain, though one at Minstead, S. Hants, 2.9.1967 by L.W. Siggs may have had a similar origin.

Mythimna loreyi Dup. HANTS Isle of Wight, Freshwater, 21.11, one (S.A. Knill-Jones). HANTS S. Lymington, 5.11 (A.J. Pickles).

Trachea atriplicis L. SURREY Woking, 5.7 in trap (Rev. R.C. Pittis, *Brit. J. Ent.* **3**: 68).

Heliothis armigera Hb. DORSET Portland, 26.4 (*Brit. J. Ent.***3**: 67).

Diachrysia orichalcea Fab. CO. DOWN Seaforde, 30.10, one (D. Allen, *I.N.J.* **23**: 278). First Irish record.

***Deraeocoris olivaceus* (F.) (Hem.: Miridae) in Kent**

This large, conspicuous, and very local plant-bug is so far unrecorded from Kent; previous records are for Surrey, Berks, Middlesex, Bucks, Essex and Sussex — in that order. (See Kirby, P., 1992, *A review of the scarce and threatened Hemiptera of Great Britain,* UK Nature Conservation **2**: 113, Peterborough.) A specimen flew to m.v. light here on the night of 11.vii.1992, and another was reared from a nymph swept off hawthorn (the host tree) at the Eltham Common edge of the Shooters Hill Woods near here, 29.vii.86; it was adult two days later. In earlier years I had taken *D. olivaceus* in Windsor Forest and Great Park.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 9QG.

AN ENIGMATIC REARING OF *DOLOPSIDEA INDAGATOR* (HALIDAY) (HYMENOPTERA: BRACONIDAE)

M.R. SHAW

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I RECENTLY received for identification two females and one male of *Dolopsidea indagator* (Haliday) from C. Johnson (Manchester Museum), reared by him from cocoons found under the bark of fallen oak branches in which larvae of the cerambycid beetle *Pyrrhidium sanguineum* (L.) were developing in numbers, collected at Moccas Park, Herefordshire, 19.v.1962. Oaks growing at the site include *Quercus robur, Q. petraea* and *Q. cerris* (J. Cooter, pers. comm.) and the specific identity of the tree was not ascertained. The three adult parasitoids were accompanied by three cocoons, two of them with adhering host remains.

The cocoons are spindle-shaped with strongly pointed ends, grey/brown, irregularly and quite strongly ribbed, parchment-like, and so tough that there is no real doubt that the parasitoids had passed the winter in them. The male cocoon measures ca 4.5mm x 1.5mm and those of the females ca 6mm x 2mm. Emergence was in each case through an irregularly chewed subapical hole. The appearance of the host remains seemed more consistent with ectoparasitism than endoparasitism, though too little was present for a firm conclusion to be drawn. The fact that two of the three cocoons had host remains with them suggested a solitary parasitoid (host remains could easily have become detached from the third cocoon during collection). Although no abdominal characters of the host could be discerned, one leg and more or less all crucial features of the head (including a complete antenna) were available for study. It was immediately clear that the host had been a beetle larva, but a scarabaeoid rather than a cerambycid. Closer examination (by M.L. Cox, CAB:IIE) led to a fairly confident determination at the level of Scarabaeidae: Aphodiinae, and ecologically more probable candidates such as *Sinodendron* (Lucanidae) could be firmly ruled out. The host record is thus both incompletely resolved and extremely puzzling: the only aphodiine known to inhabit dead wood in Britain appears to be the Australian alien *Saprosites mendax* Blackburn, but that species has never been recorded at Moccas Park. Otherwise Aphodiinae in Britain feed as larvae in rotting vegetation or, especially in regard of species likely to be found at Moccas Park, in dung (Jessop, 1987). While Moccas Park provides a steady supply of deer, cattle, sheep, horse and no doubt other kinds of dung it is hard to imagine how the larvae had got beneath the oak bark, even though the branch could well have fallen onto dung. There is no present evidence to distinguish between the theoretically possible alternatives that at least two or three parasitised aphodiine larvae entered the branch to pupate, or that healthy larvae were parasitised in situ. While the latter certainly seems more probable, it should be recognised that even if *Dolopsidea* is an ectoparasitoid, as seems most likely, it could conceivably be a koinobiont (cf.

Askew & Shaw, 1986) carried by the still-active host to its (quite likely somewhat abnormal) pupation site, as is known in the perhaps related genus *Rhysipolis* (Shaw, 1983). However, there is some other circumstantial evidence that *D. indagator* is normally associated with hosts in wood (e.g. a series in NMS was fogged from mature oaks by N.E. Stork and adults seem generally to have been collected from the vicinity of long-established trees), which might suggest that its association with Apodiinae was fortuitous rather than obligatory.

At first sight it seems that some help with this puzzle might be found in the literature as several previous host records for *Dolopsidea indagator* appear to exist (cf. Shenefelt, 1975 as *Rhyssalus*), namely the anobiids *Dorcatoma chrysomelina* Sturm and *D. dresdensis* Herbst, the curculionid *Phyllobius pomaceus* Gyllenhal and the cerambycid *Pogonocherus hispidus* (L.). However, these are all suspect for one reason or another and, as they illustrate some fairly common situations regarding records of parasitoids in the literature, it is worth taking a little space to review them.

(a) *Dorcatoma* species. These are much too small to serve as the host of *D. indagator* and the records might be dismissed on those grounds alone. However, in this case it is in fact clear that they are based on a misidentification of the parasitoid. Stelfox (1951) explained in detail how Marshall (1885; 1889) with uncharacteristic carelessness misinterpreted two Haliday species, *Rogas (Rhyssalus) clavator* and *Rogas (Rhyssalus) indagator,* leading him to divide what is now (and was by Haliday) regarded as the single species *clavator* into two (*clavator* and *indagator* sensu Marshall not Haliday), and to redescribe the true *indagator* as both *Dolops hastifer* and *Dolopos aculeator* — i.e. again splitting what is now regarded as one species into two. The valid names for the two currently recognised taxa are respectively *Rhyssalus clavator* (Haliday) and *Dolopsidea indagator* (Haliday). It was Fahringer (1934) who recorded (with no detail given) *Dorcatoma chrysomelina* and *D. dresdensis* as hosts of "*Rhyssalus indagator*", but this highly derivative worker did so in the context of a key and descriptions (Fahringer, 1930) that were no more than a translation of Marshall's work and therefore separated the supposed *indagator* sensu Marshall from *R. clavator* on precisely the invalid characters that had been used by Marshall (1885). Thus Fahringer's records really relate to *R. clavator* (a fact not appreciated by Shenefelt, 1975), irrespective of whether or not the host determination was correct.

(b) *Phyllobius pomaceus* (= *urticae* Degeer = *alneti* Fabricius in the sense of the authors cited). This claim was originally based on a reasoned guess (albeit a poor one), which was then subjected to a paring away of all the reasoning so that just the beetle's name was reiterated, with no reference to source, by certain later authors. Marshall (1889) mentioned collecting a single specimen of his *Dolops aculeator* on *Urtica* at a treeless site, and when he recounts this instance (Marshall, 1894) he adds the

speculation that *Phyllobius alneti* may be the host, for no apparent reason except that it was collected concurrently and is a very common insect whose larva feeds on *Urtica* roots. While one may admire Marshall's instincts in suspecting a beetle host the speculation was certainly excessive, and it is instructive to note how variably his remarks were then interpreted in the process of literature abstraction. Thus Dalla Torre (1898) simply listed *Phyllobius alneti* as host of *Dolops aculeator* with no reservation or comment other than giving Marshall's name; Elliott & Morley (1907) much more properly gave *Dolops aculeator* as a possible parasitoid of *Phyllobius urticae* through an accurate and referenced statement of Marshall's (1894) speculation; Schmiedeknecht (1914) suggested that *Phyllobius alneti* was probably the host of *Dolops aculeator* and refers to the association between the supposed host and *Urtica,* but without relating this to Marshall's observations (unfortunately Shenefelt (1975) failed to indicate either Elliott & Morley's or Schmiedeknecht's citation as anything other than definite); and finally Leonardi (1926), in a work whose title could (but certainly shouldn't) be taken to suggest that all records presented (i.e. including parasitoids) are Italian, simply entered the name *Dolops aculeator* as a parasitoid of *Phyllobius urticae* without further comment. One swept specimen and one speculation have apparently given rise to four further host citations in the literature, three presented without clear reference to the source, and in two of the four cases the host name was given without any reservation whatsoever. (The final score according to Shenefelt (1975) is one queried and no less than four certain records.) It is worth adding that specimens of *Dolopsidea indagator* have not, as far as I know, been collected on *Urtica,* or indeed away from trees, subseqeuent to Marshall's single capture.

(c) *Pogonocherus hispidus.* Unlike any of the other literature records discussed here, the single citation of this host (Anon, 1960) given by Shenefelt (1975) can be taken as stemming from a primary source: i.e. a report concerning reared specimens, even though in this case it is not direct in the sense of being recorded by the rearer or primary investigator. The record is contained in an amassed identification list, involving parasitoids of numerous insects, but the rearer (C. von Demelt), place (Klagenfurt, Austria) and identifier of the parasitoid (Ferrière) are given. Altogether six species of parasitoid are recorded from this collection of *P. hispidus,* and the determination of *Dolops indagator* is given with a query before the species name. Although the parasitoid determination may not be incorrect, the host record is certainly suspect. Recording as many as six species of parasitoid together from a wood-inhabiting host strongly suggests that they were the result of emergence from a bulked substrate (presumably twigs of rosaceous trees, but this is not stated), assumed but not known to be infested only by *P. hispidus,* rather than from carefully assessed isolated

hosts or cocoons with host remains (as is so important when rearing or recording parasitoids from substrates in which other potential hosts could conceivably be present, perhaps even as parasitised singletons with the result that no specimens of the true host would be seen: note that, without the recovery of host remains for examination, the new rearing record presented here could easily have been erroneously put down to *Pyrrhidium sanguineum* in this way).

The main reason why the biology and host associations of *D. indagator* is of such interest is that the tribal and subfamilial placement of the Holarctic (cf. Whitfield, 1988) genus *Dolopsidea* and the probably closely related genus *Rhyssalus* is in doubt. Quicke & van Achterberg (1990) proposed a new subfamily (Rhyssalinae) for them, but Shaw & Huddleston (1991) provisionally left them in Rogadinae *sensu lato,* related at tribal level (Rhyssalini) with genera that are ectoparasitoids of weakly concealed lepidopteran larvae and, as it now turns out, make appreciably different cocoons (cf. Shaw, 1983). Others (e.g. Capek, 1970; see also Belokobylskij, 1984) have considered that *Rhyssalus* (and presumably allied genera) should be removed from Rogadinae and placed within the Doryctinae. This conclusion, however, depended largely on an examination (Capek, 1970) of the larva of the nominal taxon *Rhyssalus brunneiventris* Ashmead which, as Ashmead (1894) himself points out, does not really have the generic characters of *Rhyssalus* Haliday. Ashmead's description is too poor to be sure of the true placement but I am informed by P.M. Marsh (in litt.) that the holotype in the United States National Museum is not a species of *Rhyssalus,* though it appears to belong in Rogadine *sensu lato,* but that in any case no material indicated as having been examined by Capek could be found under that name in the USNM collection, the depository cited by Capek (1970). It is also disquieting that Capek (1970) gave no description of the cocoon, even though he did so in most other cases. The cocoons of *D. indagator* obtained by Johnson should contain final instar larval skins, so a valid opportunity to assess the larval characters of *Dolopsidea* against those of a range of other genera presently classified within Rogadinae and Doryctinae is at hand. As this would best be undertaken in the context of a single overall review, and as such a study is already in progress (Quicke, in prep.), part of the present material has already been loaned for that purpose. One female of the series of *D. indagator* reared by Johnson has been deposited, with a cocoon, in Manchester Museum, but the other two adults and cocoons (with host remains and including the material loaned to Quicke) are retained in the National Museums of Scotland.

Acknowledgements

I am greatly indebted to Colin Johnson for allowing me to examine the reared specimens, and for his forbearance in permitting one male and one female with cocoons to be retained in the NMS; to David Carter for confirming my conclusion that the host remains could not belong to the

Lepidoptera; to Dr Mike Cox for his painstaking examination and partial determination of the host remains; to Dr Paul Marsh for information regarding the generic placement of the nominal taxon *Rhyssalus brunneiventris* Ashmead and for attempting to clarify the source and identity of the larva examined by Capek (1970); to Jonathan Cooter for information about the species of oaks and beetles occurring at Moccas Park; and to Dr Nigel Stork for donating samples of fogged Ichneumonoidea to the NMS.

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Two notable beetles on Woolwich Common, S.E. London

Orsodacne lineola (Panz.). — I swept a female of the lurid-testaceous form of this rather rare Chrysomelid off a cultivated *Crataegus* in flower, probably *C. prunifolia,* beside a path in the above locality (25.v.92); no more could be found. Our native hawthorn is of course plentiful in the area, and there is a thicket of it at no great distance, but it is not clear as yet where the beetle is breeding. Eleven years ago I swept one on the open common (Allen, 1982, *Ent. mon. Mag.* **48**: 841) which it seemed at the time might have strayed from a distance, but local breeding is now virtually proved. Another was found by casual sweeping in the woods at Shooters Hill, near the fringe of Eltham Common, only half a mile distance (25.vi.86).

Mecinus janthinus (Germ.). — This narrow cylindrical steel-blue weevil living on yellow toadflax has become much scarcer since first found in Britain at Darenth, W. Kent, by the writer in 1948. It was taken at several places in the home counties in the two following decades, but, it appears, hardly at all since, though still found occasionally. I was interested therefore to come upon a solitary example when sweeping the foodplant on 25th May 1992, and another similarly in a different part of the common on 31st July. This is doubtless the nearest to the metropolis of recorded occurrences so far.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Idaea seriata* Schrank and *I. vulpinaria* H.-S. (Lep.: Geometridae): out of season records**

The mild winter and some unusually warm weather in April and May, 1992, must have accounted for some early emergences, of which the following are particularly interesting and significant as they concern species which overwinter as larvae and then continue their growth until early June. The normal time of appearance for *I. seriata* in its first brood in Kent is late

June and July, although I have noted it as early as 4th June (1978) and 6th June (1982 and 1990) at Dartford, but in every case these were precocious specimens, the bulk of the emergence being at the usual time. However, in 1992 two specimens were attracted to my garden m.v. light on 24th May, to be followed by singletons on 25th and 29th May, and two more on 31st May, indicating, I believe, a considerable emergence in this locality. Unfortunately this species is barely more than a casual visitor to my garden light, and the half mile of old oak fence on which it was commonly found settled near my home has been replaced by wire, and therefore it is not easy to assess the full significance of these early specimens.

The normal time of appearance of *I. vulpinaria* H.-S. here is July and August, although occasionally a specimen is seen in June, the earliest date noted being 12th June, 1989. On 22nd May 1992 a specimen arrived at my garden trap, a remarkably early date. Only very rarely are what appear to be second brood specimens noted; I give the following— 27.ix.1974, 28.ix.1983 and 20.ix.1989.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

Larvae of Bloxworth Snout *Hypena obsitalis* Hb. (Lep.: Hypeninae) in Devon

On 22nd August 1992, Ray Cook and myself conducted a search for the larvae of *Hypena obsitalis* in the Torbay area of Devon. Larvae were found on Pellitory-of-the-wall (*Parietaria judaica*), but none were found on the few plants of nettle (*Urtica dioica*) examined. The Pellitory examined was growing at the foot of low south-facing cliffs and beside an adjacent footpath where the plants were well sheltered by a stone wall.

The larvae were about three-quarters grown when found and were kept on potted Pellitory. They pupated during the first few days of September beneath withered leaves and the adults commenced to emerge on 16th September.— A.J. PICKLES, 2a Park Avenue, Lymington, Hampshire SO41 9GX.

Records of two species of Heteroptera (plant bugs) newly recognised as British

In 1992, Drs B. Aukema and B.S. Nau (*Ent. mon. Mag.* **128**: 11-14) bring forward two additions to the British Heteroptera, as under. Having read their paper I checked my material and found both species to be present, as follows:

Megalonotus emarginatus (Rey) (Lygaeidae).— West Kent; Crayford Marshes, one on a Thames-side bank, 27.vii.84. East Kent: Graveney Marshes, near Seasalter (west of Whitstable), two by grubbing at base of breakwater in dry conditions, 21.v.91. Besides the pronotal character which is very clear, all three are noticeably darker, larger, and more elongate than my *M. chiragra* (F.). The latter are from Deal and Sennen

Cove near Land's End, in both places on sand-dunes; and Charlton, N.W. Kent, on a gravelly bank near the old sandpits. Aukema & Nau have assembled records of *M. emarginatus* from Dorset, Kent, Essex and Berkshire, one of which (Gravesend, coll. Power) lies between the localities of my two captures along the northern estuarine and coastal strip of Kent. Dr P. Kirby, of Peterborough, has it from north and south Essex and east Kent; while his finds of both species, together with mine, point decidedly to a preference for drier, sandier soils on the part of *chiragra,* and heavier, more clayey or other alluvial soils on that of *emarginatus.* Of the scarcer *M. sabulicola* (Thoms.) I have single specimens from Deal and Rye Harbour.

Trigonotylus caelestialium (Kirkaldy) (Miridae).— Though recently found to be common in the Netherlands, this grass-bug (which would seem, incidentally, to have been named after Castor and Pollux, the "Heavenly Twins") had despite much searching not been detected here until Dr Nau discovered three specimens in the British Museum (Natural History) taken between 1900 and 1953 in Surrey and Middlesex; whereas *T. ruficornis* (Geoff.) is regarded as common in Britain. I was astounded, therefore, when on inspecting the 13 examples I had taken to be the latter species, all but one proved beyond doubt to be *T. caelestialium* — the odd one being abnormal *ruficornis* with no red on the antennae, kindly confirmed later by Dr Kirby. They were collected in this district (Blackheath and Charlton, mostly the former) on various dates between 1959 and 1989, some by sweeping grass and others at m.v. light (vi - ix). This highly unexpected result shows that *caelestialium,* and not *ruficornis,* is the "common" *Trigonotylus* of my district, though in fact uncommon compared with other grass-bugs. Further, I have a specimen of the newer species from Chanctonbury Ring (27.vi.1960), swept on the chalk-hills. I can thus add two counties, (West) Kent and (West) Sussex, to the two already published; but Dr Kirby also found *T. caelestialium* in his collection and will be able to add several more records. Evidently that species is not the rarity it appeared to be when Aukema & Nau wrote, even though that was only last year; and now that they have drawn heteropterists' attention to it, the species cannot fail to be found more widely.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Satyrid larvae feeding wild on *Carex*

I can add further information on the choice of *Carex* as a hostplant of *Pararge* species in Britain (Shreeve and Smith, *Ent. Rec.* **104**: 239-242). I have been working *Carex elata* for the previous three years with drought having drained the ponds and pingos of south Norfolk, so giving access to the sedge. *C. elata* forms dense communities on islands normally isolated by some feet of water and also as ribbon growth at the water's edge; the only other plants to grow from these sedge tussocks are *Galium palustre* and Hemp Agrimony. September and October have been the best months

to work this habitat as it was then driest underfoot, but not so this year (1992). A number of noctuid larvae normally associated with grass have come from the sedge while the larvae of the spectacularly gaudy *Nascia cilialis* have been very conspicuous.

I have had autumnal larvae of *P. aegeria* and *P. megera* both clearly from *Carex elata* and they continued to feed in captivity on *Carex* both before and following hibernation, and I bred butterflies.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Harpalus (Ophonus) melleti Heer and _H. (O.) parallelus_ Dej. (Col.: Carabidae) taken together in W. Kent

The occurrence of these two scarce species together on the same ground is sufficiently unusual to be worth noting. The locality was High Halstow on the Hoo Peninsula in N.W. Kent; the situation, alluvial soil in the vicinity of brackish marsh, under stones, clods etc. I visited this area on two or three occasions with my late friend Arthur Gould, and have quite recently found both the above species amongst unset material taken there in July 1954, with *H. parallelus* predominating; and Mr Gould had an example of *H. melleti* (same place and time), now in my collection. The latter species is the *rupicoloides* of Sharp and might easily pass as a rather small *rufibarbis* (F.), the commonest of the group; it is thus less readily recognised than *parallelus,* our smallest *Ophonus,* usually found on or under coastal chalk cliffs and the like. Previous Kent records that I have seen for both species are all from the eastern division (some only just).— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Wild larvae of Green Hairstreak (Lep.: Lycaenidae) feeding on Purging buckthorn

Although most books on British butterflies carry a reference to this foodplant I had never found hairstreak larvae on it. On 8th June 1992 I was working for geometer larvae in a part of Thetford forest, Norfolk, where well-grown bushes of the buckthorn grow in quantity amongst privet and hawthorn. On beating the buckthorn I was surprised to find so many larvae of *C. rubi* fall onto the tray in instars from second to penultimate. They were to be had only from bushes carrying profuse blossom which was just past its peak, so the tray became thickly covered in the wasting flowers. In half an hour I counted thirty larvae and stopped beating because of the labour in returning small larvae to the bushes.

Those I kept fed ravenously and attained full growth within a week. When in their last instar they demolished foliage with astonishing relish and ate surprisingly large quantities. The last instar larva is a lusciously beautiful insect.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Population explosions of two Nymphalid butterflies in 1991 and 1992

Aglais urticae ichnusa Hübner in Sardinia in 1991.

On the 12th, 13th and 14th June 1991 I spent some time in the Mount Gennargentu region of central Sardinia. On the 12th June several *Aglais urticae ichnusa,* usually not a particularly common insect on Sardinia, were seen feeding on the large clumps of heather littering the lower slopes of the massif. On the summit ridge however, there were many dozens flying in a generally south-westerly direction more or less following the ridge line. The wind was light and from the north-east. Most individuals were flying 1 - 4 feet above the ground with occasional "streamers" of 3 - 8 individuals chasing each other. They flew in a band as wide as the summit ridge allowed, spreading out whenever there was a small plateau and flying more compactly in the steep rocky sections. I stood in one such defile and made an effort to count individuals as they passed; in one sunny period of 15 minutes there were 188 specimens, not in a steady stream but with a flurry of activity for perhaps half a minute and then a gap before the next group.

The following day the numbers had increased slightly and there were large agglomerations around each sub peak, a marvellous sight with hundreds of bright splashes of red where they rested on the ground with their wings open flat whenever the sun went in. On the 14th numbers appeared much the same as the previous day but now, although the general movement was in the same direction, there seemed to be much more "milling about" and more individuals, possibly as many as 20%, flying against the stream.

The next day I spent some time at lower levels in the general area where, if the flight had continued at the same level above the ground, one might expect to see quite a number. However, there was only a small handful of individuals feeding on the heather blooms, apparently oblivious of the chaos on the mountain directly above them.

Where, if anywhere, were they going? I don't know. It is interesting that a direct line south-west from Mount Gennargentu strikes the Algerian coast line very close to the town of Skikda (known as Philippeville prior to independence) about 400 kilometres away. I know of only three published records of *urticae* in North-west Africa, the first of which is by Oberthür (1914; 82) who records Harold Powell seeing (but not capturing) a fresh example which he believed was *urticae,* similar in colour to *ichnusa,* near Philippeville on 10th May 1913. The other two records are Barragué (1961: 39) who found a specimen (not *ichnusa*) at Algier on the 1st February (?)1961 and de Worms (1969: 290) who records it was "seen near Meknes", Morocco on 15th May 1969. This last record is highly suspect; it was almost certainly a small specimen of the dark red local form *erythromelas* of *Nymphalis polychloros* which is common in this area and which de Worms did not record. He obviously did not appreciate the significance of finding *urticae* in North Africa; if he had done so he would surely have given more detail than the bald statement provided.

Cynthia cardui L. in North Africa in 1992

The second instance of an unusual population explosion concerns *Cynthia cardui* in Tunisia in the autumn of 1992.

The butterfly was very common in early October 1992 around Ghardaîa in Algeria and in the northern desert areas of Tunisia. This is not unusual in Mediterranean regions in the autumn but on the 9th October, when I drove from Kasserine to Sbeitla in Tunisia, it was present in quite remarkable numbers. This was not a migration in the sense that flight was, for the most part, apparently aimless. Many dozens were flying across the road and settling on it and on the shrubbery on either side. North of Kasserine the numbers increased and became in places like a mass of pink autumn leaves blowing in the wind.

Stopping for an hour or so in mid-morning to examine some roadside flowers about three kilometres west of Sbeitla, I saw they were feeding in dozens at the flowers but also resting in very large numbers on the prickly pear cacti lining one side of the road and on the medium sized trees on the other. Whenever a high lorry passed, the slipstream would disturb great clouds of them and as many as a thousand (a conservative estimate) would fly from the branches of a single tree, flying around for a short time close to the tree before quickly settling down again. An estimate of the total numbers was made impossible by the fact that the majority were resting and that those in flight were in large groups being blown off by the wind. However, within 50 metres of a stretch of 200 metres of road the total numbers must surely have been in six, possibly seven, figures. All individuals seemed to be in fresh condition.

Later the same day, whilst driving on the minor road on the eastern flank of Djebel Sammama and Djebel Douleb north-west of Sbeitla, *cardui* was also present in large numbers, flying in a generally easterly direction very close to the ground. This was a dry and for the most part barren landscape; such vegetation as there was consisted almost entirely of low prickly shrubs and no flowers. Judging by the numbers of dead specimens on a road with light traffic density, the movement had been in progress for some time. No movement was noted in any other direction although there were occasional flurries of small groups of individuals chasing each other haphazardly.

I remained in Tunisia until the 16th October and although *cardui* continued to be particularly common everywhere I went, I did not see again such enormous numbers as there had been around Sbeitla. I left Tunis on the ferry bound for Genoa at mid-day on the 16th October; a fine day if somewhat cool. The occasional *cardui* was observed flying low over the water as the ferry left the harbour but not in any particular direction.

References: Barragué, G., 1961. Capture intéressante dans la banlieue d'Alger (Nymphalidae). Alexanor, **2**: 39; Oberthür, C., 1914. Faune des Lépidoptères de la Barbarie. *Etud. Lep. Comp.*, **10**: 1-459; Worms, C.G.M. (de), 1969. *Berberia abdelkader* Pierret and other Butterflies in Morocco, May 1969. *Entomologist's Rec. J. Var.*, **81**: 286-291.— W.J. TENNENT, 1 Middlewood Close, Fylingthorpe, Whitby, N. Yorkshire YO22 4UD.

Lepidopterists before the bench

On 30th March 1906, a Mr George Cox, a 22 year old Cambridge graduate and entomologist, together with three younger companions, appeared before the High Court of Justice in London. An action against the four had been brought by Mr John Ashton Fielden, Squire of Holme in Huntingdonshire, seeking not only an injunction restraining the young men from entering his land, but damages in respect of their alleged trespass in pursuit of moths at Holme Fen on several occasions during the previous summer.

In their submission to Mr Justice Buckley, counsel for the plantiff stated that the accused had trespassed a few paces off the public highway to erect a sheet, which with acetylene lamps was used to attract and catch moths. The owner was deeply concerned that these flashing lights might disturb his pheasants. Other subsidiary acts of trespass committed by the young men included stepping off the road to smear "sticky-stuff" on the trees and to examine the Holme Fen inscribed iron post at the edge of the coverts. As a result, Squire Fielden had not only ordered his gamekeepers to take "the necessary steps" to prevent them trespassing again, but had instructed his solicitor to there and then serve a writ on the four young lepidopterists. This was subsequently followed-up by having this "gang of desperate men" (a description mockingly used by one of the defence counsel) brought before the High Court.

In summing-up the case and giving judgment, Mr Justice Buckley refused to grant the restraining injunction, remarking that it was clear to all that the young men had conducted themselves in a civil and courteous manner at all times, and on being served the writ had given their word of honour not to return. Nor could he find any convincing evidence to warrant the accompanying claim for damages. Mr Justice Buckley then went on to severely criticise Squire Fielden, describing the legal steps he had taken against Cox and his friends as "oppressive to the last degree" and an abuse of the process of the court.

Winding up the proceedings, Mr Justice Buckley awarded the plaintiff a nominal one shilling damages, but by way of demonstrating his extreme displeasure at Squire Fielden's actions ordered him to pay the four defendants' costs incurred by the case (Refs: *Peterborough Advertiser* 31.3.1906 and 7.4.1906; *Peterborough Citizen* 4.4.1906).— JOHN MITCHELL, 22 Muirpark Way, Drymen, by Glasgow G63 0DX.

Some recent notable records for northern England, including a probable first for the country

During the last two years I have been engaged in invertebrate survey work for Forest Enterprise in the Kielder Forest area, and on sorting through a catch from a Heath trap set up by the Belling Burn for three nights prior to 13.7.1992, I was surprised to find a specimen of the Northern Arches (*Apamea maillardi*), in very good condition (apart from slight rubbing on one forewing). Waring (1992) could quote no record S(E) of Edinburgh, so

that this would appear to be the first record of this species for England. The site (NY69.89) lies on the north bank of the Kielder Reservoir. Despite the fresh condition of the specimen, it is unlikely to have been other than a wind-drifted vagrant, as intensive trapping in the area has revealed no others.

Other records of interest include:-

(a) A specimen of the Yellow-tail (*Euproctis similis*) — the first record for Northumberland for several decades — in the vicinity of Kielder Viaduct (NY63.92), July 1992.

(b) Confirmation of the continued presence of the Cloaked Pug (*Eupithecia abietaria*) in approximately the same area.

(c) A specimen of the Scallop Shell (*Rheumaptera undulata*) was taken in a Heath trap in the Kershopefoot area (NY47.81), Cumberland — a very scarce species this far north.

(d) This same area yielded a fresh-looking specimen of the Pyralid *Evergestis pallidata*, which, though known from SW Scotland, does not appear to occur in England north of Lincolnshire (Goater, 1986): the specimen had doubtless been wind-drifted from the former area.

(e) It was pleasing to be able to confirm the continued presence of The Saxon (*Hyppa rectilinea*), Dotted Carpet (*Alcis jubata*) and (though less well represented) Straw Dot (*Rivula sericealis*) in the general vicinity of Kielder.

(f) A probable recent arrival in the Belling area is the Satin Beauty (*Deileptenia ribeata*), which was located in surprisingly good numbers. Judging from Waring (*ibid.*) the northerly spread of this species must have been relatively recent, though it was rumoured to be in the Dumbarton and Perth areas many years ago (Dunn & Parrack, 1986).

I would like to thank Forest Enterprise for financial assistance with part of this work.

References: Dunn, T.C. & Parrack, J.D. *The Moths & Butterflies of Northumberland & Durham,* The Vasculum — Supplement No. 2. Northern Naturalists' Union, 1986; Goater, B. *British Pyralid Moths.* Harley Books, 1986; Waring, P. *Moth Conservation project, News Bulletin 4,* April 1991 - June 1992. Joint Nature Conservation Committee, 1992.— Dr J.D. PARRACK, 1 Woodburn Drive, Whitley Bay, Tyne & Wear NE26 3HS.

Three species of macro-moths new to the Isle of Wight list taken in 1992

On 25th June 1992 I took at mercury vapour light a small green moth which was finally identified as *Earias insulana* Boisd. at the annual exhibition of the British Entomological & Natural History Society. This specimen was the fourth British record with one other being taken twelve days earlier on 13th June at St Austell, Cornwall.

Towards the end of August warm southerly winds from the Azores produced two further species which were new to the Isle of Wight. On 20th

August I took *Eilema caniola* Hübn. which was probably a migrant being a long way from its breeding areas of Devon, Cornwall and Pembrokeshire. On 27th August I took the seventh British specimen of *Cryphia algae* Fab. which was kindly identified by Mr Martin Honey of the British Museum (Natural History). These seven records (three of which are from the Channel Islands) are all after 1990 and seem to suggest that this species could become established along the south coast in the near future.

I should also like to mention that I took the Tortrix *Phtheochroa rugosana* Hübn. at light on Ist July, which is the first recent authentic record for the Isle of Wight. According to Goater it appeared on More's list but still requires confirmation.— S.A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

***Cydia compositella* (Fab.) (Lep.: Tortricidae) in v.c.69 (Westmorland)**

On 14th August 1992 I was sweeping the low-growing mixed herbage by the shore of the estuary of the River Duddon near Askam in Furness (SD 209 770) principally seeking diptera.

Two small moths were taken in one series of sweeps and these proved to be males of *Cydia compositella* — presumably second brood specimens. According to Mr E.F. Hancock of Ulverston, who is currently compiling Tortricid records for a future volume of *The moths and butterflies of Great Britain and Ireland,* these specimens constitute the first record for v.c. 69. There are records for most parts of Yorkshire, but not for v.c. 65 which is contiguous with v.c. 69. Nor are there any records for v.c. 70 (Cumberland). At the site of capture there was abundant clover *Trifolium pratense* L. which presumably is the foodplant at Askam for the species.

I am grateful to Mr Hancock for providing up-to-date information on distribution.— Dr NEVILLE L. BIRKETT, Beardwood, Carter Road, Grange-over-Sands.

BOOK REVIEWS

Plant Galls by **M. Redfern** and **R.R. Askew.** *Naturalists' Handbooks* No. 17. 99pp, 4 colour plates, many text figures. Richmond Publishing Co. Ltd. 1992. £8.95 (paperback) or £16.00 (Boards).

Plant galls have always been a source of interest and fascination, but comprehensive literature on identification and biology of gall-forming agents has always been difficult to come by, either because key works were expensive and scarce, or because information was scattered throughout the literature. The recently-formed British Plant Gall Society reflects this interest, and the society has published identification guides.

With this publication, as with all the guides in this series, a vast amount of information has been collated and presented in a usable form. After a brief introduction, there is as chapter on the Gall Makers where the various mites and insects that cause galls are discussed. No attempt has been made to consider the galls caused by viruses, bacteria, fungi or nematodes, but examples from each group are given in the keys.

The next chapter considers communities and interactions and draws on a number of examples where there is considerable information on gall communities — which may include, apart from the gall maker, predators, parasitoids, herbivores and inquilines. There is then an introduction to identification followed by copiously-illustrated keys to species of gall makers, grouped under host plants. This is followed by a key to the parasites and predators of selected gall formers and a fascinating account of food webs within gall communities. A brief treatment of techniques and a bibliography complete the work.

This is a comprehensive and usable work by well-known authors. Packed with information, it will be invaluable to students and staff in schools, colleges and universities as well as the interested naturalist.

Rearing wild silkmoths by **Ronald N. Baxter.** 72pp, 8 figs, 7 monochrome and 28 colour illustrations. Paperback. Chudleigh Publishing, Essex. 1992. ISBN 0 9519219 0 8. Price £7.95 (or £8.55 direct from the publisher at 45 Chudleigh Crescent, Ilford, Essex IG3 9AT).

For many years the only useful publication available on breeding and rearing silkmoths has been the various editions of *A silkmoth rearer's handbook,* published by the Amateur Entomologist's Society. The current edition, by B.O.C. Gardiner, is a comprehensive and almost monographic work. Why, then, produce another book on the same topic for what must be a fairly limited market? It has been obvious for some time that a smaller, simpler (and cheaper) version has been needed both for the novice, and those wishing to rear only the more commonly available species. This book satisfies these requirements admirably.

Following a brief introduction, the first part of the book deals with rearing techniques in a simple and practical manner. The bulk of the book is taken up with a description of some 40 commonly available species. Each is dealt with under the headings of distribution, ovum, larva, foodplants, cocoon, moth and general remarks. There is a useful checklist of larval foodplants, a brief bibliography and a selection of useful addresses.

The text is easy to read, and contains many helpful practical hints. Twenty species are illustrated in full colour with eight colour photographs of larvae showing the diversity of form found within silkmoths. The photographs are of very good quality, and the whole book is attractively produced.

Insects on cabbages and oilseed rape by **William Kirk.** *Naturalists' Handbook* No. 18. 66pp, 4 colour plates, numerous figures. Richmond Publishing Co. Ltd. 1992. £7.95 (paperback) or £13.00 (boards).

The brassicas have traditionally held only a limited interest for entomologists because of the paucity of species on these plants, and these — apart from the lepidoptera — are difficult to identify. Those that have adapted to the plants — the brassica specialists — can often become pests, successful because they have learnt to deal with the toxic glucosinolates characteristic of these plants. Too few, however, have yet adapted to oilseed rape and those of us who dislike the subsidised, yellow stain that blights our countryside each spring can only wish these insects well.

This book considers brassicas as a place to live, dealing briefly with the history of their cultivation, and the chemical environment that makes them such interesting host plants. Two further chapters deal with the herbivores and those insects utilising the flowers. The illustrated keys are grouped under major groups of winged insects, larvae and non-flying adults, coleoptera, diptera and lepidoptera. The book concludes with a discussion of techniques, useful addresses and a bibliography.

It is clear from the book that there is much interesting work still to be done on the insects of cabbages and oilseed rape, and this work provides an excellent stimulus.

The ecology of butterflies in Britain edited by **R.H.L. Dennis.** 342pp, numerous figs. Oxford University Press. 1992. Hardback. £50.00.

Amongst the flood of recent publications on butterflies, few have attempted to deal with biological themes in any serious manner. For a treatment of ecology in the context of evolution, E.B. Ford's *Butterflies* is still hard to better. However much has changed over the past 45 years and our understanding of the factors influencing our butterflies, whilst still incomplete, has advanced significantly. This current multi-author work seeks to explain and discuss the ecology (in the broadest sense of the word) of our butterflies.

The book is divided into eleven chapters covering Islands, regions, ranges, and gradients (Dr R.L.H. Dennis); Adult behaviour (Dr T.G. Shreeve); Eggs and egg-laying (Dr K. Porter); Butterfly populations (Dr M.S. Warren); Avoidance, concealment and defence (Prof. P.M. Brakefield, Shreeve and Dr J.A. Thomas); Monitoring butterfly movements (Shreeve); Butterflies and communities (Porter, Mrs C.A. Steele and Thomas); Diversity within populations (Brakefield and Shreeve); Case studies in evolution (Brakefield and Shreeve); An evolutionary history of British butterflies (Dennis) and The conservation of British butterflies (Warren). There are several appendices covering a check list of butterflies and their known foodplants; a traditional classification of butterfly breeding biotopes in Britain; summaries of codes for collecting

and introductions; useful addresses, glossary and a comprehensive bibliography.

This is not a book for the general reader, but a serious and comprehensive treatment of butterfly ecology. The authors bring together new ideas, facts and figures from recent studies to discuss individual butterfly behaviour and adaptations, population dynamics, community structure, distributions and habitats together with the underlying genetics and evolutionary pathways. The treatment of conservation in the final chapter effectively draws all of the themes together.

The style of presentation is reasonably uniform, considering the diversity of contributing authors, but is occasionally heavy going for the non-specialist. The extensive glossary was very helpful in clarifying the many obscure terms that seem to be an inevitable feature of specialist books. Because of the complexity of the subject, it is inevitable that some of the models and concepts used are speculative, but the authors argue their case well, and present sufficient data for the reader to follow the argument.

In summary, this is a well-produced and valuable contribution to our knowledge of butterfly ecology. It will be an invaluable reference tool and, in many respects, a benchmark in ecological studies.

Downland Wildlife by **J.F. Burton** and **J. Davis.** 192pp, fully illustrated. Boards. George Philip Ltd. 1992. £16.99.

This book is intended for the general naturalist and deals with the flora and fauna of the North and South Downs — regions of calcareous downland in Surrey, Sussex, Hampshire and Kent. After consideration of the region, successive chapters deal with the plants and animals to be found in spring, summer, autumn and winter. There is a brief gazetteer of nature reserves and other places of interest, useful addresses and a bibliography. The book is copiously illustrated with paintings and drawings by John Davis.

So often general books of this nature are disappointing — they start by assuming nothing, and equally, succeed in importing nothing of value in the text. Thankfully, this book is light years away from these other depressing volumes. As might be expected from such a well-known author, the text is interesting, informative and easy to read. The treatment of the different groups of plants and animals is well balanced, with emphasis on ecology and interrelationships. A major plus, from the reviewer's point of view, is that this balanced treatment gives excellent coverage of downland insects. Not only does this give a book added interest for the entomologist but, more importantly, presents insects to the general reader as full and equal partners in wildlife habitats.

The illustrations are not intended as identification guides, but provide impressions of habitats and the plants and animals that inhabit them. More than anything, they provide the right atmosphere for the book. Highly recommended.

WANTED

Records of *Sciota hostilis* Steph. and *S. adelphella* F.v.R. (Lep.: Pyralidae) required for a paper being prepared for the Record on the status and distribution of these two species in the British Isles. Reference to the discovery of *S. adelphella* together with illustration can be found in *Entomologist's Gazette* **39**: 271-274. All records and any requests for assistance in identification please write to Bernard Skinner, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

CONTENTS AND SPECIAL INDEX

The contents and Special Index for Volume 104 (1992) will be published with the March issue.

PAPERS, NOTES AND OBSERVATIONS

Very few Notes and Observations from the 1992 "season" have reached us yet — we hope that the dearth of material does not reflect a decline in interesting observations made by readers!

We would also welcome longer contributions, in the form of papers, particularly on British and European Lepidoptera and Coleoptera.

What better way of spending a long winter evening?— Editor.

CORRECTION

Volume 104 November/December issue. We regret that the title of Mr A .A. Allen's note at the top of page 325 was incorrectly printed. The correct version is: *Bledius bicornis* Germ. (Col.: Staphylinidae) in suburban West Kent.

Also in vol. 104, page 48, line 7 up after *filipendulae* insert "and *lonicerae*".

ANNOUNCEMENT

The Shetland Entomological Group has recently been formed with the objectives of encouraging entomology and co-ordinating the collection of records of insects in the islands. Membership within Shetland consists largely of raw amateurs, with most current interest in the Lepidoptera. It is hoped that any entomologists with experience of Shetland will become involved and we should also be pleased to hear from anyone requiring information or specimens from the islands. The first newsletter will be available in January 1993. For further details contact the Secretary, M.G. Pennington, 9 Daisy Park, Baltasound, Unst, Shetland ZE2 9EA, or telephone (095 781) 307.

THE AMATEUR ENTOMOLOGISTS' SOCIETY

The Society was founded in 1935 and caters especially for the younger or less experienced Entomologist.

For details of publications and activities, please write (enclosing 30p towards costs) to AES Registrar, 22 Salisbury Road, Feltham, Middlesex TW13 5OP.

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

Contents

Notes and observations

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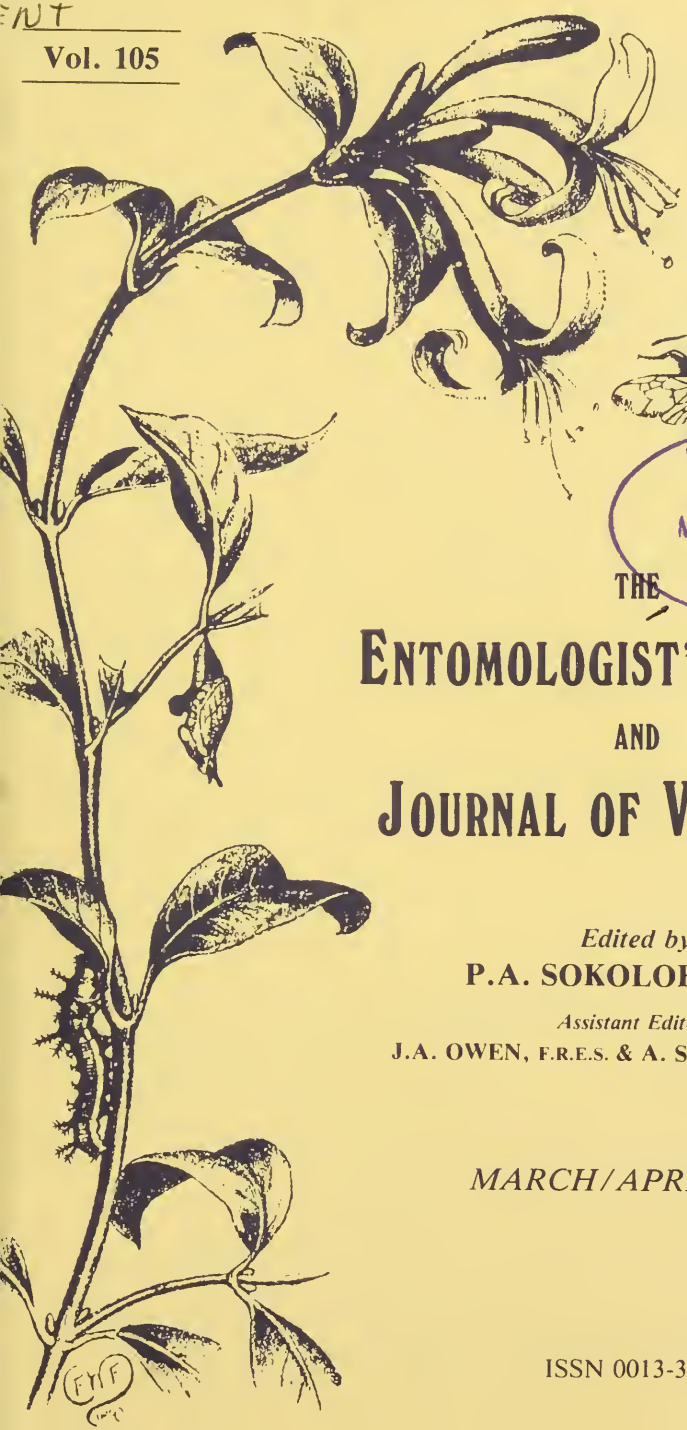

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WHERE TO WRITE

EDITOR: All material for publication and books for review.
REGISTRAR: Subscription changes of address and non-arrival of the Journal.
HON. TREASURER: Advertisements and subscribers' notices.

Notes for Contributors

It would greatly help the Editor if material submitted for publication were typed and double spaced. Two copies are preferred. Please DO NOT use block capitals and DO NOT underline anything except scientific names. Word-processed text should not use italic, bold or compressed typeface. References quoted within the text can be abbreviated (eg Ent. Rec.), but those collected at the end of a paper should follow the standard *World List* abbreviations (eg. Entomologist's Rec. J. Var.). When in doubt try to follow the style and format of material in a current issue of the *Record*.

Illustrations must be the original (not a photocopy) without legend which should be typed on a separate copy. Photographs should be glossy, positive prints. Authors of long papers, or submitting valuable originals are advised to contact the Editor first.

Contributors are requested not to send us notes or articles which they are sending to other magazines.

Whilst all reasonable care is taken of manuscripts, illustrations etc, the Editor and his staff cannot hold themselves reponsible for any loss or damage.

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NOTES ON THE IRISH REDUVIIDAE (HEMIPTERA)

J.P. O'Connor & M.A. O'Connor

c/o National Museum of Ireland, Kildare Street, Dublin 2, Republic of Ireland.

IN BRITAIN, the Reduviidae are represented by six species; most of which are rare (Southwood & Leston, 1959; Dolling, 1991). By contrast, only two species are known from Ireland *viz. Empicoris culiciformis* (Degeer) and *E. vagabundus* (L.) (Halbert, 1935). Inexplicably, Halbert's records were omitted from Southwood & Leston (1959). Recent captures of *E. vagabundus* by the authors have prompted a review of the Irish status of the family including a re-examination of specimens in the National Museum of Ireland.

Power (1878) recorded *E. vagabundus* from the Waterford district. However, while a specimen of this species labelled "Waterford" was contained in the Power Collection of the Natural History Museum, London, Halbert (1935) considered that it seemed possible that there was an error (as to the exact locality) in the record. This may result from the fact that Power's south of Ireland list refers to an area ranging from Thomastown in Co. Kilkenny to Tramore on the Waterford coast (Power, 1878; Johnson & Halbert, 1919). Renouf (1934) discovered the species inhabiting a salt marsh at Lough Ine (Hyne) in west Cork. We are unaware of any other published Irish records. Our records are as follows:—

DUBLIN: Castleknock (00837), 5.viii.1990, specimen taken while resting on a door jamb inside a covered passage of a suburban house at 12pm (midnight) (J.P.O'C.); KILDARE: Louisa Bridge (N9936), 21.viii.1983, specimens very common on trees near canal and marsh (J.P./M.A.O'C.); LAOIS: Emo (N5305), 3.x.1982, specimen beaten off a tree (*Fagus*) within mixed woodland (J.P.O'C.).

The Emo specimen keyed out using Southwood & Leston (1959) but the other specimens did not. They differed in having a connexivum with dark markings and in not fitting the stated size range. A specimen was sent to Dr P. Putshkov of the Zoological Institute, Kiev, for his opinion. He replied (*in litt.*) that it was a true *E. vagabundus* though its antennal black rings are somewhat broader than usual. He added "Such aberration is known, though not very common. More constant features of this species are pterostigma without dark spots, slender fore femur, which is longer than head and pronotum together, short or lacking scutellar spine, and size 5.3 -7.0mm, greater than for other European species". Using these characters, all the Irish material was readily identifiable as *E. vagabundus*.

It is surprising that the authors discovered these additional records considering the reputed rarity of the species in the past. Halbert, who spent many years specially collecting Hemiptera, never came across the species. Yet, the Kildare and Laois material was taken while looking for other groups and the Castleknock specimen turned up accidentally in the Dublin

suburbs. Unlike *Metatropis rufescens* (O'Connor *et al.*, 1988), we do not consider *E. vagabundus* to be a recent arrival. Instead, since adults overwinter (Southwood & Leston, 1959) it may be a species which has benefitted from recent mild winters.

The second Irish species (named as *E. culiciformis*) which was considered to be the commoner, was only known from three specimens, all taken in houses (Halbert, 1935). It was first recorded in Armagh when a specimen flew in a study window and alighted on a book which the Rev. W.F. Johnson had open for reference (Johnson & Halbert, 1919). The two other specimens occurred in a house at Harold's Cross in Dublin. All these specimens are preserved in the collections of the National Museum of Ireland. In addition, there is a fourth previously unreported specimen from the Harold's Cross house. As with the first specimens, we were unable to name this material using Southwood & Leston (1959). Instead, using Stichel (1955-1962), the species keyed out as *E. thermalis* Dispons, an eastern Pyrenean species which has not been recorded in the British Isles. The records are:— ARMAGH: Poyntzpass, 27(29).v.1919 (W.F.J.); DUBLIN: Harold's Cross, 7(17).iii.1932, found in the bath of a house; Mayfield, 18.vi.1932, in house; Harold's Cross, 30.vii.1943, dining room. All these records refer to the same house (A.W. Stelfox). There are some discrepancies between the published dates and those on the labels. The latter are given in brackets.

E. thermalis differs from the other British *Empicoris* in possessing a small blunt-tipped conical protrusion medio-posteriorly. This is not as well-developed as that of *E. baerensprungi* (Dohrn). It is absent from *E. culiciformis*. Kirby (1988) illustrates clearly this difference between *E. baerensprungi* and *E. culiciformis*. In order to see the conical protrusion satisfactorily, a carded specimen should be viewed from the side. Stichel gives detailed descriptions of both *thermalis* and *culiciformis* but only three other characters are directly comparable and these are listed below.

E. thermalis	*E. culiciformis*
1. scutellum with brown thorn.	1. scutellum with white thorn.
2. front coxa white with a weakly indicated black spot distally.	2. front coxa whitish or yellowish with a more or less distinct dark ring.
3. front femur white, with a white ring both proximally and distally, medially with one narrow black ring.	3. front femur brown, dark brown or black, with narrow whitish or yellowish rings.

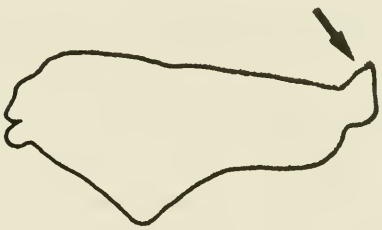
The Irish material agrees with *thermalis* on the first two differences and probably on the third. However, the femur colouring is difficult to interpret.

It is possible that *thermalis* is merely a variety of *culiciformis* but with the paucity of available Irish material, its status is impossible to ascertain.

The four putative species of *Empicoris* in the British Isles may be separated by the following key adapted from Stichel:-

1. Pronotum with a conical structure medio-posteriorly (Figs. 1, 2) 2
—. Pronotum without a conical structure medio-posteriorly 3
2. Pronotum with a well developed pointed cone-like structure medio-posteriorly (Fig. 1) . . . . . *E. baerensprungi* (Dohrn)
Length: 3.75 - 4.0mm.
—. Pronotum with a blunt conical structure medio-posteriorly (Fig. 2) . . . . . *E. thermalis* Dispons
Length: 4.0 - 4.4mm.
3. Pterostigma somewhat lancet-shaped, uniformly white . . *E. vagabundus* (L.)
Length: 5.3 - 7.0mm.
—. Pterostigma almost club-shaped, with two black or brown spots . . . . . *E. culiciformis* (Degeer)
Length: 4.5 - 6.0mm.

Note: medio-posteriorly refers to the medial area near the base of the pronotum.



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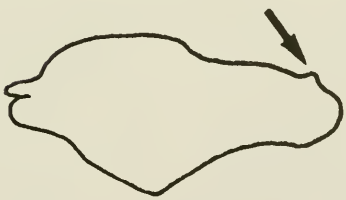

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Figs. 1 - 2. Lateral views of pronotum (after Stichel, 1955-1962).
1. *Empicoris baerensprungi* (Dohrn); 2. *E. thermalis* Dispons.

Acknowledgements

We are indebted to B. Eversham for all his generous help with this paper including his many useful comments. We are also most grateful to the following for their kind assistance: P. Ashe, K.G.M. Bond, W.R. Dolling, J. Péricart and P. Putshkov.

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Duration of the egg stage of *Aporophyla nigra* Haw. (Lep.: Noctuidae)

The majority of books on British macrolepidoptera say that the larva of the Black Rustic feeds from October and November to May and June; thus Barrett, South, Tutt (Practical Hints), Newman and Leeds, Scorer, Meyrick, Stokoe, Skinner and more recently, Emmet. Buckler recorded that eggs hatched 21st-22nd November 1868. Scorer also cites the experience of that great rearer of moths Frank Littlewood who had eggs "laid middle of Sept 1910 hatched 14-17 Feb."

Eggs laid by two Norfolk females in October 1991 began hatching in mid February and continued to do so for a week. Yet a colleague had eggs laid by a Sussex female that hatched in the previous November, and a friend of his had Cornish eggs also hatch in the autumn. Both egg batches from Norfolk moths were held by two of us separately and kept at outdoor temperatures as were those from Sussex.

Have we any records of southern *nigra* eggs hatching late or of northern eggs hatching before the new year?—G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

FRANCE — 1991 AND 1992
THE JURA, THE HAUTES ALPS AND THE VOSGES MOUNTAINS

P.W. CRIBB

22 Salisbury Roaad, Feltham, Middlesex.

IN MY MANY TRIPS to the Continent I had only once come across the Woodland Brown, *Lopinga achine,* and that near Lake Bled in north Jugoslavia. Christopher Nissen kindly supplied me with information as to where it was most likely to be found in the Jura Mountains and David Marshall and I set off on the 14th July via Dover and Calais by Sealink night ferry in the camper for two weeks in the French mountains. On previous trips we had visited both the Jura and Vosges mountains while in passage to other parts but had not spent much time there.

We camped the first night on the Langres plateau north of Dijon where the Marbled Whites were common, many of the females being of the form *leucomelas,* where the underside markings are obsolete. Other species on the wing were the Red Admiral, Swallowtail, the fritillaries *C. selene, M. didyma* and *B. daphne,* Wood Whites and newly emerged Brimstones. We were woken in the morning by the Gendarmerie in a jeep who said we were camping in a restricted area!

We then travelled via Dole to Clairvaux les Lacs in the Jura and found a nice spot east of the lake were there was open hillside with scattered bushes and a small copse. Here we found *Lopinga achine* with the males fairly worn and the females already showing damaged wings. It is an elusive butterfly, flying amongst the thicker bushy areas, looking rather like a large Ringlet, *A. hyperantus.* On being attacked with the net it disappears into the nearest bush but I was able to obtain a photograph. Also present were a large range of butterly species including *L. reducta, L. camilla, M. parthenoides, M. aglaia, A. paphia, M. phoebe, C. dia, C. selene,*

Lopinga achine bred from female.

P. c-album, G. rhamni, A. crataegi and its egg masses on hawthorn, *C. glycerion, C. pamphilus* and *C. arcania,* and hundreds of *B. circe.* Only two lycaenids were observed, *N. ilicis* and *C. semiargus.* We spent the greater part of the day here in very hot sunshine and in the afternoon took the road via St Claude towards Bellegarde. Beside the mountain road we stopped and found a large flowery meadow where the Erebias, *E. oeme, E. ligea* and *E. medusa* were flying with the Coppers, *P. hippothoe, H. virgaureae* and *H. tityrus.* North of Bellegarde we camped the night in a disused quarry.

On the 17th July we decided to go south to visit La Grave in the Dauphine Alps as David had never been there. Leaving Bellegarde, we drove to Annecy and skirting the Lac on the west side we took the road to Turin, turning off at St Michelle de Maurienne to begin the climb to the top of the Col du Galibier, one of the highest alpine passes — 2,645m. The van behaved admirably and made it, finally, in bottom gear.

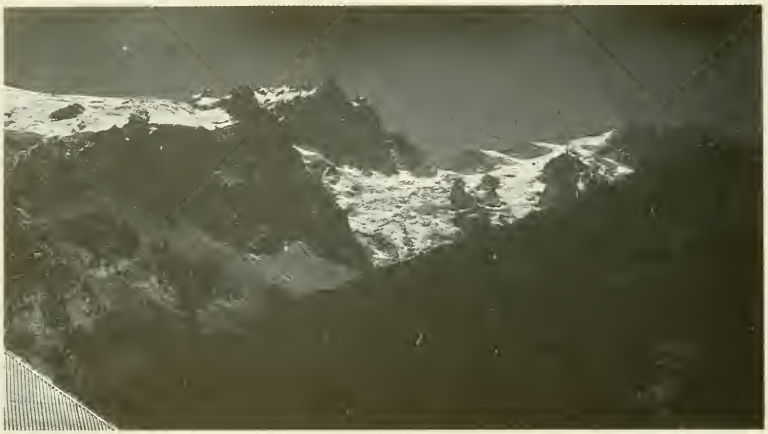
We came over the Col and camped for the night just below at the spot where there now stands a monument to the founder of the Tour de France. There was still a lot of snow in the valleys and we spent a thoroughly cold and uncomfortable night in contrast to the heat of the previous one. When the sun had got over the peaks next morning we spent some time in the valleys around, where previously I had found *E. cynthia* to be common, but obviously the season was a late one and we saw only *Erebia pandrose* and a single Peak White, *P. callidice.* Later in the morning we drove down to the lower Col, Col du Lautaret, where I had spent many happy days with the late Leo Coleridge. The spot has become very crowded and despite the new car parks we parked with difficulty.

Galiber Pass

Up on the north facing slopes where the cranberries, *Vaccinium* sp., grow I expected to see both *Colias palaeno* and *Vacciniina optilete* flying and was not disappointed though all were males, again due to the lateness of the season. Other species present were *E. pandrose, E. cassioides, E. epiphron* (a single male), *B. pales, A. glandon, C. semiargus, L. idas,* several *C. phicomone,* and *C. glycerion* and *C. gardetta.* We then drove on down to the village of La Grave above the torrent of the Romanche. Previously one had been able to camp immediately below the vilage by the stream but now there are tennis courts there and notices prohibiting camping, the area now being part of the National Park of Les Ecrins. We parked in the tennis courts park and spent part of the afternoon on the lower slopes opposite the village where the meadows swarmed with butterflies. There were a few Apollo drifting down the valley with newly-emerged *A. crataegi*; the fritillaries *F. niobe eris, M. aglaia, M. diamina, M. parthenoides* and dozens of *M. phoebe.* We took several females of the last-named for egg-laying.

The Blues included *M. arion, P. icarus, P. escheri, A. damon* in hundreds, *A. glandon, A. agestis* and *L. idas* flying with the Coppers, *H. virgaureae* and *P. hippothoe.* We watched a bush cricket, *T. viridissima,* jump and catch a specimen of *Erebia pharte* as it landed on a flowerhead and then proceed to eat it. This is the first time I have seen a bush cricket catch another insect though I have had them devour each other in a pillbox. In addition to *E. pharte,* we saw several *E. alberganus* and *E. cassioides* and male *Satyrus cordula.* There is now a cable car station at La Grave which enables one to travel right up to the high peaks west of La Meige and the village was crowded with parked cars and visitors. Driving down below the village towards Grenoble, we found a campsite below on the edge of the Romanche and drove in to camp for the night. Later that evening we walked back to the village through the meadows beside the torrent, a pleasant stroll with the air filled with the noise of the stream and bush crickets.

On the morning of the 19th July we rose early and drove up to the village and then down to the Romanche to park the camper in the shade of the trees and start the climb up to the glaciers below La Meije. The sun was already hot but it was cool in the valley which we took to reach the scree and chaos of rocks below the icefields. We saw all the species of the previous day and in the high meadows there were *P. bryoniae, P. callidice, M. cinxia* and several *C. phicomone.* The damp patches swarmed with male blues and the commonest seemed to be *Pseudaricia nicias,* a butterfly which I had taken previously in the larch woods lower down. Here there were groups of males and several females flying among the foodplant, *Geranium pratense,* with a few *E. eumedon.* I had expected to see *Erebia pluto* and *E. gorge* flying over the screes but there were none and this must again be attributed to a late season as in previous visits both had been common. In the afternoon we climbed slowly back down to the camper and



La Meije at La Grave.

drove back over the Col du Lautaret and via Briancon to the valley of the Durance to revisit the valley of Fressenieres, hidden among the Massif of Les Ecrins south of Roche de Rame. I had visited here with Russell Bretherton and Ron Dyson some years previously and found it a delightful spot swarming with butterflies.

It was a shock to find a large municipal campsite beside the stream where we had camped *au savage* previously, with swarms of people. We paid our dues and selected a clear spot beside a small one-man tent. An hour later the owner of the tent turned up accompanied by a woman (I hesitate to call her a lady). He was a Scot but instead of welcoming our greeting, he demanded that we should move as we were infringing on his privacy! We pointed out that there was plenty of room and one could hardly expect privacy on such a congested site. He and his companion then became abusive so we decided to move and found a spot deeper in the woodland. In the morning we explored the slopes above the camp which had been so productive previously. New coniferous woodland had sharply reduced suitable habitat and we found the fine scree slopes had also recently been thickly planted with small conifers. However there were still plenty of species on the wing. I found ova of *M. alcon* on clumps of *Gentiana cruciata* and the Blues flying included *P. escheri, P. icarus, A. damon, A. agestis, P. argus, L. coridon* and *C. minimus.* There were a lot of both sexes of *H. virgaureae* and *P. apollo* and the Satyrs were represented by *B. circe,, H. alcyone, S. cordula, L. maera, A. hyperanthus, H. lycaon, M. jurtina, C. pamphilus, C. dorus, C. glycerion* and *C. arcania.* The fritillaries were *M. didyma, M. phoebe, M. parthenoides, A. paphia, M. aglaia* and *F. adippe.* We sighted a single *C. croceus,* several male *C. alfacariensis, L. sinapis* and *I. podalirius.* The commonest of the Skippers

was *H. comma* and there were both *T. lineola* and *T. sylvestris* and female *O. venata* on the damp patches by the river. While we were on the slopes we watched several people parascending from the peaks above. We had seen two buzzards using a thermal above the nearest peak and the parascenders were able to emulate them, rising above the peak and then circling to enter the same thermal to repeat the exercise several times, finally landing in the meadow opposite the campsite.

Later in the day we moved on south along the Durance to skirt the large artificial lake, Serre Poncon, and passing through the Gap we climbed the steep Col de Bayard. The day was extremely hot and half-way up the pass we overheated. I pulled hard into the side of the road to allow other traffic to pass but when the engine had cooled down and I started to pull away, the near-side back wheel spun off the edge of the road and the van tilted rather dangerously. Fortunately a group of French motorists had stopped on the other side of the road and, seeing our predicament, they kindly helped to push the van back onto the road as I let in the clutch!

We by-passed Grenoble and north of Voiron we made a night-stop in a roadside bay by oak woodland. On the roadside grass I found a male *E. alcetas* roosting and the grasses swarmed with snails of every hue.

On the 21st we were away early to return to the Jura via Pont de Nain and St Claude. There a roadside halt produced hundreds of *B. circe, A. crataegi* which were laying on dwarf blackthorn and hawthorn bushes, *M. galathea* and several rubbed *A. hyperantus.* On the map was marked Lac Etival and we drove along winding country lanes to find it, tucked under a high forest-covered cliff. At the distant end people were swimming so we parked the camper and walked along the lakeside path for a swim. There was a large crown there with many of the women sunbathing topless. We decided not to take any pictures and I had a refreshing swim, finding the lake very deep. Afterwards in the forest glades we recorded *I. io, A. urticae, F. adippe, P. c-album, L. reducta, A. paphia, M. parthenoides, L. maera, E. ligea* (all males), *M. jurtina, M. galathea,* hundreds of newly-emerged *G. rhamni* and solitary *I. podalirius* and *C. alfacariensis.* In the swampy land around the lake I hoped to find the Scarce Heath, *C. hero,* which is said to occur in this area but the only example of this group was a female *C. arcania.* I did take a female Scarlet Tiger which later laid a lot of eggs in the pill-box. We had our evening meal in the hot evening sunshine with a family of Red Kites wheeling and calling overhead.

In the morning we explored the meadows bedside the lake and found several groups of eggs of *M. alcon* on clumps of *G. cruciata* but again saw no butterflies. We then drove deep into the forest along forest roads and came to a small lake, the Black Lake, high above Lake Etival. Almost as soon as we stopped beside the lake a large female Purple Emperor, *A. iris,* skirted the lakeside and landed right in front of us on some charred logs. I slapped the net over it but it shot out sideways and disappeared among the trees. Along the roadside and around the lake there were large numbers of

Camp near Lac Etival, Jura.

B. ino and male *E. ligea* with *A. paphia* and *F. adippe* quite common, again all males. I saw a solitary *L. camilla* and then netted a fairly fresh female *L. achine*. Unfortunately I left it in a pillbox, not realising that the sun was shifting onto where I had placed it in the shade and it had succumbed. Then David caught another and this he placed into one of his laying pots with some grass shoots. Over the next week it laid about twenty eggs, light green and spherical and unattached to the grass blades so that it would seem that it lays its eggs in the same way as *M. galathea,* dropping them among the grasses. This female stayed alive after our return to England until 5th August and laid a few more eggs. On dissection she was devoid of eggs but a spermatheca was present. The eggs we shared and they hatched. At present I have sixteen small larvae, bright green with feint yellow longitudinal stripes. They are feeding on *Poa annua.*

We decided to spend the night by the lake and in the evening I tried my hand at fishing in the lake. We saw a very large dead mirror carp floating among the lilies but I had no luck. We were standing on the large sphagnum bog which covers half of what had been a much bigger lake. It was very spongey and we realised that it was a huge floating raft of vegetation in which orchids, bog bean and other plants flourished. At its edge I plumbed the lake and found it was twenty feet deep right off the edge of the bog. We saw a small grass snake chasing minnows and several large tench swimming by.

On the morning of the 23rd we spent some little time around the lake in the hope of seeing further *iris,* and David chased a large Camberwell Beauty, *V. antiopa,* along the road — to no avail. We then drove via Clairvaux and Lure to stop for lunch near Salines les Bains and watched two *A. iris* flying above our heads around the roadside trees. Taking the road to Le Thillot, we forked off at the top of the pass above the town

taking the road to the Col de Mont Forche and found a nice camping spot beside a small lake where there was a house, closed up and presumably a holiday home. In the evening sunlight we watch Purple Emperors coming in to roost in the large roadside trees above us. With the field glasses I watched one feeding on the sap running from an aspen but at that distance it was not clear whether it was *A. iris* or *ilia*. In the night we had a very heavy storm which changed the pattern of the weather and next day it rained on and off all day. We did some exploring but got soaked for our efforts and finished up camping by another small lake and it rained again in the night.

On the 25th July, with the skies totally overcast, we decided to move to the Vosges in the hope of better weather. We drove via Le Thillot and took the Route des Cretes, viewing on the way Le Grand Balon, Le Balon d'Alsace and the wonderful panorama of these mountains, often through moving cloud and mists. The forecast did not promise better weather and after lunching above flowery banks, thick with yellow violas, we decided to go back to the lowlands where we could see some distant sunshine. Leaving the Vosges via Cernay and Faucogney, we drove towards Luxeuil les Bains and took a side road which led to two long roadside lakes. It was still raining and we found a lay-by beside the larger lake to spend the night. Sallows grew all along the lakeside and on the edge of the road and, heavily protected from the rain, I spent an hour before dusk searching for the eggs of *A. iris*. I found four and it looked promising for the next day. In the morning we scouted around and eventually decided to try the sallows by the lakeside. The lake was full of fish and every now and then there was a splash as one jumped. I found an egg on the first tree and then David found one. At that moment a gentleman turned up on a bicycle and told us that we were trespassing. It appeared he was the water bailiff and although we told him we were only looking for butterfly eggs, he remained suspicious and told us that if we did not go he would fetch "les gendarmes". As we were about five foot from the roadside it seemed he was being a bit overzealous but we decided to move on.

As it was still raining on and off, we decided to drive directly to the other Clairvaux near Bar sur Aube and eventually arrived at the Forest of Clairvaux in brilliant sunshine. In the glades we saw *A. paphia, F. adippe, L. sinapis* and newly-emerged *P. c-album,* but no *A. levana*. On our last visit there in July there had been large numbers present and we had found both ova and larvae. We did find larvae of *V. atalanta* and *P. c-album* on the nettles and I found one first instar larva of *A. iris* on a Goat Sallow — but no eggs. In the evening we went down to the River Aube where we saw some large carp and chub. I tried for the chub with a grasshopper for bait and had one strong take but lost it. While we sat there, we watched a kingfisher diving and catching minnows. We slept the night in the forest and next morning awoke to thick mists. We explored some of the forest south of Colombey de Deux Eglises where de Gaulle is buried. They support huge

beech and oak trees but do not seem to be managed in a way which would encourage butterflies, needing more rides and some clearings to make them suitable habitats. The mists cleared as the morning progressed and we decided to drive northwards towards Calais and search some of the forests on the way. Taking the road through Vitry le Francois and Chalons sur Marne, we entered the Champagne country and short of Epernay we drove south towards Sezanne. North of Mareuil en Brie we found a roadside pull-in to camp and on a sallow bush a few yards from the camper I found six *iris* ova. The evening finished blazing hot and we had high hopes for the morrow.

We were up early on the 28th and searching the sallows growing on the roadside fringes of the forest produced further *iris* ova in singletons. As we came back to where the van was parked David motioned me to stop and in front of us on the pathway was an *iris* with its yellow proboscis searching the path. The French habit of relieving oneself at suitable roadside stops had provided a feeding centre and on netting this specimen we observed a second on grasses at the side of the road. This was also boxed as was a third later that morning. Our first casual inspection failed to disclose the purple flashing of the wings and we assumed that these were all females. Subsequent examination of the genitalia showed their true sex, all males. A little further up the road was another pull-in and this produced two male *A. ilia* and another male *iris*. These were all in fair condition and it was obvious that the females had only recently started to lay. I took a male *N. polychloros,* also investigating the path, and we spent some time exploring sallows deeper in the forest but without any luck. Golden Orioles and two species of warblers with very attractive songs filled the air with their noise and apart from continual harassment by clegs of huge proportions (*Tabanus* sp.) this woodland was better than many we had visited in northern France. One strange thing was that the paths of the glades swarmed with dung beetles, *Geotrupes* sp., crawling about in the damp patches, with many others dead or dying. The only dung present was in the form of deer droppings and something that was probably that of wild boar. In the afternoon we drove south and had a beer at a little wayside inn and spent a little while looking at another area of forest where wild pig had made huge wallows and rooted up large areas of the forest floor in search of roots. That night we slept again near our previous site and on the 29th we took the road back to Calais and home, managing to catch a boat earlier than that which we had booked.

The Jura and Vosges mountains — July 1992

Following our trip to this region in 1991, David Marshall and I decided to revisit the areas earlier in July 1992 and left in our camper-van via Folkestone and the "Seacat" ferry on 2nd July. By the 3rd we were camping in a clearing above Clairvaux les Lacs in hot sunshine. The flora

was that of typical chalk downland and around us flew Marbled Whites, Meadow Browns, Ringlets and Small and Large Skippers. Continental species present were *Melitaea diamina, Brenthis daphne* and *Aporia crataegi,* the last laying their batches of orange-yellow eggs on the blackthorn and hawthorn bushes by the rides, choosing the dwarf bushes. A pleasant surprise were several Heath Fritillaries, *Mellicta athalia,* and I took two females which subsequently laid batches of eggs in a pill-box into which I had placed a leaf of ribwort plantain, *Plantago lanceolata.* This appeared to be the foodplant here as I could find no cow-wheat. It was here on our previous visit that we had first found *Lopinga achine* but there did not appear to be any about. The next day we drove south of the lake to Lake Etival and spent some time around the lake and in the forest above. *Erebia ligea* males appeared to be just emerging and we saw *Coenonympha glycerion, C. arcania, Palaeochrysophanus hippothoe* and one or two Highbrown Fritillaries but the season appeared to be late and the species on the wing few in numbers.

We then drove further south through the foothills of the Jura into the valley of the Rhone to have a look at marshlands in the vicinity of Lac Bourget. We had been told that we might see *Maculinea nausithous* in this area in small meadows in the marsh. The weather turned cloudy with only fitful sunshine when we arrived but we managed to locate the meadows — in the midst of poplar plantations and undergrowth scrub. Other continguous areas were ploughed and growing maize and other crops, and the life of these marshlands seems doomed. Despite there being a sprinkling of the blues' foodplant present (*Sanguisorba officinalis*), it was being swamped by scrub invasion and we saw no butterflies other than *Araschnia levana, Brenthis ino* and several Peacocks and Commas. Some of the anthills still present were ripped apart, damage which may have been human or caused by wild pigs. In the evening we camped beside the River Seran, a tributary of the Rhone, and in the evening sunshine we watched several *Apatura ilia* in courtship flight, tearing round the tops of the Poplars and spiralling down to settle and mate on the lower boughs. In the night it rained very hard and was still drizzling when we awoke. In the river we observed a snake on the shingle bottom catching minnows. It stalked them slowly and then made a sudden lunge to secure the fish in its jaws. This is a *Natrix* species, related to our grass snake, and has a dark wavy line down its back, rather like the viper. With the bad weather continuing we drove further down the valley to an area where we had been told that the False Ringlet, *Coenonympha oedippus,* occurred. Again this is a remnant of marsh with grass and sedge cover, gradually being encroached by trees, so that once again its existence is under threat unless some form of management is introduced. We had our lunch and ate a few wild plums from a nearby tree, hoping that the rain would cease. Suddenly the sky cleared and the sun came out, lighting the marsh. I put on my wellingtons and walked out into the open area and within fifty yards a female *oedippus*

Locality for *Coenonympha oedippus,* Rhone Valley.

got up and flew hesitantly across my path. I netted it and it subsequently laid about fifty eggs on some of the sedge placed into an ice-cream carton covered with netting. The sunshine lasted about thirty minutes and in that time I put up several more specimens, all fresh males, and was able to photograph examples. The rain then returned and there appeared to be no likelihood of it abating so we drove back north to camp the night in a roadside repair site near Seyssel. During the night there was a heavy thunderstorm.

We now decided to go north to the Vosges in the hope of better weather. Driving via Baume les Dames, we camped that evening near Lure on the edge of an oak forest. Here we saw *Apatura iris,* a damaged female, several *A. levana, L. camilla, Q. quercus* and *P. c-album* and several large hornets. On 6th July, still in heavy rain, we entered the Vosges near Le Thillot and eventually camped the night high up in the clouds above the village of Climent, surrounded by mountain forest.

The morning of the 7th produced some fitful sunshine and a male Purple Emperor circled the van and settled on some bare land beside it. White vans appear to be attractive to the species. The surrounding hilltops, Les Ballons, each had its own cloud and these soon grew to blot out the sun. We walked along the roadside and found on almost every group of flowers, female *M. athalia* resting. We selected several plump specimens for egg-laying, the foodplant here appearing to be cow-wheat which grew in clumps on the roadside banks. Other species roosting were Meadow Browns, Small Skippers and 6-spot Burnets, while Ringlets were on the wing in profusion despite the lack of sun.

After lunch the sun came out again and we drove down to the village of Urbeis park by oak woodland above water meadows. These were thick

Vosges near Urbeis.

with *Sanguisorba* but there appeared to be no blues present, the only species flying being Marbled Whites. Back at the van another male *A. iris* was sitting on the roof as we arrived. Disturbed, it flew around us and then away into the wood. We went up the ride which climbed the slope and observed White Admirals and Commas and a single Highbrown Fritillary. Searching the sallows produced no eggs of *iris* nor did we see any of the species on the wing. We then took a side road leading along the edge of a stream and stopped beside a small meadow in which there were clumps of *Sanguisorba.* I crossed the stream and David, who remained by the road, called to me that there were several large blue butterflies flying in the meadow opposite the van. These proved to be the Scarce Large Blue, *Maculinea teleius,* there being several males and one or two females present. Later we found their foodplant to be widespread in this area but did not find any further signs of the blue at other localities. In this meadow the ground was more elevated and so drier and perhaps more suitable for the ants with which the butterfly is symbiotic. Also present here was the Copper, *Heodes alciphron.* The road led up into a huge forest and we drove up into it, observing *iris* again, sitting on the roadway. The road looped round above a valley and eventually returned to the valley where we had started. At the village of Ville we made some purchases, wine, bread and cards, and then drove back to camp below Urbeis. In the evening we walked up to the village along the edge of a stream which was full of small trout, up to about ten inches in length.

Although the 9th July started with clear skies, clouds quickly formed and we decided to drive to Le Grand Ballon, the highest of the rounded peaks. On the journey we stopped just south of Ville to have a look at some large

water meadows and beside the road found several larvae of the Toadflax Brocade moth, *Calophasia lunula* feeding on yellow toadflax. The last time I had seen larvae of this moth was on the beach at Shoreham-by-Sea in the 1950s.

When we arrived at Le Grand Ballon, the skies opened and rain torrented down and there appeared little hope of things improving. We took the road towards Cernay and stopped below the village of Hartmanswillerkopf where the sun came out and butterflies were suddenly abundant, giving an indication of the rich potential of these mountains — if only the sun would shine more often! In the glades on the wooded slopes we saw *A. paphia, M. aglais, B. daphne, M. athalia, E. ligea* and *C. argiolus* with all our common woodland butterflies, also several Scarlet Tiger moths, *P. dominula,* one of which later laid us a batch of eggs in the pill-box. The sunshine was short-lived and we drove on through Cernay and Le Thillot to a campsite in a field in the village of Corevillers where facilities were almost nil and cost 11 francs. On Friday, 11th July, we moved on to St Valbert near Luxeuil les Bains where last year we had found a lot of *A. iris* eggs beside the large fishponds there. The morning was fine and we saw *L. camilla, V. atalanta, I. io, A. levana, G. rhamni, B. daphne, M. athalia, N. ilicis* and *A. hyperantus* but no *A. iris,* nor could we find any ova. By 1pm the storm rain from the Vosges had caught up with us and it now rained for the rest of the day, all that night and all the next day. We did venture out to see one of the anglers catch a large carp in the lake and we saw a snake swim across and observed several terrapins surfacing. These were both adult and young specimens, the largest about eight inches long. By the roadside we discovered a dead Pine Marten which must have been poisoned as there were no injuries to be seen. Larger than a polecat, it was covered with coarse black hair with a white bib and I was surprised how large the paws were. In the woodland there were Nutcrackers, a Cuckoo and a Golden Oriole calling. This again is a delightful area if only the weather were kinder.

After our lunch we left for Bar sur Aube and camped the night in the Forest of Clairvaux nearby. There are major road changes going on but they do not appear to have affected the forest. It rained hard again in the night but in the morning the sun made its appearance and we went up through the woodland glades where *Leptidea sinapis, A. paphia, L. camilla* and *A. levana* were flying. David found a batch of *A. levana* eggs on a clump of nettles beside the ride, hanging in small chains from the underside of a leaf. A search of the sallows produced a dozen eggs of *A. iris,* the trees being deep in the undergrowth below the oak canopy. I also took two female Wood Whites which laid me a lot of eggs on *Lotus corniculatus* in one of the ice-cream tubs.

Later in the day we visited a huge man-made lake near Giffraumont where water sports were in progress and then drove on towards Epernay to try to locate the forest which we had found in 1991. We were unsuccessful

and finished up by camping in a disused chalkpit near Avize, south of Epernay. The ground here was carpeted with Horseshoe vetch and roosting on the grasses and flower heads were Chalkhill Blues and *Colias alfacariensis*. On the morning of the 13th we continued our search for the forest but, drawing a blank, we drove into Epernay and bought a map and realised that we had forgotten that the area was nearer to Montmirail and within half-an-hour we arrived at the spot where in 1991 we had seen so many *iris*. As the van stopped, the first circled round us and landed on the road. This habit is the downfall of many, as cars travel down this straight road at speeds of 70 mph or more, and while we watched we saw a male *A. ilia* knocked to the ground as it rose in front of a car. I picked it up, dead but otherwise in perfect condition. We saw several more *iris*, all males, but our walk through the forest rides among the sallows did not produce any females though I found two newly-laid ova. Here there were masses of wild raspberries and we had a feast! Other species seen were newly-emerged *N. polychloros, A. paphia, A. levana, P. c-album, P. aegeria, A. hyperantus, P. tithonus* and several *V. atalanta* which also sunned themselves on the roadside. I netted further *iris* and *ilia* males but all these were in a worn state, indicating that they had been on the wing some time so it was surprising that we had seen no females. In the evening we walked down the forest glade to a huge lake where we saw three grass snakes, plenty of frogs and baby toads. All along the path were huge orange slugs and I counted over sixty. This is a beautiful area and completely deserted — until the next morning when we were suddenly invaded by mushroom hunters in search of chanterelles. A large number of over-ripe ones had been dumped on the spot where we were camping.

We decided that we would spend the morning looking for *iris* eggs as the sun had again disappeared and deep in the forest thicket under the oaks we found fourteen eggs, having seached nearly a hundred sallows. The strength of the butterfly lies in its dispersal of its eggs throughout the forest, making the finding of eggs or resultant larvae very difficult.

Later in the day we drove north, crossing the Marne near Dormans. On some downland slopes above the road, thick with flowers, we saw *L. coridon, C. alfacariensis, M. galathea, P. machaon* and *C. arcania* in good numbers. This area of down is a remnant amongst a sea of vineyards and cultivated land, a fragment of the downlands that once graced the French countryside. We camped the night at the Fismes municipal campsite and had a shower. The rain returned that night and on the 15th we drove through mist and drizzle to Desvres. Here we stopped and explored woodlands below the town which looked very interesting but the weather was against us and there was nothing on the wing. The rest of the day was spent in looking round the town and its fine church with ceramic Stations of the Cross. We were to catch the first boat next morning from Boulogne

and were up early to drive in fog the last few miles to the port and the Seacat which returned us to Dover instead of Folkestone. We had had an interesting fortnight, marred by poor weather, but had been able to explore quite a large area of the eastern mountains of France.

Unusual larval behaviour of the Small Eggar, *Eriogaster lanestris* (Linnaeus) (Lep.: Lasiocampidae)

E. lanestris is a somewhat local species and from my point of view it is therefore rather interesting and convenient that the species occurs on my brother's farm at Steeple Ashton in Wiltshire. During June 1992 my brother and I discovered a larval nest about 50 to 60 yards from the farmhouse. This nest was one of several noted from mid May to mid June. After the immediate interest of the discovery the matter slipped from my mind. However, on 22nd June things took an interesting turn. Whilst walking up the path to the back door for lunch at about 1pm I was somewhat surprised to see a single larva of *E. lanestris* progressing up the wall of the farmhouse, exactly as one might see a larva of, for example, *Pieris brassicae*. The larva eventually entered the roofspace. I saw another larva progressing up the wall the following day which also entered the roofspace. The farmhouse does not have an attic and even in the interests of scientific discovery to find what the larvae did therein I did not intend removing tiles, cutting through laths etc. Some might consider this somewhat slack when confronted with the acquisition of vital data.

I cannot recall having noted any recently published account of the discovery of *E. lanestris* in the pupal stage. I suppose however that finding pupae and perhaps more importantly the usual pupation site must be of rare occurrence. To the best of my knowledge no other larval nests were near the farmhouse so I assume the larvae came from the nest mentioned above. There was no hedgerow to follow from the nest — just a grass meadow and a wide track, a distance of about 50 to 60 yards.

If nothing else this note should give some idea of the peregrinations which *E. lanestris* will undertake to find a pupation site. I have no doubt that if necessary much greater distances could be covered. I believe it is generally assumed that full fed larvae always descend from the feeding place to ground level for the purposes of pupation, but there is the possibility that pupation could on occasion be above ground level, for example amongst the detritus which collects amongst Ivy (*Hedera helix*) stems on trees etc.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wilts.

ETIELLA ZINCKENELLA (TREITSCHKE, 1932) (LEP.:PYRALIDAE) THE SECOND BRITISH RECORD AND NOTES ON ITS BIOLOGY

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ON THE MORNING of the 2nd October 1990 I noticed an unfamiliar Pyralid moth (resembling a Crambid species) resting on the outsde of the garden m.v. trap. I immediately collected it for later identification. To find any moths outside my trap is unusual as the robin is usually there first!

I checked through *British Pyralid Moths* (Goater, 1986) without success. With the help of Dr J.R. Langmaid and reference to Palm (1986), we were able to identify it as *Etiella zinckenella*. This is the second British record following one caught in Essex on 23rd October 1989 by A.J. Dewick (Bretherton & Chalmers-Hunt, 1990 and Agassiz, 1991). This second specimen was caught at a time when a number of migrants were being trapped in the area, though the only other migrant species recorded in the trap that day was a single L-album Wainscot (*Mythimna l-album* Linnaeus). The specimen was exhibited at the 1990 Annual Exhibition of the British Entomological and Natural History Society at Imperial College, London.

The following information about the species is taken from Palm (1986): It is described as widespread in the tropics and subtropics, in both hemispheres. It is known from all parts of the world, though only a few records are reported from Australia, but the range takes in a good number of Pacific Islands. In Europe *E. zinckenella* is common in the south, including central France, Austria and Switzerland, and the Urals. It is not found in Holland, Belgium or Britain, but it has been recorded in West Germany (since 1935 there have been many records, including Lower Saxony, especially in the Hanover region). The species has also been recorded in Hamburg (one September 1961), and in the Harz Mountains where it comes to light in large numbers each year. In what was East Germany it is recorded as present in five districts. In Denmark there are two records both for Bornholm (July 1969 and August 1973).

In Northern Europe the species is only a migrant and could turn up at coastal sites. It will probably be recorded again soon in Britain given the increased interest in Lepidoptera and more particularly Pyralids since the publication of *British Pyralid Moths* (Goater, 1986). Agassiz (1991) states that it seldom reaches our latitudes and is unlikely to become established if the climate remains much as it is.

Palm (1986) states that the imagines hide away during the day, though in periods of warm weather it may fly during daylight hours. The flight time is usually from dusk onwards and it comes to light. The flight period is quoted as 14th June to 17th August in the Harz Mountains.

The larva is described as greenish/white with light, reddish, narrow

longitudinal stripes and a light brown head; the prothoracic plate is pale brownish, with darker spots. It feeds on all kinds of leguminous plants (Leguminosae), the larva living in the pods. In its native countries it can produce between two and seven generations per year and it is regarded as a pest of beans, lentils and peas.

The species is easily recognised by the white costal streak on the forewing (as in *Pima bosisduvaliella,* Guenée) and by the orange antemedian line, which the latter lacks. It is described as very constant, though the width of the inner antemedian line may vary. The male has a small tuft at the base of the antennae. Wingspan is given as 22 - 26mm.

Acknowledgements

I am most grateful to Dr J.R. Langmaid for helping to clinch the identification, the loan of *Nordeuropas Pyralider,* Palm (1986) and for commenting on this short paper before publication. I am also indebted to David Christie for translating the text from Danish. Without his help this article would not have been possible.

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The Holly Blue (*Celastrina argiolus* (L)) and Raspberry (*Rubus idaeus* L.) — an earlier record

In reporting *Rubus idaeus* as a pabulum new to *Celestrina argiolus* (*Ent. Rec.* **104**: 328) I had overlooked an earlier record of this phenomenon from Suffolk.

In 1946, H.E. Chipperfield found many young *argiolus* larvae feeding on raspberries in his Stowmarket garden (Vintner, 1946: *Trans. Suffolk Nat. Soc.* **VI**: 63).

I am grateful to Howard Mendel for drawing my attention to this reference, which is also cited in *The Butterflies of Suffolk* (Mendel and Piotrowski, 1986).— JERRY BOWDREY, Colchester Museums, 14 Ryegate Road, Colchester CO1 1YG.

POPILLIA CYANEA HOPE (COL.: SCARABIDAE). A NEW PEST OF OKRA AT 1675m ALTITUDE IN INDIA

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OKRA (*Abelmoschus esculentus* Moench) is infested by 45 minor and major insect pests from 16 families of order Acarina at different growth stages in this country. Out of these, larvae of beetles ("whitegrubs") of three species, *Oxycetonia versicolor* Fb. and *O. albapunctata* Fb. have been reported damaging on flowers and larvae of *Holotrichia insularis* Bren. on root of the Okra (Nair, 1986 and Kakar and Dogra, 1988).

Beetles of *Popillia cyanea* Hope (Scarabidae: Rutelionae) were observed feeding on the flowers of Okra at 1674 metres altitude in Kumaon hills of the Central Himalayas. These beetles damage the internal part of the flower — the average number of beetles per flower was recorded as 6.8 with minimum and maximum variation of three to twelve. Fruit setting does not take place in affected flowers. The beetles measure 12mm in length and 7mm in width and are bright bluish-green in colour. The infestation by this insect was recorded on 52 percent of the plant population. From the available record this insect seems to be the first record on Okra in Kumaon hills. However, it has been reported as causing damage to the flowers of apple and plum (Gupta *et al.*, 1977) and on grass (Garg, 1987).

Acknowledgements

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Rothamsted Farmland Ecology light trap network: interesting Lepidoptera records, January to May 1992.

During this period several species were noted which have only been recorded since the Rothamsted estate was sampled more intensively after the twenty-six trap network was started in 1990. Others continued to be recorded after an absence of many years. In both cases this provides further evidence that they may be resident locally. *Odontosia carmelita* (Esper) (one on 2-4.v.) was first recorded in 1991, when two were caught (Riley, A.M. and Townsend, M.C. 1992. *Entomologist's Rec. J. Var.* **104**: 66). *Drepana cultraria* (Fabricius) (two on 20.v. and one on 23.v.) was first recorded in 1990 when five were caught and again in 1991 (Townsend, M.C. and Riley, A.M. 1992. *Ibid* **104**: 218-219). *Apocheima hispidaria* (Denis & Schiffermüller) (one on 9.iii.) was previously recorded in 1991 (Riley and Townsend, *loc. cit.*) and in 1948. *Cucullia verbasci* (Linnaeus) (one on 15-17.v.) and *Pavonia pavonia* (Linnaeus) (one on 22.iv. and one on 2-4.v.) have only been recorded on one previous occasion, in 1935 and 1949 respectively. *Achlya flavicornis* (Linnaeus) was recorded on the estate for the first time, on 9.iii. (one).

One *Menophra abruptaria* (Thunberg) f. *fuscata* Tutt was caught on 4.v., the first record of this form on the Rothamsted estate. According to Skinner, B. (1984) (*Colour Identification Guide to Moths of the British Isles,* Viking, Harmondsworth), f. *fuscata* only occurs frequently in the London area. It is therefore of interest to note that this individual constituted 1.3% of the sample of *M. abruptaria* caught in the farmland light trap network over three years. One *Calliteara pudibunda* (Linnaeus) f. *concolor* Staudinger was caught on 23.v. This form was first recorded in 1990 (Townsend, M.C. and Riley, A.M. 1991. *Ibid* **103**: 22).

Two immigrant species were recorded, with all records in the latter half of May when the wind was predominantly light easterly or north-easterly. Eight *Autographa gamma* (Linnaeus) were caught between 13.v. and 31.v. and three *Udea ferrugalis* (Hübner) between 20.v. and 28.v. inclusive.

There were a few records of advanced emergence. These are summarised below with the usual first emergence dates according to Skinner (*loc. cit.*) in parentheses.

Acasis viretata (Hübner) 19-21.iv. one (May), *Idaea seriata* (Schrank) 23.v. one (late June), *I. dimidiata* (Hüfner) 29-31.v. one (late June), *Noctua pronuba* Linnaeus 29-31.v. one (July).

This work is partly funded as a Joint Research Council Agriculture and Environment Programme (JAEP).— MARTIN C. TOWNSEND, AFRC Farmland Ecology Group, Department of Entomology and Nematology, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

A WEEK IN THE MADRID AREA — MAY 1992. AN ACCOUNT OF THE LEPIDOPTEROUS FAUNA SEEN

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TIRING OF LONDON I took a week off and set off for Madrid, a city I know well, having lived there from 1988 to 1990.

Madrid lies at a height of 649m — Europe's highest capital, experiencing a Mediterranean-continental type climate. The winters can be very cold but are usually dry and sunny, although snow is not infrequent between January and April. The summers are hot and sunny with an average July temperature of 35°C. May's average is put at 22°C for 1992, though temperatures before my arrival in mid-May had been in excess of 30°C. Due to the city's altitude there are quite dramatic variations in temperature over quite a small distance. The Sierra de Guadarrama to the north-west is quite a lot cooler even in August.

I also visited San Rafael (1,200m) in the province of Segovia only 80km from the capital, but miles away in terms of wildlife to be seen. I also visited the plains of Castilla-La Mancha, the Serranía de Cuenca, Valdemoro, plus Alcalá de Henares and Jadraque (830m). The day after I arrived in the Spanish capital I went to Valdemoro (590m) as my experience of the area with reference to the lepidotera was most favourable, with 43 species being recorded in 1990. The most prominent plant here is Retama (*Lygos sphaenocarpa*) providing just about the only shade from the intense Spanish sun. The other plants are mainly low plants, especially thyme. It is always very dry. The most common butterfly seen was *Pontia daplidice* (Linn.) feeding on whatever cruciferous flowers were at hand. Other Pierids recorded were *Pieris rapae* (L.) and *Colias croceus* (Geoff.). Valdemoro was always good for the Lycaenids; I saw no less than five species on this particular May trip including: *Polyommatus icarus* (Rott.), *Lysandra bellargus* (Rott.), *Lycaena phlaes* (L.), *Aricia cramera* (Erscholtz) and *Glaucopsyche alexis* (Poda). *G. alexis* is often to be seen flying around the Retama.

The only Nymphalid noted was a single example of *Melitaea phoebe* (Denis & Schiffermüller). Valdemoro was never very good for this family — in 1990 I recorded only four species. As for the Hesperiidae, I saw only *Carcharodus alceae* (Esper). The Satyrids were represented by *Melanargia ines* (Hoffmasegg). This *Melanargia* species is the first out in the year, flying as early as April. It is quite a striking butterfly with its bluish ocelli.

The following day I went out into the Sierra de Guadarrama to San Rafael. I would always recommend this place for larvae of the Heterocera, espically the Arctiids. The most common butterflies were both Nymphalids: *Issoria lathonia* (L.) was abundant — I have never seen it so common — and *Eurodryas aurinia beckeri* (H.-S.), also common, especially so alongside the railway line.

I collected several larvae of *Aglais urticae* (L.) which were feeding on nettles in a couple of places. I also saw one imago. One interesting fritillary, *Melitaea trivia ignasti* (Sagarra) had been reared by myself in Madrid in previous years and this year I caught sight of a few fully-grown larvae on mullein growing by the railway line. This time I did not collect any as I knew that they would be quite impossible to rear through not having access to the foodplant in London.

Of the Lycaenids I was able to identify the following: *L. phlaes, Callophrus rubi* (L.), *Pseudophilotes panoptes* (Hübner) and *L. bellargus. P. panoptes* is not mentioned as occurring in the vicinity of Madrid in the *Atlas Provisional Lepidopteros de Madrid* (de Aispurua, 1987). This particular visit to San Rafael was not especially propitious for the Satyrids. I noted only *Lasiommata megera* (L.) and *Coenonympha pamphilus* (L.) and then only one example of each.

San Rafael is good for moths. I was able to collect the following larvae: *Aglaope infausta* (L.) of the Zygaenidae. This moth, which is at times a pest of fruit trees, I have reared and bred before: I found these larvae on sloe. Whilst searching for ova of *Cerura iberica* (Templado & Ortiz) I came upon two larvae on sallow of the Geometrid *Epirrita dilutata* (D.& S.). As for the *Cerura iberica,* I collected about 16 ova plus two larvae. There is very little difference between this species and its relation, *C. vinula* (L.). The differences are located in the male genitalia in the imago and in the larvae of the final stadium of *iberica* whose dorsal saddle is clear. On previous occasions when this moth has been found here it has been on almost exactly the same sallow bushes. Previous attempts at rearing the species were met by disaster in Madrid, as summer temperatures are invariably too high for the insect to endure.

Whilst looking for *Lasiocampa trifolii* (D. & S.) larvae on bramble (a very common lasiocampid in recent years) I found a clump of *Macrothylacia rubi* (L.) ova. Actual moths seen in San Raphael were: *Athroolopha pennigeraria* (Hübner), *Autographa gamma* (L.), *Euclidia glyphica* (L.) and *Noctua pronuba* (L.).

A couple of days later I headed east out of the city to Jadraque, last visited in 1990 when I collected several interesting Geometrid larvae from the gorse bushes. I counted no less than 19 species of the Rhopolocera. Again the two most common species were Nymphalids, *E. aurinia beckeri* and *E. desfontainii* (Godart). The latter were frequently to be seen flying at the bases of the hills in the area often together with *aurinia.* The most common Pierid was *P. daplidice,* but also *Pieris brassicae* (L.), *C. Croceus, Gonepteryx rhamni* (L.) and *Anthocharis euphenoides* (L.). Four species of Lycaenids were noted including *P. icarus, L. bellargus, L. phleas* and *G. alexis. Icarus* was especially common. The Hesperiidae provided me with a species new to me, *Carcharodus lavatherae* (Esper). Other butterflies of this family seen were: *C. alceae, Thymelicus flavus* (Poda) and *Spialia sertorius* (Hoffmanswegg).

There are only two other places in the vicinity of Madrid where I have seen *Zerynthia rumina* (L.) and both of them were in the Sierra de Guadarrama. Jadraque was certainly the first place I could say that it was actually common. I saw several specimens taking advantage of the rising air currents and it would have been easy to net. The Satyridae were represented by *L. megera* which was common, and by *M. ines.*

I came across only three species of moth. These were *Macroglossum stellatarum* (L.), the pretty Noctuid *Tyta luctuosa* (D. & S.) and an unidentified Geometrid.

The day I left Spain I revisited Alcalá de Henares which although very near the city does generally provide an interesting range of species. On this occasion I noted 13 species of butterfly, the commonest of which was the Satyrid *Pyronia bathseba* (Fabricius). I captured a female which is laying happily in captivity. Other Satyrids to be mentioned are *Pararge aegeria* (L.), *L. megera, Maniola jurtina* (L.) and *M. ines.*

The only Pierid of note was a late (for this season) *E. ausonia* and I was pleased to see a few *Pandoriana pandora* (D. & S.) so early on in the year.

Rothamsted farmland light trap network: interesting Lepidoptera records, June 1992.

A male *Eupithecia sinuosaria* (Eversmann) was caught on 19-21.vi., the second British record of this species (Townsend and Riley (1992), *Entomologist's Rec. J. Var.* **104**: 323). The only other probable immigrants recorded on the estate in June were six *Autographa gamma* (Linnaeus) between 2.vi. and 10.vi, and one on 30.vi.

Euproctis chrysorrhoea (Linnaeus) was recorded on the estate for the first time, on 29.vi. (two) and 30.vi. (one). This species has been recorded from widely separated localities within Hertfordshire (Foster, A.H. (1937) *A list of the Lepidoptera of Hertfordshire: Trans. Hertfordshire Nat.Hist. Society* **20**; 158-279). Recently, adults have been caught in small numbers at m.v. light in east Hertfordshire (Wilson, D. (1992), *Entomologist's Rec. J. Var.* **104**: 238) and a large number of larvae were found in a St Albans garden in 1987. It is therefore interesting that *E. chrysorrhoea* had not previously been recorded at Rothamsted in thirty years of continuous light-trapping. These observations suggest that occurrences of *E. chrysorrhoea* in Hertfordshire which is at the limit of its range, are localised and rather sporadic. Since this is a pest species (Carter, D.J. (1984) *Pest Lepidoptera of Europe,* Junk, Dordrecht) the possibility that it might increase its range should be monitored carefully.

Seven *Phlyctaenia perlucidalis* (Hübner) were caught between 12.vi. and 30.vi. This species has now been recorded on the estate each year since 1990

with a total of eleven individuals (Riley, A.M. and Townsend, M.C. 1991, *ibid* **103**: 22, 103-104; 1992, *ibid* **104**: 160-161), initially regarded as migrants. However, it is probable that *P. perlucidalis* is now breeding on the Rothamsted estate. The larvae feed on the leaves of thistles from June to August (Goater, B. 1986, *British Pyralid Moths*. Harley, Colchester). A large stand of creeping thistle grows within ten metres of a trap in which four of the seven individuals were caught in 1992. However, the relevant samples were not identified in time for a search to be made for larvae. Emmet (*ibid* **104**: 221) comments on the spread of *P. perlucidalis* in England and lists the vice-counties from which it has been recorded.

One *Calliteara pudibunda* (Linneaus) f. *concolor* Staudinger was caught on 2.vi. the third specimen of this uniformly dark grey form recorded on the estate (Townsend, in press). The frequency of f. *concolor* may be increasing in the London area and Home Counties (Skinner, B. 1984, *Colour Identification Guide to Moths of the British Isles,* Viking, Harmondsworth). It is therefore of interest to note that this form constituted 1.5% of the sample of *C. pudibunda* caught in the farmland light trap network at Rothamsted since it began in 1990.

This work is partly funded as a Joint Research Council Agriculture and Environment Programme (JAEP).— MARTIN C. TOWNSEND, AFRC Farmland Ecology Group, Dept. Entomology and Nematology, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Thera cognata Thunberg, the Chestnut Carpet (Lep.: Geometridae), new to Yorkshire

A well-marked individual of *Thera cognata* was caught in the Rothamsted Insect Survey light trap at Austwick, Yorkshire (Site No. 490, O.S. grid ref. SD767 687) on 7/8.vii.1992. This species is not mentioned by Sutton & Beaumont (1989) and may be the first county record. Skinner (1984) notes that the larva of this species feeds on juniper and that the adult is seen only occasionally. It is stated to be found locally in Cumbria, Co. Durham and parts of Wales and is locally widespread in Scotland and Ireland. A large stand of native juniper (*Juniperus communis*) is found on Moughton Fell, 3km from the trap site. This may be the source of this record, though establishment on cultivated junipers in the vicinity should be considered.

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P. CORKHILL, 4 Hall Close, Townhead Lane, Austwick, via Lancaster LA2 8BX and A.M. RILEY, AFRC Farmland Ecology Group, Dept. of Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

PELOPHILA BOREALIS PAYKULL (COL.: CARABIDAE) ON THE SCOTTISH MAINLAND

I. MacGowan[1] and J.A. Owen[2]

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AS PART OF a faunal survey of the area, some pitfall traps were set (by I.M.) near the top of an un-named hill (O.S. grid reference NH222 285; altitude 840m) in the Affric - Cannich area on 23.v.89 and retrieved on 22.vi.89. Among the beetles trapped were six examples of *Pelophila borealis*. The site was about 50m below the nearby ridge and had a north-west aspect, unshadowed for most of the day. The pitfall traps were set in two different vegetation types — three on a well-drained horizontal shelf dominated by *Racomitrium lanuginosum* and one near the head of an oligotrophic flush dominated by bryophytes, mainly *Scapania* spp. and *Philonotis*.

As it happened, the contents of the traps had been pooled before they were examined. To try and determine more precisely the habitat of *P. borealis* at the site, further pitfall traps were set (by J.A.O.) on the horizontal shelf, the oligotrophic flush and on an exposed part of the ridge on 25.v.90 and retrieved on 14.vi.90. Two further examples of *P. borealis* were present in the traps set in the flush but none were present in the other traps.

Other beetles trapped at the site included many examples of *Elaphrus lapponicus* Gyllenhal and of *Patrobus septentrionis* Dejean, two examples of *Gabrius scoticus* Joy & Tomlin and one example each of *Pterostichus adstrictus* Eschscholtz and *Eudectus whitei* Sharp.

Distribution of *P. borealis* in the British Isles

P. borealis is one of a group of fifteen or so Boreo-British beetle species occurring, that is, in the British Isles and Scandinavia but not in Central Europe (Lindroth, 1935). The beetle has long been known to inhabit the Shetlands (Blackburn, 1874), the Orkneys (Sharp, 1872; Syme, 1874) and Ireland (Johnson & Halbert, 1902; Nicholson, 1912; Moore, 1957). There are a few records from elsewhere in the British Isles but none are recent nor have any of them been confirmed.

Moore (1957) in his paper dealing with the distribution of British Carabidae in counties gives Derby and Devon as counties from which this beetle has been recorded. The Derby record is attributable to Garneys (1881) and may have resulted from a misidentification. Garneys was a good friend of Canon Fowler and it seems likely that Fowler would see the specimen(s) and would have included the record in his handbook had he agreed with the determination. In vol. 1 (1887), however, he states "not recorded from England or Wales" and no additional records are given in

the supplement to the series (Fowler & Donisthorpe, 1913). The reference to Devon arises from a manuscript list prepared by the late Mr G.H. Ashe but our friend Mr A.A. Allen has told us that Ashe was not himself responsible for the record. Lindroth (1974) also refers to Devon and Derby but he probably copied this from Moore's paper.

Taylor (1930) reported finding two examples of the beetle at Tal-y-Wyn, Merioneth in North Wales but the presence of the beetle there was not confirmed by Skidmore & Johnson (1969), Taylor's collection is now in the Leicester Museum and does not contain a Welsh specimen of *P. borealis*; moreover, the relevant entry in his collecting diary has been crossed through as if, in retrospect, he considered that a mistake had been made in identification.

Finally, Lindroth (1935) refers to an old record from the Clyde area marked on a map given by Scharf (1907) but no mainland Scottish records are given by Sharp (1872), by Fowler (1888) or by Fowler & Donisthorpe (1913).

Habitat and origin of the Glen Affric colony

The presence of *P. borealis* in a wet flush at an altitude of 840m near the top of a hill is in contrast to its usual occurrence. Mostly, the beetle has been recorded from very damp situations at the edges of running or standing fresh water, often with little or no vegetation cover. In Shetland, one of us (J.A.O.) has found it plentiful under large stones on gravel on the shores of lochs at low altitudes, where wave action had caused vegetation to be scant. In Ireland it is recorded at the borders of lakes and river (Johnson & Halbert, 1902) and it has a similar habitat in Scandinavia (Lindroth, 1935). In Siberia, however, it occurs mainly on the tundra (Lindroth, 1935) and Mr R. Anderson (*in litt.*) tells us that he has found it on the Alaskan tundra.

The origin of the colony of the beetle in Glen Affric is a matter for speculation. Most likely it is a relict population that has come to survive in an atypical habitat. All the other recognised Boreo-British beetles occur today on the Scottish mainland. It may be relevant that three other Boreo-British beetles were trapped at the same time — *E. lapponicus, P. adstrictus* and *G. scoticus* though the site was typical for all three. Alternatively, there may still be undiscovered populations of *P. borealis* in mainland Scotland occupying traditional habitats from which an "aberrant" colony has developed at a much higher altitude; the species is winged and ". . . flies in the bright sunshine." (Johnson & Halbert, 1902).

Acknowledgements

We are most grateful to Dr B.P. Moore for information on the references to Derby and Devon given in his paper; to Dr M. Luff for providing an extract of the Victorian Country History for Derbyshire; to Mr C. Johnson

for supplying information on the Taylor collection; to Mr D. Lott for examining the relevant parts of the collection and Taylor's collecting diaries and to Dr R. Anderson for commenting on the occurrence of the beetle in the Alaskan tundra.

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Conistra erythrocephala D. & S. (Lep.: Noctuidae) Red-headed Chestnut from north-east Kent and subsequent rearing

I was fortunate to obtain a female of this scarce migrant noctuid on 19th March 1992 in a small wood near my home. As far as I know this is the first record from Kent since 1934 (Dungeness, Sept.). Past records seem to be almost entirely from the autumn and mainly from the south coast. The specimen was of the form ab. *glabra.* Eggs were deposited between 1st and 9th April when the female died. These were laid on netting, mainly amongst the hem. Some early ones remained yellow and were infertile. By the third week of April most had turned pinkish-grey and the first larvae hatched on the 23rd. The young larva is a rather greasy whitish-grey colour with a distinctive reddish-brown area on the back of the front body segments. The large head is black with a narrow black dorsal plate.

The larvae were supplied with young oak foliage, and were reared on this diet throughout. They were very skulking in habit and hid away amongst the lower part of the oak debris, feeding on the membrane and also on the decaying leafage. I found it was not necessary to supply new foliage every

day. During the first instar which lasted about ten days, I shook out many larvae on a daily basis from the accumulating debris, and consequently did not discard any leaf/bract litter until well into the second instar.

Second instar larvae occurred from 3rd May. Third instar, 9th May. Fourth instar 15th May. The fifth instar (fourth moult) was completed about the 20th/22nd May, thus taking more or less six days between all subsequent skin changes. At this stage the larvae were only about an inch in length and I was not entirely surprised when they started to lay up for another moult. The final 6th instar was reached on the 28th May.

The mature larva is pinkish-brown and dusted with darker freckles. Indistinct dorsal and sub-dorsal lines except at the front and rear of the larva where the sub-dorsal lines continue to form two creamy stripes through the black head and, on the last segment, the space in between being filled in also with black. Spiracles black. The overall appearance of the larva is akin to a stouter version of a "sallow" larva lacking in body markings but enlivened by the striking features at its extremities.

The final instar lasted approximately two weeks. One larva I regularly kept an eye on remained in this stage for 17 days. By early June all the larvae were in their final skin.

Compact cocoons were formed throughout June in fine soil provided in boxes, the surface being supplied with a layer of tissue paper. A few cocoons I opened up during early July revealed no larvae had pupated. These larvae either made efforts to construct a new retreat or simply remained on the surface, depending on how advanced the pre-pupal stage had progressed. A few succumbed after my intervention but about ten did eventually pupate in a makeshift situation, including several lying naked on the surface. One of these which had pupated on 5th August produced a moth on 26th September.

I should mention here that a colleague to whom I sent young larvae, just after hatching, had moths out during August. I kept my larvae at near normal outdoor temperatures throughout rearing and consequently had to wait for the normal time of emergence to occur.

From mid October boxes containing the cocoons placed amongst dampish moss were brought indoors at night. Emergences occurred within a few hours of warmer conditions being provided. None were forthcoming after about 9-10pm. However, prior to this time in early October, specimens emerged between 2pm and 6pm when kept solely in my sun-lounge.

By the time of writing (24th October) some 45 moths had emerged, mainly of fine size. Of these approximately two-thirds conformed to the form *glabra,* the remainder being a plainer greyer some finely dusted with pinkish. Both sexes produced both forms in roughly the same proportion, with perhaps a slight favour of balance of males in the plain form, and females in ab. *glabra.*— J. PLATTS, Chestfield, 11 Maydowns Road, Whitstable, Kent.

PTILIIDAE (COL.) FROM THE YAP ISLANDS

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FEATHER-WING BEETLES, or ptiliids, are amongst the smallest beetles, rarely exceeding one millimetre in length. Their popular name is derived from the characteristic wing structure in which the wing is reduced to a very narrow but greatly elongated strap-like membrane, bearing numerous long hairs. The beetles occur in all types of humid habitats or microhabitats and are thought to feed largely on microscopic moulds or fungi. Collecting is achieved by sieving suitable debris and extracting the beetles through funnels. Distribution of ptiliids is worldwide, although most faunas beyond Europe are inadequately known.

This paper deals with a small collection of ptiliids made mostly during July and August 1950 by R.J. Goss in the Yap Islands. Of the 34 specimens collected, eight species were present, including two new to science. These records are the first from Micronesia. The material belongs to the Bernice P. Bishop Museum, Honolulu, and duplicates will be placed in the Manchester Museum.

The Yap Islands are an island group in the western Pacific, being part of the mostly small 930 islands making up the archipelago of the Caroline Islands, themselves part of the wider region known as Micronesia. Four main islands — Yap (the largest), Gagil, Tomil and Map, Rumung and a few tiny islets, make up the Yaps, which cover 100 square kilometres. They are located within the tropics at 9° north of the Equator, are surrounded by coral reefs, have a rugged surface — highest point 178m, and a low population, 2744 in 1948 (Gressit, 1954).

Bambara frosti (Dybas)

Yap Is.: Dugor, 14.viii.1950, 1 female; Kanif, 30.vii.1950, 1 female. Gagil Is.: 19, 20, 21.vii.1950, 4 females. Tomil Is.: 6.vii.1950, 1 female.

Tropical, anthropophilic, parthenogenetic and proabably largely pantropical species. Described from Florida and subsequently recorded from the Galapagos Islands, Madagascar, Reunion, Yemen and Palestine (Johnson, 1985, 1989).

Bambara testacea (Britten)

Yap Is.: North, 16.vii.1950, berlese funnel, 1 female; Kanif, 30.vii.1950, 2 females. Gagil Is.: 21.vii.1950, 1 female. Tomil Is.: 7, 8.vii.1950, 6 females.

Pantropical, anthropophilic and parthenogenetic species. Currently recorded from southern USA, Bahamas, Bermuda, Madagascar, Seychelles, Mascarenes, Bismarck and Solomon Islands (Johnson, 1985).

Dipentium gossi **sp.n.**

Length 0.62 - 0.67mm. Dark brown, legs paler; antennae yellowish, two basal segments slightly darker. Body rather broad, slightly convex; rather shining; pubescence extremely short and flat, barely detectable. Head sculptured much as pronotum, with numerous scattered and somewhat coarse punctures, reticulation distinct; eyes moderately large; head breadth 0.22 - 0.23mm; antennae moderate in length, 0.30 - 0.31mm, middle segments over three times as long as broad. Pronotum 1.73 - 1.86 times as broad as long, breadth 0.30 - 0.32mm, broadest at base, which is much wider than elytral base; hind margin arcuate, much longer than front margin, not sinuate close to hind angles which are broadly rounded off; sides almost straight to only very feebly convexly curved, narrowed to the front; front angles obtusely effaced; sides narrowly margined in front half, this margin flattened and widened basally and around hind angles; surface closely and irregularly covered with moderate-sized punctures which are half to two diameters apart on disc; reticulation very distinct, consisting of large and almost isodiametric meshes. Elytra 2.09 - 2.19 times as long as pronotum, 1.12 - 1.16 times as long as broad, breadth 0.32 -0.33mm; sides curved, broadest in front of middle; surface closely puncto-pustulate, predominantly punctate basally, these punctures similar in size to those on the pronotal disc; reticulation distinct. Scutellum with basal margin slightly obtuse in middle, somewhat beaded. Legs thick, hind tibiae c. 0.03mm in width. Metasternum barely longer than mesosternum, disc finely but not closely punctured; microsculpture composed of large and fine meshes, very distinct at sides, less so medially.

Male: aedeagus fig. 1.

Holotype male. Yap Is.: South, 27.vii.1950.

Paratypes. Yap Is.: South, 25.vii.1950, 3 ex., 27.vii.1950, 2 ex.

On body shape, sculpture, eye size and barely detectable elytral pubescence, this new species is most closely allied to *reticulatum* (Britten). It differs from that species in being smaller, more flattened, darker brown and with a different aedeagus. Britten's species is only known from the Seychelles and Nicobar Islands (Johnson, 1985).

Ptinella yapensis **sp.n.**

Length 0.64 - 0.66mm. Body moderately broad, weakly convex, shining, closely pubescent; hairs flat, hardly overlapping, elytral ones short, c. 0.016mm. Colour pale brown, legs and antennae yellowish. Head without a transverse suture behind; reticulation distinct; head breadth 0.23 -0.24mm; eyes moderately large; antennae moderately long, 0.34 - 0.35mm. Pronotum 1.52 - 1.65 times as broad as long, breadth 0.28 - 0.29mm; broadest around middle; sides rounded, sinuate before hind angles which are strongly rectangular; side margins fine; front angles not produced; surface coarsely reticulate, meshes very distinct, large and unequal; hind margin distinctly narrower than elytral base. Elytra c. twice as long as

pronotum and only slightly (c. 1.1 times) longer than broad, breadth 0.31 -0.33mm; broadest around middle; sides weakly curved; apices separately rounded; surface closely covered with flattened granules and very fine reticulation; epipleural carina lacking. Mesosternum with front angles well-marked, hardly toothed. Metasternum rather short, barely longer than mesosternum. Pygidium without a median, apical tooth. Winged. Female: spermatheca fig. 2.

Holotype female. Yap Is.: Ruul dist., 18.viii.1950.

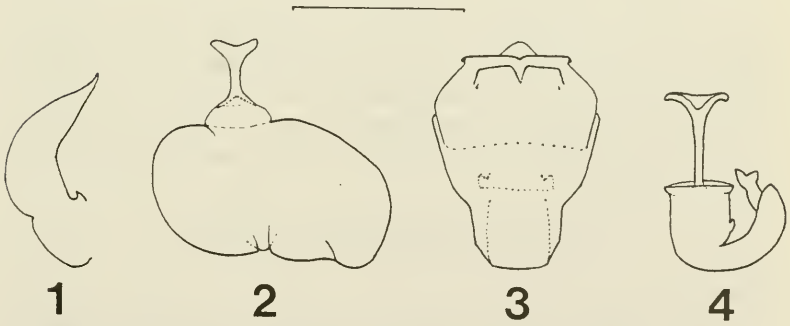
Paratypes. Yap Is.: 2.vii.1950, 1 female; Dugor, 14.viii.1950. 1 ex. Tomil Is.: 7.vii.1950, 1 female.

This species externally resembles normal individuals of the New Zealand *taylorae* Johnson (Johnson, 1982a), from which it may be most easily distinguished by the spermatheca. *P. taylorae* however is a dimorphic species, the dominant form being the vestigial morph. The strongly rectangular hind angles of the pronotum will easily distinguish *yapensis* from the Seychellean *impressicollis* Britten (Johnson, 1985) a species with a somewhat similar spermathecal type.

Actinopteryx lancifer Fauvel

Yap Is.: beach by sea, 1.vii.1950, 1 female.

Tropical, halophilous, Indo-Pacific species, found amongst decaying seaweed and other shore refuse. Recorded from New Caledonia, Fiji, Madagascar, Somalia, Seychelles and Mascarene Islands (Johnson, 1985).



Legend

Fig. 1-4, genitalia of Ptiliidae: 1, *Dipentium gossi* sp.n., aedeagus, lateral view; 2, *Ptinella yapensis* sp.n., spermatheca; 3, *Actinopteryx parallela* Britten, aedeagus, ventral view; 4. *A. parallela,* spermatheca. (Scale line: 0.1mm.)

Actinopteryx parallela **Britten**

Yap Is.: Colonia, 24.viii.1950, 1 male.

A little-known halophilous species, dorsally indistinguishable from the Atlantic/western Indian Ocean *fucicola* (Allibert) in shape, sculpture and toothed pygidium of the male. Ventrally, the sides of the mesosternal disc have sloping carinae as in the Indo-Pacific *lancifer* Fauvel and the eastern Pacific *hoguei* Johnson. The relationships of these species were discussed earlier, and their characteristic genitalia of both sexes figured (Johnson, 1982b, 1985). Outline drawings of the genitalia of *parallela* are figured herewith, figs. 3 - 4.

I have studied four syntypes (1 male, 3 females (in the National History Museum, London and Manchester Museum)) of *parallela* from Australia, as well as the holotype (female with missing spermatheca (M. Kubota coll.)) of *Acrotrichis longipennis* Kubota (Kubota, 1943), and find them to be identical (**syn. n.**). This synonymy was only confirmed by the discovery of other Asian material, which permitted the genitalia to be studied.

Other material. Japan — Funabashi, Chiba-leen, at seashore, 30.ix.1942, leg.. 1. Fujiyama & N. Watanabe, 2 males, 1 female (M. Kubota coll.). China — Hopei: Peitaiho, 29.viii.1966, leg. P.M. Hammond, 1 female (Nat. Hist. Mus. London). Philippine Is. — Luzon: Long Beach, Cavité City, 27.ix.1981, seaweed etc on beach, leg. M.D. Darby, 1 male, 1 female (Manchester Mus.).

The homonym *Acrotrichis longipennis* Kubota 1943 (not Casey 1885) was earlier (Waltz, 1984) replaced unfortunately by a further homonym: *kubotai* Waltz, 1984 (not Sundt 1969), which was prematurely synonymised (Waltz, 1987) with *Actinopteryx fucicola* on the basis of incomplete information.

Acrotrichis (s.str.) britteni **Johnson**

Yap Is.: South, 25.vii.1950, on banana, 1 female. Gagil Is.: 20.vii.1950, 1 female. Tomil Is.: 5, 7, 9.vii.1950, 3 females.

Tropical, anthropophilic, parthenogenetic and oriental species. Known from Seychelles, Mascarenes, Sri Lanka and other parts of tropical Asia (Johnson, 1988).

Acrotrichis (Flachiana) cursitans **(Nietner)**

Yap Is.: Dugor, Weloy, 14.vi.1957, at light, 1 female. Tomil Is.: 7.vii.1950, 1 female.

Palaeotropical and anthropophilic species. Recorded from Sri Lanka, Seychelles, Mascarenes, Madagascar, South Africa, Ivory Coast, Nigeria and Philippine Islands (Johnson, 1985).

Acknowledgements

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Hazards of butterfly collecting — time for tea. Afghanistan, 1977

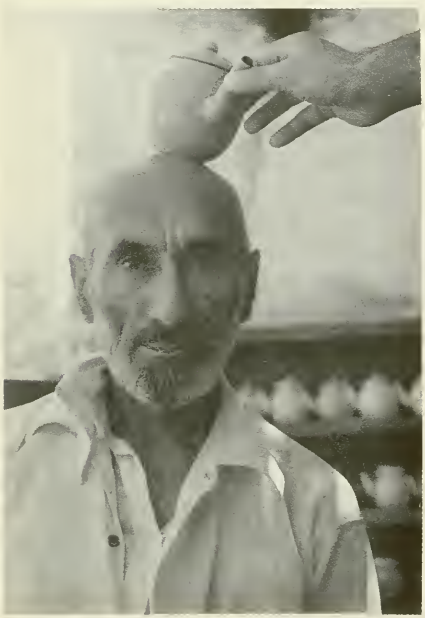
I paid my first and only visit to Afghanistan in July 1977. Though it was a business trip, fate — mostly in the form of the notoriously unreliable Ariana Afghan Airlines — permitted me to do sufficient butterfly collecting to produce a paper on the Afghan butterflies (1978, *Ent. Rec. J. Var.* **90**: 191-198). The Walnut Blue (*Chaetoprocta odata*) turned out to be immensely common among the mud skyscrapers of Paghman, a new record for Afghanistan. Strings of up to two scores flew about the ancient walnut trees in the late afternoon in some sort of sexual display and competition. I established beyond doubt that *Thymelicus alaica* should be considered specifically distinct from any of the related European species, and I am still quite certain that one species in each of the *Lycaena caspius* and *Hyponephele davendra*-complexes derserves a specific status which they are not presently accorded.

The highlight of my visit was a car journey from Kabul to Mazar-i-Sharif, crossing the Hindukush by the Salang Pass. My English colleague, Evelyn, and I were accompanied by Afifa, a thoroughly modern and ravishingly beautiful Afghan nurse-tutor, whose job actually involved the

supervision of male doctors; watching her overcome the combined status and gender barriers in such a male chauvinist and hierarchical society through force of intellect, personality, and diplomacy was sheer delight. My colleagues had been kind enough to agree to a very early start so that I could do some collecting in the Salang Pass, then the highest altitude I had ever visited with a net.

A splendid picnic was had by all in a little wooded *nullah* just below the pass, the butterfly fauna in the lush vegetation contrasting quite markedly with that of the barren slopes of the mountains. At 3,600 metres above sea level, catching the fast-flying *Colias stoliczkana* left me quite breathless, and the bewildering variety of *Pseudochazara* and *Karanasa* were hardly easier. Once on the wing, the wind swept them away too far to see where they settled again.

We had to resume the journey a few hours later, descending along the cascading river, passing small hamlets where nuts and fruits were the main source of income. Eventually the river reaches the central plains of Afghanistan and quietens down to a gentle river, watering a broad band of emerald green paddy. Then, wonder of wonders — what was a little stream at the Salang, and became a raging torrent on the way down, finally to become a sedate river, now suddenly disappears, swallowed up by the sandy wastes where no trace of green remains.



At this point, near Pul-i-Khumri, a cup of tea was called for, so we piled into one of the ubiquitous *chai-khanas* (tea houses). This created a sensation. Women never enter a *chai-khana,* and here were no less than two, and they were unveiled, much less wearing the usual all-concealing *burqa.* There was much shuffling of feet, as the men edged away from our table, clutching their kalashnikovs and plastic grocery bags (one ironical effect of keeping women in purdah being that the menfolk do the family shopping). The atmosphere was tense, to say the least, but the owner accepted an order for tea from Afifa with good grace. One of the patrons tried to defuse the tension by asking whether she was Iranian (this was before the fall of the

Shah, when Iranian women were expected to behave disgracefully). No such luck — Afifa was as Afghan as they come.

A man at a neighbouring table was obviously suffering from fever and pain. In front of him, next to his submachine gun, was a small bag containing various medicaments. Afifa asked a few questions, inspected the drugs, and pronounced them acceptable. The collective sigh of relief that went through the *chai-khana* was almost tangible. Afifa had been transformed from woman to doctor, and thus effectively de-sexed (Evelyn, being obviously foreign, had been less of a threat). The tension melted away.

The owner of the *chai-khana,* a friendly chap in his mid-fifties, asked me to take a picture of him in front of a wall full of beautifully stacked red and blue tea-pots. He playfully put one on his head, a photo of which he especially wanted for his wife. We talked some more. He was very proud indeed of his *chai-khana* which he had built up during thirty years — it was lovely, and he had every reason to be proud. But his wife had never seen it — she was in purdah and was allowed out of the family compound only for the occasional wedding or funeral of the closest or relatives. So strict is purdah in parts of rural Afghanistan.

Afifa levelled with us afterwards. Yes, she very much enjoyed the effect of her entrance into a *chai-khana* or an eating house but, yes, she also usually did take out insurance by becoming a doctor, since a genuinely nasty situation might just otherwise arise. In 1977 there were probably not a dozen Afghan women who would have dared set their feet in a rural *chai-khana.* Now, most probably, there is none.

A few days ago I was in Afghanistan again, though only a few metres and for a few minutes. The *Mujaheddin* guarding the Afghan side of the border in the Khyber Pass were kind enough to let me in for a brief look. WELCOME TO THE ISLAMIC REPUBLIC OF AFGHANISTAN says the sign — it used to say *SOCIALIST.* I had always wanted to go back, but it will be a long time before Afghanistan is again safe for the butterfly collector.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Aplocera plagiata* L. (Lep.: Geometridae) larvae on cultivated *Hypericum

Moths of the Treble Bar have been appearing at my garden trap in recent years, and frequently enough to suggest breeding nearby. I have searched the numerous well-grown plants of *Hypericum hirsutum* that seed naturally in garden borders but could never find a larva. This past spring (1992) I searched after dark a single but substantial bush of *H. polyphyllum* Grandiflorum and located seven larvae sitting up on old flowering sprigs just as they do on wild *Hypericum.* Another species perhaps to add to the growing list of moths distributed by garden centres.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Further foodplants of *Diachrysia chrysitis* L.

Paul Waring's summary of recorded foodplants for this larva (*Ent. Rec.* **102**: 103-5 and **103**: 107) by no means exhausts its range. I had always found it most readily on Comfrey (*Symphytum*) but only Wilson seems to have recorded that, while in captivity larvae have done well overwintered on common Labiates (*Lamium*).

During recent drought years I have found it instructive to work and beat marsh plants that became accessible as first water receded and then as mud dried out. Each year over the past three I have beaten *chrysitis* before hibernation from Water Mint (*Mentha aquatica*) and from Gipsywort (*Lycopus europaeus*) both from plants growing together and from individual bush-like growth. I overwintered them on *Lamium*. With them was *Plusia iota* which was very similar in appearance. In 1992 one *chrysitis* came out of hop and it continued to feed on that plant in captivity until hibernation.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Wild larvae of *Celastrina argiolus* L. (Lep.: Lycaenidae) on hop

On 28th July 1992 I beat a bounteous growth of hop at East Harling, Norfolk to find *Hypena rostralis* and *Eupithecia assimilata*. I also obtained three fully fed larvae of the Holly Blue and after the first I was especially careful to check that the others did indeed come from the hop. A few days later Mike Hall found the butterfly larvae to be numerous on hop at Scole, Norfolk. The larvae completed their growth in captivity on hop foliage and are now pupae.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Notes on rearing the Flame Brocade, *Trigonophera flammea* Esp. (Lep.: Noctuidae)

On 12th October 1992 Graham Collins took a female *flammea* to light at Durleston Head, Dorset. In due course she laid a batch of eggs, and on 22nd October Graham sent me eleven ova. The eggs were pale brown on receipt and appeared to me to be very small for the size of the moth illustrated in Bernard Skinner's *Colour Identification Guide*. The eggs turned blackish by 8th November and the first larva emerged on 14th November and within 24 hours I had ten larvae, one egg failing to hatch. I placed the larvae on buttercup (*Ranunculus acris* L.) which they ate to repletion. They then climbed to the tip of a blade of grass. Here they stayed, passing frass, until they were completely transparent again. When they moved they proceeded in the manner of a looper. This fact, allied to their small size, led me to ring Graham Collins. He kindly refrained from snide remarks about horses' mouths and assured me that they would soon walk in normal, noctuid manner. He was right!

Like many other species, the larvae spent more time away from their

pabulum than on it. Their colour exactly matched that of the grass, and this and their small size combined to make them very hard to locate. By 24th November I found that the buttercup leaves were drying too quickly and so decided to dig up entire buttercup plants and put them, in soil, into a large plastic box. I replaced the lid with muslin.

At this time I rang Bernard Skinner for advice. He said he had never reared *flammea* but advised me to hedge my bets. In short, he suggested I kept half the larvae in the warmth and half outside. Accordingly I divided my ten larvae between two plastic boxes; one I kept warm indoors and the other I put into an open-sided shed. Both boxes had muslin lids and both had transplanted buttercup plants. It was difficult not to include some grass with the plants and the grass seemed to be appreciated by the larvae for resting purposes.

From now on I deal with the two boxes separately. Box A was kept indoors and its story starts now. By 14th December three larvae remained out of the original five. They had turned from bright green to dark brown at the third skin change and now measured 2cm in length. The loss of two larvae occurred when they were very small — one from natural causes and the other, possibly, a case of "throwing the baby out with the bath-water". On 18th December I introduced a twig of privet. The leaves, though tough, were eaten with gusto — the average length of the larvae was now 3cm. By 27th December the larvae were 4cm in length. They had eight diamond-shaped marks along the darker dorsal stripe, and a very pale spiracular line. The overall appearance was dingy brown with a pale head. On 5th January one measuring 5cm went to ground and had formed a healthy pupa by 10th January. Of the two remaining, one appeared sickly and was promptly eaten by its companion. The cannibal pupated on 17th January. To sum up the results of forcing the larvae: from five larvae, two pupae were obtained, from which emerged one male and one female imago on 11th July and 14th September respectively. The imago are perfect, but undersized.

Now for Box B. From 24th November it had been in an unheated shed and the larvae ate fitfully; spending much time on blades of grass. Between 24th November and 16th December they had suffered several nights of $-10°C$ and sub-zero temperatures all day. Periodically, throughout the winter, I removed the muslin cover and sprayed the buttercup plants with water. On 3rd April 1992 I decided to have a thorough inspection and was delighted to find four larvae had survived the winter. Of interest was the fact that two were brown and two were green. I put the four larvae into a plastic box with some privet twigs and buttercup leaves. The privet twigs had some new fresh leaves amongst the old. Interestingly the larvae fed only on the tough old leaves. On 8th April occurred the second case of cannibalism and I at once separated the remaining three larvae, so that they were one to a box.

On 20th April one larva started cocooning and pupated on 27th April. The last larva cocooned on 28th April and pupated 4th May. It seems

pupation takes 6-7 days. The larva of this species does nothing quickly. Consider: hatched 14th November '91; pupated 4th May '92 equals 175 days! Thus I reared three larvae to pupation out of five kept at out-of-doors temperature. These three pupae have so far produced one male and one female imago of normal size; they are not as large as the monstrous beast illustrated by Bernard Skinner in his *Colour Guide*; but the same as the one illustrated by South on plate 141 of vol. 2 of his *Moths of the British Isles*.

I hope these notes may help those who try to rear this moth ex-ovis. I recommend the outdoor method.— Brig. C. SIMSON, Crosbythwaite, Plowden Park, Aston Rowant, Oxford OX9 5SX.

An unusual larval foodplant for *Idaea straminata* Borkh. (Lep.: Geometridae)

Having heard from Gerry Haggett that the larvae of *Cucullia absinthii* Linn. could be swept from Mugwort (*Artemisia vulgaris*), on 15th August 1992 I brushed through a good stand of the plant on a piece of uncultivated land adjacent to my garden. I was soon rewarded with a good number of *C. absinthii* larvae (from second to last instar) and several other species as well.

Some of these species were readily identified: a single *Phalera bucephala* Linn., two *Autographa gamma* Linn., a single *Biston betularia* Linn. and several pug larvae. These were subsequently identified as *Eupithecia absinthiata* Cl., *E. subfuscata* Haw., and *Gymnoscelis rufifasciata* Haw. (no *Eupithecia succenturiata* Linn. at that stage of the season) and one looper larva that was not identified. Before I could seek help with identification it had pupated. On 19th Septemeber that pupa produced a very well-marked *Idaea straminata* Borkh, the identification of which was subsequently confirmed by Gerry Haggett.

As far as I can find this species has not previously been recorded as feeding on Mugwort and I wonder whether this is because it has "found" this foodplant comparatively recently or simply just not been observed on it.— MICHAEL R. HALL, "Hopefield", Norwich Road, Scole, Diss, Norfolk IP21 4DY.

A Holly Blue, *Celastrina argiolus* Linn. ovipositing on Ling, *Calluna vulgaris* and the subsequent larvae reaching maturity

On 25th July 1992 I saw a female Holly Blue, *Celastrina argiolus* apparently laying eggs on a plant of Ling. I broke off that particular sprig and confirmed that an egg had been laid. On 5th August the egg hatched. There must have been another egg on the sprig as I had two caterpillars. By 13th August the two larvae were about half an inch long. One was green with a stripe of reddish brown down the centre of its back (wider at the head end) and the other was green with the same stripe plus a broken line of

similar colour along the side and on to the flanks. Both were feeding well on the flowers by biting a hole in the base of the corolla, putting their heads through and apparently eating the inside of the flower.

By 19th August both larvae were a pinkish green colour and starting to wander about. On 21st August both caterpillars stopped moving, a silken thread could be clearly seen around the waist of one attaching it to the box, and by 11pm they had pupated. On 5th September a male butterfly emerged in the morning, and the second, also a male, emerged in the late afternoon.

Ling is an unusual foodplant even in this year when larvae of the Holly Blue have been recorded from a wide variety of foodplants— DIANE MUSSELL, Cliff House, 19 California Avenue, Scratby, Gt Yarmouth, Norfolk NR29 3PE.

NOTES ON SOME BORNEO HAWKMOTHS (LEPIDOPTERA: SPHINGIDAE) INCLUDING *EUPANACRA HOLLOWAYI* SP. N. AND *MACROGLOSSUM AMOENUM* ROTHSCHILD & JORDAN NEW TO BORNEO

Entomologist's Rec. J. Var. **103**: 223-235

W.J. TENNENT

CORRIGENDA

page 223. para 3. delete 'Bornei', insert 'Borneo'
page 225. para 8. delete 'Bukit sagan', insert 'Bukit Sagan'
page 225. para. 12. delete 'total of 121 specimens', insert 'total of 12 specimens'
page 227. para 10. delete 'Gugung Serapi', insert 'Gunung Serapi'
page 228. para 5. delete '(S3 (310)', insert 'S3 (310)
page 228. para 5. delete 'S7 (8)', insert 'S7 (44)'
page 228. para 5. delete '5.i.91', insert '5.ii.91'
page 228. para 8. delete 'S6 ((4)', insert 'S6 (4)'
page 228. para 9. delete '*Acosmereyx'*, insert '*Acosmeryx*'
page 229. para 1. delete 'B8 78)', insert 'B8 (78)'
page 229. para 4. delete '*Euranacra*', insert *'Eupanacra*'
page 229. para 4. delete 'records in as being', insert 'records it as being'
page 230. para 5. the blank line immediately before the paragraph beginning *'Eupanacra psaltria'* which resembles . . . ' should be at the end of that paragraph
page 230. para 8. delete 'B6 ((2)', insert 'B6 (2)'
page 232. para 8. delete *'sylvai'*, insert *'sylvia'*
page 233. para 3. delete 'S3 (3)', insert 'S3 (3) (3)
page 233.; para 4. delete 'S6 (()', insert 'S6 (2)'
page 233. para 8. delete 'S6 ((2)', insert 'S6 (2)'
page 234. para 6. delete 'S6 (2) (31), insert 'S6 (2), S7 (2) (31)'

***Pholidoptera grisaptera* (De Geer) (Orthoptera: Tettigoniidae) rediscovered in North Yorkshire**

I had the great good fortune to find a single male of this species, singing on vegetation at the side of the cliff path, just north of Hayburn Wyke (TA0097) when out walking with my wife on 18th July 1992. Mr E.C.M. Haes (pers. comm.) informs me that the Dark Bush cricket was last (and only once) seen in the district in 1958, despite having been looked for several times since over the years. Hayburn Wyke itself is a steep wooded cleft incised into the limestone cliffs and it may well be that the peculiar shelter afforded by this situation has enabled the species to maintain itself there.

I retained the specimen as a voucher and have donated it for safe-keeping to the Doncaster Museum.— J.B. JOBE, 13 Willow Walk, Ripon, North Yorkshire HG4 2LS.

***Elodes tricuspis* Nyholm (Col.: Scirtidae) a notable addition to the beetles of Windsor Forest**

Mr Colin Johnson's publication of the essential data on the *Elodes minuta* complex in Britain (1992, *Ent. Rec.* **104:** 305-6) will be welcomed by our coleopterists. As he shows, there are three not uncommon species and one which is, so far at least, very rare with us. Of the latter, *E. tricuspis* Nyh. (= *elongata* sensu Klausn., Lohse), I took a male in Windsor Great Park off trees by a stream about mid-June 1934, which in 1980 was kindly confirmed as the present species by Mr P.M. Hammond at the British Museum (Natural History). Up to then it had stood in my collection as an example of the old "*Helodes minuta*". This was the first British specimen of *tricuspis* to be recognised, though Mr Johnson cites a record from last century (Sherwood, Blatch), besides a 1945 one from Herefordshire. I have heard of another from the latter county, making four known specimens to date.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Further county records of *Aphodius subterraneus* (L.) (Col.: Scarabaeidae)

For this dung beetle, which, previously not uncommon, appears to have declined to the point of near-extinction, Hyman and Parsons (1922, *A review of the scarce and threatened Coleoptera of Great Britain.* UK Nature Conservation **3**: 389) list only seven pre-1970 county/vice-county records. Thus, the impression given is of a far more thinly scattered distribution than was actually the case. To these, Sussex, Somerset and Herefordshire — and doubtless several others — may be added from county lists, while I have myself taken it in Bedfordshire (Shefford, 1930, pastures by river Ouse), Dorset (Lulworth, 1930 chalk cliffs) and Hertfordshire (near Broxbourne, 1947) — to mention only counties additional to the above. The latter, a single specimen in horse dung in a low-lying field bordered by woodland, in September, is perhaps the penultimate British

record, or one of them; the last being only a year later from north Hampshire, apart, of course, from the single Kent find of a few years ago. I have also a specimen marked "Canvey" (Essex). It is very hard to suggest any convincing reason for the drastic decline of *A. subterraneus,* now accorded endangered status. Joy (1932. *A practical handbook of British beetles* **1**: 248) notes it as common and includes "Scot. 2" in its range. Jessop (1986, *Handbk. Ident. Br. Insects* **5**(11): 389) and Hyman & Parsons (*loc. cit.*) ignore the Scottish record(s), the former adding Wales. It would be interesting to know the present status of the species in Ireland, where it is recorded from Ulster.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Tanzania revisited

I happened to be in Tanzania for the first time in fifteen years just as my note on the Acropole Hotel in Morogoro was published (*Ent. Rec. J. Var.* **104**: 253-254). I could not resist a sentimental visit. The hotel is dilapidated as ever and has hardly changed, but the menu is very much more enterprising, including choice of two named soups, several prawn, fish and chicken dishes (garlic, curry, etc). Prawn and fish were off, however, and the chicken curry that I had was simply the old "roast of chicken" in a bottled curry sauce, so the changes were more cosmetic than real.— TORBEN C. LARSEN, 358 Coldharbour Lane, London SW9 9PL.

***Epiphyas postvittana* (Walk.) (Lep.: Tortricidae) in Denbighshire, North Wales**

On the night of 1st July 1992 a male *Epiphyas postvittana* came to light in Gresford, Denbighshire v.c.50. Since becoming interested in Micros I have visited Mr H.N. Michaelis in Glan Conway, 45 miles away, with the season's specimens for confirmation.

On a visit in November 1992 he informed me that he took five specimens of *postvittana* in his garden between 30th May and 3rd June 1992. They were netted at dusk.

The rate of the northwards extention of range seems to be maintained since the first Welsh record at Cardiff in 1989 (*Ent. Rec.* **101**: 277) and the previous most northerly record from Leicestershire, also 1989 (*Ent. Rec.* **102**: 73). My thanks to H.N. Michaelis for confirming the specimens.— BRYAN FORMSTONE, 15 Beech Avenue, Gresford, Wrexham, Clwyd LL12 8EL.

Further notes on the occurrence of *Platyptilia ochrodactyla* Denis & Schiffermüller (Lep.: Pterophoridae) in Wiltshire

In the *Entomologist's Record* **104**: 76 (1992) I published a note concerning my discovery of *P. ochrodactyla* in Wiltshire. Shortly after, I was in correspondence with Mr Stephen Palmer from Dinton in Wiltshire on various entomological matters. It was then that he informed me that as a

result of his work in compiling a list of the Wiltshire microlepidoptera he had discovered two references (both in v.c.7) to *P. ochrodactyla,* the first in 1887 and the second in 1893 with some uncertainty as to the exact date. He stated that he was not entirely satisfied with those records and consequently had not included them in his list. This means that my previous note requires slight modification in that from being new for Wiltshire my record is new for v.c.8 and the first confirmed record of *P. ochrodactyla* for Wiltshire. My thanks to Stephen for drawing those two obscure references to my attention.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wiltshire.

Late emergence of the Small Tortoiseshell, *Aglais urticae* (Linnaeus) (Lep.: Nymphalidae)

During the course of my work in mid-November 1992 I noticed a pupa of *Aglais urticae* attached to a wall with a southerly aspect near the door of a house at Steeple Ashton in Wiltshire. The pupa was in an exposed situation about one metre from ground level. At the time I was tempted to remove it as I thought the situation was somewhat hazardous particularly from the passage of individuals through the doorway. However, as I wished to note what would happen in natural circumstances at that time of year, I resisted temptation and left it in place. On 28th November I noticed that the colour of the forewings was clearly visible through the pupa case and on the morning of the 30th, at about 11.30, I noticed that emergence had taken place. The 30th was a particularly wet day and the pupation site was receiving a good deal of driving rain at the time of my arrival. This in itself was interesting because in my modest opinion the weather conditions seemed particularly unfavourable, even positively anti-emergent. I discovered this struggling, saturated and still limp adult — a female — at the base of the wall. I think that the wing expansion process may have been interrupted for too long by the insect's immersion in rain water plus low temperatures, and the wings did not expand fully. Another contributory factor may have been the expenditure of too much energy in struggling with the peculiar conditions. Apart from that mishap everything appeared to be normal.

The insect only survived for a few days even in the relative comfort of captivity. I suppose that given a combination of favourable weather conditions and a convenient supply of suitable flowers for nourishment — perhaps an unlikely combination in late November — then late emerging insects might just survive, but the probable reality is that survival of a freshly-emerged adult in the wild at that time of year must be at best minimal. I assume that it would be exceedingly unlikely if this emergence was a unique event and similar circumstances, albeit very small in number, will have occurred elsewhere. Statistically the number of pupae in existence in November must be small, and the chance of discovering a pupa in more natural circumstances such as on a stem of vegetation must be very remote.

Since in all probability very few field workers indeed would be searching for larvae/pupae in November this in itself would contribute to the lack of confirmative data. I note larvae in October from time to time and have often wondered if they ever produce adults. I suspect all end in failure whatever stage they attain.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wiltshire.

Previously unrecorded foodplants of three species of microlepidoptera

On 8th May 1992 at Sned Wood, Herefordshire, I found a small pupa in an area of damaged bark of *Pseudotsuga menziesii*. A male *Cydia coniferana* (Ratzeburg), confirmed by dissection, emerged on 17th May.

Previously, *C. coniferana* has been recorded in the British Isles only from *Pinus sylvestris,* though Bradley, Tremewan & Smith (1979, *British Tortricid Moths.* Tortricidae: Olethreutinae) give *Picea* and *Abies* as continental foodplants. I am not sure if either occurred in the area but no *Pinus sylvestris* was present.

On 16th April 1992 I collected a few cones of a *Caloptilia* species on *Castanea sativa* at Sausmarez Manor, Guernsey, Channel Islands. These produced *C. leucapennella* in September. The same trees also had old, typical mines of *Acrocercops brongniardella* (Fabricius). *Castanea sativa* is not given as a foodplant for either species by Hering (1957, *Bestimmungstabellen der Blattminen von Europa*). My thanks are due to A. Maitland Emmet for informing me that he does not know of any subsequent record of either species from this pabulum.— R.J. HECKFORD, 67 Newnham Road, Plympton, Plymouth, Devon PL7 4AW.

A recent record of *Glyphipterix equitella* (Scop.) (Lep.: Glyphipterigidae) in Wiltshire

Apparently the only records of *G. equitella* in Wiltshire are in v.c.7 and can be no more precisely dated than sometime prior to 1929; they refer to records from the Marlborough and Fyfield areas.

For the last few years I had intended to investigate a locality near Bradford-on-Avon where *Sedum acre* (biting stonecrop) grows in varying amounts on the tops of stone walls but as is the wont of things, other species occupied my attention. However, on 30th June 1991 I made a determined effort, and armed with my bee-smoker I set about investigating the area. Because several well-known members of public life reside in this particular locality, the local constabulary maintain a high profile, thus creeping around examining ivy blossom in the autumn or puffing clouds of smoke into stone walls appears to be a highly suspicious activity. Explanations of one's activities is a rather time-consuming and inconvenient consequence. Fortunately the very first plant of *Sedum* which I sampled yielded one *G. equitella* and in the next half-an-hour I had secured, with difficulty, one more specimen. A somewhat gusty wind and

hazards such as brambles meant that several other moths were missed but since I did not have them in the hand they would perhaps be best described as looking remarkably like *G. equitella*. This, although in a new Wiltshire locality is still v.c.7 and apparently the first record for about 60 years. My thanks to Mr Stephen Palmer from Dinton for providing data from his Wiltshire list of Microlepidoptera.— M.H. SMITH, 42 Bellefield Crescent, Trowbridge, Wiltshire.

Cornwall's Butterfly and Moth Heritage by **Adrian Spalding.** 48pp, illustrated. Paperback. Twelve Heads Press, Twelve Heads, Truro, Cornwall, 1992. £2.50.

This interesting book is a brief guide to the butterflies and moths of Cornwall focussing chiefly on the factors influencing their distribution.

It does not follow the usual systematic format, however, but consists of several "mini chapters" on subjects such as geology, climate, adverse factors, changes in distribution and status, habitat groupings, and conservation. These chapters are sub-divided into smaller sections. "Changes in Distribution and Status", for example, comprises the following subheadings: Species Extending Their Range, Recent New Species, Overlooked Species, Recent Colonisers, and Disappearing Species. Scattered among them are short lists apposite to the text — often of typical species at a given locality.

Throughout the book special treatment is accorded the butterflies and rarer and more important moths and the conservation chapter deals with three of the well-known rarities: the Large Blue, the Heath Fritillary and the Sandhill Rustic. Photographs (both black and white and colour), drawings and maps, are interspersed throughout the book and these are of good standard. The book concludes with lists of butterflies and notable macro moths, and there is also a list of Cornish names for some of the moths. (As an amateur student of Celtic languages I was interested in the Cornish for butterfly — Tykky-dew — as the various names for butterfly in Scottish Gaelic also have a similar suffix — de.)

I found *Cornwall's Butterfly and Moth Heritage* well-written and informative and overall a pleasure to read. My only reservations were that the unusual layout does not allow specific information to be easily located and also that scientific names are used sparingly — if at all. However, as a guide for the enthusiastic naturalist, designed to be read through as a general survey, it is entirely successful. C.J. Luckens

Field Guide to the butterflies of southern Africa by Ivor Migdoll. 256pp, 620 colour photographs. Soft cover. New Holland Publications, London. First published 1988, reprinted 1992. £13.99.

This book deals with a representative sample of 230 of the 830 or so butterflies occurring in southern Africa.

Following a brief introduction on butterflies and butterfly collecting, some 600 colour photographs are placed on 110 plates, followed by 100 pages of descriptions and information about those selected.

The colour photographs are a mixture of live material, including some early stages, and set specimens. Most are of excellent quality, and many readers outside Africa will be interested in the illustrations of larvae and pupae. The information given is generally accurate and up-to-date. All in all if gives a good introduction to the fascinating butterflies of southern Africa.

However, calling the book a *Field Guide* is an exaggeration, when less than a third of all species are included, and no information is given on what was excluded. How simple it would have been to have given a complete checklist of all species in southern Africa, which would have greatly enhanced the usefulness of the book.

The modest price still makes it a good buy for anyone with an interest in tropical butterflies. Torben B. Larsen

European Society of Entomologists — New directions for entomologists in the new Europe

The European Society of Entomologists is a new society for entomologists across the new Europe.

Entomologists everywhere realise the importance of establishing and improving contacts with each other, across nations and across disciplines. Better communication means more meaningful, more effective research. This is especially true in addressing the very many questions relevant to the whole of Europe and those best answered from a whole-continent perspective. The European Society of Entomologists aims to satisfy this need in an innovative way. It will be launched in 1993.

It will aim to promote and enhance communication and collaboration among European entomologists and to improve and disseminate entomological science among the people of Europe. It will offer comment on a wide varietey of issues relevant to entomologists in the new Europe; news of current all-Europe research; requests and offers of help; latest news of networks, societies and special interest groups; European funding information; a European diary of meetings, workshops and courses; support for entomological meetings of European character; and, ultimately, a directory for European entomologists.

We hope that language will not be a barrier to communication across the new Europe — English, French, German and Russian are to be used for published Society correspondence and newsletters. It is intended that the subscriptions of members will be payable in local currency wherever possible.

All with an interest in the study of insects are invited to participate, irrespective of their entomological disciplines and whether of not they are

members of other entomological societies. If you would like to know more, please contact

Dr László Papp, Zoological Department, Hungarian National Museum, Baross u. 13, Budapest, H-1088 Hungary, or

Dr Duncan Reavey, Department of Biology, University of York, York YO1 5DD, United Kingdom.

Help needed

The BBC Natural History Unit is currently making a major six-part series on Insects, due for transmission on BBC1 at the end of 1994 or early 1995. As part of the series, we are very keen to film those events where insects (of any sort, pest or non-pest species) suddenly occur in very large concentrations, either due to population explosions, or insects on mass migration. As these events are rarely predictable, we can only hope to get word of such things as they occur, and try to get there in time to film them.

If any members come across a situation that they think may be of interest any time over the next two years, I would be extremely interested to hear of it. I can be contacted during the day on 0272 732211, extension 4167, or evenings on 0272 427345.— Rupert Barrington.

WANTED

Records of *Sciota hostilis* Steph. and *S. adelphella* F.v.R. (Lep.: Pyralidae) required for a paper being prepared for the *Record* on the status and distribution of these two species in the British Isles. Reference to the discovery of *S. adelphella* together with illustration can be found in *Entomologist's Gazette* **39**: 271-274. All records and any requests for assistance in identification please write to Bernard Skinner, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

LEONARD HUGH NEWMAN

1909 - 1993

As we go to press, we hear of the death of L. Hugh Newman on 23rd January 1993, at the age of 83. A well-known broadcaster, journalist, author and entomologist, he was keen to popularise entomology and caught the public imagination whilst running one of Britain's first commercial butterfly farms (founded in 1894 by his father, L.W. Newman).

Some of his more popualr books include *Butterfly Farmer* (1954), *Create a butterfly garden* (1967), *Hawk Moths of Great Britain and Europe* (1965), and *Living with butterflies* (1967). He also founded the NHPA (Natural History Photographic Library), one of Europe's most extensive archives of environmental and wildlife pictures. He is survived by his wife Moira ("Toni"), two sons and a daughter. Paul Sokoloff

Note: We hope to be publishing an account of the first butterfly farm shortly.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

Contents

Notes and observations

Continued on inside back cover

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

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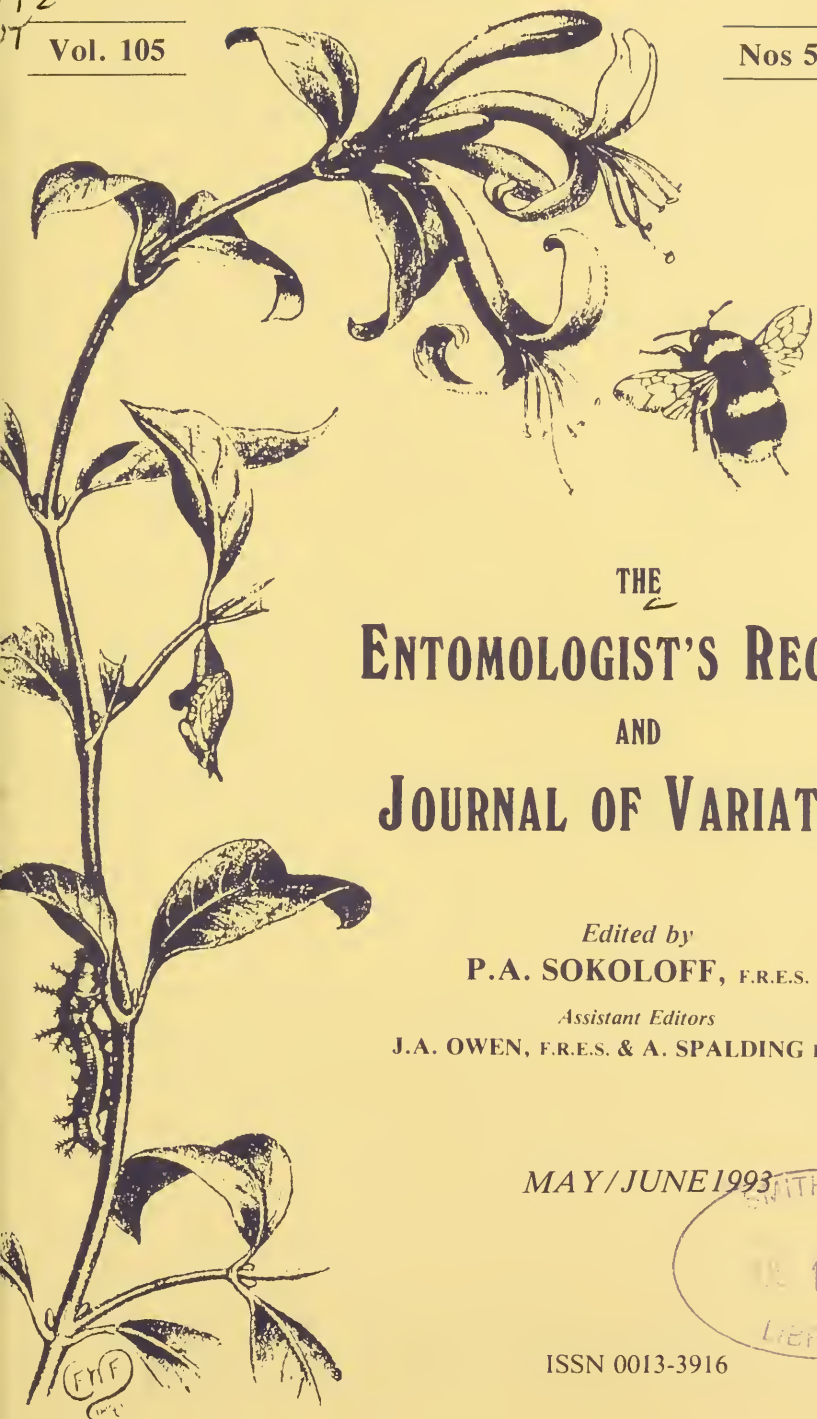

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by

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THE MACROLEPIDOPTERA OF BANFFSHIRE: A SUPPLEMENT

ROY LEVERTON

Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

BARBOUR (1976) produced the first and only list of the macrolepidoptera of Banffshire (Watsonian vice-county 94). It was based mainly on his own recording in the Aberlour area, and he stressed that the east of the county and the coast had received hardly any coverage. So when my wife and I moved to North-east Scotland from Sussex, the chance of operating in such an unexplored area influenced the decision to settle in eastern Banffshire rather than in better-worked North Aberdeenshire (v.c.93).

Our Sussex friends warned us that the lack of dots on the distribution maps might simply reflect a dearth of species this far north. However, the first year of fieldwork produced 14 new macro moths for Banffshire. None of them was totally unexpected, but there cannot be many British vice-counties where so many easy "firsts" would still be possible. These new species, together with all known additions from other sources to the 1976 list, are set out at the end of the paper.

It is always more interesting to go beyond the mere listing of species. Indeed, lists can be misleading: a species which occurs both in southern England and in north-east Scotland may differ in its habitat, foodplants, flight period and physical appearance in the two areas, and also in its relative abundance. Species which are rarities in Sussex (Pratt 1981), such as *Chloroclysta siterata, C. miata, Selenia lunularia, Graphiphora augur* and *Blepharita adusta,* are now common and garden insects for me, while *Agrotis exclamationis* and *Mythimna pallens,* though present, are scarce. Inevitably, I found myself continually comparing Banffshire and its moths with Sussex. The following observations are preliminary only, being based on just three years of fieldwork and a limited number of sites — mainly Alvah near Banff NJ66 (rich farmland and deciduous woodland in the fertile and sheltered lower valley of the river Deveron), and around Ordiquhill NJ55 (an unimproved hillside beginning as peat bog and sallow carr and ranging through wet heath to drier broom and gorse and finally heather moorland, surrounded by mixed upland farmland).

Banffshire is about 500 miles further north than Sussex, so climate obviously has a big influence on the Lepidoptera. My school atlas showed that, surprisingly, annual rainfall is very similar to that of Sussex, as North-east Scotland is in the rain shadow of the Grampians. Winter temperatures at sea level are only 1 - 2°C cooler, the Gulf Stream still having some effect after travelling around the far north of Scotland. However, in summer the temperature difference is at least 3°C. More importantly, spring starts later in Banffshire, and autumn arrives earlier; it is this factor which seems to have the greatest influence on the moths. Nearly every species in Banffshire is single-brooded. Of the 240 macro moths I have seen so far, only

Xanthorhoe fluctuata and *Thera obeliscata* seem definitely to be bivoltine, and *Eupithecia nanata* probably so. A few others, such as *Xanthorhoe designata, Ochropleura plecta* and *Diarsia rubi* may produce the occasional second-brood individual. Curiously, I found second-brood examples of *Eupithecia subfuscata* in each of the last four summers (1989-92) yet never saw any during many years in Sussex.

Another consequence of the shorter summers is that flight periods in Banffshire often differ from those in the south of England. Basically, the seasons are compressed, so that spring and early summer species tend to emerge later, and autumn species earlier, than they do in the south. There are exceptions: it seems that *Xanthorhoe fluctuata* must emerge early to enable it to fit in an (obligatory?) second brood, so that in 1990 it was well out during the last week of April near Banff, and even in the late cold spring of 1991 it was seen from 8th May at Ordiquhill, 530′ above sea level. *Blepharita adusta* is known to emerge earlier in Scotland than in southern England (Skinner 1984); it is normally flying long before the end of May at Ordiquhill and few are seen after June. Others might include *Odontopera bidentata* and *Spilosoma lubricipeda,* both out before the end of April in 1990 (Leverton 1991) though this may have been exceptional. Perhaps their larvae need as long a time as possible to feed up in the cooler and shorter northern summer. Conversely, *Selenia dentaria,* not having a July emergence, can extend its single flight period into June.

Several species which overwinter as an egg fly much later in Banffshire than they do in southern England. These include *Cidaria fulvata, Hydriomena furcata* and *Brachylomia viminalis*; all fly mainly during August and well into September at Ordiquhill. Presumably their ova hatch a month or so later, in time with the breaking leaves in the cooler spring, and the life cycle is retarded proportionately. Yet most of the autumn-flying Cucullinae, which also overwinter as ova, emerge very early. *Xanthia icteritia* was first seen on 8th August in 1990 and 12th August in 1991; corresponding dates for *X. togata* were 10th and 16th August. The *Agrochola* species likewise emerge several weeks earlier than one would expect to see them in Sussex. I suggest this is almost certainly achieved in both genera by reducing or eliminating the long prepupal diapause of the full-grown larva. Curiously, both *Eupsilia transversa* and *Conistra vaccinii* are not out until October, about the same time as in Sussex; perhaps as hibernating species they would not gain by extending the period through which they must survive to reach the spring.

A further tendency in Banffshire is for flight periods to be prolonged, with many species on the wing for ten weeks or more. Perhaps this is an adaptation to prevent too large a part of the population being at an especially vulnerable stage (whether adult or immature) during one of the lengthy spells of bad weather common this far north. Several of the Notodontidae, such as *Notodonta dromedarius, Eligmodonta ziczac,* and

Pheosia gnoma, though almost certainly single-brooded, fly from late May through to early August; *Autographa pulchrina* is abundant and flies from mid-June to late August or beyond (latest date 13.ix.91). The result of all the above factors is that some surprising combinations of species are out at the same time, so that a late August or early September catch will sometimes include *Xanthorhoe montanata, Colostygia pectinaria* and *Perizoma didymata* alongside *Chesias legatella, Aporophyla nigra,* and various *Xanthia* and *Agrochola* species.

Finally, increased distance northwards affects not only temperatures but also day length. At the latitude of Banffshire, there is no true darkness for about a month around the time of the summer solstice. This certainly affects the recorder — even on a cloudy night there is no point in turning on a light trap until after 24.00 hours BST at midsummer, and it might as well be turned off soon after 02.00 hours. On a clear night it may never get dark enough for the trap to work effectively. The effects on moths must be many and subtle. Nocturnal species presumably have less time than they would in Sussex to find a mate, lay eggs, or disperse. They must all fly more or less at the same hour in midsummer, rather than different species being active during different parts of the night, so if several species were using similar pheromones to attract a mate, confusion might be possible. The correspondingly longer day length could mean that resting moths are exposed to predators for more hours than they are in the south, offset maybe by the reduced number of insectivorous birds (both species and individuals) such as warblers this far north. Butterflies can continue on the wing much later in the evening, and commence activity earlier in the morning, than they can in the south. Lepidoptera with larvae which feed only at night might be at a disadvantage in the northern summer. In winter it is the daylight hours which are reduced compared with those of England, and this may benefit hibernating moths in their various stages by giving avian predators fewer hours to search for them; most insectivorous birds move out in any case.

Not many moths seem to have adapted to the reduced hours of darkness in summer by flying in daylight. One which seems to have done so at Ordiquhill is *Hepialus hecta,* which flies in numbers in marshes (where it must have a different foodplant than Bracken, which is absent) during the late afternoon sunshine, and often ceases before the butterflies go to roost. I have rarely seen it flying at dusk and never taken it at light here. Larvae of *Phragmatobia fuliginosa* are common in autumn and again in spring, yet no moths have been seen at light at Alvah or Ordiquhill, though they certainly come to light in the south of England (pers. obs. and Heath & Emmet 1979). They may be mainly diurnal in the north: D. Barbour has found mated pairs by day (pers. comm.) and often netted moths.

Much of the above is speculation: it would take detailed studies of individual species to find out how moths cope with the cool climate and short summer nights; I have merely tried to point out some of the factors

which may be involved. A clear indication that some adaption has taken place is provided by the moths' appearance — of the species found both in Sussex and Banffshire, about 40% are visibly different, at least in series, in the two areas. Between them, South (1961), Heath & Emmet (1979 & 1983) and, especially, Skinner (1984) illustrate or mention most of the Scottish forms. Others noticed in Banffshire include *Xanthorhoe fluctuata* forms with little contrast between the central band and the ground colour, *Perizoma alchemillata* often with two clear white "rivulets" on the forewing, and *Apamea remissa* in which f. *obscura* is a cold greyish brown and sometimes has the central area of the forewings slightly darker, giving a banded effect.

Fortunately the tendency is by no means always for species to be darker or duller in the north: in Banffshire *Chloroclysta citrata* is usually strongly variegated with white (belying its common name) to match the heavily lichened tree trunks, *Diarsia mendica* has an endless variety of most attractive forms often flushed with violet or rose, while *Noctua comes* appears in black, mahogany, an almost scarlet red, and a wide range of greyish and brown forms usually with dark stigmata, none of which precisely correspond with those I've seen in Sussex. It is smaller, narrower-winged, and does not peak until late August — subspecies have been erected on less-convincing grounds! In a way it is more surprising that other species look identical whether they are from acidic boggy heathland in Banffshire or the dry chalk downland in Sussex. I can detect no difference in *Xanthorhoe designata, Opisthograptis luteolata, Campaea margaritata, Noctua janthina, Orthosia stabilis, Apamea lithoxylaea,* or any of the Plusiinae, among many others.

It is often held that, although there are fewer species in the north of Britain than there are in the south, the number of individual moths is similar in an equivalently rich habitat. This certainly seems to be borne out in Banffshire. For instance, on a good mild April night a Robinson trap might attract 300 *Orthosia* — but of just three species. Certain groups are poorly represented this far north, like the Geometrinae, Sterrhinae, and the Lithosiinae (in spite of the profusion of lichens), whereas in terms of both species and numbers of individuals the Noctuinae and Plusiinae match if not exceed those on my former patch in Sussex. Although the present Banffshire total of macro moths is only 275 species (less than half that of Sussex even excluding the latter's rare migrants), they seem to be well distributed, so that it was possible to achieve a "garden" total of over 200 species at Ordiquhill in 1991 alone, with up to 58 a night in July. This might be thought unexceptional in the south, but was considerably better than I had expected.

There is some evidence that North-east Scotland as a whole is currently gaining species. Barbour (1976) mentions five apparently recent colonists in Banffshire, and my supplement suggests others; Aberdeenshire has also gained from range expansions (M. Young, pers. comm.). Discounting highly unlikely old records such as *Moma alpium* in Aberdeenshire, it

seems that *Eurodryas aurinia* and probably *Polychrysia moneta* (last recorded in 1958, in South Aberdeenshire) are almost the only apparent losses from among the resident macrolepidoptera of North-east Scotland this century. Many species reach the northern limit of their British range on or towards the south side of the Moray Firth, and would presumably be sensitive to very minor environmental changes here, whether or not these were caused by global warming. In Banffshire especially, air pollution from motor traffic, industry and urbanisation is relatively low, and while some natural habitat is inevitably being lost, the problem is not as great as in most of England, nor is agriculture as intensive. Hence this would be a good area in which to monitor any changes in the distribution of species if global warming proves to be a reality, as these would be less likely to be obscured by the other factors mentioned.

To leave overcrowded South-east England is a common ambition — but for a lepidopterist, might there be some regrets? While it is always exciting to move to a new area and catch unfamiliar species, even the most desirable of these are only "new" the first time one catches them. And, of course, many of my old Sussex favourites are absent. An autumn without *Agrochola lychnidis* and *Omphaloscelis lunosa* might appeal to most observers at first, but after a couple of years one starts to miss them. Here, *Dasypolia templi* is the autumn species which outnumbers all others combined. I also miss the elegant *Lithophane* group, but in exchange both *Xylena vetusta* and *X. exsoleta* are almost guaranteed at sugar on any reasonable night, sometimes rubbing shoulders on the same patch. Sugar seems to work better at Ordiquhill: there is less competition from sallow and ivy bloom, honeydew, ripe blackberries and also nectar flowers except when the heather is out. In autumn 1991 even a few *Autographa gamma* were regularly seen at the standard brown sugar and treacle mixture, contrary to the view that the Plusiinae never visit this (Bretherton, Goater & Lorimer in Heath & Emmet 1979), with a *Vanessa atalanta* by day. But of the gains and losses, the chance to record in an unexplored area outweighs all others. In my part of Sussex it was becoming difficult to find a new species for a tetrad; here in Banffshire some 10km squares have no records at all.

Who knows what might be found there?

Additions to the Banffshire list of Barbour (1976)

Satyridae

Pararge aegeria L. Reached Banffshire by 1983; spreading (Barbour 1986).
Hipparchia semele L. Several, Logie Head NJ56, 6.viii.86 (D.B.); Cullykhan Bay NJ86, 30.vii.92.
Aphantopus hyperantus L. Haddo NJ64 15.vii.84; common Inverkeithney NJ64 28.vii.86 (D.B.); singles Ordiquhill NJ55 1991-92. Spreading?

Thyatiridae

Tethea or D. & S. Male (stray?) to m.v. at Ordiquhill NJ55. 22.vi.92.

Geometridae

Idaea seriata Schr. Female at *Juncus,* Ordiquhill NJ55, 18.vii.92.
Operophtera brumata L. Common and widespread (S.N., D.B.).
Eupithecia pygmaeata Hb. Fairly common Ordiquhill NJ55, vi.92.
E. tripunctaria H.-S. Pupa under moss on elder trunk at Alvah NJ66, iv.90; singles to m.v. at Ordiquhill NJ55, 16.vi.90 & 7.ix.91.
E. fraxinata Crewe. Two to m.v. at Ordiquhill NJ55, 15.vii.90 & single on 5.viii.91. Bred *ab ovis* and apparently univoltine.
E. virgaureata Doubl. Fairly common at Ordiquhill NJ55, 1990-92. Bred *ab ovis* and apparently univoltine. Moths are pale with distinct markings including a white metathoracic spot edged above by a dark chevron.
E. lariciata Freyer. One to m.v. at Ordiquhill NJ55, 28.vi.92.
Abraxas grossulariata L. Aberchirder NJ65 (M.I.); larvae at Banff NJ66 in 1990.
Lomaspilis marginata L. Four to m.v. at Ordiquhill NJ55 during June 1992; cf. recent first record for Kincardineshire (Palmer & Young 1991). Previously absent from N.E. Scotland.
Semiothisa carbonaria Cl. Several near Ben Rinnes NJ23, 16.v.88. (D.B.)
Pseudopanthera macularia L. Marypark NJ13 25.vi.83; quite common Craigellachie to Dufftown NJ34 31.v.84 (D.B.) & 23.vi.91.
Lycia lapponaria Boisd. One at Inchrory NJ10 April 1985 (Young & Knill-Jones 1987).
Alcis jubata Thunb. One, Montcoffer Wood near Banff NJ66, 22.vii.90. (Recently spread in N.E. Scotland and now common in Aberdeenshire: M. Young pers. comm.).
Cleorodes lichenaria Hf. Singles to m.v. at Ordiquhill NJ55, 19.vii.91, 26 & 28.vi.92.

Sphingidae

Deilephila elpenor L. Male to m.v. at Ordiquhill NJ55, 19.vii.90, and five in 1992. "At present increasing its range in Scotland" (Heath & Emmet 1979).
D. porcellus L. Cullen NJ56 and Banff NJ66 in 1964 (M.I.); Ballindalloch NJ13 one, 22.vi.74 (D.B.); Aberlour NJ24 one, July 1977 (K.S.). Inland localities unusual in N.E. Scotland.

Notodontidae

Pheosia tremula Cl. Carnousie NJ64 (M.I.); pupa, Alvah NJ66 1990; fairly common 1990-92 at m.v. at Ordiquhill NJ55, where foodplant must be *Salix* as *Populus* spp. are absent.

Noctuidae

Agrotis ipsilon Hf. Immigrant: at Ordiquhill NJ55 ca. 14 in 1990 and 8 in 1992.

Rhyacia simulans Hf. Ordiquhill NJ55, 1-3 nightly at Buddleia 23.viii -8.ix.90 and single on 14.ix.90; singles in August 1991 and on 6.ix.92. Spread in N.E. Scotland as in much of England (Spence 1991, Skinner 1984), but may now be on the wane. The Ordiquhill specimens were identical to those seen in Sussex.

Anarta myrtilli L. Larva at Ordiquhill NJ55 produced moth on 4.vii.91. Apparently scarce in Banffshire; ironically, the last of the *Anarta* spp. to be added to the list.

Cucullia umbratica L. Infrequent singles at Ordiquhill NJ55, 1990-92. On 12.vi.92, a male was present at sugar from at least 23.10 to 23.55 hours, contrary to Heath & Emmet (1983).

Aporophyla lueneburgensis Freyer. Infrequent at Ordiquhill NJ55 in 1990 and 1991.

Agrochola lota. Infrequent singles at Ordiquhill NJ55 in 1990 and 1991, fairly common in 1992.

Atethmia centrago Haw. Heath & Emmet (1983) give "Banff"; up to 3 per night to m.v. at Ordiquhill NJ55 in 1991 only.

Cryphia domestica Hf. One to m.v. at Ordiquhill NJ55 on 3.viii.90; probably mainly coastal.

Apamea furva D. & S. One to m.v. at Ordiquhill NJ55 on 1.viii.91: either scarce or mainly coastal.

A. unanimis Hb. Two pupae under loose bark beside R. Deveron at Alvah NJ66, April 1990. (I consider this the normal pupation site *contra* most of the literature.) Single to sugar at Ordiquhill NJ55, 10.vi.92. Very local in N.E. Scotland.

Mesapamea secalella Remm. Ordiquhill NJ55 1992 (det. M.Y.).

Luperina testacea D. & S. Common on sandy hillock at Alvah NJ66, August 1989. Single at Ordiquhill NJ55 in 1991 and 1992. Mainly coastal.

Gortyna flavago D. & S. Aberchirder NJ65 (M.I.); up to 3 per night to m.v. at Ordiquhill NJ55, 1990-92. Dull forms, some lacking any orange tint.

Rhizedra lutosa Hb. Male to m.v. at Ordiquhill NJ55, 12.x.91, four on 3.x.92.

Heliothis armigera Hb. Importation: 2nd instar larva found at Ordiquhill on 24.x.91 in pack of mangetout peas imported from Zambia; moth emerged 21.12.91.

Pseudoips fagana F. Baud's Wood, Porknockie NJ46, 1964 (per M.I.).

Callestege mi Cl. Findochty NJ46 (S.N.) This record is over 50km further north than any shown in Heath & Emmet (1983), though intermediate sites are now known.

Herminia grisealis D. & S. A dozen pupae found under loose elder bark at Alvah NJ66 in spring 1990; moths tended to be rather dark. Single to sugar at Ordiquhill NJ55 on 17.vii.92. Another species which has very recently spread in N.E. Scotland (M. Young, pers. comm.).

Other notable records

Mormo mauro L. Last-instar larva found under loose bark beside R. Deveron at Alvah NJ66 in April 1990. Few sites known in N.E. Scotland; all are in rich and sheltered river valleys.

Apamea zeta assimilis Doubl. Singles to m.v. at Ordiquhill NJ55 on 20.vii.90 and 14.vii.91. Perhaps a low-density resident or wanderer over a wider area of the Scottish Highlands than present records suggest: cf. occasional singles at Oldmeldrum NJ82, N. Aberdeenshire, incorrectly listed by Palmer & Young (1991) as being migrants of the Shetland ssp. *exulis* LeFeb. (now known as *marmorata* Zetterstedt following revision by Mikkola & Goater 1988).

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FATHER AND SON: THE NEWMANS AND THEIR KENT BUTTERFLY FARM

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THE PASSING of L. Hugh Newman on 23rd January this year, only a few days short of his 84th year, would seem an appropriate time not only to give a brief account of *The Butterfly Farm,* or *Newman's Butterfly Farm,* as it was also known, founded by the father, but also to reprint an early account which appeared in 1915. This was chapter XIII, pp. 187-202, in *Wonders of Animal Life* by W.S. Berridge, FZS. This chapter shows that conservation, often considered a fairly recent concern, was being both thought of and practised at the turn of this century and it also gives an independent contemporary view of the working of the farm in its early days.

The farm was founded in 1894 by Leonard Woods Newman at his house and garden in Salisbury Road, Bexley, soon to be enlarged by the purchase of the adjoining house and the renting of an acre of nearby woodland, although this had to be given up in the 1920s due to vandalism. The farm remained at Bexley until 1967 when the son, L. Hugh, had retired and it was sold to Michael Dickens who moved it to Bilsington, near Ashford, Bexley having by then ceased to be a quiet and pleasant country village and become a high density commuter suburb of London. Although not the first "Butterfly Farm" — that honour being claimed by H.W. Head who had set one up at Scarborough ten years earlier — Newman's became the best-known and was usually known as *The* Butterfly Farm. This was most likely due not just to his close proximity to London, but to his close relationship with illustrious men who became his clients, such as Robert Adkin, who guaranteed him a few years' income on his starting up; Walter and Charles Rothschild, whose Hill Museum at Tring he supplied; E.A. Cockayne, P.M. Bright, S.G. Castle Russell and other well-known collectors of the time. With these gentlemen he could converse on equal terms.

Newman brought to the profession of dealing in insects three things: integrity, large-scale rearing for the majority of his stock; and the encouragement of looking at live butterflies and their release back to the wild. At the time of the farm's founding trading in lepidoptera had a bad reputation with blatant fraud and greed being rife, examples of which can be found in the early volumes of this journal. Our founder, the usually ascerbic and anti-trade J.W. Tutt, gave approval to Newman's form of trading.

The farm concentrated on British and European species, with Newman making it quite clear in his lists that he dealt only in genuine British species and when Continental examples were offered their provenance was clearly stated. It was only in later years that a number of exotics, mainly Silkmoths, were included.

In the early days of the farm there was a steady demand for varieties and aberrations of butterflies from the richer specialist collectors which Newman set out to supply, spending many hours searching for them in the wild, hoping, and often succeeding, in breeding from them. Unlike many other dealers of the time he did not "over-collect" and as the account below shows, he had a keen interest in conservation, even moving a Marbled White colony to a private field from whence it could not be over-collected. It is difficult for many of us today to fully appreciate the sheer abundance of butterflies in the early years of this century. For instance, in 1918, blue butterflies could be seen on Royston heath in their tens of thousands. For these bred and caught varieties Newman built up a regular clientele, but it was the common bred specimens, supplied in their thousands to the keen youngsters and less well-off collectors, unable to visit the often distant localities where such things as the Kentish Glory moth occurred, which supplied the bread and butter of the farm. His reputation, both here and abroad was such that many lacunae in Museums, particularly in the United States, were supplied by him.

A regular contributor to this and other journals, L.W. was an observant and knowledgeable entomologist. He collaborated with H.A. Leeds to write and produce his only book, *A Textbook of British Butterflies & Moths,* in 1913, a book that is still of use today and much sought after; indeed it has only just been succeeded and updated, using the same style of layout, by Emmet & Heath's *Moths & Butterflies of Great Britain & Ireland,* Vol. 7, Part 2. In the same year Newman also introduced his famous "relaxing tin"; made in either tinplate or the more durable zinc, the active ingredient was crushed and ground laurel leaves, with an additive to keep it moist and to keep mould away.

Until fairly recent years most collections ended up at auctions, many collectors preferring, after they were gone, that their rare species and varieties should be "circulated" to the coming generation rather than ending up in a museum or destroyed by the ravages of time. Newman soon entered the auction rooms, buying not just for his clients, but the thousands of common lepidoptera in long series for his stock, which is why, between the wars, a complete case of British butterflies or a few hundred moths could be bought for a few shillings (in 1935, 100 common moths 7½p!). Surely a better fate for a collection than being left to damp and museum beetle and many of those who bought them used them as a basis for naming their own subsequent collections. In time the Newmans, particularly the son, took over the cataloguing and arrangement for the auctions.

L. Hugh, the son, took over the farm in 1941, by which time the market had changed from supplying the richer collectors with varieties and rarities to the much wider circle of schools and colleges who required common and showy insects for teaching and research. An innovative feature for the time was the supply of live butterflies, both for study in the classroom and for

release into the wild. The expansion into this market was greatly facilitated by L. Hugh having a natural bent for authorship and journalism, writing many books and articles of a popular nature as well as being a well-known broadcaster on the BBC where he and Peter Scott were the founders of the very popular *Nature Parliament*. Requiring many photographs to illustrate his books L. Hugh set up a photographic agency which has now become the well-known Natural History Photographic Agency.

It was to the Newman farm that governments and personalities went for advice and help on matters concerning lepidoptera. While today insects are reared in their millions, particularly in the United States, at the time it was only the farm at Bexley that had both the knowledge and facilities to produce them on a large enough scale to meet requirements. These varied from breeding Camberwell Beauty butterflies for Sir Winston Churchill to release into his garden at Chartwell and attempting to re-establish the Black-veined White there, to supplying the New Zealand Government with Cinnabar moths to act as a biological control against the ragwort devastating their sheep pastures. This was done on two occasions and involved tens of thousands of larvae being reared and the pupae shipped to New Zealand. In fact, so great was the requirement that to supplement their own rearing the farm offered to buy them in from amateurs and some readers may even remember supplying them, perhaps receiving some choice items in exchange. In 1951 the farm was responsible for setting up and supplying a butterfly house at the Festival of Britain.

The account by Berridge, given below, shows that the thinking on conservation and collecting was much the same as it is today. Since then, of course, there has been colossal destruction of habitat that has fragmented populations and made necessary the legislation that prevents any collecting of some species, formerly so common they could support a horde of dealers or collectors descending on a particular habitat. It gives an account of rearing methods that have hardly changed today except that plastic, nylon and aluminium will have replaced the iron, wood and cotton used in the past.

"

A KENTISH BUTTERFLY FARM

WHETHER it is a desirable hobby to collect butterflies and moths is a question concerning which there is a great difference of opinion. Although there is much to be said, both in favour of, and against the practice, there can be no doubting that mankind is not justified in exterminating the wonders of creation merely to satisfy a craze for collecting.

Unfortunately, we know only too well that it is the exceedingly rare creatures which are looked upon as the most desirable prizes, and are the most sought after; frequently with no other justification than to satisfy the dictates of commercial greed. It does not do, however, to tar all people with the same brush, and although it is not often that we come across a

naturalist who combines the work of collecting with that of conserving, nevertheless, the writer has the pleasure of knowing of one who, having established a butterfly farm, carries on a lucrative business as an entomologist, and also devotes much time to the preservation and ultimate welfare of the living creatures of which he is an enthusiastic admirer.

The work is carried on at a pretty little town in Kent, situated twelve miles from Charing Cross, and, needless to say, a farm of this description could only be managed successfully by a keen lover of nature, endowed with plenty of patience and knowledge of the habits and needs of insect life of all forms and in all stages; and such we find the owner, Mr L.W. Newman, to be.

Although the farm is run on commercial lines in order to be self-supporting, yet it is easy to estimate the good work emanating therefrom for the protection of our beautiful butterflies and moths by stating one incident that happened a few years back.

As most readers will know, many butterflies are extremely local in their habits; in fact, their range may be so restricted that a species will be found in abundance in one field, yet in an adjoining field, in all respects seemingly similar, not one can be seen; while, moreover, during one year a certain kind may be quite plentiful, whilst in the following season it is conspicuous by its absence; such a case being exemplified a few years ago by the almost entire absence of the beautiful Red Admiral butterfly.

When, however, insects appear in numbers in a locality, they are much persecuted and sought after by collectors; and at the time in question a large number of Marble-white butterflies were to be found in a field not many miles from Mr Newman's farm, with the result that no less than seventeen professional collectors soon came down from London to wage war against them. Seeing that the insects were likely to be exterminated in this particular spot if such wholesale slaughter went on month after month, Mr Newman resolved to take matters into his own hands and remove the entire colony himself; but instead of killing them and storing them in boxes, as would otherwise have been their fate, he let them loose in another unknown and private field close by, and had the satisfaction of seeing them settle down permanently in their new home. Although the work of removing took two years to complete, Mr Newman must have felt considerable satisfaction in having the means of saving them from annihilation.

Another good work in connection with the farm is the transferring of insects collected in one place to another where they are locally scarce, by which means their chances of multiplying are greatly increased; whilst eggs and caterpillars are also placed in suitable spots to populate the country. Had such a method been put into practice in earlier days, it might have been that the Large Copper butterfly, a species never having been found outside Great Britain, and which became extinct to the world about the

year 1849, might still be with us. But the greed of collectors, goaded by the high prices offered for this rarity during the days when it still lingered on in this country, proved insurmountable; although, doubtless, to some extent, the draining of the Fen districts, where it bred, was partly responsible for its disappearance.

To give an idea of the high prices that butterflies and moths command, especially if they are rare or unusual varieties, the following figures resulting from a sale of entomological specimens may prove of interest. The highest figure was £15 for an Emperor moth which was of a somewhat unusual blackish-brown colour; whilst a dark green fritillary changed hands for £5.5s. (£5.25p). A Painted Lady (rayed variety) sold for £12.12s. (£12.60p); a White Admiral (black variety) for £1.12s.6d. (£1.62½p); a male Clifton Blue of a peculiar lead colour for £4.6s. (£4.30p); whilst a Small Copper, which had the distinction of possessing spots upon the forewings joined to the margins, took the fancy of one bidder, who bought it for £5.10s. (£5.50p).

The farm has now been in existence for a number of years, and its work extends to many countries, orders being received from France, Germany, Russia, New Zealand, America, etc. Not long ago, Mr Newman sent out to the last-named country four hundred Peacock butterflies, where it was hoped they would become established as an addition to the native species.

No one can deny that butterflies and moths are beautiful to look upon, but, unfortunately, in the larval stage they give the agriculturist just cause to complain; for it is hard to have the work of many months set at naught by the ravages of caterpillars, which can even go so far as to become a veritable scourge. It is in such cases that the farm offers another phase of undoubted usefulness, and Mr Newman tells of an order from a laboratory for thirty thousand eggs, in order that experiments might be made for the purpose of discovering the best means of rendering them infertile, and so assist the farmer to suppress the too persistent attentions of the larvae which, in the ordinary course of events, would emerge therefrom.

In a wild state a butterfly or moth has many enemies to contend against. Its eggs, in the first place, are readily devoured by slugs and earwigs; whilst ladybirds destroy numbers of young larvae. Moreover, the ravages of the ichneumon fly (which lays its eggs in the bodies of larvae, and these again hatch into grubs which feed upon their living host) are responsible for a high mortality.

Although moths and butterflies lay a very large number of eggs during a season, only about 2 per cent reach maturity under normal conditions; but records of those laid at the farm show that fully 75 per cent hatch out and reach the state of perfect insects; thus proving that conditions are highly beneficial, inasmuch as they protect them from the danger of contact with their natural enemies. Needless to say, to arrive at such a high state of perfection every precaution is taken to protect the large stock of larvae, which are enclosed in muslin bags or "sleeves" placed over the foliage

upon which they feed; the trees or bushes themselves, in many cases, again being protected by large wire cages.

Much experience is necessary in dealing with the various species of butterflies and moths which inhabit the farm, especially as many of them, when in a larval state, hibernate during the winter months and do not assume the form of perfect insects until the second season of their existence. For some of these it is necessary to prepare special soil, consisting largely of moss and dead leaves, wherein they can hide and pass the winter; whilst others prefer to fix themselves to the stem of trees; the Purple Emperor being a notable example. Then again, some butterflies hibernate, such as the Peacock and Comma, and live to see their progeny attain maturity; but others, on the other hand, only live for a period of from seven to ten days.

The weather is a matter for serious consideration in butterfly-farming as with other kinds of farming, and, in wet seasons, it often happens that large numbers of larvae perish through dysentery. This entails the disinfecting of cages and muslin sleeves in which they were kept, for were it not done other broods would become infected and suffer accordingly.

As caterpillars have an abnormal appetite and spend a great deal of their time in eating, a large and varied supply of food has to be at hand for their needs. Although in some cases larvae will feed readily upon several different kinds of plants, others are far less accommodating and must be supplied with their pet dish; that of the Orange-tailed clearwing moth, for instance, being the wood of the wayfaring tree.

Whenever possible, the food plants are grown at the farm, and the larvae allowed to feed upon the living vegetation; but, in order to supplement the

A corner of the garden where the food plants are grown.

home-grown crops, a heavy toll is taken of the wild plants from the immediate neighbourhood; for one would hardly wish to rear nettles (the food for the larvae of the Peacock butterfly) in a garden given up to choicer stock, of which violets and various grasses are to be seen growing within the shelter of large glass cases. For the successful rearing of the larvae, a knowledge of gardening is a necessary accomplishment, and different plants requiring varying soils in order that they may flourish; and for the trefoils, upon which certain larvae feed, a chalk-bed has to be prepared.

Feeding the butterflies with honey-water.

When the perfect insects appear, the work attending their feeding is of a different nature. Leaves and grasses are no longer required, but in their stead quantities of freshly cut flowers have to be provided.

When one considers, however, that a single butterfly will visit hundreds of flowers during the course of a day in order to extract the nectar therefrom, it will readily be understood that it is impossible to supply sufficient cut blooms for the numerous colonies of insects from those grown at the farm, and that their food must be supplemented by some other means. A mixture of honey and water is, therefore, prepared; the liquid being sprayed over the gauze coverings of their boxes or cages, or upon pads of cotton-wool. It is interesting and surprising to notice how quickly the insects get accustomed to this artificial mode of feeding, and fly up to the gauze for their food.

The work of the farm varies largely from month to month, the busiest time being that of June and July, when Mr Newman and his assistants sometimes work for eighteen hours a day. Night collecting is a necessary occupation when fresh stocks of some of the night-flying moths are required for breeding purposes. On these occasions Mr Newman, and usually one companion, leave the farm at nine o'clock in the evening, and do not return until about four o'clock in the morning.

The most interesting work in connection with the repopulating of the farm is that known as "assembling," and as the writer was able to be present to witness this proceeding on one occasion, a short account of the same may be of interest.

"Assembling" is only undertaken when it is desired to procure male specimens, and, by preference, a fine sunny day is chosen, when a number of insects are likely to be abroad.

Having decided upon the species which it is hoped to obtain, a mature female of the same kind is taken from one of the cases in the farm and placed in a small box, which is then conveyed to a likely spot, often necessitating a bicycle ride of many miles. When the destination is reached, the box containing the insect is placed upon the ground or upon any other suitable spot, and all that one has then to do is to sit down and wait patiently for the appearance of the males. One may have to wait an hour or more or only five or ten minutes, for everything depends upon whether there are many insects of the given species in the neighbourhood; but if the situation has been well chosen success invariably attends.

On the occasion upon which the writer was present, a couple of female Vapourer moths were made use of. These are one of the commonest of moths, breed freely in our London parks and squares and are curious in the fact that the females are wingless. For this reason it was not necessary to enclose the moths in a box, and the two were placed upon a post and left hanging from the cocoons from which they had emerged but a little while previously.

Five minutes went by while we waited patiently for the arrival of the

males, and nothing appeared; but in about eight minutes' time a small brown moth was observed to be fluttering about in a circle at a distance of a dozen yards or so from the females. It was then only a matter of about a minute more before the new arrival discovered its companions, when it immediately settled down beside them.

It is an interesting and debatable point as to how the males are able to discover the presence of the females. Mr Newman puts forward the theory that "vibration," after the manner of wireless telegraphy, plays an important part; whilst other naturalists consider that the phenomenon is accounted for by the sense of "smell."

Possibly the latter explanation is the more probable, for it is a known fact that the male insects are equally attracted by an empty box which had lately contained a female, as by the presence of the lady herself. On the other hand, it has been proved that should a male insect have broken or damaged antennae, it is quite unable to locate the female; a state of affairs which tends to support the suggestion that the creatures are guided by vibratory waves felt through those organs, unless, of course, their sense of smell is in any way conducted through their antennae.

During the winter months, the work in connection with the farm is not so arduous as at other times, although sufficient occupation is found to keep all employed in the making of cabinets, setting-boards, new cages for the larvae, and postal boxes; whilst the washing and mending of the muslin bags, and the making of new ones for the next season, is another item that has to be attended to.

Having reviewed the many and various phases of the work which goes on at the farm, a short description of the farm itself will not be out of place.

It is divided into two sections, namely, the "home farm," and a private wood or "reserve depot" situated in the immediate neighbourhood.

The home farm is of considerable extent, Mr Newman occupying two adjoining houses, with large gardens attached thereto, which have been converted into one establishment. Here are to be seen a number of glass-houses, as well as numerous large glass-covered boxes or cages containing growing violets, grasses, and various food plants for the larvae which roam about therein at will. The most striking feature, however, and one which gives a very curious appearance to the landscape, is a number of muslin bags, surrounding the bushes upon the ground and dotted about the branches of the trees high up in the air, on which are tied labels giving the names of the various inmates.

A large portion of the garden, containing trees and shrubs, is enclosed in a huge wire cage, for, owing to the nature of its inhabitants, the farm proves an unfailing source of attraction to numerous birds which, if left to their own devices, would soon pick holes in the bags and make a bountiful feast upon the larvae. Cats, it may be mentioned, have also to be rigorously excluded, not because they eat the caterpillars, but on account of the damage they are liable to render to the muslin bags.

A large sleeve containing larvae.

The private wood is of much greater extent than the home farm, and is left entirely in a wild and natural state. Here can be seen what Mr Newman states to be the largest breeding cage for Lepidoptera in the world, which is of such ample proportions that there is plenty of room for a man to get inside and walk about.

Other features to be noticed are a number of movable cages, so made that they can be raised and fixed to any height, and tilted to any desired angle so as to enclose any portion of a bush or branch of a tree. For those larvae which feed upon wood, a cage has been built around the trunk of a tree.

Even with the most careful housing, it is found necessary to stand the legs of all cages in bowls of water in order to prevent ants, earwigs, woodlice, and other objectionable visitors from crawling up and doing damage.

Mr Newman is certainly to be congratulated upon his enterprising work, and although, as previously stated, the farm is self-supporting, there is cause for satisfaction in knowing that this is made possible by the rearing of insects, instead of by the wholesale and indiscriminate slaughter as undertaken by so many collectors who roam the country armed with net and killing-bottle, and stay their hand for no man as long as they are able to add another pinned specimen to their store-boxes."

AN ASSOCIATION BETWEEN THE SPIDER, *THERIDION PALLENS*, AND EGG CLUTCHES OF THE TWO SPOT LADYBIRD, *ADALIA BIPUNCTATA*

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Introduction

THE SPIDER *Theridion pallens* inhabits both cherry (*Prunus vulgaris*) and lime (*Tilia* x *europaea*) trees, females being conspicuous in June and July when they may frequently be found in the vicinity of their large, white egg case. Coexisting with this species on both lime and cherry is *Adalia bipunctata,* the two spot ladybird. During a study of *A. bipunctata* egg clutches, it was noted that there appeared to be an association between the siting of ladybird egg clutches and spider egg cases. We here present evidence for such an association and speculate as to its cause.

Method

Branches/twigs of cherry, at the foot of Box Hill, Surrey, were selected on the basis of whether they possessed either a spider with egg case, or a coccinellid egg clutch, or both. Selected branches were pruned at the next node toward the base of the branch and retained. Each leaf on the branch was scored for the presence or absence of coccinellid eggs and spider egg case. The eggs of the coccinellids were allowed to hatch and develop to maturity to allow identification.

Results

There is an association between the sites of brooding *T. pallens* and *A. bipunctata* egg clutches (Table 1). Brooding female *T. pallens* are found more frequently on leaves with *A. bipunctata* egg clutches present than would be expected by chance ($\chi^2_{(v=1)} = 44.22$, $p<0.001$). All individuals from the 36 coccinellid egg batches allowed to develop to maturity were *A. bipunctata,* as were all adults sighted on the tree.

Discussion

How could an association between brooding *T. pallens* and *A. punctata* egg clutches occur? Three explanations appear possible. Firstly, *A. bipunctata* females may prefer to oviposit on leaves where brooding *T. pallens* exist. Secondly, *T. pallens* females may choose to place their egg cases on leaves where *A. bipunctata* egg clutches are found. Lastly, the association between the sites of egg clutches may not be the result of interaction between these species, but of a similarity in the oviposition site preferences of *T. pallens* and *A. bipunctata.*

Table 1: The incidences of co-occurring and single brooding *T. pallens* and *A. bipunctata* egg clutches on leaves of *Prunus vulgaris*.

	A. bipunctata egg clutch present	*A. bipunctata* egg clutch absent
T. pallens spider and egg case present	12	19
T. pallens absent	74	1123

An examination of the ecology of these two species may suggest the possible causes of such behaviours. An intuitively persuasive argument may be put for a preference of *A. bipunctata* adults for laying near *T. pallens* females. *Adalia bipunctata* egg clutches suffer high levels of predation by conspecific larvae and adults (Mills 1982), and lower levels of predation from other coccinellids. A preference by *A. bipunctata* for oviposition near to brooding *T. pallens* might evolve if *T. pallens* females reduced the threat of cannibalism or predation by other coccinellids. Such a reduction is possible: third instar larvae were observed to become ensnared, but not trapped, in the scaffold webbing of the spider when wandering round the leaf. This may act as a deterrent to any further intrusion onto that particular leaf.

The observation that brooding *T. pallens* tend to be located towards the axial portion of the leaf would augment such an effect. The protective behaviour of the female towards her eggs would reinforce such an effect. Adults of other species of the genus *Theridion* are known to be highly defensive of their young, attacking would-be predators (Bristowe 1958). Care of egg case and young spiderlings is known to increase brood survivorship in others, through a combination of feeding and guarding behaviour (Gillespie 1990; Ruttam 1990). The second possible cause of the association, the selection of leaves containing ladybird egg clutches by brooding *T. pallens,* seems less likely. This would require the brooding *T. pallens* female to move her case as egg clutches hatched, the development time of coccinellid egg clutches being short compared to that of the spider. Though such movement may be observed on disturbance of the brooding adult (Sands, pers. obs., Francis, pers. obs.), it is likely to be costly. In addition, there is no obvious benefit of the association. The ladybird egg clutch is a target for predators, and the only apparent benefit of the association could be the use of the neonate ladybird larvae as food. This has not been observed. The third hypothesis, that the egg clutches co-occur because of similar oviposition site preferences, although intuitively

unlikely, is possible. If this be the reason for the association, then the reason for such preferences will be intriguing.

This system is clearly one which warrants more study. Behavioural studies, observing the oviposition preferences of *A. bipunctata* females in the presence and absence of brooding *T. pallens,* and vice-versa, would provide some information as to proximate cause of this relationship. When this is done, the ultimate cause of the behaviour, briefly speculated above, may be investigated more fully.

Acknowledgements

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Further observations on the voltinism of the Oak Nycteoline, *Nycteola revayana* Scop. (Lep.: Noctuidae)

A number of correspondents have recently noticed the habit of this species of appearing in late June and July, thus raising the question of whether it is uni- or bivoltine (Goodey, *Ent. Rec.* **103**: 330, and West, *Ent. Rec.* **104**: 271).

In Surrey, for which county I am collating records for a county list, this trend is also apparent. A graphical analysis of some sixty dated records for the last two decades shows a very strong peak emergence in the middle of July. In addition to this there are two smaller peaks representing post-hibernation examples in April and pre-hibernation moths in late September. Significantly there is a complete absence of records for the middle of June, and for late August and early September; the June gap corresponding with dated records for the larva. In 1992 I had a similar experience to Boot (*Ent. Rec.* **104**: 272) when I beat a freshly emerged female from oak at Bookham Common on 20th June; 1992 was, in its first half, a very early year in this area. Thus we have a moth which hibernates as an adult, produces larvae which are full grown in June and which emerge in July, disappears during late August and early September and is then

found again in late autumn prior to hibernating. This suggests two hypotheses; that the species is bivoltine, or that during the late summer the adult aestivates only to appear again before hibernation.

What is needed, of course, is records of larvae for September, and for the Surrey survey period I have none. I should add though that, to my shame, I have only twice found the larva and like most lepidopterists do far too little larva beating. Recently, while searching the earlier numbers of the *Entomologist's Record,* I have come across a couple of relevant references. In an article on collecting in north-east Surrey there is reference to a larva found by Cockayne and Williams in August of 1923 (Williams, *Ent. Rec.* **43**: 42), and in notes on British moths, E.E. Green describes larvae of *revayana* as being abundant on oaks in July and — again — in September, implying two broods (Green, *Ent. Rec.* **53**: 29). His records relate mostly to the Camberley district, and presumably to the 1930s. So, there is certainly some evidence that in the early decades of this century the moth may have been double brooded, and that again recently it is possibly so. The flight period chart in *Moths and butterflies of Great Britain and Ireland* (Vol. 7: 2) bears little relation to the species' behaviour, at least in Surrey. Anyone who has recent records of larvae for September should be in a position to shed more light on the matter.— GRAHAM A. COLLINS, 15 Hurst Way, S. Croydon, Surrey CR2 7AP.

AMPEDUS TRISTIS (LINNAEUS) (COLEOPTERA: ELATERIDAE) IN BRITAIN

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A. TRISTIS is one of the least recorded British elaterids, known from only a very few sites in the Scottish Highlands. Its status was graded as RDB3 — "Rare" in Shirt (1977) subsequently upgraded to RDB2 — "Vulnerable" (Hyman & Parsons 1992). On a visit to Scotland towards the end of August 1990, we were fortunate enough to find adults and larvae at one of its known localities and at one new locality. This paper presents our observations within a summary of what is known about the insect in Britain.

Distribution and occurrence

A. tristis was discovered in Scotland by Weaver who announced his find in a letter read out at the meeting of the Entomological Society of London on 2nd May 1853 (see *Zoologist* 11 (1853): 3921). Weaver made no mention in his letter of the habitat or of the locality in which he found the beetle but Murray (1853) gives the site as "Black forest (*sic*), Rannoch". From specimens we know of in collections and from the comment of Walker (1934), quite a number of examples appear to have been taken at Rannoch about that time by Messrs Foxcroft, Turner and Weaver. Harding (1857), writing from Kinloch Rannoch, reported finding the species, apparently locally, but most of the coleopterists who visited the area in the next 50 years or so do not appear to have come across the species for it is not mentioned in their reports (see Rye & Sharp, 1865; Rye, 1866; Beare (and Donisthorpe), 1900; Walker, 1900; Wood, 1903). Indeed, we can find no further published records for it at Rannoch until that of Fergusson (1918) who found a specimen at the Black Wood saw mill at Dall during July 1914. It does not seem to have been noticed again at Rannoch for another 60 years until a specimen was beaten from pine foliage in the Black Wood in 1974 (Crowson, *in litt.*); another was swept in the same area by Mr R.M. Lyszkowski in July 1978.

We visited the area generously indicated by Mr Lyszkowski on 9.vi.90 and 10.vi.90 (J.A.O.) and again on 19.viii.90 (H.M. and J.A.O.). On the first two of these visits, extensive sweeping of ground vegetation and beating of pine and birch foliage failed to uncover any adults but two larvae which produced *A. tristis* adults in April 1991 were dug out of a very old pine log. On the third visit, two adults were found in fallen pine trunks, together with a number of larvae. Two of the latter produced adults in August 1992 but most of them failed to adapt to captivity.

Hyman & Parsons (1992) refer to *A. tristis* from Deeside (V.C. South

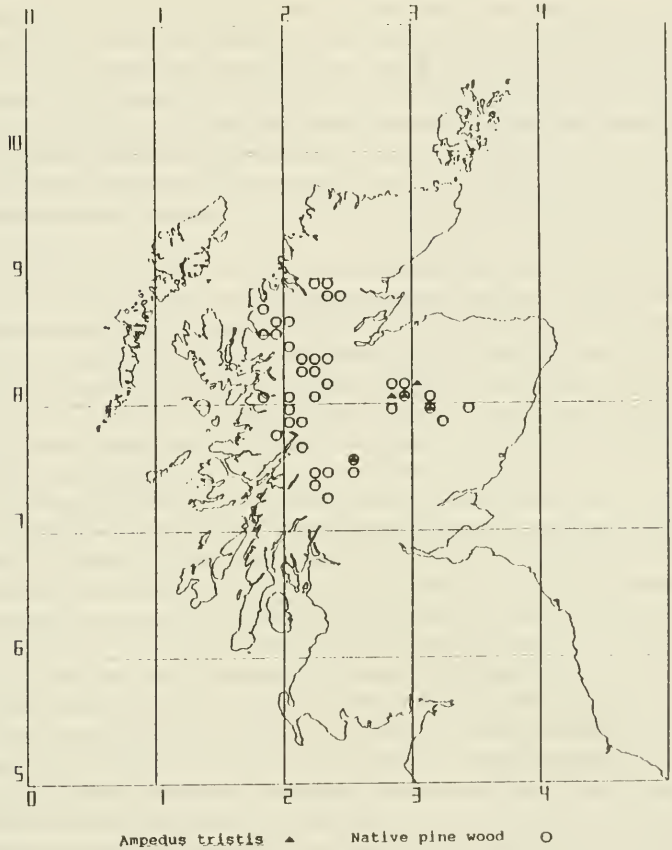
Aberdeen) but our efforts to trace the source of their statement have not been successful. However, the new site which we found for *A. tristis* is in the same vice-county, in the Forest of Mar near the Linn of Dee. We visited the area on 21.viii.90 and found one adult and a number of larvae in a rotten, fallen pine trunk. We are unaware of any other records for Deeside. Other larvae taken in rotten pine on previous visits to the Forest of Mar had all turned out to be *A. balteatus* (Linnaeus).

On Speyside, *A. tristis* has been recorded from two areas — Nethy Bridge and Rothiemurchus, including the area around Loch an Eilein. Ashe (1934) reported beating one from birch near Nethy Bridge in June 1934 and finding others in the same area at a later date (Ashe, 1952); there are two specimens in the Manchester Museum taken by him at Nethy Bridge at the end of July 1946. Kevan (1938) recorded two specimens taken at Loch an Eilein in mid-July 1937 and another two at the same site in mid-June 1944 (Kevan, 1944). Harwood (1944) recorded single specimens from the same locality in mid- and late May 1943 respectively and subsequently collected a short series from old spruce logs; there are specimens taken by him in April and May 1944 labelled "Aviemore" in the Manchester Museum, in Tullie House Museum, Carlisle and in the collection of our friend Mr A.A. Allen. Loch an Eilein is only 4km from Aviemore at its nearest and it is very likely that this was the actual site of Harwood's "Aviemore" specimens.

We are aware of four other, unpublished records from Speyside. In 1905, Mr C.G. Lamb took a specimen at Nethy Bridge, now in the British Museum (Natural History); Mr P. Skidmore took an example from a stump at Nethy Bridge in May 1960; there is a specimen labelled "Rothiemurchus, August 1964" in the collection formed by Mr A.M. Massee now in the care of the British Entomological and Natural History Society and Dr B. MacNulty took a specimen from under the bark of a pine stump near Loch Morlich in July 1965. We have looked for adults at these and other Speyside localities on many occasions over the past ten years without success. A number of *Ampedus* larvae in dead pine and a few in spruce that we have come across in the area have all turned out to be those of *A. balteatus* or *A. nigrinus* (Herbst).

Habitat and life history

The localities at which *A. tristis* has been found in Britain are without exception areas of native pine wood or areas close by. The actual sites (in terms of 10km squares) of native pine wood and of *A. tristis* are plotted in the figure. Most of the records for Speyside lack an O.S. grid reference, which introduces some uncertainty in assigning them to particular 10km squares. With this proviso, three out of five sites for the beetle coincide with sites of native pine and the other two are in adjoining squares, in areas with long-established, managed Scots pine contiguous with native pine wood.



Map showing British distribution of *A. tristis* and of native Scots pine by 10km squares. Map shows 100km O.S. grid lines. Data relating to Scots pine from Perring and Walters (1976).

In the light of this distribution it is not surprising that there are references in the literature (e.g. Sharp 1871) to a direct association of the beetle with Scots pine — *Pinus sylvestris* L. (termed by some "Scots fir" or "Scotch fir"). Fergusson (1918, 1934) reported that his specimen was resting on a log of Scots fir". The specimens mentioned by Kevan (1938) were recorded on "fir stumps" but it is clear from a later article (Kevan, 1944) that he was using the term "fir" as an abbreviation for Scots fir, i.e. Scots pine. Ashe (1952) reported that he found most of his specimens under the bark of Scots pine and, as mentioned above, our specimens (adults and larvae) were dug out of old trunks or logs of Scots pine.

What is perhaps strange are the statements of a number of authors that the beetle in Britain is associated with spruce rather than with pine. Norway spruce (*Picea abies* (L.) Karsten), which is ordinarily what is meant by spruce, arrived in Britain (at least in post-glacial times) about 1500. Fowler (1890) states that the beetle occurs "under the bark of spruce fir" and the association with spruce is repeated by Joy (1932), by Philp (1991), by Hyman & Parsons (1992) and by Bullock (1992), apparently all copying from previously published statements. We have, however, been unable to uncover the evidence which led Fowler to make his statement. Indeed, the only publication we have found dealing with the habits of this beetle between Weaver's original announcement and the publication of Fowler's handbook is that of Sharp (1871) who dealt with the species under the title "The coleoptera of Scotch Fir". Presumably, information about the beetle at Rannoch was passed by word of mouth or in private correspondence. It seems likely that Fowler simply took the term "fir", used by many entomologists in those days, to mean "spruce fir" rather than "Scots fir", i.e. Scots pine. He appears (Fowler, *op. cit.* p. 127) to have made exactly the same error in dealing with the lycid, *Dictyoptera aurora* (Herbst) for which he gives an identical habitat, viz. "under bark of spruce fir" whereas, in Britain anyway, the beetle is normally found in close association with old Scots pine. It must be remembered also that most, if not all, the early captures were made by professional collectors who may not have wished to give out precise habitat details.

Curiously, long after Fowler wrote his handbook, and some time after Joy wrote his, evidence that the beetle may indeed develop in spruce was reported by Harwood (1944) who recorded at Loch an Eilein "a short series from decayed spruce logs". It may be noted that there are still spruce trees in the area and dead spruce trunks though we have been unsuccessful in finding adults or larvae of *A. tristis* at that site. Harwood does not mention larvae but the finding of adults in logs in October means almost certainly that the larvae developed in the same logs. Nevertheless, in view of the findings of others including ourselves, we regard this occurrence in spruce in Britain as an exception though it could possibly become a more frequent finding in the future should spruce forests come to replace native pine trees. Abroad the beetle is recorded from unspecified conifers.

An association with birch is mentioned by Hyman & Parsons (1992) but this probably refers to a specimen beaten from birch (Ashe 1934). Certainly, we have not found any reference to the beetle breeding in the wood of birch or any other deciduous tree, at least in Britain.

The adults and most of the larvae which we found at Rannoch were in the trunks of dead pine trees, lying on the ground or supported a little above ground level by dead branches. Most of the timber lacked bark and consisted of a layer of fairly soft wood, easily penetrated with a knife, around a core of much harder wood. The larvae tended to be where the

softer wood met the harder core. It is difficult to estimate with any precision for how long the trunks had been dead but it would seem that most of them had been dead for between five and fifteen years. However, one very large log, in which two larvae (subsequently reared) were found, had been lying in its position for at least 30 years according to information supplied by the Forestry Commission.

Conditions at Linn of Dee were different for the adult and larvae were in a log composed of uniformly "cheesy", red-rotten wood of indeterminate age.

At both sites, the adults appeared to be in pupal chambers formed just under the surface of the wood in a position where they would receive the most irradiation from the sun. As far as associated species go, larvae of *Melanotus villosus* (Geoffroy) (= *erythropus* (Gmelin)) were also present in some of the logs and one larva found in wood with larvae of *A. tristis* produced an adult *A. nigrinus* the following year. Some of the logs harboured larvae of long-horn beetles, most likely those of *Rhagium bifasciatum* Fabricius.

From the very limited observations made to date, and from knowledge of the life histories of other *Ampedus* species, we would estimate that the length of life cycle of *A. tristis* lies between three and six years. It is likely that the larvae of *A. tristis,* like those of other *Ampedus* species, are opportunistic carnivores and the length of their life cycle may well depend on availability of food. At what stage of decay dead trunks or logs first attracts females for oviposition remains to be determined.

Our findings of adults in pupal cells at the end of August suggests that the larvae pupate towards the end of July as do most other species of *Ampedus* known from Britain. In captivity, and presumably also in the wild, the adults remain in their pupal chambers until the following summer. Adults have been recorded at large logs from early May until July or possibly August. In captivity (in the south), adults have emerged out of the wood in which they pupated in April but this appearance, earlier than in the wild, was probably due to their environment being warmer than in their natural habitat.

Acknowledgements

We thank Mr Wield, Forestry Commission and Dr Rosalind Smith, Scottish Natural Heritage, Perth, for permission to search for *A. tristis* in the Black Wood at Rannoch, and Dr Nigel Buxton, Scottish Natural Heritage, Aviemore for permission to search for the beetle in Abernethy NNR and in the Cairngorms NNR. We are most grateful to the following persons for providing information about specimens which they had taken or which are in their care and for allowing us to include it in this paper: Mr A.A. Allen, Mr D. Clarke, Tullie House Museum and Art Gallery, Carlisle, Dr R. Crowson, the late Mr E. Gardiner, formerly Curator,

British Entomological and Natural History Society, Mr P. Hammond, British Museum, London, Mr C. Johnson, Manchester Museum, Mr R.M. Lyszkowski, Dr B. MacNulty, Dr M. Shaw, National Museums of Scotland and Mr P. Skidmore. Dr Shaw also provided us with information from the Scottish Insect Records Index, which we have found most useful. We thank Mr Wield also for information on the provenance of one of the logs in which we found larvae and Mr Alan Mitchell for information on the introduction of spruce into Britain. Lastly, we thank D.J.M. Owen for help in the creation of the distribution map.

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NINE OUT OF TEN CATERPILLARS SAID THEY PREFERRED ASH

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I WAS MOST interested to read R.S. Andrews' (1992) account about the larvae of the Privet Hawkmoth (*Sphinx ligustri*) feeding on the honeysuckle *Lonicera japonica*. It reminded me of a recent encounter with this species, which was feeding on a foodplant that was not unusual but interesting in the context of its setting.

Having recently moved to Cambridge I decided to track down this species in its native haunts, since I had never seen it in the wild before. I contacted Dr Paul Waring to see if he could point me towards a good site where I could look for the larvae. By coincidence he informed me that he had recently been telephoned by Mr and Mrs Dunham of March, Cambridgeshire, who had informed Paul that they were "knee deep" in Privet Hawkmoth larvae. Treating this description of abundance with healthy scepticism I decided to investigate. In order to detect the larvae Paul recommended I set up some white sheets below a few privet bushes and return the next day to look for frass. However, I was cautioned, Paul had come across only one larva using this method and this was clinging to a twig with all its might, whilst a noisy blackbird tried to pull it off.

I visited the Dunhams on Saturday 22nd August 1992 at a fenland site which had been under agricultural use for some centuries. Mr Dunham (a lifelong farmer of the fens) started planting up five acres of his land in 1986, initially with willows *Salix* spp. around the perimeter of the site. Today these are a very effective windbreak, at least 15 metres tall. Later that year the family planted a mixed batch of hardwood trees (mostly native) including: 60 Common Alder (*Alnus glutinosa,* 20 Ash *Fraxinus excelsior,* 20 Wild Cherry *Prunus avium,* ten each of Beech, *Fagus sylvatica,* Crab Apple *Malus sylvestris,* Hornbeam *Carpinus betulus,* Field Maple *Acer campestris,* Lime *Tilia* spp., Rowan *Sorbus aucuparia,* 40 Oak *Quercus* spp., ten Yews *Taxus baccata,* and ten Horse-chestnuts *Aesculus hippocastanum*. This first stand was completed with the addition of 500 willow *Salix* spp. cuttings. In late 1987 the Dunhams started planting their second stand, comprising 200 trees of assorted species (restricted to the species mentioned above) plus 20 Swedish Whitebeams *Sorbus intermedia,* 25 Hawthorns *Crataegus* spp., 25 Wild Privet *Ligustrum vulgare,* 25 Wayfaring-tree *Viburnum lantana,* 25 Guelder-rose *Viburnum opulus,* and 25 Goat Willows *Salix caprea*. The stand was later completed with 250 Willow *Salix* spp. cuttings. The third and final stands were planted in December 1988 and December 1989, with 200 and 600 mixed trees and shrubs respectively. Many exotic trees were also planted during these four years including many types of Holly *Ilex* spp. and *Buddleia* ssp. plus Holm Oak *Quercus ilex*. In addition the Dunhams also had a few bushes of Lilac *Syringa vulgaris,* growing in their garden.

The oldest stands (1986-7) had trees which ranged from between 5.0 and 8.0 metres tall. Any planned planting format was not immediately identifiable because the stands were overgrown. The closed-in nature of these stands allowed very little light to reach the floor and there was a close-stuffy feeling in and amongst the foliage suggesting high humidity. In contrast the most recent stand (1989) had saplings ranging from 0.4 to 2.0 metres high. It was obvious that the trees had been planted in rows and it was easy to pass between them. At least 90% of the sun's light reached the floor and the open nature of this stand allowed air to flow freely, leaving humidity feeling relatively low.

I was not prepared for the large numbers of Privet Hawkmoths at the site. I had expected to be searching for an hour or so before I saw my first larva. In half an hour I easily saw 50 larvae (most of which were in their early instars) feeding conspicuously on the tips of twigs on Ash trees. The high abundance of larvae observed, was no doubt partly due to the good timing of my visit, the most active period for larvae of this species. I collected 18 final instar larvae, an experience rather like picking grapes.The sight of these large apple green caterpillars was thrilling, an experience which was renewed every time another was discovered.

Only two larvae were found on another foodplant, that of Wild Privet. The restricted choice of foodplant is interesting considering the number of alternative foodplants available to the moths.

One would assume that the preferred foodplant for this species would be Privet as its name suggests. When I was younger I used to feed the larvae on Ash, but this was because Ash was always easier to obtain in large quantities, not because the larvae showed a preference for it. Indeed in the wild this species is reported to feed on a number of foodplants: Privet, Ash, Lilac (Heath and Maitland Emmet, 1983) also Laurustinus *Viburnum tinus,* Teasel *Dipsacus fullonum* (South, 1973) and Holly (Skinner, 1984). In captivity we are reliably informed that it will also accept: Guelder-rose, Dogwood *Thelycrania sanguinea,* Hop *Humulus lupulus,* Rowan, Holm Oak, Snowberry *Symphoricarpos rivularis,* Willows and various Scabious species (Sokoloff, 1984).

It is surprising that Ash was selected in favour of Privet considering (1) the architecture and (2) the leaf shape of these two species of plant are so different.

It was noticeable that the vast majority of the larvae were seen in the most recently planted stand. Admittedly the short size of these trees made it very easy to look them over, which was not so with the larger trees of the older stands, but I felt the observed difference was a real one. Perhaps closed in spaces make it difficult for the adults to engage in aerial manoeuvres, thus disturbing courtship.

Further, the closed-in habitats might impede oviposition, making it hard for the female to locate the larval foodplant. If open stands are an

important prerequisite for the Privet Hawkmoth and it was intended to keep this species' abundance at its present high levels at Dunhams Wood, it would be sensible to plant up some new areas of woodland or coppice some of the older stands to maintain open glades. None of the larvae removed from the site were parasitised and it must be expected that any management for this species will probably bring with it an increased parasite burden for the population: parasites have yet to find this haven in any obvious numbers.

The site was also attractive to a number of other moth species including the larvae of the Eyed Hawkmoth *Smerinthus ocellata* Linn., Buff Tip *Phalera bucephala* Linn., Pebble Prominent *Eligmodonta ziczac* Linn., The Vapourer *Orgyia antiqua* Linn. and The Sycamore *Acronicta aceris* Linn., along with a number of Noctuid and Geometrid species. Perhaps the restriction of choice of trees for planting to those which would naturally occur in the locality, made it easy for the incoming species to colonise this new habitat.

Essentially this site is a wooded island in a sea of agricultural fenland and the high diversity of tree species, along with the incremental age structure of this artificial woodland, are probably why it is so good for invertebrates. However, I still do not really feel that I have seen the Privet Hawkmoth in the setting of its natural habitat. The most interesting revelation to emerge from this investigation is to find that so little is written about the ecology of this species. For years entomologists have been rearing and breeding the Privet Hawkmoth, but what do we really know about its niche ecology? Does it have a foodplant preference? If so, what and why? What factors affect its oviposition? How do the larvae avoid predation and parasitism? Is the body posture of the larvae whilst resting (the classic sphinx position) helpful in this respect, or do the larvae reside on different parts of the foodplant during the night and day? It looks as if there is a correlation between soil pH and the distribution of this species. Why? Does it affect the pupation process? Do the adults have sophisticated courtship flights in the wild? Is the structure of the surrounding vegetation important in this respect? If so, how? The species has a southerly distribution; is it limited by temperature or habitat or something else?

The standard texts offer little in the way of answers to these questions. Perhaps others have experiences which could aid our understanding of this species' ecology. If so I would be most interested to hear from them.

I would like to thank Mr and Mrs Dunham for their kind hospitality and Dr Paul Waring for his advice and guidance.

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Scopaeus laevigatus (Gyllenhal) (Col.: Staphylinidae) in East Sussex

On a visit to Powder Mill Reservoir, East Sussex with Dr R.G. Booth and Dr I.S. Menzies on 25.ix.91, I swept two examples of a *Scopaeus* from scanty vegetation growing on an area of damp sand which had been exposed for two or three months by a fall in the water level of the reservoir. Mr P. Hodge swept another example from the same site two days later. My two specimens were females and, initially, I was uncertain of their identity as was my friend Mr Allen to whom I showed them. However, Mr Hodge's specimen was a male with an aedeagus characteristic of *laevigatus*. My two specimens matched Mr Hodge's specimen and, since they were taken at the same site as his and also matched some continental examples of *laevigatus* kindly given to me by Herre Schülke some time ago, I conclude that all three specimens are indeed this species.

Hitherto, *S. laevigatus* has been recorded only from a very few coastal sites in South Devon and Dorset. It was introduced to the British list by my friend Mr Allen who found that three specimens taken by the late G.H. Ashe at Seaton, South Devon and labelled *S. gracilis* were in fact *laevigatus* (Allen, 1968, *Entomologist's mon. Mag.* **104**: 198-207). Mr Allen referred also to specimens taken by the same collector at nearby Axbridge, and labelled *gracilis,* which he presumed would also have been *laevigatus*. More recently, the species has been found on the Dorset coast (Cooter, 1990, *Entomologist's Gaz.* **41**: 31), at a landslip site with areas of damp sand and mud of varying texture.

The true *S. gracilis* (Sperk) has a northern and western distribution in Britain and it was no doubt consideration of this, together with the belief at the time that *laevigatus* was confined to the south coast of Devon, that lead Mr Allen (*loc. cit.*) to postulate that the record of *gracilis* from Whitstable (Chitty) given by Fowler and Donisthorpe (1913, *The Coleoptera of the British Isles,* vol. 6) probably referred to *S. sulcicollis* (Stephens), a widespread species. The present finding of *laevigatus* in East Sussex at a site only 40 miles from Whitstable raises the possibility that the Chitty record from the latter site may, like Ashe's *gracilis,* have referred to *laevigatus* rather than to *sulcicollis.*

I thank Mr Hodge for introducing me to the site and for allowing me to refer to his capture, Mr Allen for commenting on my specimens and Herr Schülke for giving me reference specimens of *S. laevigatus*.- J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

A FEW DAYS IN DEVON

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REPORTS OF exciting things happening down on the coast induced us to try for ourselves, so we left Reading on a warm, sunny 18th September and headed westwards. This weather pattern, however, changed suddenly as we crossed Salisbury Plain and familiar landmarks were blotted out by torrents of driving rain. Fortunately these were short-lived and once beyond Honiton the skies cleared, the sun returned, spirits rose and we diverted down to Teignmouth for a welcome break away from the busy A38.

On the southern tip of the Teign estuary the ground rises abruptly above the hamlet of Shaldon and if one follows the Torquay road for less than a mile then turns left to The Ness headland, grassy slopes and adequate parking combine to make this an ideal picnic spot. We discovered this haven in the early fifties during a fortnight's memorable stay with the late Frank Lees at Maidencombe and always try to call again whenever in the West Country. Other lepidopterists may already know the spot, but for those unaware of this inviting "moth trap" may I just say that a tunnel, lit night and day, runs down through the red sandstone to a small secluded beach. The lighting has changed since my first visit in 1953 — (I sense it used to be blue mercury vapour) — but if one concentrates on the business in hand and ignores the enquiring glances of holiday makers who ascend and descend the steps, all sorts of nice things can sometimes be discovered on the tunnel walls and roof.

My first visit was good for *Catarhoe rubidata* (D. & S.); *Hadena luteago* (D. & S.) ssp. *barrettii* (Doubl.); and *Mythimna putrescens* (Hübn.). On this September day there was a smattering of *Agrotis segetum* (D. & S.); *A. ipsilon* (Hufn.) and *Cryphia muralis* (Forst.); whilst on the ground, and lucky not to be trodden on, was one *Mythimna vitellina* (Hübn.). As I was retracing my steps I met my wife Heather coming down to meet me. She asked how I had done and then said "Well, you missed that one!" and sure enough, masked by the thinnest of spider's webbing, there was a mint condition *Mythimna loryei* (Dup.)! Should fellow lepidopterists be tempted to try this "trap" in future — take a torch. It will prove invaluable for working the dark roof crannies which alternate between the pools of bright lights; also take a yard of thin willow wand (a feather duster would serve better but might prove embarrassing) and obviously a net and a few boxes.

After this pleasant interlude we continued westwards, eventually ending up near East Prawle, our home for the next four days. The weather over this period was ideal, warm sunny days and shirt-sleeved nights — so different from that experienced by friends who came here two weeks later.

On that first night, the 18th September, the sugar ropes were weighed down with *Agrotis segetum* (D. & S.) and precious little else, but the

Robinson trap and portable light did much better. The commonest moth was *M. vitellina* (Hübn.) in shades of pale straw through tawny to deep red, these, with *Rhodometra sacraria* (L.) and a female *M. loreyi* (Dup.) made a fitting end to our first day. Saturday dawned sunny and very warm. We walked the cliff path then picnicked in a shady woodland corner overlooking a stubble field which was constantly patrolled by *Colias croceus* (Geoff.). It was a perfect autumn day. Ahead, sun glistening on a millpond sea; behind, a craggy height surveyed by buzzards; on either side, the stubbles busy with cirl buntings; and over all, a stillness, broken now and then by gentle taps from spent sycamore leaves as they touched the woodland floor. We retraced our steps to the cliff edge path and wandered leisurely homewards, pausing now and again to watch *Ammophila* sand wasps alight from rapid flight and enter their earthen tunnels.

The next two nights were again perfect for working light and ivy blossom. *M. albipuncta* (D. & S.) and *Heliothis armigera* (Hübn.) both appeared on 19th September, as did a dozen or so holiday makers, keen to watch the proceedings. They enjoyed themselves, especially when matching living moths against book illustrations and it is good to help others in this way, but concentration is sometimes hard to come by. My last *armigera* was a primary immigrant, flying on a sunny June day at Hartland Quay forty-two years ago, so, when my second appeared on this 19th September I was particularly pleased. "May we see the *armigera*?" came the voices, so the box was passed round and then put, or so I thought, in a safe place. The visitors melted away around 1am so I went up to the kitchen to put my prize in the 'fridge. The box was empty! Back to the lamp-lit garden and a search of all egg-trays, but to no avail, so, somewhat crestfallen, I sought sleep. Next morning, another fruitless search until only the choke box with its protection of plastic was left, and, there it was! — a little ruffled, but how welcome!

Many *M. vitellina* and several *M. loryei* visited ivy and the lights on both nights but this run of good luck had to change. It did so on 21st September. The trap was left in its favoured position on a lawn, but the tripod and sheet were placed lower down the grounds on a gravel path bordered by a low wall. Seated on this wall, I switched on and awaited arrivals. About 9pm what that eminent lepidopterist, the late Sir Robert Saundby, would have termed "degenerate thundery rain" came tipping down and I feared for the safety of the unprotected bulb. However, by using only the left hand, it was possible to grip kite net and anti-dazzle egg-tray hard against the opened umbrella handle, extend the left arm and thus shelter the bulb. This left the right hand free to box any intrepid moth. After an hour thus posed, only a solitary *Ochropleura plecta* (L.) had swum aboard, so I attempted to pack up. Those heavy black waterproof plugs are difficult enough to pull apart with two hands — I was in real trouble with only one available! Contortions helped and I eventually shuffled very slowly to the protection of a garden shed. With the gear now under shelter, I climbed up

to the house entrance high above the garden, tapped out my sodden pipe, the bowl of which flew off and dropped fifteen feet down into the shrubbery!

After this stormy night, Tuesday dawned warm and sunny and we headed homewards, making a break at a Devon Trust Reserve high above Loddiswell. My old yellow cycle cape, spread out on the ground, gave protection from last night's rain, the view was magnificent and we lounged in contentment. A brilliant green metallic *Chrysomelid* crawled from somewhere and sat, sunning itself, on my leg. Never have I seen such a mirror — I waved at this little visitor and my arm's reflection waved back!

The highlight of this trip was undoubtedly *M. loryei* which I had last seen on The Lizard in 1975; this time in Devon we recorded eighteen and I kept three alive in the hope of getting eggs. After six days of cossetting one moth died followed by a second three days later. Both were males! But let's admit it, we all make mistakes and those tell-tale black ventral hair tufts are not always so easy to perceive. By now I feared the worst and friend Ray Cook kindly sent up some consolation pupae from Dorset. Moth number three however behaved true to form. She lived ten days whilst concealing rows of glistening whitish ova within old dry *Dactylis* stems. These stems were then placed in three inch by one inch metal glass-topped tins (not easily come by these days but ideal for first instar larvae). *Poa annua* was supplied until the larvae were easily visible, they were then transferred to larger containers and reared to maturity on *Dactylis*. In the airing cupboard (68° - 70°) larval life averaged nineteen days and pupal life, fifteen days. Interestingly, other pupae, kept in an unheated room at 48° - 50° emerged after about three weeks. Given a good sense of imagination, one can detect differences in ground colour between these moths reared at varying temperatures but, needless to say, none approached those bred by Myers (Myers, 1977, *Ent. Gaz.* **28**: 75-79).

Notes from a newly planted wood

I have written before (*Ent. Rec.* **104**: 159-160) on the lepidoptera of the wood I have established on my farm. In 1992 I continued to do approximately weekly moth counts in two Heath traps. The exceptionally warm late spring and early summer produced some species unusually early. Among these was *Lobesia abscisana* Doubleday, with large numbers seen by day from 4.v.92 until near the end of the month, although none were taken in the Heath traps. The second brood began on 27.vi.92, with 53 moths taken in the traps up until 31.vii.92. I was surprised when fresh specimens, clearly representing a third brood were taken from 16.viii to 18.ix.92, five in all.

Another species which appeared to produce a second brood was *Coleophora striatipennella* Nylander. This species feeds on *Cerastium fontanum* Baumgartner in the wood, and is usually seen flying by day at

some time in late May or early June. The first 1992 sighting was on 21.v. Five were seen at light 29.v. to 1.vi.92. No more were seen until 4.viii.92, when one was taken by day, and two at light on 16.viii.92. The identity of one of these was confirmed by dissection.

This species probably also produced a second brood in 1991, with records from 7.vi to 5.vii, including five at light, followed by two at light on 13.viii.91. The evidence is not conclusive for a second brood in *C. striatipennella,* since the numbers are small. A very protracted single brood is also a possibility. An attempt will be made in 1993 to find cases in July, to establish whether any adults hatch in August. So far cases have only been noticed in September, which does not solve the problem. Among British *Coleophora* only *C. frischella* Linnaeus is thought to be double-brooded.

Four species were recorded in the wood as new to the farm. Two of these, *Phyllonorycter rajella* Linnaeus and *Caloptilia elongella* Linnaeus were reared from alder, a tree not previously present here. *Acrobasis consociella* Hübner was taken at light on 24.vii.92. Doubtless the large numbers of young oaks will favour this, and it will probably become a pest before long. Two adults of *Apodia bifractella* Duponchel were found on flowers of *Pulicaria dysenterica* (L.) Bernh., a plant that I had reintroduced to one of the rides after it had become extinct on the farm several years previously.

In 1991 a nest of *Eriogaster lanestris* Linnaeus was found on sloe in the hedge at the edge of the wood. No adults were seen in 1992, but a nest was found on birch in the wood. When the larvae dispersed in the last instar, most continued to feed on birch, one being found about 50m from the nest. This species had only been seen once before on the farm, an adult at m.v. light on 17.iv.85.

Other species previously seen here only once, that were recorded in the wood in 1992 were *Phlyctaenia perlucidalis* Hübner on 31.vii.92 and *Chloroclysta siterata* Hufnagel on 7.xi.92.

A relatively mild night on 3-4.i.93 prompted me to run a Heath trap, and this produced a single male of *Exapate congelatella* Clerck. This is very interesting as there are no previous reports from Oxfordshire, and none from Berkshire more recent or closer than from Newbury in the 1890s. As this species has a brachypterous female, it seems unlikely to have colonised from a great distance, and equally unlikely to have been overlooked over the many years that I have recorded lepidoptera here. The majority of the trees planted in the wood in the early springs of 1989 and 1990 came from the English Forestry nursery at Whitchurch, Shropshire. Dr P. Sterling informs me that this species is common in parts of Shropshire. It is highly probable therefore that eggs were introduced on forest transplants in 1989 or 1990 and that a small population has persisted since that time in my wood, undetected because of the late period of flight.— M.F.V. CORLEY, Pucketty Farm Cottage, Faringdon, Oxfordshire SN7 8JP.

IDENTIFICATION OF *AMPHIPYRA PYRAMIDEA* (L.) AND *A. BERBERA* FLETCHER (LEPIDOPTERA: NOCTUIDAE)

DENIS F. OWEN

42 Little Wittenham Road, Long Wittenham, Abingdon, Oxon OX14 4QS.

THE TWO SPECIES of Copper Underwing, *Amphypyra pyramidea* and *A. berbera* are usually separable by an examination of the underside of the hindwing. In *A. pyramidea* the discal area is pale yellow and contrasts with the brownish-orange terminal area and the dark anterior margin, while in *A. berbera* much of the underside of the hindwing is brownish-orange and the overall effect is less contrasting (Skinner 1984, who illustrates the underside of both species). The two can also be separated by dissection of the genitalia. Neither method is satisfactory for instant field identification of live specimens; in particular, the underside pattern is difficult to examine unless moths are killed and set, and even then intermediates are found which are difficult to identify on this character alone.

A method of separating the two species on the basis of the pattern on the upperside of the forewing has recently been published (Nyst 1992), but the journal in which it is published (*Linneana Belgica*) is not readily available in Britain. The distinction between the two is best seen by reference to Fig. 1. In *A. pyramidea,* the two arrow-like points projecting from the antemedian line are equidistant from those of the postmedian line, while in *A. berbera* the lower of the arrow-like points is closer to the corresponding point on the postmedian line. In practice it is possible to tell the two apart at a glance: in *A. berbera* the lower point juts out further than the upper point, while in *A. pyramidea* there is no difference in the extent to which the two jut out.

To test the suggested method of separating the two species, I examined my collection of 36 *A. pyramidea/berbera* obtained from southern and central England. There are 20 *A. pyramidea* and 13 *A. berbera,* but

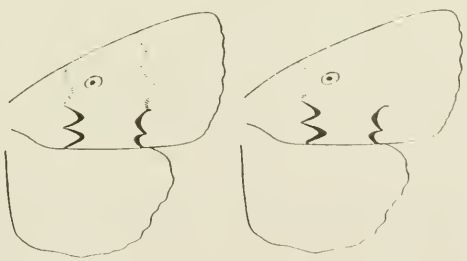

Fig. 1. Diagram to show the difference in shape of the antemedian line in *A. pyramidea* (left) and *A. berbera* (right).

another three are too worn in the critical area of the forewing to be certain. The method worked well with my specimens, but I feel sure there will be exceptions. I suspect that in some *A. berbera* the arrow-like points are virtually equal in length; Bernard Skinner tells me he has two such specimens, but he agrees that in Skinner (1984) Plate 36, 3 is *A. berbera* and not *A. pyramidea,* as stated.

I offer these comments in the hope that others will try out the new character for separating the two species of Copper Underwing; I shall not be astonished to hear that the method does not always work.

Fig. 1 was drawn by Derek Whiteley from specimens in my collection. I thank Paul Sokoloff and Bernard Skinner for comments, and John Owen for help in translating Nyst's rather idiomatic French.

References

Nyst, R.H., 1992. *Amphipyra pyramidea* L. et *A. berbera svenssoni* Fletcher: petite mise au point (Lepidoptera: Noctuidae). *Linneana Belgica* **13**: 389-392.

Skinner, B., 1984. *Colour identification guide to the moths of the British Isles.* Viking, Harmondsworth.

Hazards of butterfly collecting — The Station-master and the butterflies. India 1986.

I spent six wonderful months of 1986 doing a survey of the butterflies in the Nilgiri Mountains of southern India, where I was at school four years of my childhood, and was pleased to find that they were all still there (1987/88. *Journal of the Bombay Natural History Society,* **84**: 26-54, 291-316, 560-584, *ibid,* **85**: 26-43.)

The Nilgiris are tea-growing country *par excellence.* The estates were originally managed by the British, but after independence Indians took over. That was basically the only change. Along with their large bungalows, the Indian managers took over much of the interests, style, manners and language of the departed British. In fact, you sometimes felt yourself in a pre-war colonial time-warp, except that the colonialists were brown. The people would be called Gordon, Rudy, Bunty, Rex, and Daphne, and where else, after finding a species new to the Nilgiris, could you still get : "Oh, I say . . . how absolutely spiffing!"?

Among the inherited interests was a very real love of nature, and I was taken to many good sites for butterflies and shown much else besides. One day I was told about a man who had collected butterflies as a guide to some Japanese, and I was promised he would be sent in my direction if he ever turned up again.

A few weeks later Velupillai appeared on my verandah. He was one of the most disreputable characters I have ever met, and living — so to speak — in the middle of the 1930s, the term *ruffian* sprang immediately to mind. He had a wad of photographs of himself with sundry Japanese collectors,

The famous Mettupalayam-Ootacamund train in the Nilgiris which passes through Kallar (1986).

butterfly collections, "wanted butterfly" posters from Japan, letters of recommendation, lists of captures, etc. There were some interesting things, with the extremely rare *Euripus consimilis* as the best; I had begun to doubt that it was truly South Indian. We arranged that he should show me his best localities. A modest amount of rupees also changed hands, since Velupillai was chronically impecunious.

He came back a few days later with a large box of papered butterflies. He did not have the capital to invest in mailing them to Japan. He was resigned to waiting for what he termed "Japanese-come-back-time", when milk and honey would flow again. They had paid him huge fees as a guide, and the butterflies he collected in between their visits were purchased for exorbitant sums. I could visualise the extravagance with which Velupillai would squander his gains, before going out to collect butterflies for the next Japanese-come-back-time. But for the last four years there had been no Japanese.

Gradually, from several sources, I pieced together what had happened. Various Japanese semi-professional collectors had visited the Nilgiris, availing of (as we say in India) the services of Velupillai. One of their main desires was the beautiful endemic green-banded swallowtail, *Papilio crino*. At certain times of the year males could be caught in large numbers at damp patches at Kallar — I have seen fifty in a single assemblage. The

Japanese paid the princely — by Vellupillai's standards — sum of Rs 25 for each, so he made a killing every year.

Then the station-master in Kallar cottoned on to what was going on around him, through the simple expedient of plying Velupillai with liquor. He decided to corner the market in *Papilio crino*! Children in Kallar were trained, and pretty soon the station-master was sitting on a large tin trunk with nearly 10,000 *crino*. Now let us see . . . .10,000 by Rs 25 is Rs 250,000, enough for a comfortable retirement.

The Japanese came and the station-master had a nasty surprise. For 10,000 the Japanese would only pay 1.50 a piece, and with the incentive payments to the children, the costs of the tin trunk, and the liquor poured into Velupillai, this would leave no profit at all. There was no sale. Instead the station-master sought revenge. He informed the police that the Japanese were collecting butterflies illegally, as indeed they were, since getting a collecting permit is even more Kafkaesque than most dealings with Indian bureaucracy. They were duly arrested and taken to the police station in Ooty, where their boxes of butterflies were examined, many a good specimen being mangled in the process. From here they were taken to the Wildlife Department in Coimbatore, where more butterflies were damaged, then on to Forestry. Back and forth they shuttled, no-one knowing just what to do with them. The Japanese Embassy in Delhi instituted discreet inquiries, Collector Sahib became worried about storms in tea-cups, and they were finally released, air-dashing (another endearing Indian term) back to Japan, minus their butterflies.

I have been unable to determine what the station-master in Kallar did with his 10,000 swallowtails. I am sure that Velupillai will wait a long time for Japanese-come-back-time. He clung to me like a leech for the rest of my stay, having just enough valid data to be worth the endless trouble he created. Recently I heard that he had found a flourishing colony of *Pantirrhoea marshalli* in Kerala. This is one of the world's rarest butterflies, in a genus, and perhaps a subfamily, all of its own. Despite the odds Velupillai may have hit the jackpot after all!— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Atomaria scutellaris Motschulsky (Col.: Cryptophagidae) at Fishbourne, West Sussex

On a visit with Mr C. Johnson to the part of Chichester Harbour nearest to Fishbourne on 26.9.1987, I shook an example of this species from very dry tidal debris at the foot of the sea-wall. I found another at the same spot on 23.4.92, again by sieving tidal debris, and several on 28.9.92 by sweeping a grassy part of the sea-wall. My companions on the last visit—Dr R. Booth, Mr P. Hodge and Dr I. Menzies — obtained examples in the same way.

Prior to 1987, this species was known in Britain only from Cornwall and the Scilly Isles. The appearance of the species at Fishbourne appears to

have been the first indication of an expansion of its range into South-east England. It is now known also from Surrey and East Sussex (see map provided by Johnson, 1993, *Provisional atlas of Cryptophagidae-Atomariinae (Coleoptera) of Britain and Ireland,* I.T.E., Huntingdon).

I thank Mr Johnson for identifying my first example and the colleagues mentioned for permission to record their findings.— J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

***Pachycnemia hippocastanaria* Hübner (Lep.: Geometridae) as a garden species**

On 23rd August 1990 I took a female *hippocastanaria* in my garden light trap at Abbotskerswell, Devon. I obtained fertile ova from this moth, but I did not release any progeny. On 3rd August 1991 I noted another *hippocastanaria* in my garden trap and a third appeared on 23rd July 1992. Abbotskerswell is 4.8 miles from the nearest heathland. I suspect that *hippocastanaria* is breeding on garden heathers.— Dr B.P. HENSWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Marbled White-spot, *Lithacodia pygarga* Hufn. and White-marked, *Cerastis leucographa* D. & S. (Lep.: Noctuidae) in Yorkshire.

L. pygarga has hitherto been recorded in Yorkshire only on Skipworth Common, so I was pleased to take a specimen at Selby, at m.v. on 22.6.1992. *C. leucographa* was also taken in the same locality on 26.4.1992. This latter species is well known from Bishops Wood, a few miles distant, and has been extending its range in recent years.— S.M. JACKSON, 31 Hillfield, Selby, North Yorkshire.

A new hostplant record for the Speckled Wood (Lep.: Satyridae)

Two final instar larvae of Speckled Wood, *Pararge aegeria,* were found in mid-October 1992, feeding on Creeping Bent grass *Agrostis stolonifera* L. at Highgate Allotments, Yeatman Road, London N6 (Grid ref. TQ 2770 8820). They were reared until pupation in November on the same grass at normal heated indoor temperatures, approximately 15° to 20°C daytime, less at night. Both adults emerged in early December when certain identification of the species was made. The hostplant was identified from Hubbard (1972) and confirmed by David Bevan (London Natural History Society).

On sending this information to Colin Plant, LNHS Lepidoptera Recorder, he informed me that the only hostplants he has recorded with certainty in the London area are *Dactylis glomeratus* L. and *Agropyron repens* (L.) Beauv. Emmet and Schreeve (1989) does not list *A. stolonifera* as a hostplant for *P. aegeria,* nor does Scorer (1913), so the above hostplant record is believed to be new.

References: Schreeve, T., *in* Emmet, A.M., (1989). *The moths and butterflies of Great Britain and Ireland* 7(1), Harley Books, Colchester; Hubbard, C.E. (1972). *Grasses,* Pelican; Scorer, A.G. (1913); *The Entomologist's Logbook.* Routledge, London.—

DANIEL HACKETT, 3 Bryanstone Road, London N8 8TN.

Voltinism in *Phyllonorycter trifasciella* (Haworth) (Lep.: Gracillariidae)

Watkinson (1985) in his contribution of the subfamily Lithocolletinae in *The moths and butterflies of Great Britain and Ireland* (volume 2: 335) states that *Phyllonorycter trifasciella* is trivoltine, with pupae in April, July and October and imagines in May, August and November. He goes on to say that "it is not known in which stage the winter months are passed, the early spring larvae being found mining leaves of the new growth which were not present the previous autumn". Recent observations on this species in my garden at Bishops Stortford, Hertfordshire may help to shed some light on this, and perhaps indicate that the voltinism of this particular moth is less straightforward than supposed.

My garden houses two plants of *Lonicera periclymenum* and two of *Leycesteria formosa*. On the former, mines occur sparingly, but on the latter they are frequently numerous. On 8th November 1992 I observed imagines of *P. trifasciella* flying aroung a three metre tall plant of *L. formosa* at around 10 o'clock in the morning. Some seven or eight individuals were present and at least two of these were seen ovipositing on the underside of fresh-looking leaves — an action later confirmed by examining the leaf under a binocular microscope to look for the eggs. These eggs were still present, unhatched, on the leaves on Christmas Day 1992, but the strong winds of mid-January 1993 removed the leaves from the bush and so prevented further observations. Thus, it seems reasonable to assume that the progeny of these particular November imagines over-wintered, or at least intended to over-winter, as ova. The situation is complicated, however, by the presence of larval mines on several leaves on the same bush on the same day as adult moths were watched ovipositing. I opened three of these, one from the exposed top of the plant, one from the side and one from the cover of the centre of the plant, and found each to contain a living, apparently healthy, larva. On my Christmas Day examination I opened three more mines, selected from three similar positions, and found each to contain a living pupa, each contained inside a cocoon of tough, brown silk which was firmly attached to the lower epidermis of the leaf, and with frass piled at one end. On 15th January 1993, two days after freak winds blew down one of my pine trees and caused other minor damage, the bush was almost totally devoid of leaves. I managed to find one mine still on the plant, in a small, rather fresh-looking leaf and, by careful searching of the entire garden, I found twelve mines on blown leaves (though not all of these necessarily came from the same bush). Each of the thirteen samples contained a healthy, living pupa.

It therefore seems that the voltinism of *P. trifasciella* may involve a series of overlapping generations. Adult moths in November certainly lay eggs which must overwinter and presumably hatch in the early spring to give rise to the May generation of adults. It should be noted that the eggs were laid on what I have just described as "fresh-looking" leaves; usually these would remain on the bush throughout the winter, with only the older,

brownish leaves falling, and thus could be mined in the spring. However, if larvae are definitely found in new growth that was not there over the winter, there would seem to be a necessity for the newly hatched larvae to migrate, either from the original host leaf to a new, adjacent one or, unthinkably, from the ground upwards! It will be interesting to see when mines appear on my bush in 1993 now that there are no leaves remaining at all (I have removed the last few just for this experiment).

Even less clear is the parentage of the overwintering pupae which, it should be remembered, were still larvae on 8th November. One suggestion is that the progeny of the August generation of adults have a divided emergence, with some feeding rapidly, pupating, then yielding adults in November, whilst others feed more slowly, pupate later and produce adults the following spring. Such overlapping generations are not unheard of amongst the Lepidoptera; two examples which spring to mind are the Speckled Wood butterfly *Pararge aegeria* Linnaeus (Satyridae) and the Pale Mottled Willow moth *Caradrina clavipalpis* Scopuli (Noctuidae). In this latter species, most examples overwinter as larvae, but some will pupate before winter commences and produce an early spring generation of adults.— COLIN W. PLANT, Newham Museum Service, The Passmore Edwards Museum, Romford Road, Stratford, London E15 4LZ.

The Scarce Vapourer, *Orgya recens* (Lep.: Lymantriidae) at Bishops Wood in Yorkshire

This rare and local species was recorded at Bishops Wood over 100 years ago by Porritt, and I vaguely remember beating larvae there over 30 years ago, as well as near the golf links at Selby.

I am very pleased to report that I beat a single larva at Bishops Wood on 13.ix.1991 and the following year obtained a pairing from bred specimens on 16.vi.1992, and bred many larvae into hibernation, but only a single moth emerged as a second generation on 26.x.1992. All were feeding on birch unlike those which are found in Nottingham and Lincolnshire which are usually feeding on hawthorn.— S.M. JACKSON, 31 Hillfield, Selby, North Yorkshire.

***Synanthedon formicaeformis* Esper, Red-tipped Clearwing (Lep.: Sesiidae) — at least a two-year cycle**

On the south coast of Devon *S. formicaeformis* can be found feeding on common sallow (*Salix cinerea* L.). In June 1989 I cut a branch containing a *formicaeformis* gall. There was a hole in the branch from which frass was being extruded by the larva. Frass continued to be extruded from time to time until August. No moth emerged that year and external evidence of larval activity had ceased. Skinner (1984), Baker (1985) and Fibinger and Kristensen (1974) all imply that *formicaeformis* has a one-year life cycle.

Sensing failure I broke into the branch in April 1990 and unfortunately damaged the larva which was still alive inside. It had made a tunnel from the centre of the branch obliquely to the bark leaving only a very thin layer

of the outer bark between it and the outside. There was no external evidence of this potential exit hole and it was quite separate from the actual hole from which frass had been extruded earlier. The larva was clearly ready to pupate and presumably would have produced a moth in 1990 had I not opened the gall.

In conclusion *formicaeformis* feeding on *S. cinerea* on the south coast of Devon has a life-cycle of at least two year and not one as the current literature suggests.

References: Baker, B.R., 1985. Sesiidae. In Heath, J. and Emmet, A.M., *The moths and butterflies of Great Britain and Ireland,* **2**. Colchester; Fibinger, M. and Kristensen, N.P., 1974. The Sesiidae (Lepidoptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica,* **2**. Gadstrup; Skinner, B., 1984. *Colour identification guide to the moths of the British Isles.* Harmondsworth.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Some early dates of spring Lepidoptera in 1993

The rather unusual weather pattern of the past winter, with exceptionally cold nights in October and December, and relatively warm spells in between, will no doubt give rise to a number of records of abnormal emergence dates. Already this year I have noted the March Moth (*A. aescularia*) and the Early Grey (*X. areola*) at light here on 28th January. The Dotted Border (*A. marginaria*) and the Spring Usher (*A. leucophaearia*) were seen on the same date in a wood at Caterham. Even more unusual was a male of the Pale Brindled Beauty (*A. pilosaria*) found while searching trunks at Epping on 29th November of last year; unfortunately a cripple and not worth retaining as a cabinet specimen. But perhaps the most noteworthy was a specimen of the Common Quaker (*O. cerasi*) which appeared at light here on 7th November. The adult of this species overwinters fully formed in its pupa and is evidently capable of responding rapidly to warmer weather conditions, the night in question being about the third in a row of relatively high night temperatures following a disastrous October.— GRAHAM A. COLLINS, 15 Hurst Way, S. Croydon, Surrey CR2 7AP.

The earliest occurrence of *Coleophora clypeiferella* in Britain

Wakely (1954, *Ent. Rec.* **66**: 272) was the first to record *Coleophora clypeiferella* Hofmann, 1871, as a British species, but Chalmers-Hunt (1981, *Ent. Rec.* **93**: 239) reported finding a specimen in the Ford collection at the British Museum (Natural History) that had been taken in 1934 but misidentified. There is, however, almost conclusive evidence that larvae had been found and the moth reared over 40 years previously.

Bankes (1896, *Entomologist's mon. Mag.* **32**: 88-89) wrote as follows: "In a letter dated the 26th February, 1894, the late W. Machin informed me that a few years previously he had found, in rough cases on *Chenopodium* at Shoeburyness [Essex], two Coleophora larvae which,

when full-fed, went on to the surface of the earth in the cage and were lost, but in the following season there emerged one imago, which Mr Warren could not identify, but which was pronounced by Mr Stainton to be *unipunctella* Z.''. After Machin's death, the specimen was purchased by G.W. Bird and was later seen by Bankes, who said it was quite unlike *C. unipunctella* and, though a bred specimen, was very obscurely marked. He did not venture a name but suggested that it was ''closely allied to *laripennella* Zett.'', then the collective name for coleophorids feeding on *Chenopodium*.

The species of Coleophora which feeds from a ''rough'' case on *Chenopodium,* pupates beneath the soil, is obscurely marked but has a discal spot which could have suggested the name *unipunctella* to Stainton is *Coleophora clypeiferella.*— A.M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF.

Observations when rearing *Schrankia costaestrigalis* (Steph.) Pinion-streaked Snout) (Lep.: Noctuidae)

While moth recording with Philip Boggis, John Gregory and Adrian Spalding in Kings Wood, near St Austell, Cornwall on the evening of 2nd July 1991, a small moth came to m.v. light, which was identified as a possible female Pinion-streaked Snout. As little is known about the larval stage, I decided to take the female to obtain some ova for rearing.

By the morning of 4th July, five pearl-like spherical ova had been deposited on the walls of a pill box. On 13th July, five tiny larvae had hatched from the ova. An error on my part cost the lives of four of the five larvae by removing them from the pill box to a plastic rearing container, using a small paint brush. Whilst care was taken in carrying out this operation, I feel that the tiny larvae had been damaged and consequently died within a few hours — a lesson learned. Having considered a possible rearing pabulum, I decided to use very pale pieces of lettuce (taken from the centre) for rearing the one remaining larva, which on 13th August produced a perfect imago, exactly one month after hatching.

Using a 5x hand magnifier, the tiny larva was quite dark in appearance and always sitting in a coiled upright position. Observing the fast-growing larva revealed that it would not often move from the area of lettuce where it was feeding, and it appeared to be quite happy to feed for long periods around a build-up of frass, although quite messy owing to the high liquid content of lettuce. When dark, the larva would move in a slow looping manner never moving very far but always returning to its feeding area on the piece of lettuce. At the slightest disturbance when moving, the larva would immediately go into a coiled posture and if touched for cleaning out it would release its grip and lay coiled on its side.

By 31st July, the larva was approximately full-grown, being some 12mm long, stumpy in appearance, dark in colour including the head. A faint line ran along its back and sides. The whole larva was wet in appearance and

began moving more often, as if looking for a pupation site. At this point a single thickness of crumpled tissue paper was placed in the corner of the rearing container on the assumption that the larva would go into the tissue and pupate. To my surprise, the larva had other ideas of where and how it was going to pupate!

The full-grown larva had now moved to the underside of the lid, having spun a silken pad on which it was hanging by its anal claspers. It was fully extended towards the crumpled tissue in the base corner of the box and was cutting out a section of tissue. This single operation was timed and I noted that it took approximately 25-30 minutes to cut out each piece of tissue in an irregular shape 4-5mm in diameter. On the completion of each cutting operation, it would take the tissue in its mandibles and bend upwards towards the pad of silk and attach it with silk or by glueing. With resting periods, the cutting operation went on for several hours. The result looked like several paper chains hanging down from the pad, consisting of 11-12 cut pieces of paper tissue glued together.

It was next noted that the larva had constructed an elongated cocoon from the hanging tissue pieces into which the larva had disappeared. The cocoon was ragged in appearance with pieces of tissue projecting from the walls and hanging downwards. On stretching out the crumpled tissue it was found that a ragged half-moon section had been cut out from a straight edge some 25mm long by 8mm deep, the total amount of tissue used in the construction of the cocoon. This was now photographed with the cocoon *in situ* from the rearing box lid. The pupa was positioned head downwards in the cocoon, enabling the moth to make its exit.

This species does not appear in numbers at light. Searching with a hand lamp within 20 to 30 metres of the m.v. light, I have noted up to eight specimens sitting on the lower branches of mixed woodland trees and wayside vegetation, but to date I have not been able to locate a female depositing ova. So the true life cycle of this species in the larval stage still remains a mystery to me. Having obtained ova from another female at m.v. light, nine specimens were successfully reared using the same conditions. It would be interesting to compare the White-line Snout in its larval stages to the Pinion-streaked Snout. I hope to accomplish this in future as I feel that there are a lot of unanswered questions for both species.— W. KITTLE, 17 Trevarrick Road, St Austell, Cornwall.

First Scottish record of *Notiophilus rufipes* Curt. (Col.: Carabidae) from Hoy, Orkney

In June 1982 I was fortunate to spend a week on Orkney, primarily to record the distribution of coastal Coleoptera. I took the opportunity to collect extensively throughout Mainland and South Rolandsay, with day visits to Sanday, Westray and Hoy.

On 22nd June 1982 I visited Hoy with Peter Reynolds the (then) Nature

Conservancy Council's Assistant Regional Officer, and installed ten pitfall traps in what are regarded as Orkney's only remaining natural woodland relicts in the Burn of Segal (HY 203 020) and Berriedale (HY 199/200 014). These traps were collected three weeks later on 12th July 1982 by Mr Reynolds, who removed two pygmy shrews from most jars before forwarding the invertebrates to me.

Among the Carabidae in the two traps from the Burn of Segal were two adults and two larval *Notiophilus biguttatus* (F.), together with a red-legged female specimen which Dr M.L. Luff confirmed as *N. rufipes* Curtis, a species previously unrecorded from Scotland. In Britain this species appears to have a mainly southern distribution, although there are scattered records north to Yorkshire and Cumbria. The most abundant carabid from this site was *Pterostichus niger* (Schall.) with twelve specimens trapped. Other species collected were: two *Carabus glabratus* Pk. which, although not included in the list of Coleoptera in Berry (1985, *The Natural History of Orkney*. Collins, London), confirms the old Hoy record of W.E. Sharp (1897, *Entomologist's mon. Mag.* 33: 236), one *C. nemoralis* Mull., three *Cychrus caraboides* (L.), one *Nebria brevicollis* (F.), three *Pterostichus strenus* (Pz.), and one *Trechus obtusus* Er., with an additional two *Leistus rufescens* (F.) sieved from moss beside the burn.The carabid fauna from the eight pitfall traps set in the Berriedale woodland had a totally different composition comprising: ten *T. obtusus,* five *L. rufescens,* two larval *N. biguttatus* and one larval *Carabus nemoralis* Mull. Four *Nebria gyllenhalli* (Schoen.) were also collected from under stones by the burn. An additional five pitfall traps set in the planted sycamore wood at Binscarth, near Finstown, Mainland (HY 348 140), from 16th - 22nd June 1982, produced no further *Notiophilus.* The Carabidae caught there comprised 38 *Nebria brevicollis,* one adult and eight larval *Loricera pilicornis* (F.), one *L. rufescens* and three *T. obtusus.*

I am currently attempting to bring together all known beetle records for Orkney, and am grateful to all those who have already provided me with their unpublished lists. If they, or any other entomologists, have any additional records I would be pleased to hear from them to enable me to make my list as up to date as possible.— R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

Large Blues in Austria

In 1992 we chose Austria as an alternative to our usual holiday destination, strife-torn Yugoslavia. I did now know what to expect in the way of butterflies, other than that the mountains are famous for the variety of ringlets (*Erebia* spp.). In this respect, we were not let down, and we were further rewarded by seeing three species of Large Blue (*Maculinea* spp.).

The year before, I visited Ireland for the first time. I saw three species of

butterfly, probably because it stopped raining for only about eight hours in two weeks! Austria is another notoriously rainy country, and our spirits fell as we drove into the Tyrol on 11th July with snow falling in the mountains. Our fears were not realised. We had some splendid weather in the next two weeks and saw 66 species of butterfly.

We awoke on our first morning to sunshine and the song of Bonelli's warblers on the edge of the woods behind the house. Here I found *Parnassius apollo* and *Clossiana titania,* as well as two of the ringlets associated with spruce forests — *Erebia ligea* and *E. euryale.* I had envisaged a relaxing holiday with a few walks in the hills. My Dutch friends had other ideas. We were soon to embark upon a three-day crossing of the Stubaier Alps.

In order to acclimatise ourselves to high altitudes, we visited the ski resort of Obergurgl and took lifts up to 2,658 metres. On the way down, below the snowline, I found *Agriades glandon* at 2,100m on alpine coltsfoot. At the same altitude was the ubiquitous *Erebia pandrose.* Back in Obergurgl at 1,900m was a colony of *Maculinea arion* on the grassy slopes by the car park. They were very photogenic, but I lacked the skill and time to get a picture where all the parts are visible and in focus!

We started our walk at a village called Gries (1,600m), where we left the cars. We explored a lightly wooded river valley; the most plentiful butterflies were *Clossiana selene, Artogeia napi* and *Cyaniris semiargus.* A freshly-emerged male *Anthocharis cardamines* provided photo opportunities, and further colour was supplied by *Heodes virgaureae* and *H. alciphron.* I was attracted by a dazzling blue butterfly in a clearing. This turned out to be a male *Albulina orbitulus,* which we were to encounter again over the next few days. Another species of limited Alpine distribution, *Erebia tyndarus,* was present in some numbers along the river. I found two more ringlets in this area — *E. medusa* and *E. alberganus.* The latter has bright orange-yellow almond-shaped post-discal spots on the upper wings.

During the next two days we traversed the Stubaier Alps from west to east, staying at two mountain huts. I would advise against sleeping in the lager (communal room), especially if you are tired. It was reminiscent of playing the game "sardines", but not so much fun! On the first day I discovered two new species: *Pontia callidice* and, at 2,400m, *Hypodryas cynthia,* which basked confidingly on grass or rocks in whatever sunshine was available. The male of this fritillary is very distinctive, with large areas of white on the upper wings.

On the second day the weather closed in. Our route required us to climb a saddle at 2,900m. We were wet and tired,-and decided to slide down the glacier on the other side. The day was enlivened only by a family group of Alpine accentors, which watched us trudge down from the glacier towards the next mountain hut. As we didn't feel like walking back over the mountains, the next day entailed a long round trip to get the cars —

including a bus journey to Innsbruck, where it was an amazing 32°C. On the way down to the valley, I added *Hedes tityrus* and *Erebia oeme* to our list.

Our next destination was the Heodes Tauern mountains, some 100km further east. The objective was to climb Austria's third highest peak, the Gross Venediger. We approached from the north, which involved a three-day walk up the Obersulzbach valley to the Kursinger Hutte at 2,547m. The final ascent was achieved in brilliant sunshine with the help of a mountain guide. Six of us, the youngest a ten-year-old, were roped together for the last three hours' climb up a glacier. The view from the summit at 3,674m was stunning. Every few minutes, single *Aglais urticae* passed us flying south-west: certainly not the lowest route across Austria!

The Obersulzbach valley, set against a backdrop of peaks and glaciers, presented an idyllic alpine scene. The western side of the valley was, as usual, steep and wooded with high waterfalls. The eastern side was more accessible, with grassy and rocky slopes grazed by cattle. The butterflies were chiefly confined to the upper slopes and other areas free from cattle. *Pontia callidice, Colias phicomone, Cyaniris semiargus, Coenonympha gardetta* and *Lasiommata maera* were common. *Pyrgus serratulae* and *Eumedonia eumedon* were also present. The fritillaries in the lower valley were *Argynnis paphia* (with var. *valezina*), *Clossiana selene* and *C. thore* — the latter hardly ever appearing to settle. Higher up we found *Boloria pales,* and at 2,700m *Hypodryas cynthia.*

The ringlets were of particualr interest, also showing a vertical differentiation. In wooded areas up to 1,700m, *Erebia ligea* and *E. euryale* were common. *E. eriphyle* occurred between 1,450m and 1,800m in some numbers. *E. cassioides* was in a smaller zone on open ground at about 1,750m. At 2,500m I saw *E. gorge,* and at 2,700m *E. nivalis.*

We were initially puzzled by the sound of high-pitched whistles on the rocky valley slopes. These turned out to be alarm calls of alpine marmots, usually signalling a raven or bird of prey passing overhead. We were to see a lot of these large, tame rodents playing in family groups.

The hospitality in the two family-run lower huts — Postalm and Berndlalm — made our visit even more memorable. I definitely want to return to Obersulzbachtal.

After a brief, nostalgic visit to Salzburg, we moved north to look at the Danube. If we had hoped for marshes and riverine forest, we were disappointed. The mighty river was imprisoned in double banks. It was dry enough for pine trees to grow alongside. The area we visited was west of Linz. We did see goosanders, common sandpipers and a majestic paddle steamer plying between Vienna and Passau.

We stayed at Muhllacken, about 3km north of the river, where the plain gives way to rolling, wooded, sandy hills, deeply incised by streams. On the afternoon of 24th July, we were eating a picnic lunch just outside the village, when I noticed some rather nondescript butterflies by the roadside.

I caught one on a plant of greater burnet (*Sanguisorba officinalis*). It turned out to be the Dusky Large Blue (*Maculinea nausithous*). We were to find several more colonies as we walked uphill through orchards and into meadows and wheatfields — there was a lot of burnet in flower. I was also lucky enough to find the Scarce Large Blue (*M. telejus*) within 100m of a colony of *naustithous*: both species share the same foodplant, *S. officinalis*. The altitude here was 400m.

Although there was a lot more similar terrain between here and the Czech border, we had to move on. I would love to go back and explore further.— DAVID WITHRINGTON, 21 Lawn Avenue, Peterborough PE1 3RA.

A pale ochreous form of *Herminia tarsipennalis* Treitschke, The Fan-foot (Lep.: Noctuidae) in Arran

Several specimens of *H. tarsipennalis* which conform approximately to the form stated by Heath and Emmet (1983, *The moths and butterflies of Great Britain and Ireland,* **10**. Harley, Colchester) to occur only in Ireland were captured in the Rothamsted Insect Survey (RIS) light trap between 1985 and 1988 at Mabie, Dumfries-shire (Riley, A.M. 1991, *Ent. Rec.* **103**: 95-96). A representative specimen from this site was exhibited at the British Entomological and Natural History Society annual exhibition in 1992.

In 1992 I identified, for the first time, some of the catches from the RIS trap at Brodick Castle, Arran (Site No. 446, OS grid ref. NS 014 380). On 22.vii, 28.vii and 24.viii.1992 single individuals were caught of the same pale ochreous form as that recorded at Mabie. Although small numbers of *H. tarsipennalis* have been caught at this site in previous years, the form of this species was not known. Mabie and Brodick are situated approximately 110km apart in south-west Scotland and it is likely that investigation in the area will reveal further sites for this local form. We are grateful to D. Warner and D. Stevenson for operating the trap at Brodick Castle.— ADRIAN M. RILEY, Biodiversity and Farmland Group, Dept. Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

The moths and butterflies of Northumberland and Durham, Part 2, Microlepidoptera. By **T.C. Dunn** and **J.D. Parrack**. 378pp., distribution maps. *The Vasculum* — Supplement No. 3. Published by the Northern Naturalists' Union. £17.00.

An up-to-date list of the Microlepidoptera of north-eastern England has long been overdue. J.E. Robson wrote the section on Lepidoptera in *The Victoria County History of Durham* in 1905 and his *A catalogue of the Lepidoptera of Northumberland, Durham and Newcastle upon Tyne* concluded with the Microlepidoptera in 1913. George Bolam, though primarily a macrolepidopterist, covered the Microlepidoptera as best he could in *The Lepidoptera of Northumberland and the eastern borders,* 1925 - 1931. No comprehensive work has appeared since until the present publication.

In meeting this need, Dunn and Parrack have presented us with a wealth of new information. Although their work is marred by faults, its positive merits far outweigh the defects and their book will be welcomed as a valuable addition to the growing number of county lists.

The classification and nomenclature follow those of Bradley & Fletcher (1979) and each name is preceded by the Log Book number there allocated. However, a few superseded names, such as 39 *Ectoedemia quercifoliae* (Toll), have been conserved from the earlier publication, Kloet & Hincks (1972). Since the publication of the Log Book, a number of name changes have been introduced, an arbitrary selection of which has been adopted by the authors. For instance, in Bradley & Fletcher (1986) *Coleophora spinella* (Schrank) is given as a replacement for 495 *C. cerasivorella* Packard and *C. mayrella* (Hübner) for 518 *C. spissicornis* (Haworth). The latter has been accepted but not the former, except that in one context *C. spinella* is styled *C. mayrella,* possibly a *lapsus calami* for *C. spinella.* Changes in status since the Log Book are disallowed. For example, 1205 *Spilonota ocellana* (Denis & Schiffermüller) and 1205a *S. laricana* (Heinemann) are treated as a single species although Bradley & Fletcher (1986) now regard them as distinct. The authors write "Emmer [that's me!] (*Guide to Smaller Lepidoptera*) regards the two as distinct species, but here (as elsewhere) we follow Bradley & Fletcher's 'Label List'."

The current name is followed by all the synonyms given by Kloet & Hincks (1972), amounting to as many as 11 for a species such as *Agriphila tristella* ((Denis & Schiffermüller)). This is superfluous and a waste of space; only those used in earlier lists for Durham and Northumberland need be mentioned. Sometimes the synonyms are copied without understanding, as when *mutatella* Fuchs is given as a synonym of 1454 *abietella* ((Denis & Schiffermüller)) in the genus *Dioryctria* and also as a valid species (No. 1455).

The synonymy is followed by a paragraph setting out the habits, status and distribution of the species in question. This makes agreeable reading, but there is no need to describe habits in a local list unless they differ from those found elsewhere in Britain. The book's most serious weakness lies in the account of the distribution. The recording area comprises three vice-counties, VCs 66, 67 and 68, yet all too often it is impossible to tell which is referred to, at any rate without local knowledge. The list is a distribution-map-maker's nightmare. On one page, chosen haphazard, 16 localities are named, but only one of them is assigned to a vice-county. As a result, I have wasted many hours poring over gazeteers and maps and a proportion of the records proved untraceable and could not be plotted. When a species new to the area is recorded, one would expect the authors to allocate it to its county, but that was not the case with 915 *Scythris picaepennis* (Haworth) or 1227 *Pammene inquilina* Fletcher (not *inquilana* as printed on p.308).

Sometimes the national distribution of a species is referred to; the

sources used were *The moths and butterflies of Great Britain and Ireland* (MBGBI) 1 (1976), for which the number of vice-county records must by now have at least been doubled, MBGBI 2 (1985) and the senescent Bradley, Tremewan & Smith (1973; 1979) for the Tortricidae. For the remainder, the authors relied on Meyrick (1928)! The result is very misleading; several species are said to be at the northern limit of their range in Durham, whereas they are, in fact, widespread and common in Scotland. It is recommended that all references to national distribution are ignored.

The provisional distribution maps for the Microlepidoptera which I hold have been publicly advertised (Emmet, 1991). Had the authors consulted them, all their problems of nomenclature and national distribution would have been resolved.

Furthermore, I would have added 25 species to their list as well as a number of extra vice-county records. I would also have helped them eliminate bogus records. I give two examples. Their single record of 43 *Fomoria weaveri* (Stainton) is based on "a vacated yellow cocoon beside a mine on the underside of a cowberry leaf". Since *F. weaveri* always pupates *inside* its mine, what was found cannot have been that species; it may have been something more interesting. 517 *Coleophora frischella* (Linnaeus) is included on the evidence of a specimen recorded in 1955 under that name by the late E.C. Pelham-Clinton. Since *C. frischella* as we know it today had not yet been added to the British list in 1955 and at that date *frischella* was the current name for 516 *C. trifolii* (Curtis), the record clearly refers to the latter species. In any case, I have a list of ECP-Cs coleophorid records which he prepared for me himself and it does not include *C. frischella* from Northumberland.

It seems that the dissection of the genitalia has been relatively rarely used for the determination of critical species. Instead, they have been submitted to the senior editor who has based his identification on external characters. I know that he is expert and experienced, but some of his decisions border on rashness. For example, he claims to be able to distinguish *Parornix* species in the adult stage. I have written a paper on 308 *Parornix finitimella* (Zeller) (Emmet, 1982) and I described it for MBGBI 2, but I would never dare to establish a new county record on the evidence of an undissected imago as appears to have been done. If dissections have been made, but we are left uninformed of the fact, I apologise. My fears having been aroused, I have omitted several of the records from my maps, for example the two of 290 *Caloptilia semifascia* (Haworth) made from localities outside the range of its foodplant.

In the making of records, more reliance has been placed on light-traps than on fieldwork, though of course the latter has also been carried out. Sang in the 19th century was an outstanding field worker, but many of the species he recorded have not been found since. In general our

Microlepidoptera are holding their own very well and it is probable that most of Sang's species will be rediscovered with patience and persistence.

One feels that the literature has been under-researched. The list of references includes a meagre 29 entries, more than two-thirds of them to works with coloured illustrations used for identification purposes rather than recording. Compare this with the 293 references in the sister list for Yorkshire (Sutton & Beaumont, 1989). In fact, if the authors had imitated the layout and some of the introductory chapters and appendices of their neighbours, the value of their work would have been greatly enhanced.

There are distribution maps for about one-third of the species recorded and these give a clear indication of county distribution. I have two minor criticisms. First, three symbols are used: crosses, open circles and dots; the last vary in size, but this may be due to drafting irregularity. The difference in meaning between the symbols is not explained. The second refers to the abbreviations of authors' names. Full-stops are given or withheld in a meaningless manner; for example, "Frey" and "Frey." are used for the same author, but "Frey." is the abbreviation of Freyer not Frey.

The book is handsome, but too tightly bound. One needs two strong hands to keep it open and then lacks a third with which to write.

I have not pulled my punches and feel embarrassed at having dwelt almost exclusively on the faults rather than the virtues of this work. It provides an immensely important addition to our knowledge of the Microlepidoptera of north-eastern England. It is a list I am proud to possess and has added many new records to my distribution maps. I hope the authors will forgive me for the criticisms I have made. They have my full support and I recommend their book wholeheartedly to all who are interested in the distribution of our Microlepidoptera. A.M. Emmet

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Larvae of the British macrolepidoptera — a plea.

Those who have attended the annual exhibition of the British Entomological and Natural History Society over the last few years will be aware of the work being done to photograph the larvae of all the butterflies and larger moths. All except about thirty have now been photographed, and text is being prepared for eventual publication. While we accept that we can never expect fo find every species that is on the British list it should still be possible to find some of these thirty species. We therefore appeal to all British and continental lepidopterists to make every effort to make this important work as complete as possible. What is needed is the larvae, or females or ova which might lead to the species being bred, or alternatively, good quality slides. British or foreign material is acceptable. The larvae required are:

Hepialus hecta	Gold Swift
Phragmateacia castaneae	Reed Leopard
Heterogenea asella	Triangle
Maculinea arion	Large Bue
Erebia epiphron	Mountain Ringlet
Lampropteryx otregiata	Devon Carpet
Perizoma taeniatum	Barred Carpet
Discoloxia blomeri	Blomer's Rivulet
Psodos coracina	Black Mountain Moth
Eilema sericea	Northern Footman
Coscinia cribraria	Speckled Footman
Meganola strigula	Small Black Arches
Nola aerugula	Scarce Black Arches
Spaelotis ravida	Stout Dart
Hadena irregularis	Viper's Bugloss
Cosmia diffinis	White Spotted Pinion
Apamea sublustris	Reddish Light Arches
Apamea furva	Confused
Oligia versicolor	Rufous Minor
Photedes captiuncula	Least Minor
Photedes brevilinea	Fenn's Wainscot

Amphipoea crinanensis	Crinan Ear
Amphipoea oculea	Ear Moth
Calamia tridens	Burren Green
Celaena haworthii	Haworth's Minor
Oria musculosa	Brighton Wainscot
Eublemma parva	Small Marbled
Colobochyla salicalis	Lesser Belle
Schrankia taenialis	White-line Snout
Hypenodes humidalis	Marsh Oblique Barred
Trisateles emortualis	Olive Crescent

We would be interested in foreign material of extinct British species such as *dysodea* (Small Ranunculus), *atriplicis* (Orache) etc.

If you can help in any way please contact: JIM PORTER, 45 King Charles Road, Surbiton, Surrey. Telephone: 081-399 9592.

WANTED

Samples are needed (from anywhere!) of species belonging to the genera *Epirrita* (Geometridae) and *Mesapamea* (Noctuidae) for migration/ population studies using molecular genetic markers. Field entomologists who would be willing to collect and freeze adults/larvae please write to, or telephone: **Ian Wynne, Entomology and Nematology Department, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ. Telephone: 0582-763133.**

THE COCKAYNE RESEARCH FELLOWSHIP

Applications are invited to *The Cockayne Research Fellowship* for awards to support original research on variation in British Lepidoptera. Awards are limited to a maximum of £1,000 per year and, depending on progress, may be renewable annually for a maximum of three years. Applications are welcome from amateur and professional lepidopterists alike. Projects must concern original research on variation (genetic, phenetic, taxonomic, geographical, or phenological) affecting one or more species of Lepidoptera within the British Isles.

For further information and an application form please write to the Trustees of the Cockayne Research Fellowship, c/o the Keeper of Entomology, The Natural History Museum, Cromwell Road, London SW7 5RD.

MICHAEL WILLMER FORBES TWEEDIE

1908 - 1993

It is with sadness that we hear of the death of Michael Tweedie on 25th March 1993 at the age of 85. A well-known naturalist, author and photographer, he was Director of the Raffles Museum, Singapore, from 1945 to 1957. We will be publishing a full obituary in a later issue of the *Record*.

PAS

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

Contents

Notes and observations

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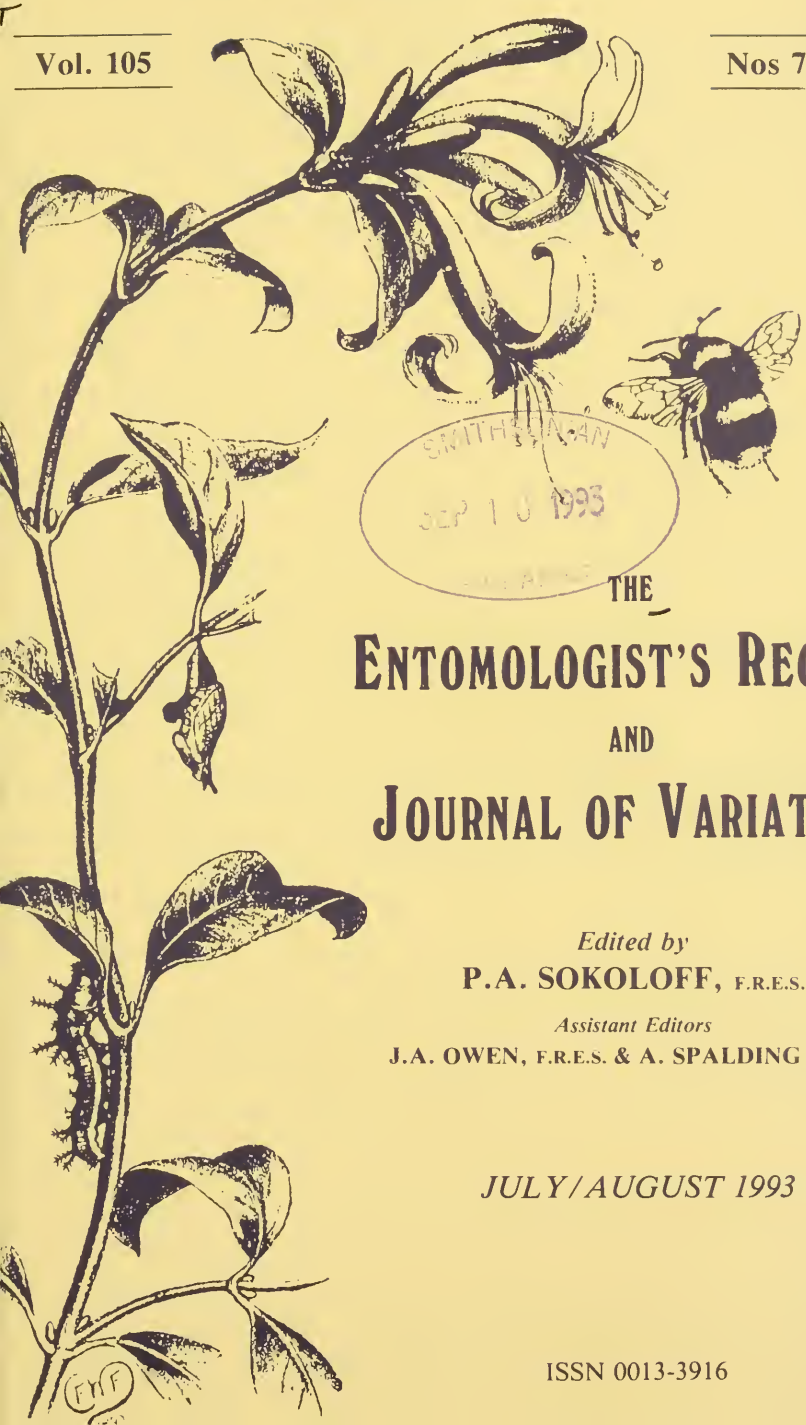

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Illustrations must be the original (not a photocopy) without legend which should be typed on a separate copy. Photographs should be glossy, positive prints. Authors of long papers, or submitting valuable originals are advised to contact the Editor first.

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BEEN HERE AND GONE? A NEW ANGLE-SHADES MOTH, *PHLOGOPHORA LAMII* SCHADEWALD, 1992 (LEP.: NOCTUIDAE) AND OTHER SPECIES

PAUL SOKOLOFF

4 Steep Close, Orpington, Kent BR6 6DS.

THE DISCOVERY of a new species of noctuid in Europe is guaranteed to cause excitement, and the recent publications by Gerhard Schadewald and Ulf Eitschberger describing a new European species of *Phlogophora* did just that (Eitschberger, 1992a; Schadewald, 1992a).

The papers separated the familiar Angle-shades moth, *Phlogophora meticulosa* into two species, *P. meticulosa* and *P. lamii* on the basis of wing pattern and differences in biology. British entomologists reacted with a mixture of interest, curiosity and dismay — the latter because many felt the distinguishing characters were insufficient to merit the raising of a new species. Some, including the Editor of this journal, were inclined to ignore the publication until further work had clarified the situation, but as the new species has already been announced in the British literature (Burton, 1993, anon, 1993) readers of the *Record* now have the opportunity to be kept up to date, and to make up their own minds.

As well as describing a new species of *Phlogophora,* Schadewald, in a further paper, describes two new species of the Silver-Y moth separated from *Autographa gamma.* Although migratory, there was no evidence that either of the two new *Autographa* species had occurred in Britain (Eitschberger, 1992b; Schadewald, 1992b). Similar doubts have been cast over the validity of these species.

John Burton[1] has summarised the papers that appeared in the relevant edition of *Atalanta:*

> "The December 1992 issue of *Atalanta* (Vol. 23, Nos. 3/4), the journal of the *Deutsche Forschungzentrale für Schmetterlingswanderungen* (German Research Centre for Lepidoptera Migrations) contains several papers of particular interest to British lepidopterists. Especially notable are two papers by the late Gerhard Schadewald describing and naming two hitherto unrecognised species of *Autographa: messmeri* Schadewald 1992 and *voelkeri* Schadewald 1992 — and a new species of *Phlogophora*: *lamii* Schadewald 1992.
>
> In the first of his papers (pp.577-80), Schadewald describes and illustrates with photographs the morphological and genitalia differences between his newly-described species of *Autographa* and the well-known Silver-Y, *A. gamma.* The latter is the largest of the three species, *A. voelkeri* much the smallest and *A. messmeri* intermediate between them.

[1] Wasserturmstrasse 53, 6904 Eppelheim, Heidelberg, Germany.

There are also differences in colour and markings: the most notable being the shape of the outer crossline of the forewing which is distinctly bent and wavy, and notched on the inner side, in *gamma,* weakly bent and indistinctly wavy in *messmeri* and almost or completely straight in *voelkeri,* but bisected by a light grey, wedge-shaped mark.

All three species were found by Schadewald in his garden in Jena in the former German Democratic Republic. He reported that *gamma* was unable to breed successfully in unsheltered conditions unless a constant temperature of at least 30°C is maintained, and that it is unable to survive the winter in northern and central European latitudes. On the other hand, *voelkeri* is indigenous and can successfully produce up to three generations annually in the wild in Germany, and the caterpillars are able to overwinter in the third instar. The life history of *messmeri* he had not been able to work out fully, but he found that the first arrivals at the end of April in the Jena district laid eggs, but that those arriving in July do not seem to be able to reproduce in open, unsheltered conditions.

In a follow-up paper in the same issue, Dr Ulf Eitschberger, editor and publisher of *Atalanta,* reports that preliminary investigations reveal that *messmeri* occurs not only in Germany, but also in Austria, Turkey, Spain and Morocco, and that specimens of *voelkeri* have been found which were collected elsewhere in Germany, and also in Croatia, Italy, Sardinia, Spain, Greece and Turkey.

Schadewald's paper (pp.589-591) describing and naming *Phlogophora lamii* states that this is the species of Angle-shades moth which is able to overwinter in central Europe, usually as a third instar larva, but exceptionally as a pupa or imago. *P. meticulosa* is apparently entirely dependent upon immigration and, although it lays eggs (singly, not in small batches like *lamii*), it is unable to survive the winters of north-central Europe in any stage. Eitschberger, in another follow-up paper (pp.593-597) reports that so far he has discovered specimens of *lamii,* additional to Schadewald's, from elsewhere in Germany in his Entomologisches Museum in Marktleuthen, as well as from Austria, Croatia, Switzerland, Italy, Spain and Turkey. A preliminary perusal by him of the European literature has revealed that illustrations of *meticulosa* are in fact, in many cases, *lamii,* including those in such British works as Barrett, C.G. (1899) *The Lepidoptera of the British Islands* (Vol. 5), Heath, J. & Emmet, A.M. (1983) *The Moths and Butterflies of Great Britain and Ireland* (Vol. 10) and Westwood, J.O. (1843) *British Moths and their Transformations* (Vol. 1). In addition, it seems to me that the photograph in Skinner, B. (1984) *Colour Identification Guide to Moths of the British Isles* is also *lamii* rather than *meticulosa.*

Schadewald points out, with accompanying photographs, that *lamii* is a generally darker insect than *meticulosa* and has more deeply indented forewing margins. He was unable to obtain successful pairings between the two species: either the eggs died or the resulting larvae did so. *P. lamii* is double-brooded, the second generation larvae feeding up slowly through the winter, weather permitting, until about the end of February when they pupate, producing imagines from April until July. The new name *lamii* refers to its preferred larval foodplant White Deadnettle, *Lamium album*.

Sadly, Schadewald died shortly after finishing his important papers; an obituary of him appears on pages 573-576."

In testing out the characteristics described by Schadewald, Dr Denis Owen[2] writes:

"As soon as I received a copy of the Schadewald paper, I examined my series of 20 *Phlogophora,* all collected in a garden at Leicester, except for one from Wheatley, Oxfordshire. The deeply scalloped forewing of *P. lamii* (Fig. 2) and the relatively unscalloped forewing of *P. meticulosa* (Fig. 1) enabled separation of my specimens into 15 *"P. lamii"* and 5 *"P. meticulosa"*. All of the *P. lamii* are from Leicester, nine of them bred from larvae found in the garden in winter. The larval foodplants are given on the data labels as: *Symphytum* × *uplandicum* (1), *Brassica oleracea* (1), *Apium graveolens* (1), *Centaurea montana* (2), *Petroselinum crispum* (2) and *Lamium maculatum* (2). Schadewald gives the preferred foodplant in Germany as *Lamium album* (the species name *lamii* is derived from the generic name of the foodplant); my records indicate a much wider range of foodplants. None of the five *P. meticulosa* (4 Leicester, 1 Wheatley) in my collection was reared: all are slightly worn and faded which perhaps indicates they were immigrants"

Differences in the biology of the two species should be easily testable. Dr Owen was able to collect a number of overwintering Angle-shades larvae this year. He further writes:

"I have *Phlogophora* emerging as a result of collecting larvae in the garden in February. All have been *"lamii"* except one which is *"meticulosa"*. According to the literature, *meticulosa* should not appear now, and certainly not from overwintering larvae."

Schadewald could find no differences in the genitalia, although he only examined males. Michael Fibiger, authority on the European Noctuidae, has examined type material of both *Autographa* and *Phlogophora* taxa (Fibiger, pers. comm.) and has made careful genitalia preparations of both

[2] 42 Little Wittenham Road, Long Wittenham, Abingdon, Oxon.

Figs 1 and 2. *Phlogophora* species separated on the characters described by Schadewald, 1992a. Fig. 1: *"meticulosa"*; Fig. 2: *"lamii"*.
(Enlarged: coll. D.F. Owen.)

sexes, including eversion of the vesica on the aedeagus. He found the genitalia of both sexes of both taxa to be identical. Fibiger further considers the morphological characters to be simply a variable infraspecific character in *P. meticulosa,* and does not find the differences in biology sufficient to justify separation into two species. He has therefore synonymised *P. lamii* with *P. meticulosa* (Fibiger, 1993).

Conclusion

The concept of what constitutes a species has always been a subject for vigorous debate, especially when differences are subtle. The taxonomists have firmly tapped *Phlogophora lamii* on the head, and relegated it to synonymy with *P. meticulosa.* A similar fate has overtaken the new *Autographa* species. Insufficient work has been done on the biological differences, and none at all on the biochemical aspects such as enzyme electrophoresis. Officially, all of Schadewald's new species will cease to exist when Fibiger's paper is published.

Acknowledgements

The views expressed in this paper are those of the author. I am grateful to those who have so freely given their help and advice, including Denis O'Keeffe and John Burton for supplying translations of the original papers; John Burton, Michael Fibiger, Barry Goater, Martin Honey, Denis

Owen and Bernard Skinner for their helpful comments; Stephen Whitebread, Editor of *Nota Lepidopterologica,* for allowing me to use material from Fibiger's paper in advance of publication, and Derek Whiteley and Barbara Southall for the photographs of Dr Owen's specimens.

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Fibiger, M., 1993. *Autographa gamma* (Linnaeus, 1758) (= *A. messmeri* Schadewald, 1992. Syn.n.; = *A. voelkeri* Schadewald, 1992 syn.n.) and *Phlogorophora meticulosa* (Linnaeus, 1758) (= *P. lamii* Schadewald, 1992, syn.n.) (Lepidoptera: Noctuidae) *Nota. lepid.* **16**(1), in press.

Schadewald, G., 1992a. Eine zweite Art der Gattung *Phlogophora* Treitschke, 1825: *Phlogophora lamii* spec. nov. (Lepidoptera: Noctuidae). *Atalanta* **23**(2/3): 589-591.

— , 1992b. Zwei neue Noktuidenarten: *Autographa messmeri* spec.nov. und *A. voelkeri* spec. nov. (Lepidoptera: Noctuidea). *Atalanta* **23**(3/4): 577-580.

Note: Copies of this issue of *Atalanta* can be obtained from the publisher, Dr Ulf Eitschberger, Humboldstr. 13a, W-8688 Marktleuthen, Germany, for DM 40, which is also the cost of the annual subscription (DM 30 for students!).

Other papers of particular interest in this issue of *Atalanta* include the 1992 report on the immigration of lepidoptera into Germany: the expansion of *Danaus chrysippus* L. in Italy (in English), the mass deaths of moths at industrial illuminations; an annotated checklist of Ecuadorian Papilionidae (in English); a new species of *Zerynthia polyxena* (Lep.: Papilionidae) from northern Italy (in English); the diversity of Costa Rican hawkmoths (in English); checklists of the *Lasiocampidae* of the territories of the former USSR (in English); notes on the Geometrid moths *Casilda antophilaria* and *C. consecraria* and their distributions (in English), and two papers in English on the distributions and systematic position of species of *Alloclemensia* Nielsen (Lep.: Adelidae).

John Burton.

A further record of *Dolichocephala ocellata* (Costa) (Dipt.: Empididae)

The recent note by Mr A.A. Allen (*Ent. Rec.* **104**: 333) prompts me to place on record my discovery of this rare fly in Yorkshire. A single male was collected at Hayburn Wyke (v.c. 62: NGR TA 09) on 3.ix.90.

Hayburn Wyke is a steep-sided wooded gorge leading to the sea-shore north of Scarborough, and the specimen was collected close to the small stream which runs through the valley. This appears to be the only record of *D. ocellata* for Yorkshire.

Some doubt exists concerning the status of this species, and my friend Mr J.H. Cole has recently drawn to my attention a paper by Terje Jonassen ("Further Empidoidea (Dipt.) new to the Norwegian fauna": *Fauna norv.* Ser.B. **39**: 73-75. Oslo 1992) in which reference is made to the paper by Dr Rudiger Wagner (1983&who has shown that *D. ocellata* (Costa) of Collin (1961) and other previous authors is a species group consisting of *D. ocellata, D. thomasi* Wagner and *D. austriaca* Vaillant. Dr Jonassen points out that records of *D. ocellata* from outside the Alps or the Mediterranean should be re-examined as they may refer to *D. thomasi* which appears to be the only one of the three currently known to occur north of the Alps.

References: Collin, J.E. (1961). Empididae. *Br. Flies* **6**: 1-viii - 1-782. Cambridge. Wagner, R. (1983). Aquatische Empididen (Diptera) aus hessischen Mittelgebirgen und angrenzenden Gebieten. *Beitr. Naturkde. Osthessen* **19**: 135-146.—
ROY CROSSLEY, 1 The Cloisters, Wilberforce, York YO4 5RF.

***Comiboena bajularia* D. & S. (Lep.: Geometridae) ab. *rosea* Cockayne**

This is an uncommon form of this moth in which the green colour is replaced by a pinkish brown. Chalmers-Hunt (*Butterflies and moths of Kent,* **2**, 1981) refers without detail to two Kentish specimens, and there are several in the National Collection.

In 1988 I thought I had taken a specimen of *rosea* from my garden light trap, but what was ejected from the ammonia killing bottle less than a minute later was a normal green *bajularia.* There had been several normal specimens in the trap, so had I somehow captured the wrong moth? On 5th July 1991, a further *rosea* was noted in the trap. It was consigned to the ammonia bottle whereupon it was seen to turn green immediately, apart from the blotches which are normally brown. The abnormal colour of *rosea* appears to be quite stable under normal atmospheric conditions as witnessed by the very old specimens in the National Collection and elsewhere. This is a particularly interesting colour change in view of the somewhat fugitive nature of the green pigment of this group of moths; indeed, in the acid environment of the cyanide bottle, the green pigment fairly rapidly became paler and yellowish-buff, not the colour displayed by ab. *rosea.*—B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

***Eremobia ochroleuca* D. & S. Dusky Sallow (Lep.: Noctuidae) in Somerset**

Looking again through my copies of the *Entomologist's Record* for 1991, I was interested to read H.N. Michaelis's report (**103**: 210) of *E. ochroleuca* flying around Compositae in the day-time in two separate localities in North Wales. It reminded me that I came upon one feeding actively in hot sunshine from the flowers of Greater Knapweed *Centaurea scabiosa* L. on a steep, flowery railway embankment at Charlton Mackrell, near Somerton, in the North Somerset vice-county, on 27.vii.1984.— JOHN F. BURTON, Wasserturmstrasse 53, W-6904 Eppelheim, Germany.

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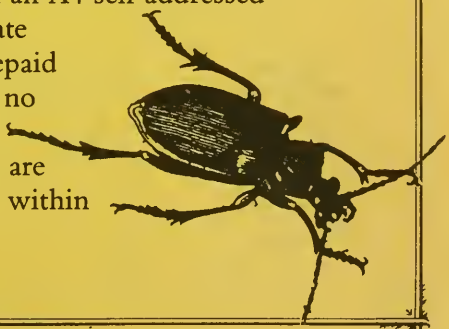

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MICROLEPIDOPTERA REVIEW FOR 1991

DAVID AGASSIZ[1], ROBERT HECKFORD[2] and JOHN LANGMAID[3]

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ANOTHER WARM SUMMER kept insects moving and often emerging ahead of their normal time. Whether or not this upset the entomologists, 1991 was the first year for a long time, possibly since the study of micros began, that no species new to Britain was announced. There may yet be one or two undetected or undisclosed — only time will tell.

Species whose known range was extended include three new to a country within the British Isles: *Agonopterix astrantiae* was found in Ireland and *Acleris logiana* in England. The latter was a great surprise in Hampshire so far from its known haunts in the Highlands of Scotland. In a converse direction is the discovery of *Dichrorampha sylvicolana* in Scotland.

Cydia prunivorana in Devon marked a striking move from Kent where this seldom recorded moth has been taken hitherto. Several other rare species were observed: *Calybites hauderi* in its first mainland locality in England, formerly known only from one wood on the Isle of Wight. *Aglossa caprealis* has not been seen for some years, records of *Monopis monachella* are always noteworthy, as is a further record of *Stigmella mespilicola,* but pride of place must go to *Udea fulvalis* which appears to be resident, at least temporarily, on the south coast, although records suggest a migratory origin for some specimens taken.

Many records of migrants are included, some rarities among them: *Psammotis pulveralis, Hymenia recurvalis, Acrobasis tumidana, Ephestia figulilella* and *Ethmia bipunctella* well inland in Berkshire.

The larvae of *Infurcitinea albicomella,* rediscovered a year earlier, were found in Britain for the first time, so also were those of *Rhigognostis incarnatella.* Careful research by Brian Goodey showed a difference between the early stages of the otherwise inseparable *Coleophora* species *lutipennella* and *flavipennella.*

Recently discovered species continue to become better known, for example a further specimen of *Elachista eskoi. Phyllonorycter platani* found only the previous autumn, became firmly established in the London area and covered a wider area. Other species extending their range continued to advance, notably *Caloptilia rufipennella* all over the place, and also *Phlyctaenia perlucidalis.* Although it is not a recent addition to the British list the population explosion of *Acrocercops brongniardella* has been remarkable.

The only major taxonomic works to have come to our notice since the last Review are translations of earlier Russian works. These are Volume IV, part II of the *Keys to Insects of the European part of the (former) USSR* edited by G.S. Medvedev which is like an enlarged Meyrick's *Handbook*

covering many families of smaller moths. Clothes Moths (Tineidae) Part V by A.K. Zagulyaev covers only four species on the British list. The chief local list to include micros is Barry Goater's *The Butterflies and Moths of Hampshire and the Isle of Wight, Additions and Corrections,* published by JNCC. We are aware of some much more local lists: *The Moths and Butterflies of Exmoor National Park* by John Robbins, published by Exmoor Natural History Society, *The Moths and Butterflies of Hickling Broad NNR* by T.N.D. Peet, published by Norfolk & Suffolk Naturalists' Society and *The Lepidoptera of north-east Essex* by J. Firmin & B. Goodey, published by the Colchester Natural History Society.

Included in the national journals was the annual list of migration records for 1990 in *Entomologist's Rec. J. Var.* **104**: 209-211; the report of the 1991 Annual Exhibiton in *Brit. J. Ent. nat. Hist.* **5**: 59-63 which includes many records not all of which are repeated in the list which follows. There was also an article by David Agassiz on Additions to the British Microlepidoptera since 1969 in *Br. J. Ent. nat. Hist,* **5**: 1-13.

The full systematic list includes records submitted by recorders and those which have been published in entomological journals. Many thanks to those whose records are included, as always these are identified by their initials: D.J.L. Agassiz, M.V. Albertini, B.R. Baker, H.E. Beaumont, K.P. Bland, K.G.M. Bond, A.S. Boot, K. Cooper, M.F.V. Corley, B.Dickerson, A.M. Emmet, A.P. Foster, B. Goodey, E.F. Hancock, R.J. Heckford, D. Hipperson, M.W. Harper, J.R. Langmaid, D.V. Manning, H.N. Michaelis, D. O'Keeffe, S.M. Palmer, M.S. Parsons, A.N.B. Simpson, B.F. Skinner, F.H.N. Smith, R.A. Softly, D.H. Sterling and M.R. Young.

What are believed to be new vice-county records, according to the maps held by A.M. Emmet are marked by the v.c. number being in **bold** type. We are grateful to Maitland Emmet for checking this information.

A longer version with *all* records submitted is available from David Agassiz, who is always pleased to receive records for inclusion.

SYSTEMATIC LIST

NEPTICULIDAE

41 *Ectoedemia atrifrontella* (Staint.) — Bentley Wood (**8**) 19.x.91, 2 mines on trunks of oaks — SMP & JRL

36 *E. quinquella* (Bed.) — Bowood Park (**7**) mines in a leaf of *Quercus* 17.xi.91 — SMP

55 *Stigmella aeneofasciella* (H.-S.) — Monks Wood (**31**) mine 27.x.91 — BD

58 *S. ulmariae* (Wocke) — Clehonger (**36**), 1 vacated mine in *Filipendula ulmaria* 19.ix.91 — MWH & JRL

65 *S. speciosa* (Frey) — Elvaston Castle Country Park (**57**) 9.xi.91, 3 mines on sycamore — HEB

74 *S. assimilella* (Zell.) — Hayling Island (11), tenanted mines on *Populus canescens,* 16.vii.91, moths bred — JRL; Bentley Wood (**8**) one vacated mine on *Populus tremula* 19.x.91 — JRL & SMP

87 *S. svenssoni* (Johansson) — Wokefield Common (22) mines 7.ix.91 — J. Robbins per BRB; Wyre Forest (**37**) viii.91 — ANBS

99a *S. mespilicola* (Frey) — Wyre Forest (**37**) & (**40**) mines in *Sorbus torminalis* ix.90 & vii.91 — ANBS

101 *S. pyri* (Glitz) — Norwich (**27**) 24.x.91 mines AME & DH

OPOSTEGIDAE

119 *Opostega salaciella* (Treits.) — Grantown-on-Spey (**95**) one 6.vii.91 — DJLA, MWH & JRL

PSYCHIDAE

177 *Dahlica inconspicuella* (Staint.) — Wyre Forest (37) 16.iii.91 — ANBS

180 *Diplodoma herminata* (Geoffr.) — Constantine Bay (1) 2.vi.91, ex case in woodpile 29.vi.90, 4.vii.91 1 in house — R.J.B. Hoare per FHNS

183 *Bacotia sepium* (Spey.) — Wyre Forest (37) 8.iv.91 — ANBS

TINEIDAE

203 *Infurcitinea argentimaculella* (Stt.) — Ross-on-Wye (36) several larval tubes in *Lepraria* 12.iv.91 — MWH & JRL

204 *I. albicomella* (H.-S.) — Larva discovered feeding on dead leaves and detritus, Torquay (3) 26.iv.91, moths bred — RJH, *Ent. Gaz.* **43**: 99f

228 *Monopis weaverella* (Scott) — Whitsand Bay East (2) 9.viii.91, one — J.L Gregory per FHNS

229 *M. obviella* ([D. & S.]) — Grimeshaw Wood, Northants (**32**) 6.vii.91 — MSP

232 *M. monachella* (Hübn.) — Winterton Dunes NNR (27) 1.viii.91 — DH, APF & K.G. Saul

BUCCULATRICIDAE

265 *Bucculatrix cristatella* Zell. — Worcester (**37**) 23.iv.91 — ANBS

276 *B. demaryella* (Dup.) — Wyre Forest (**37**) viii.91 — ANBS

GRACILLARIIDAE

281 *Caloptilia populetorum* (Zell.) — Tiddesley Wood (**37**) viii.91 — ANBS

284 *C. rufipennella* (Hübn.) — Southsea, Portsmouth (11) common in 1991, larval spinnings on *Acer pseudoplatanus* — JRL; Elvaston

Castle Country Park (**57**) vacated cones fairly common 9.xi.91 — HEB; Winchester (11) imagines & cones viii-ix.91 — DHS; Norwich (**27**) 24.x.91 cones — AME & DH

295 *Calybites hauderi* (Rebel) — Walberton (**13**) common '91, second British locality — J.T. Radford

313 *Acrocercops brongniardella* (Fabr.) — An article on its spread in 1991 with records from v.c.s (**19, 25, 26,** 27, 28, 29, **31**) — AME *Ent. Rec.* **104**: 59f.; Friday Wood, Colchester (19) 21.v.91 — BG; Old Hills (37) vi.91 — ANBS

317 *Phyllonorycter heegeriella* (Zell.) — Lynwilg (**96**) one 30.vi.91 — DJLA, MWH & JRL

321a *P. platani* (Staud.) — Description of life history etc. — AME *Ent. Rec.* **103**: 282; Ascot (**22**), Esher (17), Beckenham (**16**) xi.91 — DJLA

332a *P. leucographella* (Zell.) — By the winter 1991-92 this species had spread to St Nicholas at Wade (**15**), Horsham & Crawley (**13**), Guildford (17) and Stotfold (**30**). There was also a strong population in the south-west of Nottingham (**56**) — DJLA

336 *P. dubitella* (H.-S.) — Royston (**20**), mines on *Salix caprea* 14.x.91, moths bred — JRL etc

354 *P. emberizaepenella* (Bouch.) — Grantown-on-Spey (**95**) a few 3.vii.91 — DJLA, MWH & JRL

CHOREUTIDAE

388 *Prochoreutis myllerana* (Fabr.) — Felmersham NR (**30**) 4.ix.85, previously misidentified as *P. sehestediana* — DVM

389 *Choreutis pariana* (Clerck) — Eathie (106) common 12.ix.91 — D.C. Hulme, *Ent. Rec.* **104**: 275; Eynesbury (**31**) 21.ix.91 — BD

GLYPHIPTERIGIDAE

395 *Glyphipterix haworthana* (Steph.) — Ormsary, Knapdale, N. Kintyre (**101**) '91 — MRY

HELIODINIDAE

400 *Heliodines roesella* (Linn.) — Grimsby (54) a possible record from the 1950s in G.A.T. Jeffs coll. — KPB, *Ent. Gaz.* **43**: 53

YPONOMEUTIDAE

431 *Yponomeuta sedella* (Treits.) — Bentley Wood (**8**) 7.vii.91 — B.Fox & SMP

447 *Roeslerstammia erxlebella* (Fabr.) — Easton Hornstocks (**32**) 14.viii.91 — MSP

452 *Ypsolopha nemorella* (Linn.) — Cockayne Hatley (**30**) vii.91 — DVM

465 *Plutella porrectella* (Linn.) — Grantown-on-Spey (**95**) a few 3.vii.91 — DJLA, MWH, JRL & MRY

468 *Rhigognostis incarnatella* (Steud.) — Grantown-on-Spey (95) larvae on *Hesperis matronalis* 3.vii.91, moths bred — DJLA, MWH, JRL & MRY; *Ent. Gaz.* **43**: 109-110; records from Ireland (**H6**), H8, H20, H21) & Isle of Man (71) — KGMB, *Ent. Gaz.* **42**; 223-225

COLEOPHORIDAE

487 *Metriotes lutarea* (Haw.) — Friday Wood, Colchester (19) 2.vi.91 — BG

490 *Coleophora lutipennella* (Zell.) — Perry West Wood (**31**) 4.viii.91 — BD; Notes on its early stages — B. Goodey, *Ent. Rec.* **104**: 169-171

492 *C. flavipennella* (Dup.) — Notes on its early stages — B. Goodey, *Ent. Rec.* **104**: 169-171

494a *C. prunifoliae* Doets — Feeding on *Malus domestica* JRL, *Ent. Gaz.* **42**: 242

496a *C. adjectella* H.-S. — Torquay (**3**) cases 26.iv.91, moths bred — RJH, *Ent. Gaz.* **43**: 66

503 *C. fuscocuprella* H.-S. — Bentley Wood (**8**) one case on *Betula pubescens* 19.x.91 — JRL & SMP

512 *C. binderella* (Kollar) — Barton Mills (**26**) one case on *Alnus glutinosa* 12.x.91 — AME & JRL

515 *C. albitarsella* — Icklingham (**26**) cases on *Glechoma* 12.x.91 — AME & JRL

518 *C. mayrella* (Hübn.) — Yelling (**31**) 6.viii.91 — BD

530 *C. lixella* Zell. — Earlshall Muir (85) 6.viii.88 — J. Clayton, *Ent. Rec.* **103**: 297

532 *C. albidella* ([D. & S.]) — Coppice Wood (**30**) 16.vi.90 — DVM

541 *C. pyrrhulipennella* Zell. — Wellington College (**22**) cases 6.v.91, moths bred — BRB

547 *C. discordella* Zell. — Newtonmore (**96**) one 3.vii.91 — DJLA, MWH & JRL

552 *C. lassella* Staud. — Church Ope Cove, Portland (9) 27.v.91 — RJH

556 *C. trochilella* (Dup.) — Boscombe Down (**8**) case on Achillea — SMP; Feeding on *Leucanthemum vulgare* — JRL, *Ent. Gaz.* **42**: 242

558 *C. ramosella* Zell. — Chilbolton (**12**) 3.vii.66 — D.W.H. Ffennell, det JRL *Ent. Gaz.* **43**: 124

561 *C. therinella* Tengst. — Southsea (11) one at m.v. 20.vii.91 — JRL

567 *C. adspersella* Benander — St John's Lake (**2**) moth bred ex case on *Halimione* ix.90 — J.L Gregory per FHNS; The Gannel, Newquay (**1**) 4.viii.85 ex case on *Atriplex* vi.85 — P.N. Siddons per FHNS

582 *C. glaucicolella* Wood — Grantown-on-Spey (**95**) several 6.vii.91 — DJLA, MWH & JRL; Cotswold Water Park (7) case 26.iv.91 — SMP

584 *C. alticolella* Zell. — Its high altitude limits explored — D. Welch, *Ent. Gaz.* **43**: 111-113

589 *C. clypeiferella* Hofm. — Cockayne Hatley (**30**) vii.91 — DVM

ELACHISTIDAE

598a *Elachista eskoi* K & K — Grantown-on-Spey (**95**) vi.91 — MRY & MWH

600 *E. luticomella* Zell. — High Woods, Colchester (**19**) 22.vi.91 — BG

621 *E. subalbidella* Schläg. — Grantown-on-Spey (**95**) one 2.vii.91 — DJLA, MWH & JRL

622 *E. revinctella* Zell. — Wyre Forest (**37**) & (**40**) 19.iv.91 — ANBS

623 *E. bisulcella* (Dup.) — Harnham Meadows, Salisbury (**8**) 13.viii.91 — SMP

624 *Biselachista trapeziella* (Staint.) — Dinton (**8**) mines with larvae in *Luzula sylvatica* 21.iv.91 — JRL, SMP & PHS, *Ent. Gaz.* **43**: 108; Godshill (**11**) mines with larvae on *Luzula sylvatica* 29.iv.91, moths bred — JRL & DHS. *Ent. Gaz.* **43**: 108

626 *B. serricornis* (Staint.) — Grantown-on-Spey (**95**) vi.91 — MRY

633 *Cosmiotes stabilella* (Staint.) — Sharnbrook (**30**) 26.vii.86 —DVM

OECOPHORIDAE

636 *Schiffermuelleria similella* (Hübn.) — Grantown-on-Spey (**95**) a few 4-6.vii.91 — DJLA, MWH & JRL

641 *Batia lambdella* (Don.) — Middlewick Ranges, Colchester (**19**) 10.viii.91 — BG

648 *Endrosis sarcitrella* (Linn.) — Grantown-on-Spey (**95**) many 29.vi.-6.vii.91 — DJLA, MWH & JRL

656 *Parocystola acroxantha* (Meyr.) — Perranporth (**1**) 26.vi.90, one — P.N. Siddons per FHNS

666 *Semioscopis avellanella* (Hübn.) — Cockayne Hatley (**30**) iv.90 — DVM

684 *Depressaria silesiaca* Hein. — Grantown-on-Spey (**95**) one larva 30.vi.91 — DJLA, MWH & JRL

712 *Agonopterix astrantiae* (Hein.) — Burren (**H9**) bred from sanicle v.91 — ANBS & MWH. **New to Ireland**

720 *Ethmia bipunctella* (Fabr.) — Uffington (**22**) 13.ix.91 — E.W. Classey

GELECHIIDAE

724 *Metzneria lappella* (Linn.) — Fox Holes (**31**) 1.vii.91 — BD

729 *Isophrictis striatella* (D. & S.) — Cockayne Hatley (**30**) viii.91 — DVM

733 *Eulamprotes wilkella* (Linn.) — Earlshall Muir (85) 15.vi.-6.viii.88 — J: Clayton, *Ent. Rec.* **103**: 297

733a *E. phaeella* Heck. & Lang. — Snodland (16) 11.vii.90 — D. O'Keeffe, *Ent. Rec.* **103**: 286

736 *Monochroa lucidella* (Steph.) — Dinton (RAF Chilmark) (**8**) 2.viii.91 — SMP & J. Pitman

744a *M. moyses* Uffen — Southbourne (**13**) 26.viii.89 & 9.ix.89; Farlington Marshes (**11**) 8.ix.90 — JRL, *Ent. Gaz.* **43**: 144

746 *Chrysoesthia drurella* (Fabr.) — Woodwalton Fen (31) 5.vii.91 — MSP

748 *Ptocheuusa paupella* (Zell.) — Cockayne Hatley (**30**) viii.91 — DVM

760 *Exoteleia dodecella* (Linn.) — Weaveley Wood (**31**) 3.vii.91 — BD

767 *Teleiodes decorella* (Haw.) — Wyre Forest (**37**) viii.91 — ANBS

777 *Bryotropha basaltinella* (Zell.) — Blisland (**2**) four 17.vii.91 — R.J.B. Hoare per FHNS

790 *Chionodes fumatella* (Doug.) — Winchester (11) 2. viii.91 at m.v. — DHS

796 *Aroga velocella* (Zell.) — Landford Bog (**8**) 6.viii.91 — SMP

800 *Gelechia rhombella* ([D. & S.]) — Leigh (37) viii.91 - ANBS

806 *G. nigra* (Haw.) — Brampton Wood (**31**) 29.viii.91 — BD

808 *Platyedra subcinerea* (Haw.) — Dinton (**8**) 17.v.91 — SMP

818 *Scrobipalpa atriplicella* (F.v.R.) — Cockayne Hatley (**30**) x.91 — DVM

822 *S. acuminatella* (Sirc.) — Leadburn (**78**) larva mining *Tussilago* 2.ix.90, moth bred '91 — KPB, *Ent. Gaz.* **43**: 101f.

829 *Caryocolum marmoreum* (Haw.) — Berney Marshes Reserve (27) — APF & K.G. Saul

834 *C. tricolorella* (Haw.) — Mortimer West End (**22**) larvae on *Stellaria* 8.iv.91, moths bred — BRB

846 *Syncopacma vinella* (Bankes) — Genitalia formerly confused with *S. albipalpella* — RJH, *Ent. Gaz.* **42**: 227-230

848 *S. albipalpella* (H.-S.) — A review of its status — RJH, *Ent. Rec.* **104**: 62; Genitalia formerly confused with *S. vinella* — RJH, *Ent. Gaz.* **42**: 227-230

853 *Anacampsis populella* (Clerck) — St Eval (**1**) pupae 12.vii.91 on *Salix caprea,* em. 15-16.vii.91 — R.J.B. Hoare per FHNS

857 *Anarsia lineatella* (Zell.) — Plymouth (**3**) bred from imported nectarine, with larval description — RJH, *Ent. Gaz.;* **43**:54; Walberton (**13**) one specimen taken at light '91 — J.T. Radford

859 *Psoricoptera gibbosella* (Zell.) — Collyweston Great Wood (32) 3.ix.91 — MSP; Donyland Wood, Colchester (**19**) 29.vii.89 — B. Goodey

BLASTOBASIDAE

873 *Blastobasis lignea* Wals. — Helensburgh (**99**) '91 — MRY; Cockayne Hatley (**30**) viii.91 — DVM; Constantine Bay (**1**) four at light vii.91 — R.J.B. Hoare per FHNS

874 *B. decolorella* (Woll.) — Earley, Reading (22) 12.vii.91 — BRB; Killin (**88**) '91 — MRY; Landford Bog (**8**) 28.vi. & 24.vii.91 — SMP; Note on its life history — D. O'Keeffe, *Ent. Rec.* **103**: 282; Homefield Wood (24) 3.vii.91 — MVA; Par (**2**) 3.viii.91 — J.L. Gregory per FHNS

MOMPHIDAE

880 *Mompha langiella* (Hübn.) — Dinton (**8**) 12.vi.91 — SMP

890 *M. subdivisella* Bradl. — Stratford-upon-Avon (38) pupae in stems of *Epilobium hirsutum* 13.ix.91, moths bred — RJH

COSMOPTERIGIDAE

898 *Limnaecia phragmitella* Staint. — Note on pupation: *Ent. Rec.* **103**: 330

899 *Pancalia leuwenhoekella* (Linn.) — North Unhill Bank (22) 25.v.91 — BRB

905 *Blastodacna hellerella* (Dup.) — Grimeshaw Wood (**32**) 6.vii.91 — MSP

908 *Sorhagenia rhamniella* (Zell.) — Winchester (**11**) 2.viii.91 — DHS, *Ent. Gaz.* **43**: 206

SCYTHRIDIDAE

918 *Scythris limbella* (Fabr.) — Eynesbury (**31**) 21.vi.91 — BD

TORTRICIDAE

926 *Phalonidia manniana* (F.v.R.) — Morton Lochs (**85**) 7.vi.89 — J. Clayton, *Ent. Rec.* **103**: 297

945 *Aethes cnicana* (Westw.) — Grantown-on-Spey (**95**) one 2.vii.;91 — DJLA, MWH & JRL

974 *Argyrotaenia ljungiana* (Thunb.) — Larva on *Pyracantha* — DJLA, *Ent. Rec.* **103**: 276

985 *Cacoecimorpha pronubana* (Hübn.) — Newstead Abbey Park (**56**) 22.vii.91 — KC

987 *Ptycholomoides aeriferanus* (H.-S.) — Eastern Hornstocks (**32**) 14.viii.91 — MSP; Newstead Abbey Park (**56**) 2.viii.91 — KC

1015 *Eulia ministrana* (Linn.) — Grantown-on-Spey (**95**) several 29.vi.-6.vii.91 — DJLA, MWH & JRL

1023 *Cnephasia genitalana* P. & M. — Southsea (**11**) one at m.v. 29.vii.91, genitalia det. — JRL, *Ent. Gaz.* **43**: 206; Faringdon (**22**) 1990 — MFVC, *Ent. Rec.* **104**: 159

1024 *C. incertana* (Treits.) — Grantown-on-Spey (**95**) several 29.vi. -6.vii.91 — DJLA, MWH & JRL

1030 *Eana incanana* (Steph.) — Trench Wood (**37**) iv.91 — ANBS

1044 *Acleris ferrugana* ([D. & S.]) — Sutton Wood (**32**) 4.x.91 — MSP

1045 *A. notana* (Don.) — Eastern Hornstocks (**32**) 17.ix.91 — MSP

1046 *A. shepherdana* (Steph.) — Harnham Meadows, Salisbury (**8**) 13.viii.91 — SMP

1051 *A. logiana* (Clerck) — Botley Wood (**11**) one larva on *Betula* 30.ix.91, moth emerged late autumn/winter 1991-2, genitalia det. JRL. **New to England.** *Ent.Gaz.* **44**: 154

1013 *Olindia schumacherana* (Fabr.) — Glen Lochay, Perth (88) '91 — MRY

1073 *Olethreutes schulziana* (Fabr.) — Tulloch Moor (**95**) a few 2.vii.91 — DJLA, MWH & JRL

1096 *Apotomis sauciana* (Fröl.) — Grantown-on-Spey (**95**) one 4.vii.91 — DJLA, MWH & JRL

1104 *Endothenia quadrimaculana* (Haw.) — Tempsford (**30**) 25.vii.90 — DVM

1108 *Lobesia abscisana* (Doubl.) — Shrewsbury (**40**) one at m.v. 2.viii.91 — JRL

1109 *L. littoralis* (H. & W.) — Mapperley (56) 24.vi.91 etc. — ASB

1111 *Bactra lancealana* (Hübn.) — Grantown-on-Spey (**95**) a few 30.vi.-6.vii.91 — DJLA, MWH & JRL

1126 *Ancylis badiana* ([D. & S.]) — Grantown-on-Spey, Tulloch Moor (**95**) several 29.vi.- 6.vii.91 — DJLA, MWH & JRL

1133 *Epinotia bilunana* (Haw.) — Tulloch Moor (**95**) one 2.vii.91 — DJLA, MWH & JRL

1143 *E. fraternana* (Haw.) — Forres (**95**) vacated larval spinnings on *Abies grandis* 1.vii.91 — DJLA, MWH & JRL

1144 *E. signatana* (Dougl.) — Constantine Bay (1) 29.vi.89, Little Petherick (1) 17.vii.90 — R.J.B. Hoare per FHNS

1149 *E. crenana* (Hübn.) — Ormsary, Knapdale, N. Kintyre (**101**) '91 — MRY

1163 *Zeiraphera ratzeburgiana* (Ratz.) — Yelling (**31**) 6.viii.91 — BD

1195 *Eucosma lacteana* (Treits.) — Spurn (**61**) several late vii.91 — B.R. Spence per HEB

1198 *E. pauperana* (Dup.) — Saffron Walden (19) and a review of its status in Britain — AME *Ent. Rec.* **104**: 19

1207 *Clavigesta purdeyi* (Durr.) — Dinton (RAF Chilmark) (8) 10.viii.91 — SMP & J. Pitman

1220 *Collicularia microgrammana* (Guen.) — Cow Gap, E. Sussex (**14**) 1.viii.91 — MSP

1226 *Pammene agnotana* Reb. — Reference for record cited in 1990 review: D. O'Keeffe, *Ent. Rec.* **103**: 327f.

1233 *P. aurantiana* (Staud.) — Edlington Wood, S. Yorks (**63**) 9.viii.91 — HEB

1234 *P. regiana* (Zell.) — Grantown-on-Spey (**95**) one 5.vii.91 — DJLA, MWH & JRL

1242 *Cydia internana* (Guen.) — Wokefield Common (22) 27.v.91 — BRB; Earlshall Muir (85) 27.v.89 — J. Clayton, *Ent. Rec.* **103**: 298

1249 *C. prunivorana* (Rag.) — Plympton (**3**) 1 & 11.vii.91 and a third before end of July — RJH, *Ent. Gaz.* **43**: 107

1259 *C. fagiglandana* (Zell.) — Rock (2) 14.vii.90 — R.J.B. Hoare per FHNS

1261 *C. pomonella* (Linn.) — Use of pheromone traps to monitor — R.C. Denning, *Ent. Rec.* **104**: 185

1279 *Dichrorampha acuminatana* (L. & Z.) — Faringdon (22) summer brood — MFVC, *Ent. Rec.* **104**: 159f.

1282 *D. sylvicolana* Hein. — Loch Insh (96) 6.vii.91 — MWH, *Ent. Gaz.* **44**: 79. **New to Scotland.**

PYRALIDAE

1290 *Chilo phragmitella* (Hübn.) — Morton Lochs (85) 6. & 17.viii.88 & 6.viii.89 — J. Clayton, *Ent. Rec.* **103**: 298

1292 *Calamotropha paludella* (Hübn.) — Fox Holes (**31**) 27.vii.91 — BD; Harpenden (20) '91 — A.M. Riley & M. Townsend, *Ent. Rec.* **104**: 161

1309 *Agriphila geniculea* (Haw.) — Easdale, Seil Island (**98**) 6.viii.83 — MFVC, *Ent. Rec.* **104**: 188

1316 *Catoptria falsella* ([D. & S.]) — Easton Hornstocks, Northants (**32**) 14.viii.91 — MSP

1330 *Donacaula mucronellus* ([D. & S.]) — Rowardennan (86) several 24.vii.91 — BFS

1335 *Scoparia ancipitella* (de la Harpe) — Rowardennan (86) three 24.vii.91 — BFS

1341 *Eudonia lineola* (Curt.) — Rock (**2**) 1990 — R.J.B. Hoare per FHNS

1368 *Margaritia sticticalis* (Linn.) — Maenporth (1) 31.vii.91 — R.F. McCormick per BFS

1375 *Ostrinia nubilalis* (Hübn.) — Spurn (**61**) 6.vii.91 —B.R. Spence per HEB; Harpenden (20) 22-23.vii.91 — A.M. Riley & M. Townsend, *Ent. Rec.* **104**: 161

1380 *Phlyctaenia perlucidalis* (Hübn.) — Burghclere (12) 11.vii.91 — G.G. Eastwick-Field per BRB; Stone (16) 15.vi.90 — BFS & JMC-H; Yardley Hastings (**56**) 29.vii & 3.viii.91, Willen, Milton Keynes (**24**) 26.vii.91 — G.E. Higgs, *Ent. Rec.* **104**: 60; Harpenden (**20**) '91 — A.M. Riley & M. Townsend, *Ent. Rec.* **104**: 161

1379 *Mutuuraia terrealis* (Treits.) — Abercastle (45) larvae on *Solidago* 10.ix.91 — BFS

1383 *Psammotis pulveralis* (Hübn.) — Portland (**9**) 1.viii.91 — Bird observatory per BFS; Peacehaven (**14**) 22.viii.91 — C.R. Pratt per BFS

1389 *Udea fulvalis* (Hübn.) — Christchurch (11) 20.vii, 15.viii & 19.viii.91, two — E.H. Wild, *Ent. Rec,* **104**: 49; Durlston (9) 30.vii & 2.ix.91 — P: Davey per BFS; Lymington (11) 21.viii.91 — A.J. Pickles per BFS; Studland (9) 1.ix.91 — BFS

1396 *Mecyna flavis* ([D. & S.]) — Bentley Wood (8) 7.viii.91 — SMP & B. Fox

1397 *M. asinalis* (Hübn.) — Southsea (**11**) one at m.v. 27.vii.91 — JRL

1401 *Maruca testulalis* (Gey.) — Swanage (9) 31.viii.91 — S. Church per BFS

1404 *Hymenia recurvalis* (Fabr.) — Portland (9) 14.x.91 M.F. Halsey per BFS

1408 *Palpita unionalis* (Hübn.) — A total of 29 recorded: 31.vii -26.viii.91 four in Kent, 4 - 14.ix.91, two in Dorset; 9 - 16.x.91, 22 from Lincs to Dorset; 1.xi.91, one in Essex

1410 *Agrotera nemoralis* (Scop.) — East Kent (15) 29 & 30.v.90 — BFS & JMC-H

1414 *Synaphe punctalis* (Fabr.) — Ham Cross (RAF Chilmark) (**8**) 3.viii.91 — SMP & J. Pitman

1420 *Aglossa caprealis* (Hübn.) — Great Horkesley, Colchester (19) 23.vii.91 — B.H. Harley, *Ent. Gaz.* **43**: 166; Cusgarne, Truro (**1**) 8.ix.90 — A. Spalding, *Ent. Gaz.* **42**: 290

1424 *Endotricha flammealis* ([D. & S.]) — Spurn (**61**) 24.vii.91 — B.R. Spence per HEB

1432 *Anerastia lotella* (Hübn.) — Earlshall Muir (**85**) 15.vi.88 — J. Clayton, *Ent. Rec.* **103**: 298; Rock (**2**) 14.vii.;90 at light — R.J.B. Hoare per FHNS

1449 *Microthrix similella* Zinck.) — Dinton (RAF Chilmark) (8) 2.viii.91 — SMP & J. Pitman; Landford Bog (8) 6.viii.91 — SMP; Hodgemoor Woods (24) 21.vi.91 — MVA

1444 *Pempelia obductella* (Zell.) — Snodland (16) 21.vii.90 — BFS

1454 *Dioryctia abietella* ([D. & S.]) — Harpenden (20) 14.vii.91 — A.M. Riley & M. Townsend, *Ent. Rec.* **104**: 161; Dungeness (15) 6 & 31.vii.91 — S.P. Clancy per BFS, Portland (9) 11.vii.91 — Bird Observatory per BFS; Thorpeness (25) 31.vii.91 — BFS; Northcoates (54) 31.vii.91 — R. Lorand per BFS

1463 *Pempeliella ornatella* ([D. & S.]) — Leagh South (**H15**) 26.vi.90 — BFS

1435 *Acrobasis tumidana* ([D. & S.]) — Dungeness (15) 1.viii.91, Greatstone (15) 27.viii.91, Studland (9) 3.ix.91 — BFS. The record published in the 1987 Review (*Ent. Rec.* **101**: 151) is erroneous

1486 *Apomyelois bistriatella neophanes* (Durr.) — Penhale (**1**) one at light 26.vii.91, larvae common in *Daldinia concentrica* 12.viii.91 — FHNS

1464 *Gymnancyla canella* ([D. & S.]) — Winterton Dunes NNR (**27**) 1.viii.91; Holme Dunes (28) 3.viii.91 — K.G. Saul per DH

1461 *Assara terebrella* (Zinck.) — Blackheath (17) 29.vii.90 — BFS

1469 *Euzophera cinerosella* (Zell.) — Stonelees (**15**) 10.viii.90 — BFS & JMC-H

1480 *Homoeosoma nebulella* ([D. & S.]) Southsea (11) one at m.v. 22.viii.90 — JRL; Wexland Hanging, Salisbury Plain (8), three, 20.viii.91 — SMP

1481 *H. sinuella* (Fabr.) — Brampton Wood (**31**) 9.viii.91 — BD

1485 *Phycitodes maritima* (Tengst.) — Grantown-on-Spey (**95**) one 5.vii.91 genitalia det. DJLA, MWH & JRL

1479 *Plodia interpunctella* (Hübn.) — Peterborough (**32**) 6.vii.91 — MSP

1474 *Ephestia parasitella* Staud. — Churchill (**6**) 12.vii.91 — DJLA

1477 *E. figulilella* Gregson — Dungeness (**15**) 9.x.91 — S.P. Clancy per BFS

PTEROPHORIDAE

1491 *Oxyptilus distans* (Zell.) — Holme Dunes (28) 3.viii.91 — K.G. Saul per DH

1493 *Buckleria paludum* — Dersingham Bog (28) 13.viii.91 — K.G. Saul per DH

1503 *Platyptilia ochrodactyla* ([D. & S.]) — Trowbridge (**8**) 18.viii.91 — M.H. Smith, *Ent. Rec.* **104**: 76

1516 *Pselnophorus heterodactyla* (Müll.) — Falls of Fender (**89**) and Keltneyburn (88) bred from *Mycelis muralis* and *Crepis paludosa* '91 — KPB, *Br. J. Ent. nat. Hist.* **5**: 59

1522 *Leioptilus tephradactyla* (Hübn.) — Wyre Forest (**37**) x.91 — ANBS

Sharing with a ladybird

I was sitting in the sun at Salthouses one afternoon last August with my sleeves rolled up, having a cup of tea and enjoying one of Mr Kipling's "Delicious Apple Tarts". I didn't notice that a piece of cooked apple had fallen onto my arm but this did not escape keener senses than mine. When I looked down, there was an adult seven-spot ladybird tucking into the piece of apple as fast as it could. Its meal lasted a full five minutes. Once it wandered about half an inch away from its food but soon returned. I wonder what green-fly taste like?— J.A. Owen, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

NOCTUA JANTHINA ([DENIS & SCHIFFERMÜLLER]) CONFUSED WITH *NOCTUA JANTHE* (BORKAUSEN, 1792)

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IT IS APPARENT that the species which has long appeared in collections and the plates of literature under the name of *Noctua janthina* (D. & S.) is in fact *Noctua janthe* (Bkh.) which differs from *N. janthina* by virtue of the width and outline of the black bands on the hindwings. This error in identification, which has been perpetuated abroad as in Britain, is discussed by the distinguished Spanish entomologist, Dr Carlos Gómez de Aizpúrua in his recent work *Biología y Morfología de las Orugas,* and below is a translation of part of the text:

"*Noctua* Linne, 1758

janthe Borkenhausen, 1792

We find ourselves faced with a species generally confused with another very similar, i.e. *Noctua janthina* (D. & S.), and this confusion manifests itself in many collections and in the plates of specialised literature. The two species differ at first sight as follows:

Noctua janthe has the black bands of the hindwings lesser in expanse than the yellow area, whilst *N. janthina* has these black bands larger in expanse than the yellow area which is reduced to a small basal zone.

In continuation it seems very opportune to transcribe as follows, an article by Dr D. José Luis Yela which appeared in *SHILAP* under General News Items which said: A short note on the presence in the Iberian Peninsular of *Noctua janthe* (Borkhausen, 1792) (Lepidoptera: Noctuidae), a species confused with *Noctua janthina* (D. & S.) 1775.

A work has just been published which gives an account of three species which are confused with each other under the name *Noctua janthina* (D. & S. 1775): (Mentzer, *et al,* 1991) in which is described *Noctua tertia* Mentz., Fib. & Mob. 1991, a species of the Anatolian-Baltic area, and the same work offers abundant records for *Noctua janthe* Bkh. 1792 which species appears to be distributed over the north-east of Africa and eastern and central Europe"

I conclude my translation at this point, although the text continues for three more pages.

The source article (Mentzer, *et al,* 1991), provides detailed descriptions of the factors separating the three *Noctua* species and includes line drawings, photographs of imagines and genitalia preparations. The male genitalia are separable only on the structure of the vesica and the female on features of the ductus bursae. The larvae of both *janthina* and *janthe* are very variable, but there appears to be constant differences in the dorsal pattern. Monochrome illustration of the larvae of each species are given in

Skou (1991). There is no evidence that the newly described species, *Noctua tertia,* occurs in Britain; its current known distribution is from southern Yugoslavia and Bulgaria and throughout Greece and Turkey.

Figures 1 and 2 are sketches of the hindwing patterns of *janthina* and *janthe* respectively. Correctly identified colour illustrations of both species are given in Aizipura (1993), Skou (1991) and, together with *Noctua tertia,* Fibiger (1993). Culot (1909-1913) illustrates both species (volume 1, plate 3), with figure 14 being *janthe* (labelled *janthina*) and figure 15 being *janthina* (labelled "ab *obscura*").

All the illustrations and distribution data which appear in the common reference books on British lepidoptera under the name of *Noctua janthina* apply in fact to *Noctua janthe.* There is no confirmed, published record of *janthina* occurring in the British Isles. *Janthina* is said to be a Mediterranean-Asiatic species, but the latest map of known distribution (Fibiger, 1993) shows records from Belgium, Germany, Denmark and north to southern Sweden.

Fig. 1. *Noctua janthina.* Hindwing pattern.

Fig. 2. *Noctua janthe.* Hindwing pattern.

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* NOTE: In this paper, the legend to the figures on page 26 have been transposed so that *janthina* is labelled *janthe* and *vice versa.*

A NOTE on *Biologia y Morfologia de las Orugas*. Each volume of this series of de-luxe quality paperbacks, 18 × 29cm, consists of about 230 pages dealing with approximately 50 species. About half the species in most volumes occur in Britain, many of them as residents. In all cases the adults as well as the larvae and pupae are described and illustrated, but as the title indicates the series is principally pre-occupied with larval biology and morphology. The text is in Spanish, but the superb photographic illustrations alone recommend the books to non-readers of Spanish.

The price of each volume is 3,000 pesetas inclusive, i.e. about £16.70, obtainable from the author: Dr Carlos Gómez de Aizpúrua, c/ Almansa 110 — Escal 2-3° B, 28040 Madrid, Spain.

I would be pleased to supply any further details on application.— JLD.

Recent Lepidoptera records from Shetland

Many collectors visited Shetland following MacArthur's discoveries in his three visits between 1880 and 1883 (for a brief summary see Kettlewell and Cadbury 1963, *Ent. Rec.* **75**: 149-160), and during the 1960s there was extensive light-trapping carried out in the islands as part of an investigation into melanism (see Kettlewell, 1973 *The Evolution of Melanism,* Clarendon, Oxford). However, since Barry Goater's three visits between 1966 and 1972 (*Entomologist's Gaz.* **20**: 73-82 and **24**: 7-12) hardly any work has been carried out on the Lepidoptera of Shetland. Since 1987 light traps have been run regularly on Fair Isle and some of the resulting records have been published by Riddiford and Harvey (1992, *Ent. Rec.* **104**: 263-264). In the rest of Shetland, light traps were run in various parts of the islands in 1991 and 1992, and interest in entomology has been further encouraged by the formation of the Shetland Entomological Group. This note gives notable records from Shetland (excluding those for Fair Isle which will be published separately) for 1991 and 1992. Records are by the author unless stated.

The following five species are all new to the Shetland list: a Dark Spinach *Pelurga comitata* L. caught by I.D. Bullock in an actinic trap on Fetlar on 3rd August 1991; a Magpie Moth *Abraxas grossulariata* L. at a lighted window at Baltasound on 1st August 1991; a male Bordered White *Bupalus piniaria* L. of the southern, yellowish form caught by day at Baltasound on 4th June 1992; a Privet Hawkmoth *Sphinx ligustri* L. caught at Brae on 16th August 1991 and taken to J.S. Blackadder who identified it and released it in Lerwick where it was later killed by a cat; and a Broom Moth *Ceramica pisi* L. of the form ab. *scotica* in an m.v. trap at Baltasound on

12th June 1992. In addition, two other species previously recorded only from as far north as Fair Isle (Riddiford and Harvey *loc. cit.*) have subsequently been found elsewhere in Shetland; a Juniper Pug *Eupithecia pusillata* D. & S. at a lighted window at Baltasound on 1st August 1991 and a Satellite *Eupsilia transversa* Hufn. caught indoors at Baltasound on 5th October 1992.

A number of other notable species have also been recorded. Although included in previous Shetland lists the Brick *Agrochola circellaris* Hufn. was stated to be absent from Shetland in Heath, J. and Emmet, A.M. 1983 (*The moths and butterflies of Great Britain and Ireland,* Vol. 10, Harley Books, Colchester). In 1992 one was caught in an m.v. trap run at Toab by J. & A. Clifton on 22nd September and one or two were seen by T. Rogers at a buddleia bush at Eswick on four dates in September and October. Two Red Sword Grass *Xylena vestuta* Hb., a species not recorded in Shetland since before 1960, were also seen visiting the buddleia bush at Eswick on two nights in September 1992 (T. Rogers). Five Large Wainscots *Rhizedra lutosa* Hb. were caught in an m.v. trap at Baltasound between 25th September and 12th October 1992; the only previous record for Shetland this century was at Hillswick in 1961 (Kettlewell and Cadbury *loc. cit.*). Interestingly records of this species, and those of *A. circellaris* and *E. transversa* in Shetland, have coincided with a recent surge of records for all three species in Orkney and on Fair Isle (R.I. Lorimer and N. Riddiford pers. comm.).

Most notable of recent migrants were five Hummingbird Hawkmoths *Macroglossum stellatarum* L. in late May 1992 at Sumburgh, Lerwick, Whalsay and two on Foula (per J. Clifton, S. Gear, B. Marshall and G. Petrie), the first Shetland records this century, with another also recorded from Fair Isle during the same period (N. Riddiford pers. comm.). Other notable migrants have included two Death's Head Hawks *Acherontia atropos* L. (per J.S. Blackadder and R. Gallagher) and 19 Convolvulus Hawkmoths *Agrius convolvuli* L. in 1992. Details will be forwarded to the migration reports in this journal.

With the additions noted above, the Shetland Lepidoptera list now stands at about 185 species, including 15 species recorded from Fair Isle only (M.G. Pennington unpublished). However, a few species still require confirmation. A copy of the list can be obtained from the address below, and I would welcome correspondence on Shetland Lepidoptera. Further details on recent Lepidoptera records in Shetland can be found in *The Shetland Naturalist* **1**: 37-47 and in prep.

I would like to acknowledge the assistance of .R.I. Lorimer for encouragement and identifications, D. Barbour and K.P. Bland for further identifications and members of the Shetland Entomological Group for supplying details of their records.— M.G. PENNINGTON, 9 Daisy Park, Baltasound, Unst, Shetland ZE2 9EA.

LONGITARSUS LONGISETA WEISE (COL.: CHRYSOMELIDAE) A BRITISH SPECIES, AND A NEW SYNONOMY

A.A. ALLEN

49 Montcalm Road, Charlton, London SE7 8QG.

IN 1967 I described what appeared to be a new species of *Longitarsus* on a male example from East Kent, naming it *L. clarus* (Allen, 1967). The beetle had been very critically examined by the late D.K. Kevan who at the time was preparing a key to the British species of the genus, and he was fully satisfied that it represented an undescribed species nearest to the continental *L. scutellaris* Rey. I may say now, however, that I did not feel quite as positive as he did on the matter, though it was obviously a novelty to our fauna. I had noticed the marked similarity of its aedeagus to a figure (photo?) of that of *L. longiseta* Weise by the late A. Strand, not now traceable, and pointed out this resemblance to Mr Kevan; but he remained of the opinion that the Kentish insect must be new, believing that others of its characters excluded *longiseta*. In deference to his superior knowledge, I felt bound to accept his assurance and accede to his request that I should describe it.

A few years ago Herr Manfred Döberl, the *Longitarsus* specialist, to whom I had sent *L. clarus* for examination, was able to state that the species is after all identical with *L. longiseta*; this synonymy must therefore be adopted. Herr Döberl informed me (in litt.) that *longiseta* is a rarity, living on *Plantago media* L. in half-shaded places. Mohr (1966) gives its range as middle and north Europe and the foodplant as *P. lanceolata* L., but the latter is probably incorrect or exceptional. Though occurring as far north as Norway, it may perhaps reach its north-western limit in south-east England where most likely it is genuinely rare. I am unable to assert that *Plantago media* grew at the site where the insect was swept at Blean, but the field bordered woodland and to that extent the site should be typical. Any coleopterist who can recognise the plant (Hoary Plantain) should bear in mind if he finds it, the possible presence of this very scarce flea-beetle.

The combination of two characters in particular — strong, almost coarse punctuation and typically a black sutural streak widest about middle and abbreviated before and often behind (together with small size and black head and hind femora) — are useful pointers to *L. longiseta*. The aedeagus is distinctive, but I have seen no figure of the spermatheca. The pair of long cilia at the tip of the elytra which give the species its name (not visible in my specimen) are found also in certain other species; they are often hard to see, or easily broken off, and cannot therefore be depended upon for diagnosis. Donisthorpe's female from Windsor (Allen, 1967, p.79), which I am strongly of opinion was *L. longiseta,* unfortunately cannot now be located. I think it quite possible that it could turn up in his British collection, but inserted somewhere else than in its proper place if room could not be found there.

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A further County record for *Trigonotylus caelestialium* (Kirkaldy), (Hem.: Miridae)

In a recent note (*Ent. Rec.* **105**: 37-38) Mr A.A. Allen reports the discovery of examples of this new addition to the British fauna in his collection. Prompted by reading this, I examined the five specimens standing in my collection under *T. ruficornis* (Geoff.), and found that one of them, a female, fitted the description of *T. caelestialium*. The identification was subsequently confirmed by Dr B.S. Nau to whom I am obliged.

The specimen was collected at Brough, East Yorkshire (v.c. 61), on 26.vi.71, and although I have no recollection of the precise habitat, it was quite probably swept from grasses at the landward edge of a narrow salt marsh and *Phragmites* bed fringing the north bank of the river Humber.— ROY CROSSLEY, 1 The Cloisters, Wilberforce, York YO4 5RF.

The Chestnut-coloured Carpet, *Thera cognata* (Lep.: Geometridae) in Yorkshire

As there are no confirmed records of this species in Yorkshire this century, I am pleased to record a specimen of *Thera cognata* taken by G.B. Summers at Levisham, North Yorks, on 28th July 1992.— S.M. JACKSON, 31 Hillfield, Selby, North Yorkshire.

***Gelechia senticetella* Staud. (Lep.: Gelechiidae) — a second British record**

Agassiz (*Entomologist's Gaz.* 1989, **40**: 189-192) recorded *Gelechia senticetella* as new to Britain from a specimen taken by him at Grays, Essex.

An unfamiliar gelechiid was found in my light trap at Petts Wood, Kent (v.c. 16) on 23rd July 1992 and identified as *senticetella* by Dr K. Sattler at the microlepidoptera workshop which took place at the Natural History Museum on 20th February 1993.

I am most grateful to Dr Sattler for his identification of what is apparently the second British specimen of this species. The larvae feed on Juniper and, although I have none in my garden, Juniper shrubs are not uncommon in the area.— D. O'KEEFFE, 50 Hazelmere Road, Petts Wood, Orpington, Kent BR5 1PD.

POLISTES DOMINULUS (CHRIST, 1791) (HYMENOPTERA: VESPIDAE) IN GREATER LONDON

LAURENCE CLEMONS

14 St John's Avenue, Sittingbourne, Kent ME10 4NE.

SPECIMENS OF *Polistes dominulus* have occasionally been imported into Britain. Richards (1980) records a female from Hither Green, which had been found on 18.iii.1975 amongst a consignment of endives from Spain. Previous to this D. Grist obtained a single female on 6.i.1958 from a box of peaches in Maidstone (J. Felton, pers. comm.) and another female was taken on 23.iii.1937 in a shop at Mill Hill, Middlesex. To date no records of males have been published.

On 12.ix.1992 I took a single male *Polistes* from a small area of grazing marsh on Erith marshes (TQ 4979) which, incidentally, is about eleven kilometres from Hither Green. It was tentatively identified as *dominulus,* although Richard's description deals with females only. At the Annual Exhibition of the Kent Field Club on 14.xi.1992 Mr John Felton kindly offered to examine the specimen more critically and within four days had returned it, confirming the identity as *dominulus.*

The Erith specimen differs slightly in colour from Richard's description of the female. The mandibles are practically entirely yellow and concolorous with the clypeus and greater part of the face, being black only along the ventral edge and on the apical teeth. All gastral sternites are extensively patterned with black.

It is significant that this male was free-flying and feeding in the centre of a fennel (*Foeniculum vulgare* Mill.) umbel. The day had begun warm and sunny but by mid-day the sky had clouded and there were intermittent light showers. At the time of capture, approximately 14.30 hours, the sun was again shining but a distinct breeze had developed. The fact that males are produced in late summer could signify the existence of a colony, although I did not think to search for one at the time. Sallows and poplars grow in the area and these could conceivably provide the wood pulp with which nests are made.

Acknowledgements

I would like to thank the Kent Trust for Nature Conservation and in particular Joyce Pitt and Ishpi Blatchley for the opportunity to visit Erith marshes.

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Little-known entomological literature 1

Although the main books on entomology by well-known authors such as Kirby & Spence, Westwood, Rennie, Newman, are well-known, and are to be found in the main entomological libraries, there are many lesser items that are not, and this includes the often very substantial articles that appeared in books and journals covering a wide range of subjects, where the title gives no clue that they contain entomology of value. One such book is *The Young Lady's Book; a Manual of Elegant Recreations and Pursuits* published by Vizetelly, Branston & Co. in 1829. The natural history content of this book was of a sufficiently high standard to attract the attention of J.C. Loudon, who published a review of it in his *Magazine of Natural History* (Vol. 3 for 1830, page 81) and it is worth quoting this contemporary review.

> "We notice this work because it contains some well-written and beautifully illustrated introductions to mineralogy, conchology, entomology, botany, and ornithology. From such introduction in such a book, we anticipate a powerful stimulus to the study of natural history among that sex and class for whom such studies are in a particular manner adapted. It is not in our line to notice the other parts of the work, farther than to state that they appear equally well executed, and that the engravings are most exquisite, both in design and in execution. If we were to find any fault, it would be with the fanciful initial letters to the chapters, which are not at all so clear and obvious as they ought to be. The silk binding and lace paper are beyond our praise. Every mother who has young daughters, and can spare a guinea, will not be sorry for having exchanged it for a copy of *The Young Lady's Book*."

In a book of 500 pages, entomology occupies 69 pages, a number exceeded only by "The Aviary" (called ornithology in review). Half the book is on natural history while the rest is on such useful subjects as dancing, archery, riding, painting and music. One likes to think that perhaps this book served as a grounding for the natural history interests of Victorian authors such as Eleanor Ormerod, Mary Ward, Margaret Plues, Mary & Elizabeth Kirby.

As was usual in many books of the time, the authors remain anonymous, although it is stated in a later (1864) advertisement that the book was edited by "distinguished professors". Whoever wrote the entomology chapter shows a clear and knowledgeable grasp of the subject and the well-known authors of the time are quoted. The insects are gone through order by order and the final page is on rearing caterpillars. The engravings, of which there are over a thousand (112 being entomological), are indeed, as stated in the above review, exquisite, being of a far higher standard than those usually to be found in similar books of this period. The book was reprinted by Henry G. Bohn and in his standard binding, the price in the 1860s had come down to 7/6d (37½p.) or 9/– (45p.) with gilt edges.— BRIAN O.C. GARDINER, 2 Highfield Avenue, Cambridge, CB4 2AL.

MIGRANT LEPIDOPTERA IN THE WEST OF IRELAND IN 1992

BRIAN ELLIOTT –and BERNARD SKINNER[2]

[1] *24 Deerlands Road, Ashgate, Chesterfield, Derbyshire S40 4DF.*

[2] *5 Rawlins Close, South Croydon, Surrey CR2 8JS.*

TWO VISITS were made by the authors in 1992. The first by Brian Elliott (BE) and his wife, Pat, from the end of May to early June. The second visit was made in August by BE, with Bernard Skinner (BS) and his wife, Jacky.

On both occasions the home base was in the Burren district, where we stayed at the "Villa Maria", a guest house run by Anne Martin, now becoming well-known to entomologists. The first stay began on 31st May, and several light traps were set up to record the local lepidoptera. Migrant species, to be described later, first appeared in numbers in the traps on 2nd June, 1992, after an improvement in the weather following two very stormy nights.

On 1st June we drove south to the Gort district to investigate the area of juniper in that part of the Burren — it being more accessible than the other areas we know. During a break from sampling lepidoptera in the area, Pat pointed out an unusual-looking insect nosing in the flowers of *Lotus corniculatus*. This insect was a specimen of *Hemaris tityus* L., which turned out to be quite common in the area. I netted several which came within reach and one, larger than the rest, was *Macroglossum stellatarum* L. This, as I subsequently realised, was the forerunner of a large number of migrant species to be recorded over the next few days.

On 2nd June the traps on the slope behind Villa Maria were checked at dawn — with higher hopes than the previous nights as it was a little warmer with a light, south-westerly breeze. In and around the trap it was nice to be able to record three *Hyles lineata livornica* Esp., numerous *Mythimna vitellina* Hb., a few *Heliothis peltigera* D. & S. in variable condition from fresh to very worn. The latter were scrutinised very carefully for *Heliothis nubigera* H.-S. after a record earlier in the year from Dorset by BS. There were also single examples of *Trichoplusia ni* Hb., *Agrotis ipsilon* Hufn., and *Peridroma saucia* Hb. The microlepidoptera were represented by an abundance of *Nomophila noctuella* D. & S., *Udea ferrugalis* Hb., and *Plutella xylostella* L. During the day the weather, although dry, became cool and windy from the north-west. Both the 3rd and 4th of June were cool, with little lepidopterous activity during the night hours.

On 5th June, after a better night, BE was able to record a very worn *livornica* and a few each of *vitellina* and *peltigera*. That evening, BE also observed a further *stellatarum* flying down the main street in Kinvara, Co. Galway. The next night was cool again. Two more *peltigera* were noted, with a few *vitellina*. At this time, another entomologist staying at the guest house told me he had photographed *Colias croceus* Fourc. flying over the

Burren near Mullaghmore. On 7th and 8th, despite better weather, the migrants were tailing off and it was at this time that we left and returned to England.

The second visit commenced on 12th August 1992. Once again we returned to the Villa Maria where we set up traps to record local Burren specialities. We immediately set about searching for several species on our desired list, in pretty atrocious weather. If we had been at home, we would not have ventured out! The first night was notable only for continuous and heavy rain.

The next night, following poor weather during the day, we set up lights in another part of the Burren, walking the limestone pavements until late into the night. We found a single *stellatarum* sitting on a rock. Its condition was so fresh as to make us think it had bred in the Burren — remembering our experiences early in June.

On 14th August we spent the day near Mullaghmore and amongst the *Gonepterix rhamni gravesi* Huggins, there were now a few *croceus* flying at mid-day when it was a little warmer. These also appeared to be locally bred. Running m.v. lights that night, when again it was cool and rainy, produced few moths except another, even more interesting, migrant species. This time it was *Eublemma ostrina* Hb. which flew to Jacky's paraffin vapour lamp as we were packing up at 2.30am. Had she not drawn attention to it, we would probably not have embarked upon the subsequent *ostrina* trail. This was the second *ostrina* we had seen in Ireland — the other being noted in Co. Kerry in June 1975.

The next day we discussed the *ostrina* capture and, considering the number of migrants seen in the spring, we decided to start searching for evidence of breeding in the Burren. The first area we tried drew a blank, although we did pick up a Plusiid larva, two-thirds grown, feeding on an *Hieraceum* flower. We thought this was probably *Autographa gamma,* but kept it just in case. Later in the afternoon, we came upon the first evidence of *ostrina* feeding in the heads of carline thistle (*Carlina vulgaris*). A distorted head pulled open revealed a pupa in the centre of the seedhead that was about the right size. Within an hour we had each accumulated a bagful of likely tenanted heads.

Most of these were enlarged and distorted and often had a blackish line running across the seedhead. Frass could be seen coming from the base of the head, and growth of the lateral shoots was much more pronounced. Opening the heads showed pupae within them. On 16th August, one *ostrina* conveniently emerged, thus confirming our identification. We speculated at this stage on whether it was the first time that this species had bred in Ireland or for that matter the British Isles.

On 17th August we widened our search over the Burren and found more distorted heads. The next day a larva came out of a thistle head and spun a boat-shaped cocoon similar to that made by the more familiar *Earias*

clorana L. This type of cocoon was not produced when the larva spun up inside the seedhead.

On the final day of our visit together, BE returned to Mullaghmore to search for more Plusiid larvae, and found one more. BS and Jacky went to Inisheer, one of the Aran Islands, and found further evidence of *ostrina* there.

Of the two Plusiid larvae found, one died, but the other pupated and, after forcing, produced a *Trichoplusia ni* on 13th October. The thistle heads produced a total of 20 *ostrina*. Three of these came from Inisheer, Co. Galway with the remainder from localities in the Burren, all of which were in Co. Clare. Photographs of the larvae and pupae were obtained, and these will be used to illustrate a forthcoming article on the life history of this species.

***Coleophora vestianella* (Linn.) (Lep.: Coleophoridae) in Bedfordshire**

I have dissected two specimens (one male, one female) of this species obtained from a Rothamsted light trap at Cockayne Hatley (map ref. TL254494) in July/August 1991 (exact date not available). The slide preparations are identified from Patzak (1974).

Maitland Emmet pointed out to me the limited distribution of this species, listed as Breckland and Lancashire sandhills in *A Field Guide to the Smaller British Lepidoptera*. The site in Bedfordshire is on chalky boulder clay, with lower greensand about half a mile away.— D. MANNING, 27 Glebe Rise, Sharnbrook, Bedford MK44 1JB.

***Odontosia carmelita* (Esp.) — new to the Isle of Wight**

On 22nd April 1993 I took three male examples of *Odontosia carmelita* (Esp.) at m.v light at Cranmore in the Isle of Wight, which is the first record for this vice-county. It occurs in several localities on mainland Hampshire, the nearest locality being Brockenhurst. I should like to thank Mr D. Papaleo for allowing me to run my moth trap from his house which is situated amongst woodland.— S.A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, I.O.W.

The Cinnabar, *Tyria jacobaeae*, Linn, (Lep.: Arctiidae) in North Warwickshire, 1992

My first Cinnabar moth of the year in North Warwickshire was noted at Ansley Railway Cutting on 17th May, rather an early date for this species which is more often first encountered from early to mid-June hereabouts. Even in 1990, a notably forward season, my first record in the Borough was only 28th May. The earliest report I have received for 1992 is one at Ladywalk NR on 13th May (K. McGee).

My impression is that 1992 was a good year for this moth. I seem to have many more records than usual: six were counted, for example, along a short stretch of old mineral line at Baddesley Ensor on 23rd May and four

at Whitacre Heath NR (SSSI) on 12th June. Five were counted at Ladywalk on 14th June, the last date there (K. McGee). The first appeared in the garden on 31st May and other individuals were noted on 11th, 13th, 17th, 18th and finally 20th June. Others were seen at Alvecote Pools NR (SSSI) on 24th June and the last on 28th June.

The first larva in the garden was noted on Groundsel on 11th July. However, females had also oviposited on the newly-planted *Senecio greyi.* I noticed the first four larvae on 15th July and these lasted until at least 9th August — my last note. On 20th August, I identified four larvae of the Wormwood Pug (*Eupithecia absinthiata* Cl.), feeding on the flowerheads of the same plants of *S. greyi,* the count increasing to six on 25th August.

This was not the end of the story, for on 22nd September one small Cinnabar larva was found on the *S. greyi* and this was carefully observed more or less on a daily basis. It could not be found between 6th and 9th October but on the 10th, a cold but sunny day, it reappeared. Thereafter, it was noted either feeding on the leaves or flowerheads or in a comatose state following heavy rain or frost until the end of the month. When it survived until 31st October, I had convinced myself that I would have a record on 1st November but it denied me that satisfaction by disappearing overnight, presumably to pupate in the ground.

Cinnabar larvae are usually seen in July and August but early September is possible in a late season. However, I have not come across any reference to larvae surviving two months beyond their usual period — and almost making it into November! Perhaps, however, other readers have records of Cinnabar larvae which have? What is most puzzling is that eggs are laid in a batch and the gregarious larvae emerge after seven to ten days. Given the small size of the single larva first seen on 22nd September, this either allows an adult to be flying in early September, well over two months after the last record this year (although the imago can survive until towards the end of July) or this being the wettest August since 1968, some delay in the growth of this particular larva occurred or there was a lengthy delay in its hatching. However, I have received a description of what must have been Cinnabar larvae surviving on Groundsel during October (no date) about a mile from here. So, how common is this?

I am indebted to Mr J.M. Price, leader of the Entomological Section of the Birmingham Natural Society who has informed me that although this species is not generally considered to be migratory, there are a considerable number of records from lightships and odd examples amongst migratory swarms. In view of excellent weather conditions during May, June and July, it is just possible it was a second brood larva, perhaps even the progeny of a late arriving migrant. *S. greyi* lasts longer than most Ragwort and Groundsel and as some authorities have indulged in mass plantings of cultivated *Senecio* species, this behaviour may have been noted before.— BRIAN MITCHELL, Reserve Recorder, Alvecote Pools NR (SSSI).

POPULATIONS OF *ACLERIS CRISTANA* ([D. & S.]) IN RECENT YEARS WITH DESCRIPTIONS OF FIVE NEW FORMS AND THE SINKING OF ONE

R. FAIRCLOUGH

Blencathra, Deanoak Lane, Leigh, Reigate, Surrey.

WHEN I WROTE about *cristana* twelve years ago, I was mainly concerned with showing how we could breed rare and new forms in inverse numbers to those caught. Some comments were made about the actual collecting, which in our case was largely to have overwintering moths for the breeding sleeves from which we collected the eggs in spring. I intend here to write of the subsequent period, 1981-92 because my son Alan and I have continued our pursuit of *cristana*.

We still record every form caught (and bred) releasing over 90%. On a good day we would catch and tube twenty or so, write down the forms, and throw out the moths after back-tracking some distance then proceed similarly. Alas, in recent years a notebook hasn't been necessary until 1992 as one could remember the small catches. In the table below the serious decline in the second half of the decade shows clearly. The total catch for the second five years would not have been a good annual one. The numbers bred reflect the catches of the previous year.

Year	*Total caught*	*Trips*	*No. bred*	*Year*	*Total caught*	*Trips*	*No. bred*
1981	198	18	160	1986	11	12	185
1982	337	23	69	1987	42	7	0
1983	788	34	368	1988	34	12	0
1984	456	24	1380	1989	66	18	222
1985	501	23	1576	1990	34	9	0
Totals	2230		3553	Totals	187		407
				1991	73	12	0
				1992	191	7	0

The 1985 caught total was distorted by our catching just over 300 in three trips to Benfleet. Yet in the following year only two were caught there. That is a comment on the violent population fluctuations which occur with this moth. Last year must have been a better season. I had to give up driving in July so was unable to visit our Surrey and Sussex localities. Alan, who had moved to Bedfordshire last year, found a few *cristana* in north Hertfordshire before we joined forces for a week from the 12th September. This turned out to be the best week of a wet month for we were rained off only twice. We achieved one record for we collected in five counties on four consecutive days: Surrey, Sussex, Bedfordshire/Hertfordshire and were

rained off only twice. We achieved one record for we collected in five counties on four consecutive days: Surrey, Sussex, Bedfordshire/Hertfordshire and Huntingdon (Cambridgeshire). More rain followed and one of the coldest Octobers so that Alan was unable to do any more trips.

We are faced now with the complete disappearance of sites and decline in those that do survive. Epping Forest, always a famous place for *cristana* used to give us large numbers on our visits — in fact it held the best one-day-one-place result, 145 on 3.x.1971. Then a fire access road was driven through the best thicket, and slowly after that the counts declined to ones and twos. The area was a limited one for most of the forest is unsuitable and we only ever saw two or three away from our chosen beat.

The building of the M25 destroyed two of the best Surrey localities and most of the Sussex ones have gone, removed by modern farming practices. Some, or all, thickets degenerate and nowadays there is no longer new growth for the formation of new ones. Blackthorn and hawthorn do not take long to be workable, but there is very much an optimum stage for collecting.

One exception to the decline story is Monks Wood where we have monitored the numbers since 1968. Though they have fluctuated, often widely, the population there is in good hands and the wood is a joy to us. We have never taken *cristana* further north than Caster Hanglands, but we have not had the opportunity to try. I would be grateful for more northerly records — indeed I would like to know if there are any collectors who make *cristana* a special study.

The habits of the moth in the field have been discussed in the past (Sheldon, 1917-18, Manley, 1973) including its opposite behaviour in the net to other species in its trying to escape through the bottom of the net. It must be pointed out that in hot weather the moths fly quickly up the net to the mouth. On a good day it often happens that one catches two or three at once making the securing of them rather tricky.

As I write (March 1993) I hear that my son has just accepted the offer of a job in Northumberland. This means the end of our *cristana* hunting.

Descriptions of the new forms

(Manley (*loc. cit.*) gives a complete set of references for *cristana* up to 1973.)

1. *parvana* f. nov.
   This is f. *subalboflammana* Clark with a cream vitta instead of white. The holotype and three paratypes were bred in 1985 from a Huntingdon-Sussex cross. In Manley's key it would come under 1c.

2. *prosequana* f. nov.
   This is f. *sequana* Curtis without the buttons. The holotype and one paratype were bred in 1986 from a Huntingdon-Essex cross. Manley's key: As 5a, but without buttons.

3. *janetana* f. nov.
We have here f. *cristalana* Donovan with additional red streaks from the base of the forewings to, and including, the buttons. Manley describes f. *mantana* with a subcristalana Curtis background which had the red streaks, from a specimen without data in the Natural History Museum. I later found two similar specimens there, again without data. I suspect all three came from Epping Forest. Our holotype was caught in Monks Wood on 13.viii.1983. Manley's key: As 5c with a red streak from the base of the forewings to the disc.

4. *nigrosubpurdeyana* f. nov.
This is a melanic form of *subpurdegana* Manley. The holotype and 14 paratypes were bred in 1983 from an Essex-Sussex cross. Manley's key needs an additional category; 15 (a) Forewings black or dark brown with white dusting and white buttons.

5. *nigropurdeyana* f. nov.
A melanic form of *purdeyana* Webb. The holotype and two paratypes were bred in 1982 from an Essex-Huntingdon cross. Fits in the key with the one above.

In 1981 I described the form *dualana* as follows:
"The area above a line drawn from the base of the wing through the disc to the apex of the forewings as blackish purple while the lower part is a rich mahogany colour. There are no buttons." I have found that these colours are unstable and the forewings have faded to a uniform brown making the moths *unicolorana* Desvignes. In view of this I sink the name *dualana*.

Acknowledgements

I wish to thank the Chief Warden of the Eastern Division of English Nature for permission to visit Monks Wood.

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Sheldon, W.G., 1917-1918. *Peronia cristana*: its life-history, habits of the imago, distribution of the various named forms and some speculation on the present trend of its variation. *Entomologist* **50**: 217-222, 245-250, 268-273, **51**: 10-14.

Hazards of butterfly collecting — Monastic life in Lebanon, summer 1973

I first met Père Francois on a fine summer morning in 1972, before the Lebanon sank into chaos. It was early in the morning, and the night before had been long and hard. I thought it was the newspaper delivery boy, and there was indeed a newspaper in an outstretched hand. Gradually waking up, and letting my gaze wander from the newspaper, I realised that newspaper boys do not normally wear cassocks, nor do they have a mop of splendid white hair. And I remembered . . . . a friend had said he would soon send a butterfly-minded priest my way. When I returned to my living room after dressing, my visitor was busy singing the Gregorian chant from a "banks-of-the-Seine" parchment hanging on the wall, and a very nice chant it was.

I had been told that Père Francois had a large collection of Lebanese butterflies, which I very much wanted to see, and that he was the abbot of a monastery in the more remote parts of northern Lebanon where accommodation was difficult to find. It was soon agreed that we should visit him at the earliest possible moment. And the necessary arrangements were made.

With Père Francois near his monastery in northern Lebanon, 1974.

A couple of weeks later we made our way to his remote base in northern Lebanon, an ancient Catholic monastery in the Maronite heartland. It used to house up to 50 monks, but it was now down to a dozen or so, and a few dim light-bulbs apart it could have been used as a set for medieval films with no alteration.

Père Francois did indeed have a large collection, formed over many years, and including quite a few tropical migrants which I had never seen, since they do not make it to Lebanon every year. *Danaus chrysippus, Azanus jesous,* and not least *Borbo bornonica zelleri* were among them. Other data were plentiful, too, as well as good tips about places to go.

We had an ample and robust Lebanese dinner, and began to wonder a bit

about sleeping arrangements. Before popping the question, our host exclaimed: "Ahh . . . here are the nuns"! And my wife was quietly removed to a nearby nunnery, where she slept in comfort, in a guest room that also served to house the knick-knack of mementos brought back from Rome and other pious places (such rooms are where the violet liqueurs in a bottle shaped like St Peter's actually end up). And she was provided with hot milk and little pastries as a homely touch.

The rest of us got down to some serious drinking and talking. One of the brothers brewed an excellent, though violent, *arak* for daily use (60 per cent alcohol, but water may be added), and was also trying to re-create all the various herb liqueurs of monastic origin, such as Suze and Green Chartreuse (all of which I find quite abhorrent). I found myself a reluctant adjudicator of a subject about which I knew nothing. They certainly did not seem worse than their models, a judgment which seemed to please the good brother.

At midnight I was led to a cell, basically not much different from those used by the Inquisition, given a final tot of *arak,* and left to my own devices. The evening's steady flow of drinks ensured that I had no nightmares about what the Inquisition used to do to people in that kind of cell.

At 7.30, my wife was restored to me by a clucking delegation of nuns. She had been woken up with a bed-cocoa, and had participated in morning prayers. After a delicious Lebanese breakfast (Arabic bread, savoury pastry, yoghurt, cheeses and olives), we went butterfly collecting. Père Francois turned out to be so serious, that he had actually requested and received special dispensation from Rome to wear boots at such times, instead of the sandals that were mandatory for his Order.

We paid several further visits, the last one just before leaving Lebanon for good in 1975. We had planned to take the final bottles with us on the long drive to London. It was not to be. Evasive action against some crazy Lebanese driving made a large fossil ammonite smash the bottles.

Three years later in London, a muggy day would still provoke a faint odour of *arak* in the car, a tenuous link to a Lebanon in chaos.—TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Additional sites for *Phyllodrepa (Hypopycna) rufula* (Erichson) (Col.: Staphylinidae) in Surrey, with a review of other records

On 26.x.85, I found two examples of *P. rufula* on the National Trust part of Mickleham Downs, Surrey under the bark of a fallen beech tree infected with *Pleurotus* sp. On 24.x.88 another specimen turned up in a flight interception trap set up in a wooded enclosure in Richmond Park as part of a survey undertaken with Mr Hammond (Hammond & Owen, in press). A further specimen appeared on 14.x.90 in a flight interception trap set up in a wood at Headley, Surrey (Owen, in press), a site about 1km from the site at which I found my first specimens.

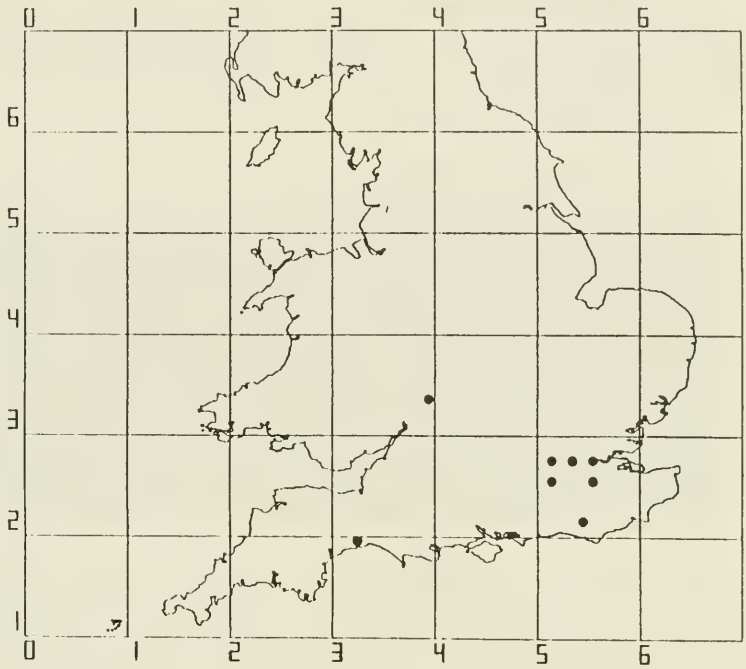
P. rufula was introduced to the British list on the basis of a single specimen found at Ashtead, Surrey (Blair, 1944). The specimen, which is in the Natural History Museum, London, is labelled with the information "in fungus in old tree stump" and is dated 16.x.43, (*not* viii.43 as given by Williams, 1980). The second British specimen was taken on 30.x.47 at Colyton, South Devon by Eustace, though the nature of the capture was not recognised until many years later (Allen, 1970). This specimen is in the Manchester Museum.

On 22.ix.51 my friend Mr Allen swept a specimen in his garden at Blackheath, London and sieved another from among dead leaves exactly a month later (Allen, 1952). Examples continued to turn up in Mr Allen's garden, though not every year, until 1959, appearing during the period mid-Septemeber to mid-November (Allen, 1959).

On 9.x.63, Mr Allen found a specimen under a lump of chalk in a chalkpit at Darenth, West Kent (Allen, 1970) and on 14.x.79, Williams recorded sweeping a single specimen on the downs above Otford Station (Williams, 1979). The only other published record of whch I am aware is by Hodge who swept a specimen on waste ground on 27.x.87 at Lewes, East Sussex (Hodge, 1990). There is, however, a hitherto unpublished capture by Mr P.F. Whitehead who found a specimen on 29.i.93 among mycelia of *Flammulina velutipes* on a sycamore log at Westmancote, Worcestershire on 29.i.93.

In Britain, the species has thus been recorded from West Kent, Surrey, Sussex, South Devon and Worcestershire (See figure). In a wider context, the specimen is basically Mediterranean, occurring on the north coast of Africa as well as in Europe (Horion, 1963). The latter author recorded it from Italy, the Adriatic and Austria and in France as far north as Paris. Lohse (1962) and Horion (1963) both stated that the species did not occur in Germany, the latter author dismissing reports of it near Hamburg and Brandenberg at the beginning of the century as unconfirmed. However, Lucht (1989) recorded it as present in what was then East and West Germany, suggesting that there had been a northward spread in central Europe as well as in the west.

The few additional records of this beetle since it was first noted in Britain have shed little light on its ecology. Half of the records refer to a woodland habitat but some specimens have occurred in open situations. The first British specimen, the author's Mickleham specimens and Whitehead's Worcestershire specimen were all associated with dead-wood fungi but the nature of this association remains to be determined. From its occurrence in his garden, Allen (1970) suggested that it might be a subterranean species associated with mouse runs. All the British records indicate that it is an autumn or winter species. Indeed, apart from Whitehead's capture and some of the specimens found by Allen in his garden in the second half of September and the first half of November, specimens have been recorded



Map showing recorded British sites for *Phyllodrepa rufula*.

in Britain only in October. The fungus *Flammulina velutipes* is a frost-resistant species and examination of mycelia or fruiting bodies of this fungus in the colder part of the year might lead to the discovery of more examples of the beetle.

Acknowledgements

I thank Mr R.M. Locock and Mr M.B. Brown for permission to study beetles on the Box Hill National Trust Estate and Richmond Park respectively, Mr P.M. Hammond for permission to examine the Ashtead specimen in the Natural History Museum, Messrs P.M. Hodge and P.F. Whitehead for information on their captures respectively and Mr D.J.M. Owen for creating the computer program which allowed the figure to be made.

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Colonisation of Blackheath, south-east London by *Chorthippus albomarginatus* (De Geer) (Orth.: Acrididae)

Several species of Orthoptera have been expanding their ranges in the past two decades in south-eastern England (Haes, 1990 - 1992; Marshall & Haes, 1988), possibly in response to climatic warming (Burton, 1991). One of these is the Lesser Marsh Grasshopper *Chorthippus albomarginatus,* characteristically a species of coastal marshes and sand-dunes, and low-lying damp river pastures, which, although perhaps overlooked in some places, has clearly spread to a considerable extent. In particular, it has been found to be colonising new areas in Bedfordshire, Hertfordshire and the Thames valley.

During a visit in late August 1983 to the Greenwich area of south-east London, where I used to live from 1943 to 1959, I was surprised to discover that *albomarginatus* had colonised the dry grassland in the north-east corner of Blackheath, a flat plateau some 38 metres above sea-level. This spot, known as Vanbrugh Pit, is a degraded remnant of the acid grassland and heathland which once overlaid the pebbly sands and gravels of the Blackheath Beds almost everywhere on Blackheath. It is the relatively flat area of mainly acid grassland between the Maze Hill wall of Greenwich Park and the deep, former Vanbrugh gravel pit that has been colonised by *albomarginatus,* plus a small grassy area on the other side of the busy road that forms its southern boundary. Up to 1959 only the Field Grasshopper *C. brunneus* (Thunberg) was present there and, although still very plentiful, it tends to be outnumbered by *albomarginatus* nowadays.

On 30th June 1989, during a stop-over *en route* from Dover to Bristol, I spent two and a half hours in hot sunshine investigating the populations of the two species in this location. I estimated that *albomarginatus* outnumbered *brunneus* by about three to one. However, the former was easier to find as the vast majority were already mature adults, whereas most of the *brunneus* were still in the nymphal stages, some of them quite small. Of 33 mature *albomarginatus* which I caught at random and examined closely, 22 (eight males and 14 females, were fawn-brown or smoky brown, or very pale fawn all over, thus matching the prevalent areas of dry grass; eight (two males and six females) were green dorsally with fawn-coloured sides and legs; one male was brown dorsally with black sides and brown legs; one male was reddish-brown dorsally, including its legs, and a female was whitish-grey all over.

When I returned to this part of Blackheath on 7th September 1989, in the

course of another journey from Dover to Bristol, I spent another two hours in hot sunshine investigating the grasshopper populations. This time I found that *brunneus* was now fully mature and present in roughly equal numbers with *albomarginatus*. However, the latter was now largely confined to the lanker, lusher grass growing on neutral soil in the otherwise acid grassland. Because of the hot dry summer of 1989 much of the grass was dry and parched straw-yellow. I failed, incidentally, to locate any *albomarginatus* in the mainly acid grassland on the deep floor of Vanburgh Pit or on its eastern approaches. It will be interesting to see if it eventually colonises these areas.

Meanwhile, it is difficult to explain how *albomarginatus* got on to Blackheath, bearing in mind the isolation of the locality within a heavily built-up area. Moreover, the nearest populations of that species I know of are 5km away on the Thames marshes east of Woolwich. It is, however, possible that I have, in the past, overlooked an isolated population on what remains of the largely industrialised Greenwich Marshes, 1.5km to the north, although they are separated from Blackheath by densely built-up ground and a steep hill. There is no evidence of soil which could have contained egg-pods having been deposited there and I think it highly unlikely that the species has been deliberately introduced. Being a fully-winged insect, it is possible that it arrived under its own power, perhaps during a period of strong northerly or north-easterly winds.

Apart from climatic warming, or maybe as well as, I believe that the reduction in air pollution over southern England, due to the introduction in

the late 1950s of smokeless zones in the London area and in other urban conurbations, may be a factor in the range expansion of *C. albomarginatus* and other Orthopterans. In 1989 I noted that the grass and other vegetation was not sooty as it was up to 1959.

References: Burton, J.F., 1991. British Grasshoppers and Bush-crickets may be responding to the "Greenhouse" warming. *Country-side* **27**: 29-31; Haes, E.C.M., 1990-1992. *Orthoptera Recording Scheme Newsletters* Nos. 17-19; Marshall, J. & Haes, C., 1988. *Grasshoppers and Allied Insects of Great Britain and Ireland. Harley Books, Colchester.*—

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Bibloplectus delhermi Guill. (Col.: Pselaphidae) new to Kent

I found a single specimen of this rare species in a small but concentrated sample of flood debris from Haysden Lake, near Tonbridge, West Kent, collected 4.xii.1992 and kindly passed to me by my friend Prof. J.A. Owen. He had himself taken one a few years earlier in the same way from the River Mole at Cobham — seemingly the first record for Surrey (1991, *Entomologist's mon. Mag.* **127**: 198). My specimen is a female, but fortunately this sex is determinable only by the distinctive shape of the apical abdominal segment, together with other slighter characters (see Pearce, E.J., 1957, *Handbk. Ident. Br. Insects* **4**(9): 20, 21).

Prof. Owen in his note gives details of the few records of *B. delhermi,* known from single localities in Berks, Oxon, Surrey, Cambs and Monmouths; to which can now be added Kent (West). It may or may not be significant that the beetle has turned up twice within the last four years, after a protracted period with no British records.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Nocturnal invertebrates visiting flowers of Witch Hazels, *Hamamelis mollis pallida* and *Hamamelis japonica* cultivars, in January

On 20th January 1993 an after-dark inspection of the moth-trap revealed several examples of Common Quaker, *Orthosia stabilis* D. & S. and the Hebrew Character, *O. gothica* L. Although the weather was mild, this is a very early date for both these species which, in our area, normally appear in March and are then able to feed on sallow blossom. Wondering how these moths were going to find sustenance, I walked around our garden with a torch and inspected our Wintersweet, *Chimonanthus fragrans* and Witch Hazel, *Hamamelis mollis pallida,* both of which were in full bloom and, with their sweetly scented, pale flowers might well be attractive to nocturnal moths.

I found nothing on the *Chimonanthus,* but the Witch Hazel, though not being attended by moths, had a variety of Diptera on the flowers. There was the mosquito *Culiseta annulata* (Schrank) quite clearly feeding; two

species of fruit fly (Drosophilidae), *Parascaptomyza pallida* (Zett.) and *Drosophila subobscura* Collin, the latter the more common of the two; an as yet undetermined Anthomyiid and the Common Yellow Dung-fly, *Scathophaga stercoraria* (L.) which was undoubtedly in search of prey (indeed one of them caught a *Drosophila subobscura* in my pooter).

Culiseta annulata, with its distinctive white-banded legs, in one of our commonest mosquitoes and is often found in winter in outhouses or caves. Its hibernation is incomplete and I have seen it on ivy flowers in late autumn. *Parascaptomyza pallida* is also an extremely common fly that seems to be about in most months of the year. I once found many of them early one morning settled on a white car parked at our house. *Drosophila subobscura* is more typical of winter and I have found it from time to time from October through most of the colder months. Both Drosphilids are associated with ferments and I have bred *P. pallida* from rotten peach pulp and *D. subobscura* from decomposing pumpkin.

On 30th January I again inspected the *Hamamelis mollis pallida* and also two *H. japonica* cultivars, "Primavera" and "Arnold". The flowers were attracting numerous invertebrates including woodlice, millipedes and spiders. Insects noted were the Common Earwig, *Forficula auricularia* L. (Dermaptera: Forficulidae); *Psychoda* sp. (probably *P. phalaenoides* (L.)) (Dipt.: Psychodidae); *Sepsis fulgens* Meigen (Dipt.: Sepsidae); an interesting *Pherbellia* sp. (Dipt.: Sciomyzidae); *Tephrochlamys rufiventris* (Meigen) (Dipt.: Heleomyzidae); *Dromius linearis* Ol. (Col.: Carabidae) and a brown Noctuid moth caterpillar.

The centre part of Witch Hazel flowers seem to be constructed for insect pollination and are relatively flat and open allowing easy access to the nectaries by short-tongued species. The pollen is sticky and, in the flowers I examined closely, had been successfully transferred from anthers to styles. Most of our Witch Hazels usually set a good quantity of viable seed and it would appear that they are adapted to pollination by nocturnal invertebrates. On day-time visits I have found only *Sepsis fulgens* and two Chironomidae, *Smittia aterrima* (Meigen) and *Limnophyes prolongatus* (Kieffer). The last two were, I suspect, simply sheltering in the bushes rather than feeding.

Weather conditions in January are often too poor for any invertebrate to be abroad, but on calmer, milder winter nights those inclined to make a search of Witch Hazel bushes will undoubtedly be able to extend my small tally of species.— PATRICK ROPER, South View, Sedlescombe, Battle, East Sussex TN33 0PE.

In search of the Purple Emperor and Lulworth Skipper

Every summer I leave my home town of Aylesbury for a couple of weeks in search of butterflies that cannot be found in my local area. Two species of British butterfly I had never seen before were the Purple Emperor (*Apatura*

iris) and Lulworth Skipper (*Thymelicus acteon*), so in 1992 I decided to travel down to south-west Surrey and then on to Dorset in the hope of seeing them.

On the evening of 16th July I duly arrived in Surrey and pitched my small tent next to a wood, unnamed on the map, about half-a-mile from the centre of the village of Chiddingfold, which is near the Sussex border. Whilst pitching my tent I noticed a roe deer about 30 yards away, which eyed me up before disappearing into the undergrowth.

The morning of the 17th July was overcast and wet, and I spent it sheltering from the rain. However, about 1pm the clouds cleared, the sun came out, and I followed a footpath into the wood. The wood was deciduous, and I found a clearing beside a stream which appeared to be ideal Purple Emperor habitat. I spent the next three and a half hours in this clearing watching butterflies. I was immediately struck by the abundance of Peacocks (*Inachis io*) and Large Whites (*Pieris brassicae*). The Silver-washed Fritillary (*Argynnis paphia*) was fairly common, and I also saw a few rather tatty White Admirals (*Ladoga camilla*). After about an hour and a half I saw a very large butterfly flying around a tall oak tree. I was thrilled, as judging by the size and behaviour it must have been a Purple Emperor. However, confirming this identification proved difficult, as even when the butterfly settled on a tree, it insisted on staying at least 30 feet above the ground. For the next couple of hours I kept getting tantalising glimpses of large butterflies flying high above the canopy and occasionally settling high on a tree. Then my dream came true. One of these high flying butterflies eventually descended to settle on a small poplar tree about five feet above my head. It *was* a Purple Emperor! It rested on a leaf of the poplar tree for about 30 seconds, giving me a good view of this beautiful insect. It was a tremendous end to a good afternoon's butterfly watching. Apart from the species already mentioned, also present in the wood that afternoon were the Small Skipper (*Thymelicus sylvestris*), Small White (*Pieris rapae*), Green-veined White (*Pieris napi*), Red Admiral (*Vanessa atalanta*), Small Tortoiseshell (*Aglais urticae*), Comma (*Polygonia c-album*), Gatekeeper (*Pyronia tithonus*), Meadow Brown (*Maniola jurtina*) and Ringlet (*Aphantopus hyperantus*).

Having seen the Purple Emperor I left Surrey and went down to Southampton to spend a week at my sister's home. On 25th July I left Southampton and travelled down to Dorset to search for the Lulworth Skipper. I arrived at Durlston Country park, just south of Swanage at about 3pm. This country park has south-facing grassy slopes above limestone cliffs, overlooking the sea, which appeared tailor-made for the Lulworth Skipper. Within a short while of walking into the park, I indeed spotted a skipper, which on close inspection turned out to be a Small Skipper. However, within another minute I spotted my first Lulworth Skipper. It was easy to distinguish from the Small Skipper, being noticeably smaller with much darker-coloured wings.

I spent the next two hours patrolling a small area of the country park watching butterflies. The Lulworth Skipper turned out to be the most common species present, with the Marbled White (*Melanargia galathea*) being the second most abundant butterfly. I also saw about half a dozen male Chalkhill Blues (*Lysandra coridon*), which on close inspection appeared almost in mint condition, suggesting that they had only recently emerged. As five o'clock approached, the sky clouded over, and my butterfly watching ended for the day.

I was able to return home satisfied, having spent a few days in some beautiful English countryside, and also having seen two species of butterfly new to me.—NEIL MCMILLAN, 114 Mandeville Road, Aylesbury, Bucks HP21 8AJ.

***Thisanotia chrysonuchella* (Scopuli), (Lep.: Pyralidae) in v.c. 32 Northampton**

A single male of the distinctively marked pyralid moth *Thisanotia chrysonuchella* (Scopuli) was taken on the night of 29th/30th May 1992 in my actinic light trap in the garden of 1366 Lincoln Road, Werrington, Peterborough (TF 164034). The garden lies within v.c. 32 Northants, and in the modern county of Cambridgeshire. The moth is in quite good condition. Barry Dickerson made a genitalia slide-mount from the specimen and reports that it is unmistakable. This appears to be a new county record for v.c.32, Northants (A.M. Emmet, pers. comm.). The moth was unrecorded from v.c. 31 Huntingdonshire, until David Evans took one at his home in Ramsey on the night of 27th/28th May 1992 (B. Dickerson, pers. comm.). According to Goater (1986) (*British Pyralid Moths, a guide to their identification*. Harley Books, Colchester) the moth is "local on southern chalk downs, coastal sandhills and cliffs, and in the Breckland, usually rather common where it occurs, but generally one of the less frequently encountered diurnal species". The night of 29th/30th May 1992 was cloudy and calm with some rain, a dusk temperature of 15°C and a minimum of 12°C. No other unusual species were taken in the moth trap that night or in the week preceding or following the capture and the origin of the moth remains to be discovered. David Evans' capture two nights previously suggests that a local movement may have taken place. However, the discovery of a large colony of the Four-spotted moth *Tyta luctuosa* (D. & S.) in the vicinity of Werrington (British Wildlife 3(6): 374-376, 1992) raises the possibility that other insects associated with open, well-drained, calcareous sites with thin soils, such as are found in Breckland, might be breeding locally.— P. WARING, 1366 Lincoln Road, Werrington, Peterborough.

Further experience of *Mintho rufiventris* (Fall.) (Dipt.: Tachinidae)

Since recording this uncommon fly in my garden (1992, *Ent. Rec.* **104**: 23) I was interested to meet with the species under markedly different

circumstances, namely a tree-lined residential road in Blackheath near here. Walking down it on 30th May last, in afternoon sunhine, I stopped to inspect a lime having around its base a bushy mass of foliage.

On this, one or two flies, of unfamiliar aspect but suggestive of Tachinidae, were actively moving about; I succeeded evenually in securing one (not the easiest of tasks without a net), when they were seen to be the above species. They like to bask on the leaves, but were always wary. The next time I passed the spot, better prepared, conditions again seemed suitable but not a fly was to be seen!— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Extraordinary numbers of hawkmoths at street lights

On 24th March 1990 the small Andean town of Biscucuy, Portuguesa, Venezuela displayed the most remarkable assemblies of hawkmoths settled upon the white walls of buildings illuminated at night by lights suspended high over the centre of the road. On one wall about 25 feet square I counted well over one hundred enormous hawkmoths, while numerous corpses lay on the pavement and in the gutter beneath; other walls were similarly adorned. The same moths in the same positions were observed for a number of days despite being in full sun for part of the day; the days were hot with afternoon sunshine, the nights at least until midnight clear and warm, and there was no rain. Over 90% of the moths were the huge grey *Pseudosphinx tetrio* L., with a very meagre sprinkling of *Erynnis ello* L. and *Herse cingulata* L. and other species. I suspect that these moths had arrived in a vast migration.

Having often noticed now moths settled upon walls or tree trunks are reluctant to remain in full sunshine even in our temperate climate, I was surprised to see these moths in Venezuela indifferent. Also surprising was the virtual absence of moths of other families, and other insects in general.

During this period moths visited passage lights in the hotel at the edge of town, these passages possessing an open grill facing a forested hillside. Every night for a fortnight there was a fresh assembly comprising a wide range of families, with perhaps Pyrales and Geometers predominating, but only one hawkmoth appeared!— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

Incidence of Codling Moth (*Cydia pomonella*) (Lep.: Tortricidae) in a Sussex garden 1992

Last year I reported the day-by-day results of pheromone trapping on our two apple trees (Cox and Bramley), during 1991 (*Ent. Rec.* **104**: 185). I recorded again throughout the summer of 1992, although I installed the trap a little late (on 26th May), and we were away at the end of July so could not record the weekly total. I replaced the pheromone capsule on 7th July, and took the trap down on 31st August.

I sprayed the trees on only three occasions, using dimethoate, mainly to control woolly aphid (4th, 11th and 25th June). This was because we had eatable vegetables under the trees later on. The consequence was a much higher infestation of the crop, amounting to about 20% of the 400 Coxes, which were also rather small, due to the droughty summer. The incidence of male codling moths was also much higher in 1992, a total of 432, as compared with 76 during the 1991 season. As to the possible cause of the increase, a new neighbour pruned the untended trees next door right back, resulting in a complete absence of fruit for his local codling population.

The daily record of males trapped was as follows:

May		10th	12	26th	11	10th	11
27th	8	11th	25	27th	8	11th	5
28th	11	12th	24	28th	3	15th	5
29th	4	13th	9	29th	4	16th	14
30th	1	14th	15	30-31st	12	17th	1
		15th	15			19-25th	67
June		16th	2	*July*		28th	2
1st	14	17th	3	3rd	3	30th	2
3rd	2	18th	3	4th	2		
4th	1	20-22nd	11	6th	1	*August*	
7th	1	23rd	7	8th	24	7th	1
8th	17	24th	24	9th	29	12th	1
9th	10	25th	7				

R.C. DENING, 20 Vincent Road, Selsey, West Sussex PO20 9DQ.

On a Cambridgeshire capture of *Strangalia revestita* (Col.: Cerambycidae)

In a note on this exceedingly rare longhorn (1972, *Entomologist's mon. Mag.* **108**: 22) I reported an example taken near Gamlinghay, (the spelling used by the older writers, but Gamlingay, now usual, appears to be more correct), Cambridgeshire, by the late Rev. C.E. Tottenham. In correspondence with Dr R.R. Uhthoff-Kaufmann, certain points have emerged which enable this record to be more accurately stated. I gave it as heard from Mr Tottenham himself, though the year should have been 1945, not 1947 as printed. The label on the specimen — now in the Natural History Museum, London — reads (so Dr Kaufmann informs me) "Croydon, 17.vi.45, C.E. Tottenham", which will be of interest, since it was apparently never published by him. There is no county indicated, so that any one reading the label would naturally take it to refer to the well-known Croydon south of London, in Surrey. Dr Kaufmann points out, however, that the place in question must be Croydon cum Clapton in S.W. Cambridgeshire, six miles south of Caxton and about three from Gamlingay in the extreme west of the county (the latter locality being that of an old Stephensian record of *S. revistita*).

The way in which the captor came by the beetle is worth recounting, since it could be classed as a sort of extreme example of beginner's luck. As related to me, he had been sweeping along a hedgerow and drawn a blank, when he noticed across the way a small boy watching him intently,

consumed with curiosity and plainly itching to take a hand in the mysterious proceedings. Thinking it the best way to rid himself of the young spectator, he went over to him, showed him his net which contained a few very ordinary insects, and suggested he take it and try his luck, pointing to a stretch he had been recently working. The youngster, only too eager, did so and returned after about a minute for the net contents to be inspected. It was then that a *Strangalia revestita* was revealed rapidly ascending the side of the net, doubtless bent on taking off!—A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Atheta (Microdota) excelsa **Bernh. (Col.: Staphylinidae) from Nethy Bridge, East Inverness.**

Among unsorted material of the above family left by the late G.H. Ashe I detected (along with other interesting specimens) a female of this scarce northern species having the data "Nethy Bridge/dung/3.vii.54. GHA". The genitalia are fairly distinctive; and the deep black body (even to the base of the antennae), and close distinct puncturation, are useful pointers to *A. excelsa*. The records are few and are given by J.A. Owen, 1992, *Entomologist's mon. Mag.* **128**: 226; they are concentrated in Speyside, which, as with so many northern species, appears to be its headquarters in Britain.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Suffolk Dragonflies by **Howard Mendel.** 159pp, numerous colour illustrations and maps. Boards. Suffolk Naturalists' Trust, 1992. £12.00 (available from the Trust, c/o The Museum, High Street, Ipswich IP1 3QH.

This book represents the culmination of six years of survey work by the Suffolk Naturalists' Society which generated over 5,000 records. It is, however, far more than a county list. Following an introduction and check list of British species, the author gives an interesting guide to the pronunciation of scientific names — a much overlooked service for the general reader who may be greatly inhibited by the impenetrable nature of scientific names.

Subsequent chapters describe life history and behaviour, Suffolk dragonfly habitats — copiously illustrated by habitat photographs, an interesting snapshot of Suffolk dragonflies 60 years ago, when the last local list was published, a chapter on conservation, a history of recording in Suffolk, details of the survey and practical hints on recording.

The bulk of the text deals with each of the species recorded. Distribution maps show not only the detailed county distribution, but an insert map compares this — on a larger scale — with distribution in neighbouring counties. A further insert includes, for most species, a flight period chart giving earliest and latest records during the survey. The excellent colour photographs show most species as living insects and include many interesting shots of feeding, pairing and egg-laying. The text briefly describes the insect, commenting on habitats, biology, distribution and history.

The introductory chapters are particularly interesting. The catalogue of habitat destruction and mismanagement is recorded here but, despite this, the overall picture is not as bleak as might be imagined. Although four species have become extinct — three since 1960 — and a further five declined, eight appear to have increased in recent years, with a further nine showing little change in status.

All in all, this is an excellent local list, although it does not catalogue every sighting by every recorder. The text is readable, interesting, informative, a good historical record, attractively produced and reasonably priced. All based, of course, on a thorough and detailed survey involving many enthusiastic naturalists, brought together by a skilled author.

The butterflies and moths of Hampshire and the Isle of Wight: additions and corrections by **B. Goater.** 266pp. A4 limp. Joint Nature Conservation Committee, 1992. £10.70.

Hampshire is one of the entomologically richest counties in England boasting several species unique to the county. This book draws together the observations of over 70 lepidopterists who have worked in the county over the last 15 years and presents, in a concise form, the recently acquired knowledge on the county's butterflies and moths. It adds to, and in places corrects, the earlier volume by the same author (Goater, B., 1974 *The butterflies and moths of Hampshire and the Isle of Wight.* Faringdon, E.W. Classey).

The same format is used in this supplement as was employed in 1974, with the nomenclature brought up to date and, usefully, Bradley & Fletcher *Log book* numbers have been added. Reference to page number in the original list is also given. For most species there are only additional records, but for others all records are given where these augment a simple description in the original.

All records seem to have been carefully scrutinised with suspect species so identified. Those which have proved to have been wrongly identified — such as *Metzneria neuropterella, Syncopacma cinctella* and *Oegoconia deauratella* have been deleted from the list. This attention to detail gives the reader confidence in the records, a feature absent when reading some local lists. The two volumes are a formidably comprehensive account of the lepidoptera of Hampshire.

The butterflies of Ródos by **Alain Oliver.** 250pp., 6 plates (2 colour), 38 text figures and tables. Limp. Vlaamse Vereniging voor Entomologie. 1993. Price 1450 Belgian Francs (available from the General Secretary, Diksmuidelaan 176, B-2600 Antwerpen, Belgium).

This book is of particular interest in that it covers a European area specifically excluded in the basic Field Guide by Higgins & Riley, an island close to the Turkish mainland where the Mediterranean meets the Aegean

and the European fauna mingles with that of Asia. (For the purpose of this review I have used the common English versions of Greek island names, i.e. Rhodes instead of Ródos and Crete instead of Kriti.)

After an introduction stating the origins of the book and its general format there are three main sections. The first section give a general background of the island — its geography, climate, geology, with an informative account of the various types of vegetation — ending with the history of research undertaken on the island's lepidoptera. Significantly, out of more than 40 entries, less than half are from lepidopterists with actual field experience with many referring to papers on taxonomy. Rhodes and Crete, and to some extent Samos, are considered the most entomologically worked of the Aegean/East Mediterranean islands, yet relatively little practical field work appears to have been done here until recently, and that mainly by our Belgian colleagues.

The book's systemic part opens with a discussion on the taxonomic concepts of species, subspecies etc. In this controversial area, as in other parts of the book, the author argues persuasively, admitting opposing points of view and then logically presenting his own case. Individual species are effectively described under the headings of Taxonomic Status, New Records, Rhodes, and Ecology and Phenology. All names found in the butterfly lists for Rhodes (even down to the infra-specific) are fully discussed. The New Record section lists much recent unpublished data, while Ecology and Phenology records a wealth of information, including preferred habitat, flight times, details of life history, and larval host plants. Tables list important distinguishing characteristics, for example, the comparison of *Maniola cypricola* and *Maniola telmessia* (both with newly-designated lectotypes). The latter, an interesting vicariant species close to *M. jurtina,* is covered in some 35 pages inclusive of tables and illustrations of specimens and genitalia.

The biogeography of the eastern Mediterranean and Aegean islands, including Crete and Cyprus, comprises the book's final part. Described as a "tentative synthesis", this section gives not only informative tables on the butterfly fauna of each island, but also a geological history of the area, while endemic species and subspecies of both Rhodes and the other islands are discussed at length. Two colour plates of good quality illustrate some of these, and the numerous black and white photographs and drawings of genitalia are accurately rendered.

The book's card covers are slightly flimsy. But happily, and unlike so many paperbacks, it is cased in sewn sections, so that pages do not fall out with use and any necessary re-binding should present no problem. This is in all respects an excellent survey: the author has researched and presented his information scientifically and with style. Both he and Vlaamse Vereniging Voor Entomologie are to be congratulated on its production at such reasonable cost.

C.J. Luckens

Help Wanted — Bedfordshire. Lepidoptera records for inclusion in *Butterflies and Moths of Bedfordshire.* Tetrad records for butterflies and 10km squares for macro- and micro-moths are being published. If you have any records please write to David Manning, 27 Glebe Rise, Sharnbrook, Bedford MK44 1JB.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

Contents

Notes and observations

(Continued on inside back cover)

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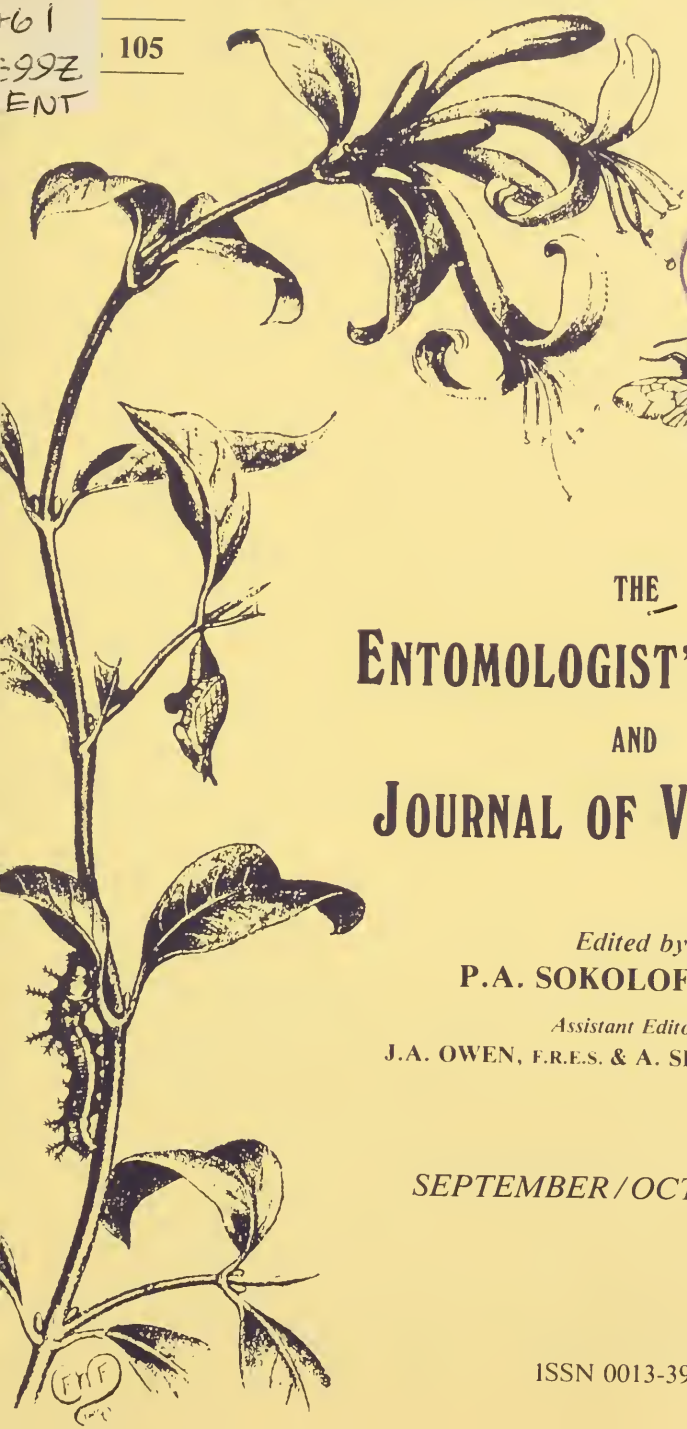

THE

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WHERE TO WRITE

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Illustrations must be the original (not a photocopy) without legend which should be typed on a separate copy. Photographs should be glossy, positive prints. Authors of long papers, or submitting valuable originals are advised to contact the Editor first.

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ODONTHOGNOPHOS DUMETATA TREITSCHKE (LEPIDOPTERA: GEOMETRIDAE) NEW TO THE BRITISH ISLES WITH DESCRIPTION OF A NEW FORM, *HIBERNICA* FORDER SSP. NOV.

PETER FORDER

Gynesta, Hillings Lane, Menston, Ilkley, West Yorkshire LS29 6AU

WHILST MY WIFE and I were collecting lepidoptera in Co. Clare, Western Ireland, during August 1991 we took two moths at m.v. light which looked superficially like the Tissue Moth, *Triphosa dubitata* L. These were placed in the cabinet as an unusual colour form of this species.

In January 1992, whilst Nigel Gill was looking through my collection, I drew his attention to these two specimens and he confirmed what I was beginning to suspect — that these were not examples of *dubitata*.

Neither of the standard works on British moths, Skinner (1984) and South (1961), illustrated these moths, nor did the recently published work on the geometrids of Northern Europe (Skou, 1986). I then consulted Brian Elliott, and with his help the moths were identified from Seitz (1912) as *Odothognophos dumetata,* a species hitherto unknown in the British Isles.

The species is very local in central and southern Europe, the adult being on the wing in August and September. The larval foodplants are given as *Rhamnus* spp. and *Phillyrea latifolia* L.

A number of named subspecies have been described from continental Europe. The Irish specimens are, as far as is known, the most northerly population of this moth, and are very different in colour from the brownish continental forms. It would appear that they represent a distinct subspecies.

Odonthognophos dumetata hibernica (×2.5)

Odonthognophos dumetata hibernica **spp.nov.** : ground colour distinct blue-grey.

Holotype : male. Co. Clare. 7.8.1991 (Peter Forder). Forder coll.

Allotype : female. Co. Clare. 17.8.1992 (Bernard Skinner). British Museum (Natural History) coll.

Paratypes: male. Co. Clare. 7.8.1991 (Peter Forder). Forder coll.
male. Co. Clare. 12.8.1992 (Bernard Skinner). British Museum (Natural History) coll.

Since the original discovery of the species in Co. Clare, Western Ireland, a number of suitable localities have been searched, and the moths seems to have a very restricted distribution in Ireland. Further specimens have been taken, and the larvae have been successfully reared on buckthorn (*Rhamnus catharticus* L.) A further full report will be made when a full breeding cycle has been completed.

This species was formerly placed in the genus *Gnophos,* and I suggest that its proper position in the list for Great Britain and Ireland be immediately before the Annulet, *Gnophos obscuratus* D. & S. The Bradley and Fletcher log-book number would therefore be 1962a. In view of the association with the genus *Gnophus,* I would suggest that the Irish Annulet would be a suitable vernacular name.

Odonthognophos dumetata is figured in a number of works in addition to Seitz (1912). Culot (1919-1920) beautifully illustrates both the type and subspecies *daubearia.* The type is also figured in Forster & Wohlfahrt (1981), Hofmann (1984), Koch (1961), Lampert (1907) and Spuler (1910).

Acknowledgements

I would like to record my appreciation for the helpful advice received from Brian Elliott, Nigel Gill and Bernard Skinner.

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DIFFERENTIAL HABITAT SELECTION IN POLYMORPHIC LEPIDOPTERA IN THE FOREST OF DEAN

DAVID ALDRIGE[1], CARYS JONES[2], EMMA MAHAR[3], and MICHAEL MAJERUS[2]*

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Introduction

THE INCREASE in numbers of the melanic form of the Peppered Moth (*Biston betularia* f. *carbonaria* Jord.) from mid-way through the 19th century has been widely documented. This rise coincided with increased industrialisation in Britain and the resultant darkening of the moth's habitats in many regions. Kettlewell (1955a) showed that the melanic phenotypes gained a selective advantage in industrial regions because they had a greater degree of crypsis and were less heavily predated by birds.

However, this evolutionary scenario cannot be applied to melanic polymorphism in all species. Ford (1955) pointed out that in many species of Lepidoptera with melanic forms, the melanism is not correlated with industrial pollution.

The fact that frequencies of forms of some species vary over surprisingly short distances was first noted by Kearns and Majerus (1987). Operating two Heath moth traps, 50 yards apart, one in open canopied mixed deciduous woodland, the other under the closed canopy of a Douglas fir plantation, they found that the frequencies of melanic forms of Mottled Beauty (*Alcis repandata* L.), and the Tawny-barred Angle (*Semiothisa liturata* Cl.), were significantly higher in the conifer plantation than in the deciduous wood. Similar results have subsequently been obtained for the Dotted Border (*Agriopis marginaria* Fabr.) in Hampshire (Majerus, 1989), and the Mottled Beauty and the Willow Beauty (*Peribatodes rhomboidaria* D.&S.) in Surrey (Jones *et al,* 1993). In addition the frequencies of the banded forms of the Mottled Beauty and the Riband Wave (*Idaea aversata* L.) were significantly higher under conifer canopies than in adjacent more open habitat (Jones *et al,* 1993). Jones *et al* argue that the differences in morph frequencies observed are too great to be accounted for purely by differential bird predation recurring each generation, and propose that the morphs have different habitat preferences. Either the melanic and banded forms actively select to fly under the closed conifer canopies, or the non-melanic or unbanded forms actively avoid such habitats, or both. We here record data from a short period of moth trapping in the Forest of Dean, Gloucestershire. The results extend the list of polymorphic species showing sharp differences in morph frequencies across habitat bounderies.

Aims

The Forest of Dean is a relatively unindustrialised region of south-west Britain, although coal and iron mining were of some importance in the area previously. It contains large areas of deciduous woodland and conifer plantations. The aim was to collect data on the frequencies of forms of common polymorphic species from a conifer plantation, a neighbouring open garden region and an intervening boundary region of bracken. In the past, data has not been collected in a boundary region between closed canopied conifer woodland and more open habitats. By including such a site it was hoped to gain an indication of the degree of mixing of moths between habitats separated by such a short distance.

Trapping procedure

Three 100 watt mercury vapour discharge light traps were set up over seven nights from 9th-15th September 1991, in the Kidnalls Enclosure, Pillowell, Forest of Dean. Their relative positions are shown in figure 1. One trap was placed 20m into a plantation of European larch (*Larix decidua*), with Scots pine (*Pinus silvestris*) beyond. The plantation contains a sporadic understorey of smaller rowan (*Sorbus aucuparia*) and pedunculate oaks (*Quercus robur*). The ground cover was mainly short grass, bramble and bracken. The forest comes to a well defined edge. A second trap was placed in a 14.5m wide boundary zone between the forest and a garden. The vegetation of this boundary was predominantly dense bracken. The third trap was sited in a garden 26m from the boundary trap and 54m from the forest trap. The vegetation was principally mown grass, with some small trees, shrubs and herbaceous plants.

The traps were run for the same length of time and measurements of temperature, rainfall and relative humidity were taken at switching on and switching off times. Each morning the catch of macrolepidoptera was recorded with the number of each form of polymorphic species also being noted (table 1, at end). Species and forms were identified using Skinner (1984).

Results and analysis

Over the seven nights of trapping, a total of 1983 moths were taken: 839 individuals in the forest, 637 in the boundary, and 507 in the garden. Polymorphic examples were found in large enough numbers for statistical analysis in four species: the Common Marbled Carpet (*Chloroclysta truncata* Hufn.), the Grey Pine Carpet (*Thera obeliscata* Hb.), the Pine Carpet (*Thera firmata* Hb.), and the Large Yellow Underwing (*Noctua pronuba* L.). Forms of the Autumnal Rustic (*Paradiarsia glareosa* Esp.) were scored, but the numbers of rosy forms were too small to allow statistically based deductions to be made.

Chloroclysta truncata was represented by four forms: a pale grey form classed as *typica* which was similar to f. *truncata* but lacked the white median area of the nominate form; a form with a tawny central area on the forewings, f. *rufescens;* a dark grey form, f. *perfuscata;* and the almost black melanic f. *nigerrimata*.

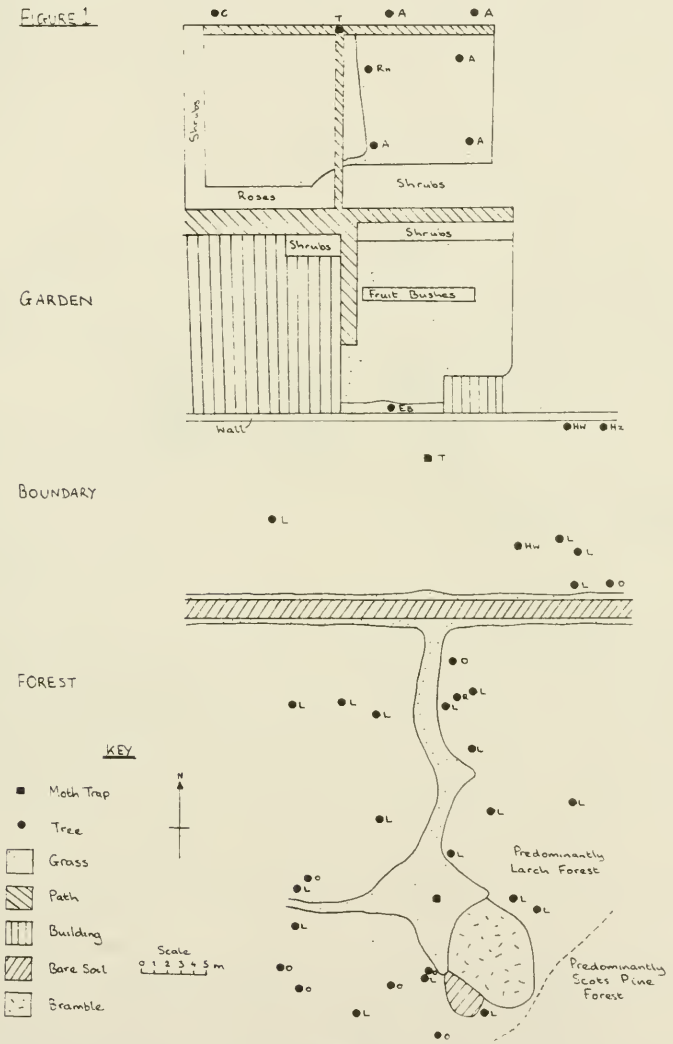

Figure 1. Relative positions of moth traps and major vegetation features in trapping area. (L = larch, O = oak, HW = hawthorn, R = rowan, H = hazel, EB = elderberry A = apple, RH = rosehip, C = cypressus and T = trap.)

Genetically f. *perfuscata* and f. *nigerrimata* are controlled by alleles of two genes. Both are incompletely dominant to the non-melanic form. Their effects are additive to some extent, an individual homozygous for both melanic alleles being the darkest phenotype (Groth, 1935). Individuals heterozygous for one or both of these genes are paler, but still considerably darker than the typical form. Because of this additive effect, the variation among the dark grey and black forms was more or less continuous, and it is not possible accurately to infer an individual's genotype from its phenotype. Consequently, only those individuals in which the ground colour was black were classed as full melanic f. *nigerrimata*.

Five forms of *T. obeliscata* were distinguished; typical grey, typical red, dark central band, dark grey half melanic and melanic.

Thera firmata had three identifiable forms: a typical reddish brown form, a darker grey brown form, and the melanic f. *pupereobrunnea*.

Noctua pronuba is particularly variable. Moths were split into three classes on the basis of their darkness. The non-melanic class includes the forms *ochrea, caerulescens, rufa* and *distinctacaerulescens;* the half-melanics were *ochreabrunnea, griseabrunnea* and *brunnea;* while the melanic class comprised just f. *innuba*.

Tables 2, 3, 4 and 5 give the numbers of each class of the four species taken in each of the three traps, totalled over the seven nights. The data are shown graphically in figures 2, 3, 4 and 5, which show for each species the relative proportions of the forms for each habitat. The data were analysed using chi-squared tests (χ^2).

Comparison of the number of each form of *C. truncata* in each trap showed that they were not distributed randomly ($\chi^2_6 = 39.92$; $p<0.001$). The typical form was taken significantly more often in the garden and less often in the forest traps compared to f. *perfuscata* ($\chi^2_1 =$ $p<0.001$). The melanic form *nigerrimata* was taken significantly more often in the forest trap and less often in the boundary and garden traps than expected on the basis of the captures of the *typica* and *perfuscata* forms summed ($\chi^2_2 = 27.75$; $p<0.001$). The distribution of f. *rufescens* in the three traps was not significantly different from expectation on the basis of the frequencies of the other forms together ($\chi^2_2 = 0.73$; $p>0.1$).

For *T. obeliscata,* the distributions of the typical red and typical grey forms were similar in the three traps ($\chi^2_2 = 2.46$; $p>0.1$). The half melanic and banded forms also had similar distributions to one another ($\chi^2_2 = 2.67$; $p>0.1$). When summed the typical red and typical grey classes were found to occur significantly more often in the boundary and garden traps and less often in the forest trap than the half melanic and banded forms combined ($\chi^2_2 = 17.41$; $p<0.001$). When the data for the melanic form is compared with that for all other forms combined, it shows that significantly more melanics were taken in the forest trap and less in the other traps than expected ($\chi^2_2 = 6.73$; $p<0.05$, with Yates' correction).

Table 2. Total number of each of four forms of the Common Marbled Carpet (*Chloroclysta truncata*) taken in each trip.

Form	Forest Trap	Boundary Trap	Garden Trap	Total
Typical	56	74	36	166
rufescens	47	31	14	92
perfuscata	52	36	6	94
nigerrimata	31	4	0	35
Total	186	145	56	387

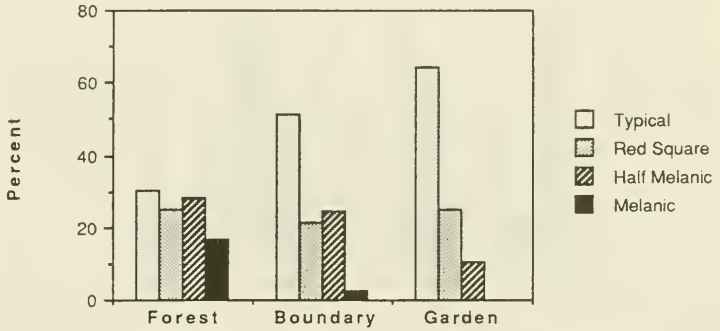

Figure 2. Percentages of the forms of the Common Marbled Carpet, *Chloroclysta truncata,* for each trap. (Red Square = f. *rufesceus,* half melanic = f. *perfuscata,* melanic = f. *nigerrimata.*)

For *T. firmata,* again the forms are not distributed randomly across the traps ($\chi^2_1 = 10.19$; $p<0.05$). This is primarily because all f. *pupereobrunnea* were taken in the forest trap. Despite the small number of melanics taken, this is statistically significant when compared with the other forms combined over the boundary and garden traps ($\chi^2_1 = 7.77$; $p<0.01$). Comparison of the distributions of the typical and half melanic forms showed a relatively higher proportion of half melanics in the forest trap than in the boundary trap, but the difference is not significant ($\chi^2_1 = 1.90$; $p>0.1$). Similarly the typical form was taken more in the garden trap relative to the half melanic than elsewhere, but not significantly so ($\chi^2_1 = 1.42$; $p>0.1$).

The ratio of light forms to mid-brown forms of *N. pronuba* was similar in the boundary and garden traps ($\chi^2_1 = 0.008$; $p>0.95$). However, the mid-brown form was relatively more frequent in the forest trap ($\chi^2_1 = 4.12$; $p<0.05$, with Yates' correction). Comparison of the data for f. *innuba* compared with those for all the other forms shows that it occurs significantly in excess over expectation in the forest trap and is deficient in the other traps ($\chi^2_2 = 25.91$; $p<0.001$, with Yates' correction).

Table 3. Total number of each five classes of the Grey Pine Carpet (*Thera obeliscata*) taken in each trap.

Class	Forest Trap	Boundary Trap	Garden Trap	Total
Typical Grey	23	23	15	61
Typical Red	38	32	12	82
Banded	79	26	10	115
Half melanic	90	47	15	152
Melanic	15	1	0	16
Total	245	129	52	426

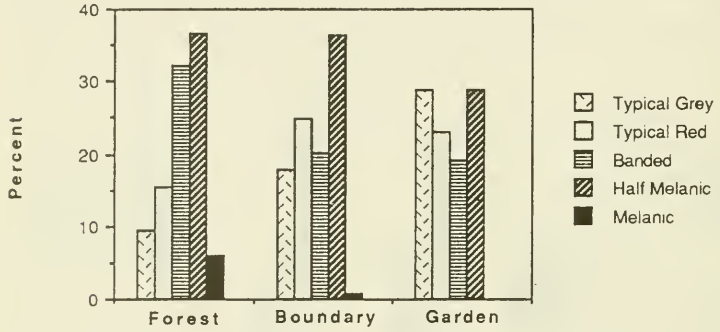

Figure 3. Percentages of the forms of the Grey Pine Carpet, *Thera obeliscata,* for each trap.

Table 4. Total number of each of three classes of Pine Carpet (*Thera firmata*) taken in each trap.

Class	Forest Trap	Boundary Trap	Garden Trap	Total
Typical	104	57	31	192
Half melanic	70	26	12	108
Melanic	11	0	0	11
Total	185	83	43	311

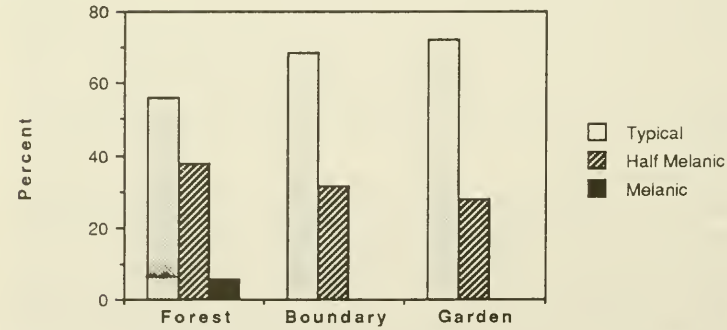

Figure 4. Percentages of the forms of the Pine Carpet, *Thera firmata,* for each trap.

Table 5. Total number of each of three classes of Large Yellow Underwing (*Noctua pronuba*) taken in each trap.

Class	Forest Trap	Boundary Trap	Garden Trap	Total
Light	2	17	10	29
Mid-brown	7	9	5	21
Melanic	13	0	0	13
Total	22	26	15	63

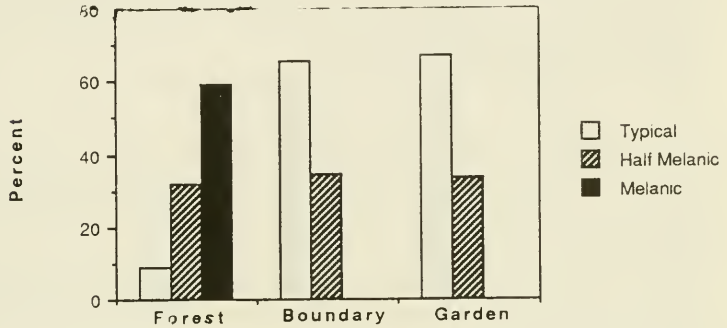

Figure 5. Percentages of forms of the Large Yellow Underwing, *Noctua pronuba*, for each trap.

Discussion

It is evident from the results that the distribution of melanic forms is affected by habitat. The garden trap failed to yield a single individual of the darkest form of any of the species analysed. Furthermore, the frequency of the darkest forms of three species was substantially lower in the boundary trap than in the forest trap. For the lightest forms of each species in terms relative to the numbers of each species taken in each trap, the reverse is true. The proportion of catch per trap is greatest for the palest forms in the garden and lowest in the forest. Forms intermediate in darkness showed an intermediate distribution, being less strongly restricted to the forest than the darkest melanics, but occurring relatively more commonly in the forest than the palest forms.

Undoubtedly, larval foodplant has an effect on the catch rates in different traps. *Thera obeliscata* and *T. firmata* both feed on needled conifers, hence their abundance in the forest trap. Differences in the catch rates for the different traps are less pronounced for *C. truncata* and *N. pronuba,* with the latter being most frequent in the boundary trap. Both are polyphagous, but Skinner (1984) does not list needled conifers among the larval foodplants of either. Although the species distributions are affected by foodplant, this cannot account for the different distributions of the forms.

Three hypotheses may be put forward to account for the morph specific distributions recorded.

First, the forms may distribute themselves randomly with respect to habitat, but, due to lower light levels in the forest, the degree of crypsis is greatest for melanics under the canopy and least in the open. Consequently, differential bird predation could account for the data observed, with melanics being heavily preyed upon in the open habitats and the non-melanic forms being more heavily predated in the woodland.

Second, moths may have different habitat preferences dependent on their phenotype, so that their degree of crypsis, and thus protection from visually hunting predators, is maximised.

Third, moths may have different morph specific habitat preferences for reasons not associated with crypsis or protection from predators. For example, night temperature would generally be higher under the canopy than in the open. As the degree of irradiation from a surface is dependent on its colour, a dark surface radiating heat faster than a pale one, it is possible that melanic forms are at a disadvantage if they fly in cooler more open situations.

Given the complete lack of melanics in the garden trap, it seems unlikely that recurrent bird predation each generation, on species in which all morphs have similar behaviours, could account for the observed data. The level of bird predation necessary would be just too high. On the other hand, were moths to have morph specific habitat preferences, low levels of differential bird predation by which melanic morphs were most heavily predated in open habitats and least heavily in the forest, would be sufficient to maintain and reinforce the differences in behaviour.

Howlett (1989) has shown that morph specific behaviour differences will take substantial amounts of time to evolve. Majerus (1989) discussing these findings has suggested that melanism related resting preferences are only likely to be found in species which have a long history of melanism, unless the behaviour is a pleiotropic effect of the melanism gene as postulated in Kettlewell's (1955b) contrast-conflict hypothesis of resting site selection in *Biston betularia*. The same is true of morph specific habitat preferences. The likelihood of such behaviours evolving will increase with time, and be more frequent in species in which melanic polymorphism is of relatively ancient origin.

It is perhaps significant that Kettlewell (1973) notes that *T. obeliscata, T. firmata* and *C. truncata* all have melanic forms he considers to be non-industrial, and that melanism in *N. pronuba* is included in the geographic, relict or ancient melanism chapter.

The data recorded here cannot distinguish between hypotheses. Further work on levels of bird predation, the dispersal of the different forms, and the thermal properties of the morphs are required. It is quite possible that the reasons for the morph specific distributions are not all the same. In this

context we feel it particulary possible that the factors affecting *N. pronuba* may be different from those affecting the other three, as it is different in many other aspects of its behaviour and ecology.

The findings do, however, reinforce the cautionary deductions of Jones *et al* (1993). All four of the species exhibiting colour pattern polymorphism, which could be analysed, showed morph specific frequency differences between habitats over extremely short distances. Data are accumulating to suggest this type of observation may be the rule rather than the exception. If so, the method and location of moth sampling may have a critical bearing on studies designed to investigate the evolutionary genetics of melanism and other types of polymorphism in the Lepidoptera.

Acknowledgements

We wish to thank the Forestry Commission, Coleford Office, for permission to trap moths in the Kidnalls Enclosure. We also thank Mrs H. Wollen for allowing us to trap in her garden, and Mrs E. Mahar for helping us set up the traps. Miss Joanne Griffiths typed the manuscript. M.E.N.M.'s research into habitat preferences in the Lepidoptera is funded by a NERC small grant.

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[Table 1 follows on pages 212-214]

Table 1 Macro-Lepidoptera recorded in three moth traps in Kidnalls Enclosure, Forest of Dean, from Monday 9th September 1991 - Sunday 15th September 1991.

Species		Forest								Boundary								Garden							
		M	T	W	T	F	S	S	Tot	M	T	W	T	F	S	Su	Tot	M	T	W	T	F	S	Su	Tot
Chloroclysta truncata	Typical	7	5	4	9	17	2	12	**56**	16	18	10	5	8	8	9	**74**	8	4	4	6	7	4	3	**36**
	rufescens	8	5	11	6	6	4	7	**47**	8	8	3	3	0	6	3	**31**	3	2	1	1	3	3	1	**14**
	perfuscata	3	7	14	10	8	0	10	**52**	5	8	7	7	0	5	4	**36**	0	1	0	1	2	0	2	**6**
	nigerrimata	8	1	8	2	5	2	5	**31**	0	1	1	0	1	1	0	**4**	0	0	0	0	0	0	0	**0**
Thera obeliscata	Typical Grey	3	3	3	4	6	2	2	**23**	4	7	5	4	0	0	3	**23**	4	2	1	2	2	2	2	**15**
	Typical Red	10	2	4	3	13	3	3	**38**	4	8	3	1	2	8	6	**32**	1	3	2	1	1	0	4	**12**
	Banded	23	11	7	7	14	7	10	**79**	4	8	1	2	5	3	3	**26**	1	2	1	0	2	1	3	**10**
	Half Melanic	20	13	13	14	19	1	10	**90**	6	14	10	3	1	6	7	**47**	2	2	2	2	3	2	2	**15**
	Melanic	2	1	5	1	5	0	1	**15**	0	0	1	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**
Thera firmata	Typical	28	21	17	8	21	2	7	**104**	5	13	9	8	2	12	8	**57**	4	7	2	4	9	2	3	**31**
	Half Melanic	6	9	8	21	11	5	10	**70**	3	3	4	4	4	4	4	**26**	1	4	2	2	2	0	1	**12**
	Melanic	0	2	2	2	4	0	1	**11**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
Noctua pronuba	Typical	1	0	1	0	0	0	0	**2**	2	3	5	5	1	0	1	**17**	1	1	2	2	1	2	1	**10**
	Half Melanic	1	0	3	1	0	2	0	**7**	0	2	4	0	2	1	0	**9**	0	0	0	0	1	2	2	**5**
	Melanic	2	0	4	4	2	0	1	**13**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
Paradiarsia glareosa	Typical	14	10	17	10	6	1	6	**64**	7	3	5	4	4	3	4	**30**	6	6	7	6	6	5	2	**38**
	Mid-rosy	5	0	0	0	1	0	0	**6**	1	1	0	0	0	0	0	**2**	2	0	1	1	1	0	1	**6**
	Rosy	0	0	2	1	0	0	1	**4**	0	1	1	0	1	0	0	**3**	0	0	1	0	1	0	0	**2**
Xanthorhoe fluctuata		3	0	2	0	1	0	2	**8**	2	3	1	0	0	0	0	**6**	2	0	0	1	2	0	0	**5**
Cosmorhoe ocellata		0	0	0	0	1	0	0	**1**	0	1	0	0	0	0	0	**1**	1	0	0	0	0	0	0	**1**
Noctua comes		10	1	11	2	2	1	3	**30**	4	5	2	3	2	5	1	**22**	2	8	10	5	13	6	4	**48**
Noctua fimbriata		0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	1	**0**	0	0	0	0	0	1	0	**1**

Amphipyra pyramidae	3	0	0	0	0	0	2	**5**	0	3	1	0	0	2	0	**6**	0	0	0	0	2	1	0	**3**
Catocala nupta	0	1	0	0	0	0	0	**1**	0	0	1	0	0	0	0	**1**	0	0	0	1	0	0	0	**1**
Omphaloscelis lunosa	2	0	0	0	0	0	0	**2**	0	0	1	0	1	2	0	**4**	0	0	0	3	1	0	0	**4**
Tholera cespitis	1	2	0	0	0	1	0	**4**	2	1	0	0	0	0	1	**4**	1	3	4	2	4	3	0	**17**
Hydraecia micacea	1	3	1	0	1	0	0	**6**	0	0	1	0	1	0	0	**2**	1	3	3	3	5	0	1	**16**
Luperina testacea	0	3	0	3	0	0	0	**6**	2	1	3	2	1	1	0	**10**	1	2	4	4	3	2	1	**17**
Xestia xanthographa	1	0	0	0	0	0	0	**1**	0	0	0	1	0	2	0	**3**	0	0	0	1	6	2	0	**8**
Aporophyla nigra	0	0	1	0	1	1	1	**4**	0	0	5	0	4	2	1	**12**	0	0	0	2	5	4	0	**11**
Gortyna flavago	0	0	0	1	0	0	0	**1**	0	0	0	0	0	0	0	**0**	0	0	0	0	1	0	0	**1**
Opisthograptis luteolata	2	2	2	6	8	0	1	**21**	1	1	0	0	1	0	2	**5**	1	5	3	5	6	3	0	**23**
Xanthia icteritia	0	0	0	0	0	0	1	**1**	0	0	0	1	0	1	1	**3**	0	0	1	0	0	0	0	**1**
Xanthia aurago	0	0	0	0	0	0	1	**1**	0	0	1	0	1	0	1	**3**	0	0	0	1	0	0	1	**1**
Xanthia togata	1	0	0	1	0	0	0	**2**	0	0	0	0	0	2	0	**2**	0	1	2	1	0	0	1	**5**
Ennomos fuscantaria	0	1	0	0	0	0	0	**1**	2	1	0	1	0	1	1	**6**	1	1	1	0	1	0	1	**5**
Ennomos erosaria	0	0	0	0	0	0	0	**0**	0	0	0	0	0	1	0	**1**	0	0	1	0	1	1	1	**4**
Ennomos alniaria	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	1	1	0	**2**
Cymatophorima diluta	0	0	1	0	0	1	0	**2**	0	0	0	0	0	1	0	**1**	0	4	1	1	3	1	1	**11**
Hypena proboscidalis	0	0	0	0	0	0	0	**0**	0	2	2	0	0	0	0	**4**	1	2	0	0	0	0	0	**3**
Aplocera plagiata	0	1	1	0	0	0	0	**2**	0	0	0	1	0	0	0	**1**	0	0	0	0	0	0	0	**0**

Orgyia antigua	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**
Mythimna pallens	2	0	2	0	0	0	0	**4**	4	2	3	1	2	1	0	**13**	2	2	3	3	3	1	2	**13**
Autographa gamma	0	0	1	1	7	0	2	**12**	1	3	5	0	18	5	3	**35**	2	2	6	4	8	7	4	**33**
Amphipyra tragopoginis	0	0	0	0	0	0	0	**0**	0	0	0	0	2	0	0	**2**	0	0	0	0	1	0	0	**1**
Phlogophora meticulosa	0	0	2	1	0	0	1	**4**	0	2	7	3	2	4	1	**19**	0	0	2	3	3	4	0	**12**
Xestia c-nigrum	2	2	5	1	0	0	2	**12**	4	4	5	4	6	8	2	**34**	2	8	8	8	7	7	10	**50**
Ochropleura praecox	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	0	**1**
Agrotis excalamationis	0	1	0	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**1**
Agrotis puta	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	0	**1**
Mamestra brassicae	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	0	0	0	0	0	**0**
Agrochola litura	0	1	0	0	0	0	0	**1**	0	0	0	0	0	1	0	**1**	0	0	1	1	1	0	0	**3**
Scopula floslactata	1	0	0	0	0	0	0	**1**	0	2	0	0	0	0	0	**2**	0	0	0	0	0	0	0	**0**
Idaea straminata	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	**1**
Scopula rubiginata	0	0	0	0	0	0	0	**0**	0	1	0	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**
Lomaspilis marginata	0	0	0	0	1	0	0	**1**	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	**0**
Gnophos obscuratus	0	0	0	0	1	0	1	**2**	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	**1**
Alcis repandata	1	0	0	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**

MICROLEPIDOPTERA AT TWO ROTHAMSTED INSECT SURVEY TRAPS 1987-1989.

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DURING the three years 1987-9 microlepidoptera were identified from two Rothamsted insect survey traps. 294 species were recorded from a trap which has operated since May 1975 on the southern side of the main glasshouse range at the Royal Horticultural Society's Garden, Wisley, Surrey (TQ 065 579). Wisley Garden occupies approximately 97 ha in which a very wide range of ornamental plants is grown. A 6.5 ha area is devoted to apples, pears, plums and various soft fruits with a smaller area used for growing vegetables. The northern edge of the garden is bounded by the River Wey. There are several lakes and small ponds within the garden although none of these is close to the trap site. There are also some wooded areas, the main tree species being Oak, Scots Pine, Sweet Chestnut and Beech. The trap is at one of the highest parts of the garden approximately 40m above sea level.

The soil at Wisley is acidic and is classified as Bagshot sand. Much of the land immediately outside the garden is used for sheep and cattle grazing, with some arable farming. To the east is Wisley Common, an area of wet and dry heathland with heather and gorse although there has been extensive scrub invasion by Scots Pine, Birch, Sallow, Alder, Buckthorn and Aspen. The records from Wisley demonstrate this diversity of habitat and include species characteristic of deciduous and pine woodland, gardens, heathland and also chalk downland, although the nearest chalky area is some 6km to the south. One species new to Surrey has resulted from this study.

225 species were recorded from the second trap site in the village of Santon Downham, near Brandon, Suffolk (vc 26; TL 816 876). This trap is situated between two buildings at the district offices of the Forestry Commission Research Branch in the heart of Thetford Forest, which is extensively planted with Scots and Corsican Pine. To the west of the trap site is an old nursery area bounded by a belt of Oak, Cherry and Alder. The River Ouse flows along the northern edge of the area about 140m from the trap. Beyond that is an area of open fields with some scrub heather and a railway line runs parallel to the river. The main forest begins about 140m to the south-east of the trap site. The soil at Santon Down is a sandy brown earth and many species typical of the Breckland have been found in the trap. The list that follows gives details only of the more interesting species of microlepidoptera from the two sites.

(i) Wisley.

Only a single representative of the family Psychidae was recorded, *Psyche casta* Pall. (21.v - 12.vi.89), notable principally because members of this family are rarely seen at light. *Morophaga choragella* D.&S., which was

recorded twice (13 - 18.vi.89 and 4 - 7.vii.89), was the only noteworthy member of the Tineidae.

Gracillariidae were well represented, *Caloptilia azaleella* Brants, a species for which Wisley was one of the first British localities, is obviously well established and was found in some numbers each year, occurring in all months from May-October inclusive. Other Gracillariidae included *Caloptilia populetorum* Zell. (one, 13 - 18.vi.89) and *C. robustella* Jäckh, which was found in fair numbers each year usually in late July and August but in 1989 it was also caught in late May, all specimens being confirmed by dissection. Several other members of the Gracillariidae were found on unusual dates outside the normal flight period given in *Moths and Butterflies of Great Britain and Ireland* Vol. 2. For example two specimens of *C. semifascia* Haw. were seen in late June 1988 and *Calybites phasianipennella* Hb. was of regular occurrence in the autumn and spring but records of this species on 17 - 24.vii.88 and 29.vii - 2.viii.89 suggest that in both these years a partial second brood may have occurred. Three specimens of *Acrocercops brongniardella* Fabr. were taken on 7 -11.vii.87.

A single *Yponomeuta sedella* Treit. was taken in March 1989. This species is interesting in that larvae were found causing extensive webbing on a hybrid *Sedum* "Ruby Glow" on 26.ix.84. These persisted for several years and in 1987 were found on a second cultivated *Sedum, S. maximum* "Atropurpureum". Larvae have not been seen since about 1988. Other Yponomeutidae included a single *Ocnerostoma friesei* Svens. in early May 1988 and *Ypsolopha scabrella* L. (8 - 24.vii.88, two; 2 - 5.viii.88, one).

Coleophoridae were well represented. Among the 27 species (all of which were identified by dissection) were *Coleophora gryphipennella* Hb. (18 -26.vi.89, two); a single *C. albitarsella* Zell., taken at the same time; *C. frischella* L. usually singularly, in each month from May to August; *C. mayrella* Hb. (1 - 4.vii.87 and 13 - 18.vi.89); *C. deauratella* Lien. & Zell. (12 - 14.vii.87); *C. niveicostella* Zell. (one, 21.v-12.vi.89, identified by Dr J.R. Langmaid); *C. ibipennella* Zell. (4 - 7.vii.89); *C. palliatella* Zinck. (27.vi -3.vii.89); *C. therinella* Tengst. (27.vi - 3.vii.89 and *C. sternipennella* Zett. (13 - 17.viii.89). Most interesting of the Coleophoridae was *C. lassella* Stdgr. The first record of this species from Surrey was a male taken at the trap on 14 - 21.viii.88 and identified by Dr J.R. Langmaid (Palmer 1989). The following year further specimens were taken on 21.v. - 12.vi.89, 13 -18.vi.89 and 3 - 10.viii.89. The dates suggest that this little known species has a prolonged emergence period in England.

Oecophoridae included the apparently scarce and under-recorded *Pseudatemelia josephinae* Toll (1 - 4.vii.87; 13.vi - 7.vii.89, six; 10.viii.89, three); a single specimen of *Diurnea phryganella* Hb. in October 1989 and one *Agonopterix yeatiana* Fabr. (15.v.89).

The best record from the family Gelechiidae was a single specimen of *Pexicopia malvella* Hb. (27.vi - 7.vii.88). Several *Aproaerema anthyllidella*

Hb. were found in August 1989 but in no other year. Cochylidae (12 spp.) included *Trachysmia inopiana* Haw. in early July 1987 and 1989; one or two specimens of *Phtheochroa rugosana* Hb. were caught each year and there were single specimens of *Phalonidia manniana* F.v.R. (4 - 7.vii.89) and *Aethes dilucidana* Steph., a species principally of chalk downland (6 -8.viii.88). Two specimens of *Cochylis roseana* Haw. were caught on 29.vii -2.viii.89.

The Tortricidae were the best represented family, 86 species being recorded. Several of these were species associated with *Pinus sylvestris* including *Lozotaenoides formosanus* Geyer, a species first recorded in Britain from north-west Surrey and obviously well-established there, being recorded regularly in all three years. Five *Rhyacionia pinivorana* Lien. & Zell. (5 - 6.vii.87; 16 - 26.vi.88 and 21.v - 12.vi.89, three) and the generally scarcer *R. pinicolana* Doubl. (three specimens 26 - 28.vii.87, 1 -4.viii.87 14 -21.viii.88) were both found as were several *R. buoliana* D. & S. and a single *Clavigesta purdeyi* Durr. (9 - 13.viii.88). Other less common Tortricidae included *Pandemis cinnamomeana* Treit.; *Acleris schalleriana* L., a species most commonly found on chalk downland which occurred singly in November or December each year; *A. boscana* Fabr. (13 -26.vi.89, two) and *Hedya salicella* L. (7 - 9.vii.87, 9 - 13.viii.88). *Dichrorampha simpliciana* Haw. was the only member of the genus *Dichrorampha* represented and was recorded only in 1989.

The 55 species of Pyralidae also demonstrated the diversity of the habitat with species usually found on heathland such as *Agriphila latistria* Haw. (one ore two in August each year) and *Pempelia palumbella* D. & S. (5 -6.vii.87 and 16 - 26.vii.88) and species more typical of chalk downs e.g. *Pempeliella diluta* Haw. (16 - 26.vi.88). Other Pyralids were *Sitochroa verticalis* L. (12 -14.vii.87, two; *Orthopygia glaucinalis* L. (21.vii - 4.viii.87, three; 8 -16.vii.88, one); *Numonia suavella* Zinck., one or two in July each year; a single speciem of *Euzophera pinguis* Haw. (3 - 10.viii.89) and *Ephestia elutella* Hb. (7 - 9.vii.87, two). A second *Ephestia — E. parasitella* Stdgr. was found on two occasions (27.vi - 7.vii.88, two ; 13 - 26.vi.89, three). *Phlyctaenia perlucidalis* Hb. which has recently been extending its range occurred once (7 - 9.vii.87).

(ii) Santon Downham

Several of the less common species recorded at Wisley were also found at Santon Downham i.e. *Caloptilia robustella* Jäckh. (one det. gen; 7 -10.viii.89); *C. semifascia* Haw. (one, 25 - 7.vii.89); *Calybites phasianipennella* Hb.; *Coleophora gryphipennella* Hb.; *C. mayrella* Hb.; *C. palliatella* Zinck.; *C. sternipennella* Zett.; *Phtheochroa inopiana* Haw.; *Phtheochroa rugosana* Hb.; *Agryphila latistria* Haw.; *Phyctaenia perlucidalis* Hb. (17 - 23.vi.88, one; 1 - 15.vi.89, three); *Orthopygia glaucinalis* L. and *Pempelia palumbella* D. & S. (one, 10 - 16.vii.87). As at

Wisley, *Aproaerema anthyllidella* Hb. appeared only during the final year of the survey when five were seen (17.vii - 10.viii.89), as did *Dichrorampha simpliciana* Haw. (two, 21 - 31.vii.89).

Two Gracillariidae were found singly at Santon Downham, *Leucospilapteryx omissella* Stt. (18 - 31.vii.89) and *Phyllonorycter lantanella* Schr. (17 -27.vii.89). *Epermenia chaerophyllella* Goeze was common in 1989. Twenty spp. of Coleophoridae were identified; besided those mentioned above as common to both sites were two species associated with the Breckland: *Coleophora vestianella* L. and *C. clypeiferella* Hofm. both occurred regularly as did the ethmiid moth *Ethmia funerella* Fabr. A single *Semioscopis steinkellneriana* D. & S. was caught in iv.88.

A striking difference between the two sites was the reduced number of 56 Tortricidae found at Santon Downham, 31 fewer than at Wisley. The only species of note which were not recorded at Wisley were a single *Croesia holmiana* L.; (1 - 16.vi.89); two *Apotomis semifasciana* Haw. (17 -23.vi.88; 1 - 7.viii.88; *Endothenia ericetana* Humph. & Westw. (26.vi - 6.viii.89, four) and *Bactra furfurana* Haw. (vi.88, two).

Conversely the number of species of Pyralidae at Santon Downham was 49; only six less than at Wisley and several notable species were represented. These included species characteristic of large reed beds e.g. *Chilo phragmitella* Hb., of reedy marshes and fens — *Donacaula forficella* Thunb. (7.viii.87) and of dry heathlands — *Crambus hamella* Thunb. (single in August each year) and *Anania verbascalis* D. & S. (22 - 25.vi.89).

Several other species well-known in the Breck and with an otherwise principally coastal distribution were caught. Species in this category were *Thisanotia chrysonuchella* Scop.; (vi.87, one; vi.88, two); *Platytes cerussella* D. & S. which was common each year; *Evergestis extimalis* Scop. (1 - 25.vi.87, two; 6 - 9.vii.87, one) and two *Anerastia lotella* Hb. (1 -7.viii.88 and 3 - 10.vii.89). A single *Adaina microdactyla* Hb. was recorded on 11 - 16.vii.89.

Two species of Pyralidae are perhaps the most interesting species to be found in the Santon Downham trap. The first was *Platytes alpinella* Hb., a coastal species which, according to Goater (1986) is only recorded inland as occasional stragglers from the coast. This species was recorded on four occasions, (1 - 7.viii.88; 21 - 4.vii.89; 1 - 6.viii.89; 18 - 31.viii.89) suggesting that, like *P. cerussella,* it may be established in the area. The other was *Nascia cilialis* Hb. (17 - 23.vi.88, one) a species which according to Goater is restricted to the fens of Cambridgeshire and Huntingdonshire. The occurrence of this species in Suffolk may constitute a new record for that county.

Identification of microlepidoptera from Rothamsted traps is not recommended to those who value specimens in prime condition. For those with the time to identify specimens in less than immaculate condition, with

the reward of finding new county records and adding greatly to the known distribution of scarce British Lepidoptera, the chance to identify specimens which would otherwise be wasted should not be missed.

Acknowledgements

The authors would like to thank Terry Jennings for running the light trap at Santon Downham during the period of the survey, and Val Marsh for providing a description of the trap site.

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***Dicallomera fascelina* L. (Lep.: Lymantriidae) with two-year life cycle.**

South (1907, *The Moths of the British Isles,* vol. 1) deduced that the Dark Tussock, *D. fascelina* might overwinter twice as a larva, at least in Scotland. He described how young larvae had been found in their winter quarters in the middle of July, with one surviving until the following March. Apparently, no subsequent author has suggested anything other than a one-year cycle (G.M. Haggett, *in lit.*).

In Banffshire *D. fascelina* occurs at low density on moorland. A larva found at Ordiquhill NJ5755 on 25.v.91, on *Calluna,* seemed about one third grown. In captivity, it ate sparingly and grew very slowly, until it stopped feeding altogether in July (by which time imagines were already coming to the moth trap). Thinking I had not provided warm enough conditions, I tried to force it, but it died.

A second larva, also about one-third grown, was found at Ordiquhill on 7.vi.92. It also grew slowly, and in early July spun a flimsy shelter amongst the foodplant and stopped feeding. This time, having re-read South, I simply screwed the top on the jar, and put it in an unheated outbuilding.

Occasional checks showed the larva to be dormant, but still alive. On 8.iii.93 it resumed activity, shrunken and obviously dehydrated after about eight months without food or water. By now, I was determined to vindicate South, and frequently splashed the larva with tepid water while desperately trying to tempt it to begin feeding again on the wide choice of foodplants offered. After a couple of days it did so, preferring hawthorn. When not eating, it rested on the foodplant.

A further two weeks of inactivity preceded ecdysis on 17.iv.93. On the new skin, the star-like tufts of body hairs were grey at first, and did not begin to turn yellow for a week.

By 8.v.93 the larva was full-grown, and began to spin a cocoon among the foodplant. This consisted of a roomy, thin outer layer, *ca* 50×35mm, enclosing a denser inner one, 32×18mm. Both were slightly brownish silk, and felted with larval hairs.

A female moth emerged on the evening of 25.vi.93, the usual flight period here being from late June until mid-July.

There remains the question of whether all, or only part, of the population of *D. fascelina* has a two-year life cycle in this area, and whether this varies in warm or cool years. It seems hard to believe that the cycle could not be completed in one year: my larvae seemed to have much surplus time on their hands, and went into diapause when summer here had barely begun. Either a one-year cycle is not quite regularly attainable, but two years is far more than is really needed, or there are other advantages. Many species in Scotland sometimes overwinter more than once as a pupa; this is believed to reduce the risk of the whole population of an area being wiped out by one exceptionally inclement year. Possibly *D. fascelina* sometimes overwinters twice for a similar reason, but in this case as a larva.

I am grateful to G.M. Haggett for researching the literature.— ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

The Sycamore Moth, *Acronicta aceris* L. (Lep.: Noctuidae) in Yorkshire

Sutton and Beaumont (*Butterflies and Moths of Yorkshire,* 1989) felt unable to accept any Yorkshire records of *A. aceris* as there were no extant specimens or photographs. I am therefore pleased to record the first confirmed specimens of this species, both taken by G.B. Summers, one at Strensall on 12.vii.92 and a second at Levisham, North Yorks, at light, on 3.vii.92.— S.M. JACKSON, 31 Hillfield, Selby, North Yorkshire.

***Hydroporus longicornis* Sharp (Col.: Dytiscidae) in East Kent**

A single male *Hydroporus longicornis* was taken from a pond in the KTNC reserve at Kiln Wood, Lenham (TQ 8875 5165) on 10th April 1993. Foster (1984, *Atlas of British Water Beetles* part 3, *The Balfour -Browne Club Newsletter* 31) records this species from the Wadhurst district of West Kent in TQ 63 and states that it is found in relict spring-fed bogs and fens. Kiln Wood lies on the Gault clay and the pond supports a rich flora including *Hottonia palustris, Caltha palustris* and *Menyanthes trifoliata,* which tend to prohibit aquatic sampling later in the season. Associated water beetles taken during the visit were *Anacaena limbata, Copelatus haemorrhoidalis, Cymbiodyta marginella, Halipus ruficollis, Helophorus brevipalpis, Hygrotus inaequalis, Hydrobius fuscipes, Hydroporus angustatus, H. erythrocephalus, Hyphydrus ovatus, Rhantus grappii* and *Suphrodytes dorsalis.*— L. CLEMONS, 14 St Johns Avenue, Sittingbourne, Kent ME10 4NE.

SOME PLEASURES OF THE INSECT WORLD 1992

PATRICK ROPER

South View, Sedlescombe, Battle, East Sussex TN33 0PE

LIFE often seems impossibly busy as I commute from my home in East Sussex to my work at the National Maritime Museum in Greenwich, while the demands of an extended family and numerous pets make it difficult to have holidays in distant invertebrate hot spots. Nevertheless, our garden and the local woods combined with the better habitats in the neighbourhood and the occasional day-trip or long weekend provide more than sufficient entomological interest.

The first insect of last year, found on New Year's Day, was the Sphaerocerid fly *Crumomyia roseri* (Rondani), running about on rotting Honey Fungus (*Armillaria*) in the wood at the end of our garden, then on 8th January there was an infestation of *Stegobium paniceum* (L.) (Col. Anobiidae), the Bread or Drugstore Beetle, in the Education Department at the Museum in Greenwich. Rentokil were duly called and the beetles vanished before the material they had been breeding in was discovered.

In a blue tit's nest-box on the side of our house I found hibernating , on 12th January, several examples of the hoverfly *Eristalis tenax* (L.) and lots of the flea *Ceratophyllus gallinae* (Schrank), kindly determined by Robert George. In the same month a grass tussock from the furthest end of the Isle of Grain yielded a variety of beetles, the Dipluron *Campodea staphylinus* Westwood and the short-winged Chloropid fly *Elachiptera brevipennis* (Mg.) while on the sea wall there I found the Carabid beetle *Bembidion minimum* F. under a plant of *Halimione*.

At the beginning of February I fished a dead female of our largest winter gnat, *Trichocera major* Edwards (Dipt.: Trichoceridae), from the water of one of our garden ponds. I have found that these act rather like large water-bowl traps provided you get there before the newts or pond-skaters — we get two species *Gerris thoracicus* Schummel and *G. lacustris* (L.) — and I have added many new records to our garden list in this way. Later in the month the same pond yielded the local Carabid beetle *Notiophilus substriatus* Wat. while in March I discovered the tiny Sphaerocerid *Minilimosina vitripennis* (Zett.) on the pond surface apparently preying on a small drowned Sciarid fly, though it may only have been imbibing the juices of decomposition. In April *Bibio lanigerus* Mg., a St. Mark's Fly not recorded from East Sussex in Freeman (1985), was found dead in the water. In March I visited a friend in Basingstoke and found the parthenogenetic, moss-breeding non-biting midge *Bryophaenocladius furcatus* (Kieffer), the Psyllid *Trioza urticae* (L.) and the local Chrysomelid beetle *Longitarsus dorsalis* F. floating in his tiny suburban garden pond less than one metre in diameter.

In mid-March dozens of the smoky black Sciarid fly *Schwenckfeldina carbonaria* (Mg.) turned up on one of our inside window panes at home. The flies continued to appear for a couple of weeks and several Hymenoptera Parasitica (with which they were probably associated) joined them. These were an Ichneumon, possibly a *Stenomacrus* sp. according to Mark Shaw at the National Museums of Scotland, and some Tetrastichine Chalcids (Hym.: Eulophidae). Also indoors at this time was the Tineid moth *Tinea pellionella* (L.) which I believe is only provisionally recorded from East Sussex.

On a very wet and unpromising afternoon on 15th March we drove out to the Denge Beach at Dungeness and by a brackish dyke near the sea I found quantities of Chironomid midges including the scarce *Orthocladius glabripennis* (Goetghebuer) which was swarming in company with a *Tanytarsus* sp. close to, but not identical with, *T. pallidicornis* (Walker). My first butterfly was on 16th March when a Peacock, *Inachis io* (L.) tried to get into our sitting room through the glass. The year was also memorable for one of my most unsuccessful breeding experiments. In our garden a plastic bucket containing some water weed had stood out for a couple of years so I put it in an Owen emergence trap to see what might be developing in it. It produced only three species — *Chaoborus crystallinus* (Degeer) (Dipt.: Chaoboridae), *Zavrelimyia barbatipes* (Kieffer) (Dipt.: Chironomidae) and *Chironomus riparius* Mg. (Dipt.: Chironomidae) — all extremely common.

On St. Patrick's Day, 17th March, I watched a *Syrphus balteatus* (Dipt.: Syrphidae) hovering round a small spruce in the garden. This species has great population explosions in late summer and these winter appearances show it can hibernate successfully in Britain. In 1991 I saw one fully active in a local wood in the last week in December. On the same day in March I caught a Phorid fly, *Triphleba intermedia* (Malloch), running across my hand. It is big for its family and has a very large proboscis — I wondered if it had been hoping for a blood meal!

I have long been interested in the woodland spring streams that are frequent in East Sussex and well-known for interesting flora and fauna. Along one particularly unpolluted stream in late March I found the Chironomid *Microspectra fusca* Mg., now mainly associated with moorland locations and possibly in Sussex a relict from a colder period when the glaciers were retreating, and one of Britain's smallest flies, *Corynoneura celtica* Edwards. (Dipt.: Chironomidae). At the end of the month I had a splendid walk with an old friend in the Mallydams Wood reserve at Fairlight near the East Sussex coast and, among a host of early spring insects, found the rather local Cicadellid leaf-hopper *Linnavuorina decempunctata* (Fallén) which is associated with the birch.

One of the most successful wild plants in our garden is Hogweed, *Heracleum sphondylium* L., and in 1992 I started to pay particular

attention to the insects associated with it. My first discovery was two pupae of the Tachinid fly *Digonochaeta spinipennis* (Mg.) in a dead hollow stalk of the plant next to the shrivelled remains of a Common Earwig which this species parasitises. From larvae collected on Hogweed flowers during the summer in our garden I bred *Eupithecia tripunctaria* H.-S., the White-spotted Pug moth, *E. subfuscata* Haw., the Grey Pug and the micro *Depressaria pastinacella* Dup. Among the more interesting Hogweed flower visitors were the scarce Empid *Drapetis arcuata* Loew, and the hoverflies *Orthonevra nobilis* (Fallén) and *Pipiza austriaca* Mg. The umbels are also much visited in our area by the "new" social wasp, *Dolichovespula media* (Retzius) in late summer. This recent arrival from the Continent became widespread in this area in the last decade and has now advanced as far as Norfolk and Gloucestershire (Else, 1992).

On 25th April the first Holly Blue, *Celastrina argiolus* L., appeared in the garden — the population has thinned after the great increase of the last two years, but not crashed — and also the first of the rare hoverfly *Rhingia rostrata* (L.) (commoner than *R. campestris* Mg. here). On the same day I found several examples of the terrestrial Chironomid *Bryophaenocladius xanthogyne* Edwards in our garden and the adjacent wood: the species is remarkable for its sexual dimorphism, the males being wholly black and the females orange-yellow.

As the warmer weather started in early May, I had half an hour on the edge of the saltmarsh beside Chichester Harbour near Bosham, West Sussex. There were four species of *Empis* in the bushes around a small stream that debouched here, *E. nuntia* Mg., *E. scutellata* Curtis, *E. caudatula* Loew and *E. praevia* Collin. I also took the rather handsome Agromyzid, *Liriomyza pedestris* Hendel, found mainly in the West Country in Britain and said by Spencer (1972) to be commoner in the Mediterranean. The larvae mine leaves of grass.

On 20th May back in our garden I noticed a large sooty sawfly with rather slow, bumbling flight near a patch of Solomon's Seal that is regularly devoured by sawfly larvae. As I suspected it turned out to be the introduced *Phymatocera aterrima* (Klug). This was first discovered in this country in Putney in 1846, but has spread northwards and westwards at a much slower rate than the wasp *Dolichovespula media* mentioned above, almost certainly due to its specialised food and slower flight.

Towards the end of May the weather turned hot and the local woods started to yield much interest. In one place about a mile from our house the Pearl-bordered Fritillaries and Grizzled Skippers were on the wing when, for the second year running in this area, we saw a Broad-bordered Bee-hawk, *Hemaris fuciformis* (L.), nectaring on Red Campion. Nearby along a shady stream I turned up *Spania nigra* Mg., a small, dark Rhagionid fly whose larvae mine liverwort fronds. This is an Insect Red Data Book "notable" species. The same evening I found a Lime Hawk, *Mimas tiliae* (L.), in the m.v. trap, a first for our garden. Later in the year we had the

Privet Hawk, *Sphinx ligustri* L., and the Pine Hawk, *Hyloicus pinastri* (L.), both new records for this area.

At Rye Harbour, one of our local nature reserves, I have been helping the warden, Barry Yates, with the invertebrate survey that has already shown this to be one of the richest sites in the county and during 1992 added about 70 new invertebrate records. Here on 31st May I caught one example of the distinctive Chironomid *Psectrocladius barbimanus* Edwards at Castle Water which is fresh, rather than brackish as is the case in most other places on the reserve. This species is only noted from Putney, London in Coe (1950), but I have taken it at Stone Bridge on the Royal Military Canal just over the border in Kent. On 25th July the brackish, *Scripus*-fringed Horseshoe Pool very close to the sea produced one *Glyptotendipes barbipes* (Staeger) (Dipt.: Chrionomidae). I found this at the reserve once in the 1960s and Coe (1950) records it only from Barmouth, though I have heard that Neville Birkett has taken it on the Cumbrian coast. Later, on 30th August with P.J. Hodge, we saw the RDB "vulnerable" weevil *Limobius mixtus* Boh. on Stork's-bill and the local short palped crane fly *Molophilus pleuralis* de Meijere on wet mud by a dyke and, in the autumn in the small wood on the reserve, I found *Zygoneura sciarina* Mg., not recorded from Sussex by Freeman (1983).

Midsummer's Day, 21st June, produced an example of the beetle *Dirrhagus pygmaeus* (Col.: Eucnemidae), described as rare in Joy (1932). It was swept in deciduous woodland near the Brede reservoir not far from home. A week later in the same area a patch of Lesser Skullcap produced several examples of the small black and orange sawfly *Athalia scutellariae* Cameron, a species we saw later in the year round the non-British Alpine Skullcap on a rock garden wall at the Royal Horticultural Society garden at Wisley in Surrey (we saw the scarce hoverfly *Xanthogramma pedissequum* (Harris) here too).

Both the White Admiral butterfly, *Ladoga camilla* (L.) and the Elephant Hawk, *Deilephila elpenor* (L.) had very good seasons in our part of the world: in the case of the latter over 50 turned up in the m.v. trap in the garden on 26th June. The well-documented Clouded Yellow invasion, however, passed us by: I recorded none, though my daughter saw one in our fields at Sedlescombe.

We have two water meadows in the valley of the river Brede in Sedlescombe and, on 7th July, I watched a Golden-ringed Dragonfly, *Cordulegaster boltonii* (Donovan), perching on a twig above one of the tributary streams. This is very much a northern and western species and it is encouraging to note that it is still about in this valley, its most easterly British station. On the same occasion I found two soldier flies — *Pachygaster atra* (Panzer) and *Praomyia leachii* (Curtis) (Dipt.: Stratiomyidae), both associated with rotting wood or decaying leaves. They are widespread in the south-east but the former is not recorded from this part of East Sussex (Drake, 1991).

On 10th July we got away from the south-east for a couple of days in the Morecambe Bay area. At Arnside Knott and Gait Barrows we saw abundant High Brown Fritillaries and many Northern Brown Argus, a late Small Pearl-bordered Fritillary and a Speckled Wood which has, apparently, only recently moved into this area. Gait Burrows presented two Brown Hawker dragonflies, *Aeshna grandis* (L.) which, like the High Brown Fritillary, are close to the northern limit of their range here.

On one evening we drove into the Cumbrian mountains over the precipitous Hard Knott Pass and stopped at Cockley Beck where, in a peaty flush, we found three diptera classified as nationally notable, *Platycheirus podagratus* (Zett.) (Dipt.: Syrphidae), *Schoenophilus versutus* (Haliday) (Dipt.: Dolichopodidae) and *Dictya umbrarum* (L.) (Dipt.: Sciomyzidae), amongst a rich haul of Dolichopodidae, Empididae and Ephydridae.

At the end of August, back in the south-east, we saw several of one of the smallest British Tachinid flies, *Alophora pusilla* (Mg.), on a Yarrow umbel in the woods near Brede. They are parasitoids of Hemiptera. Near here there is a colony of the Plume Moth *Stenoptilia zophodactylus* Dup., a Centaury feeder which seems to fly in daytime even in heavy rain.

September produced a new Orthopteran for our garden, the Common Ground Hopper, *Tetrix undulata* (Sowerby) and the striking hoverfly *Helophilus trivittatus* (F.) was seen visiting the pond. On one afternoon there was a small swarm of the fly *Asteia amoena* Mg. (Dipt.: Asteiidae) in our greenhouse and at the end of the month the m.v. trap produced two migrant moths, The Delicate, *Mythimna vitellina* Hb., and a Convolvulus Hawk, *Agrius convolvuli* L., the latter so pristine it was difficult to believe that it had flown far.

We grow several plants of the ivy family in our garden: ivy itself, *Hedera helix* and the arborescent form of *H. colchica; Fatsia japonica* and the hybrid between this and ivy, *Fatshedera lizei.* These give a continuity of flower from September to early December and the *H. colchica* grows in a low mound allowing one to inspect its insect visitors from above. In October our ivy flowers and particularly *Fatshedera lizei* produced a rich haul including the rare Muscid *Phaonia bitincta* (Rondani) with only five British records cited by d'Assis-Fonseca (1968) and the Mycetophilid *Mycomya winnertzi* (Dziedzicki) which is not noted from Sussex in Hutson, Ackland and Kidd (1980).

The last pleasures of the year were finding, on Boxing Day, two Endomychid beetles, *Lycoperdina bovistae* F. in a puffball (probably *Lycoperdon perlatum*) in Darwell Forest and on 28th December eighteen different species of insect actively cohabiting a frozen grass tussock from the 800ft (243.8 metre) summit of Ditchling Beacon, a chalk down north of Brighton. They were *Tachinus marginellus* F., *Tachyporus hypnorum* F., *T. nitidulus* F. and *Stenus flavipes* Steph. (Col.: Staphylinidae); *Longitarsus ? luridus* Scop. and *Chaetocnema hortensis* Geof. (Col.:

Chrysomelidae); *Ceuthorrhynchus quadridens* Panz. and *Apion dichroum* Bed. (Col.: Curculionidae); *Subcoccinella 24-punctata* L. (Col.: Coccinellidae); *Demetrias atricapillus* L. and *Dromius linearis* Ol. (Col.: Carabidae); *Drymus brunneus* Sahlberg and *Scolopostethus thomsoni* Reuter (Hem.: Lygaeidae); *Smittia aterrima* (Mg.) (Dipt.: Chironomidae); *Lotophila atra* (Mg.) and *Spelobia clunipes* (Mg.) (Dipt.: Sphaeroceridae); plus an immature Lygaeid bug and an unidentified beetle.

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***Halimione portulacoides* (L.), an unrecorded foodplant of *Chrysoesthia sexguttella* (Thunb.) (Lep.: Gelechiidae)**

While on a visit to Spurn, east Yorkshire (v.c.61) on 26th September 1992 I noticed a few tenanted blotch mines on *Halimione portulacoides* (L.) (Sea Purslane) in a drying out saltmarsh near the Humber shore.

I suspected that they would be the work of *Scrobipalpa instabilella* (Dougl.) and collected some seven or eight mines which were overwintered in my unheated greenhouse.

To my surprise, two specimens of *Chrysoesthia sexguttella* emerged in late April 1993. None of the reference works include sea purslane as a foodplant of this moth, listing only *Chenopodium* and *Atriplex* species.— H.E. BEAUMONT, 37 Melton Green, West Melton, Rotherham, South Yorkshire S63 6AA.

DIAPHORA MENDICA CLERCK (LEP.: ARCTIIDAE): EGG LAYING PROCEDURE.

BRIAN K. WEST

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DR. SHAW (*Ent. Rec.* **97**:31) raised the subject of egg laying in *Arctia* and *Spilosoma* species and lists a number of trees upon which he had found egg batches, and stated that he had been less successful in finding them on herbaceous plants.

Diaphora mendica although not in either of these genera is closely related. In an abandoned meadow at Dartford on 15th May, 1993, six females of this species were noted in a period of ten minutes; all were seen to make short flights before settling, and two were seen to have settled on grass blades. On 23rd May another specimen was seen to behave similarly; it landed upon a blade of *Dactylis glomerata* (cock's foot), moved to the underside and soon appeared to be egg laying. The time was 12.30, an hour later the moth had gone, but had left behind four neat rows of eggs, fifty five in all. Touching the grass blade was a stem of *Galium aparine* (cleavers), and within eighteen inches were *Urtica dioica* (stinging nettle), *Lamium album* (white dead nettle), *Vicia sativa* (common vetch), *Geranium dissectum* (cut-leaved crane's bill) and a low twig of hawthorn from the hedge a few yards away as well as grasses of several species.

On several days until 31st May eight more *C. mendica* females were observed indulging in these short flights; one settled in a tangle of bramble and hawthorn and disappeared, but all the others dived into the long grass, five were located and found within thirty minutes to have been engaged in egg laying on the underside of grass blades, some of which had other plants in the near vicinity, which included *Heracleum sphondylium* (hogweed) and *Anthriscus sylvestris* (cow parsley). Several species of grass received eggs, including *Bromus sterilis* (barren brome grass). In each case observed the moth settled very quickly; there seemed to be no selection process.

One batch of eggs taken has hatched, the egg shells eaten, and the grass blades supplied attacked, and after three days most of the larvae had not ventured to the opposite side of the two and a half inch plastic container where a change of diet awaited them in the form of *Geranium dissectus* and *Vicia sativa* of which only the former was favoured. At this point it is necessary that the larvae be released due to my going away, but in a few weeks' time a search will be made for *C. mendica* larvae in the field to ascertain their foodplants.

The butterfly farm

I read with great interest, and a not inconsiderable amount of nostalgia, Brian Gardiner's article on The Newmans and their Butterfly Farm (*Ent. Rec.* **105**: 105-114). I was one of the young entomologists who spent part of a summer raising larvae of The Cinnabar moth for the New Zealand project.

As I recall a note in one of L. Hugh's frequent price lists, which I read even more avidly than the weekly boys' comics, promised a ten-year-old riches beyond his dreams for raising these larvae for the benefit of The Empire. And thus I set forth upon my bicycle, armed with a large cardboard box, to Buckelsham Heath, Ipswich, and there gathered up vast quantities of the evil smelling brutes. I cannot claim to have raised all through to the pupal stage but I can recall vast amounts of ragwort and parental suggestions that the garden shed seemed a better place for this project than my bedroom! Suffice it to say I despatched a parcel of pupae and, some months later and long after I had forgotten about the episode, a postal order for 3/6d (17½p) arrived. I was indeed rich! Sadly Bucklesham Heath, once a lovely site for lepidoptera on the edge of Ipswich, has long since fallen under the builders' bricks and concrete.

I think it was two years later, in 1952, that another advertisement in the still frequent flow of price lists caught my eye, the chance to rent L. Hugh's caravan at the Warren for a holiday and to go out collecting with him. Not a chance to be missed! And thus it was my mother who dutifully humped two small boys, collecting gear and luggage, by train to Bexley where we met L. Hugh and were shown around the famous farm. I recall the breeding cages, vast numbers of larvae, drawers full of goodies and the presence of an extremely dominating lady who was clearly unimpressed with my entomological knowledge. We drove down to Folkestone in L. Hugh's car, a journey he managed to accomplish with one flat front tyre. Even to my untutored eye the tyre was beyond redemption and I suspect that any profit on the holiday letting went to the local garage. The next day, his humour restored, he did indeed take me to the famous collecting grounds above Folkestsone where he searched for The Blues. I joined in and managed to secure a fine series of typical specimens. Naturally L. Hugh did much better. Over the next few days I had the time of my life out with the net and still retain my first Clouded Yellow from one of those days with L. Hugh.

I was sorry to hear of his passing. This holiday, his advice, his interesting price lists, his books and his contribution to "Nature Parliament" on the wireless did much to encourage a young boy's interest in lepidoptera.—DAVID YOUNG, 32 Valley Road, Burghfield Common, Berkshire.

PITYOPHTHORUS LICHTENSTEINI (RATZEBURG), (COL.: SCOLYTIDAE) REDISCOVERED IN ABERDEENSHIRE, AND A PROBLEM PARTIALLY SOLVED

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IN THE EARLY 70s, when I found my first *Pityophthorus* specimens, I ran them down to *P. pubescens* (Marsham) in the Royal Entomological Society Handbook on the Scolytidae & Platypodidae (Duffy, 1953). However, around that time, a visit to the Royal Museum of Scotland in Edinburgh to examine the collections, posed some problems. My specimens agreed perfectly with the series of *P. pubescens* in the T. Hudson Beare collection, but, alas, they also agreed equally well with the specimens of *P. lichtensteini* (Ratzeburg) in that collection. Indeed, I was unable to see any difference between the two series of specimens in the collection but, believing in the infallibility of my elders, I assumed that I was simply unable to appreciate subtle differences between two species. My problems were apparently solved by Fowler's comment under *P. pubescens* (Fowler, 1891, p.434) "...the Scotch records appear to apply to the preceding species." So, it seemed likely that my specimens were all small *P. lichtensteini.* It was quite common locally and I found it at many sites around Bridge of Allan, and also at Rannoch. When Dr I.M. White visited me in the course of his work on the Scottish Invertebrate Site Register during the early 80s, I was somewhat puzzled by his interest in such a common species! I gave him all my records.

The problems reappeared when I obtained a copy of Munro's work on the British Bark-Beetles (Munro, 1926), for under *P. lichtensteinii* (sic), he writes "....Although careful search for it was made during a survey of forest insect conditions in Britain made in 1919...all the *Pityophthorus* species collected proved to be *P. pubescens*....". It was only then that I realised that, if the *Pityophthorus* specimens in the Hudson Beare collection, and in my own, were all *P. pubescens,* everything would fall into place. All that remained was to find the true *P. lichtensteini.*

My first visit opportunity to look for the beetle occurred in 1991 when walking from Aviemore to Braemar. On 10.viii.1991, when passing through Glen Lui, South Aberdeen (NO 0791) many fallen branches were examined, especially those which appeared to be less than a year old or which had yellowing needles. Sécateurs were used to remove samples of twig which showed evidence of active or recent burrowing around their nodes. Most of the sample twigs had a diameter of between 7mm and 20mm, and altogether filled a small carrier bag.

On 12.viii.1992, back at home in Bridge of Allan, a Scolytid was found crawling at the top of the twigs in the carrier bag and, on examination, proved to be a specimen of *P. lichtensteini.* Seven further specimens

emerged over the following weeks, together with scores of *Pityogenes bidentatus* (Herbst) and *P. quadridens* (Hartig) (ratio at least 5 to 1). Other species included *Ips acuminatus* (Gyllenhal) (at least 5 ex.), *Cryptophagus angustus* (Ganglbauer) (4 ex.), *Phloeocharis subtilissima* Mannerheim (2 ex.) and *Salpingus castaneus* (Panzer) (2 ex.). Up to that point in time the sample had been kept dry in a large sealed polythene food container. Unfortunately, as I wasn't going to be able to look at the sample again for some time, I decided to moisten the twigs in order to prevent desiccation. This resulted in a very dense growth of green mould which totally concealed the twigs and covered much of the inside of the container, so my observations came to an end.

The Hudson Beare problem still remained, so another visit was made to the Royal Museum of Scotland that October to examine the collections once more. All the Hudson Beare specimens over the name *P. lichtensteini* are *P. pubescens* and, with the exception of one specimen, are labelled Nethy Bridge (dates between 5.vii.1935 and 29.vii.1935). The exception is a specimen labelled Gordon Moss 5.v.1928, but as there is a specimen over *P. pubescens* labelled Nethy Bridge, 29.vii.1935, I think the two must almost certainly have been transposed at some time in the past. (Not that it matters!) Hudson Beare's log-book is of little help; the only reference to *P. lichtensteini* is "Boat of Garten. In Pine Forests under bark. 1 [specimen] August, 1899". No specimen labelled as such could be found in the collection.

At the time I was unaware that Mr A.A. Allen's article on *P. lichtensteini* (Allen, 1990) reminded us that the Hudson Beare specimen(s) was (were) taken at Dulnain Bridge in July, 1937. None of the *Pityophthorus* specimens in the collection is dated 1937, but there is a specimen of *Pityogenes trepanatus* which is labelled as having been taken at Dulnain Bridge in July, 1937, and must be the specimen referred to in Hudson Beare's article (Beare, 1937).

So, what happened to the Dulnain Bridge specimen(s) of *P. lichtensteini*? The evidence points, I think, to a misidentification, for the following simple reason. *P. lichtensteini* is a very distinctive species, differing quite substantially from *P. pubescens* in both the form of the declivity and overall size of the beetle, and had T. Hudson Beare actually found it, he would surely have instantly seen it as something new to his collection.

One problem remains: what of the other records for *P. lichtensteini*? — Were they also the result of Fowler's comments?

Acknowledgements

I thank Dr G.E. Rotheray for allowing me access to the collections housed at the Royal Museum of Scotland and Miss S.I. Baldwin for obtaining T.H. Beare's log-book.

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Semiothisa signaria Hübner (Lep.: Geometridae) and other interesting Lepidoptera records from the Rothamsted Farmland Ecology light trap network for July 1992

This note records recent unusual captures in the Rothamsted Experimental Station farmland ecology light trap network on the Rothamsted Estate in Hertfordshire (Woiwood, I.P., Riley, A.M. and Townsend, M.C. (1990). *Ent. Rec.* **102**: 200-201) and forms part of a series of regular reports (e.g. Townsend, M.C. (1992) *ibid.* **104**: 273-274).

The most noticeable aspect of the July catches was the relative abundance and diversity of immigrant species, particularly towards the end of the month. Most significantly, a worn male *Semiothisa signaria* Hübner was captured on 2.vii. This appears to be the tenth record of this species in the British Isles and the first in Hertfordshire. Further evidence for an immigration of *S. signaria* in 1992 was provided by the capture of three individuals at coastal localities in Kent in May and June (1992 BENHS Exhibition). This species was last caught in Britain in 1986 (Bretherton, R.F. and Chalmers-Hunt, J.M. (*ibid.* **99**: 189-250).

Seven other immigrant species were caught during July. *Autographa gamma* (Linnaeus) was frequent throughout the month with a maximum of sixteen on 20.vii. Individuals of *Orthonama obstipata* (Fabricius) were caught on 2.vii., 20.vii. and 25.vii., one *Rhodometra sacraria* (Linnaeus) on 24.vii., eight *Udea ferrugalis* (Hübner) between 22.vii. and 30.vii. and one *Nomophila noctuella* (Denis and Schiffermüller) on 22.vii. In addition, one *Cynthia cardui* (Linnaeus) was caught on 8.vii. and one *Vanessa atalanta* (Linnaeus) on 13.vii.; these migratory butterflies are known to be active at night and enter light traps, occasionally in numbers (Howarth, T.G. (1973), *South's British Butterflies,* Warne & Co., London).

Individuals of two species were recorded on the Rothamsted Estate for the first time, *Eupithecia pygmeata* (Hübner) on 19.vii. and 23.vii. and *Celaena leucostigma* (Hübner) on 23.vii. *Eupithecia pygmeata* is considered to be mainly diurnal and only occasionally attracted to light (Agassiz, *et al.* (1981). *An Identification Guide to the British Pugs,* Br. Ent. nat. hist. Soc, London). The larval foodplant of this species, *Cerastium arvense* (Field Mouse-ear) is common in the vicinity of the trap

in which both individuals were caught. *Eupithecia pygmeata* may be resident on the Estate but overlooked.

Celaena leucostigma inhabits marshes (Skinner, B. (1984). *Colour Identification Guide to Moths of the British Isles,* Viking, Harmondsworth) and since no suitable habitat exists on the Estate it is unlikely to be resident there. During July, individuals of other species normally associated with marshland were recorded: *Donacaula mucronellus* (Denis and Schiffermüller) on 19.vii. and *Calamotropha paludella* (Hübner) on 30.vii. and 31.vii. Several marshland species were also recorded in 1990 and 1991 including *C. paludella,* usually on the same or consecutive nights (Riley, A.M. and Townsend, M.C. (1991). *Ent. Rec.* **103**: 103-104; Townsend, M.C. and Riley, A.M. (1992) *ibid* **104**: 218-219). This suggests that records of these marshland species on the Estate are the result of dispersal from local sources since none is known to be migratory.

Six *Idaea vulpinaria* (Herrich-Schäffer) were caught between 2.vii. and 31.vii. This is fewer than recorded in 1991, when 22 were caught (Riley, A.M. and Townsend, M.C. *ibid* **104**: 160-161, Townsend and Riley, *loc. cit.*) but it indicates that this species is still established in the area. Single *Ostrinia nubilalis* Hübner were caught, on 2.vii. and 3.vii. Two individuals of this species were caught in July 1991, indicating a possible increase in range (Riley and Townsend, *loc. cit.*). *Euproctis chrysorrhoea* (Linnaeus) was first recorded at Rothamsted in June 1992 (Townsend, in press). A further example was caught on 3.vii. One *Synaphe punctalis* (Fabricius) was caught on 8.vii. and two *Nephopteryx angustella* (Hübner) were caught in July. Both species have a localised distribution and are usually associated with calcareous soils (Goater, B. (1986) *British Pyralid Moths.* Harley, Colchester). The larval foodplant of *N. angustella, Euonymus europaeus* (Spindle), is widespread on the Estate.

Four *Asthena albulata* (Hufner) were caught between 23.vii. and 29.vii., suggesting that this species produced a partial second generation in 1992, as is known to happen occasionally (Skinner, *loc. cit.*). Two *A. albulata* were also caught in early August 1990 on the Estate and probably emerged from a second generation (Riley, A.M. and Townsend, M.C. (1991), *ibid* **103**: 184.

A female *Lasiocampa quercus* (Linnaeus) conforming to f. *olivacea* Tutt was caught on 7.vii. Four individuals of this dark form, which is usually associated with subsp. *callunae* Palmer in northern Britain were caught in 1991 (Riley, A.M. and Townsend, M.C. (1992) *ibid* **104**: 160-161). In order to further investigate the frequency of f. *olivacea* on the Estate, a search for larvae was made in the spring of 1992, but none was found. However, 38% of the sample of 13 *L. quercus* caught in the farmland light trap network since 1990 are of this form.

A male *Timandra griseata* (Petersen) conforming to the melanic f. *pulverata* Cockayne was caught on 23.vii. This specimen has dark grey

wings, dusted sparsely with pink on the upperside and with pink cilia. The discal spot and the oblique band on the forewing are darker grey but faint. The head, thorax and anal tuft are pale ochreous and the abdomen is dark grey. The dearth of information on melanic forms of this species in identification guides suggests that such forms are uncommon.

Four *Nycteola revayana* (Scopuli) were caught between 2.vii. and 15.vii. The emergence of this species which hibernates as an adult has previously been thought to occur from August (South, R. (1961) *The Moths of the British Isles.* Warne & Co., London) or from September (Skinner, *loc. cit.*). However, Meyrick, E. (1875) (*A Handbook of British Lepidoptera,* Macmillan & Co., London) describes the flight period as being from July to April. There have been several recent reports of adult *N. revayana* in June or July (Goodey, B. (1991) *Ent. Rec.* **103**: 330; West, B.K. (1992) *ibid.* **104**: 271-272; Boot, A.S. *ibid.* **104**: 272) when according to South (*loc. cit.*) it is in the larval stage. West (*loc. cit.*) found that more than 50% of his records of *N. revayana* at m.v. light in Dartford, Kent since 1987 were in July, compared to none in that period previously and Goodey (*loc. cit.*) recorded 50% in July since 1987 in Essex, suggesting a change to earlier emergence.

The Rothamsted Insect Survey light trap database contains 211 records of *N. revayana,* the earliest in 1964: 43 (20%) are in July, from 28 sites in southern Britain, as far north as Rhandirmwyn in mid-Wales, dating back to 1968. 24% and 18% were caught in July before and since 1987 respectively, including 30% in the farmland ecology network from 1990 to 1991. June records were not examined due to possible confusion with hibernated individuals. These data should be treated with caution, since there are insufficient records from any one site to allow more detailed analysis. However, they suggest that *N. revayana* frequently emerges as early as July over a wide area of southern Britain, and that this is not a recent trend. Since this species is usually only attracted to light in small numbers (Skinner, *loc. cit.*) it would not be surprising if seasonal fluctuations in its flight period have been overlooked before the current interest in climate change. There is no evidence in the data that *N. revayana* has become bivoltine in these areas, as was suggested by Goodey (*loc. cit.*), since numbers gradually decline after July in all cases.

Thanks are due to Dr D. Carter of the Natural History Museum for his assistance in naming the form of *T. griseata,* to Lynda Alderson for accessing the RIS database and to Adrian Riley and Ian Woiwod for checking the manuscript.

This work is partly funded as a Joint Research Council Agriculture and Environment Programme (JAEP).— MARTIN C. TOWNSEND, AFRC Farmland Ecology Group, Department of Entomology and Nematology, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Hazards of butterfly collecting — cross-cultural differences on the Baiyer River, Papua New Guinea, 1983

In January, 1983 we stayed at the Baiyer River Bird Sanctuary, a lovely patch of upland forest near Mount Hagen, where research on Birds of Paradise was the main activity. The caged birds did not oblige, but one day we did see a wild couple going — so to speak — wild, and their nuptial dance is one of the most dramatic I have ever seen in nature. It was also good butterfly country. Here I caught my first ever specimen of the real Birdwing Butterflies (*Ornithoptera priamus*) — though often larger in size, I have somehow never really been able to accept the more drab *Troides* as "real" Birdwings. They are actually more closely related than their colour patterns would indicate, and the early stages are almost impossible to tell apart. It was also the first time I saw the magnificent blue *Papilio ulysses,* second only to the Neotropical *Morpho* in size and brilliance. I caught an impossibly tattered specimen, which served to bring others down from the canopy, to attack what they perceived as a usurper. So lovely was the place, its butterflies and birds, that we stayed three unplanned nights, surviving on bananas, maize, sardines, and biscuits, the only groceries available this

Plenty of arse-grass and birds-of-paradise feathers at the Bayier River, Papua New Guinea (1983)

However, the most vivid memory is not of nature. On the last day of our stay, the warden had arranged to show a film, and the staff and people from the local village had been invited. They all came in full *bilas* (finery), including a wide assortment of birds-of-paradise feathers, and other status symbols. Their buttocks were covered with a fresh bunch of shining *Pandanus* leaves, directly — but rather charmingly — known as arse-grass.

The film was one on warfare among a tribe in the Indonesian part of the island of New Guinea, just 200km from where we were. The expedition which filmed it in the 1950s became famous mostly because one of the Rockefeller sons disappeared without trace, but their footage is still breathtaking.

One of the characteristics of New Guinea is that each little valley has its own ethnic and linguistic group, often with amazing cultural differences over a distance of 50 kilometres or less. It was not surprising that the tribe on the film was very different from the people at Baiyer. For one thing, they did not use arse-grass, and the ripple of shock-horror that went through the hall at the first sight of a pair of naked buttocks was electric. Worse was to come, for a full frontal view revealed that the men's sole apparel was a penis-sheath — of what might be considerd very optimistic dimensions. To our amazement the ripple that now went through the audience was not electric. A wave of laughter broke; people were literally rolling on the floor with tears in their eyes. By now it was clear that we would be observing the audience much more closely than the film.

A little later the film took us on a walk through the village. At the first sight of that most precious item in New Guinea, the standard gauge of value — the domestic pig — a mumur of approbation went through the audience — perhaps these people were not all bad. Eventually real warfare broke out on the screen, somewhat ritualised and slightly comical, with few or no casualties each day. When a young warrior received an arrow in one buttock, laughter among the audience knew no end. But the arrow had been toxic, and when the man later died, one could almost sense the feeling of guilt at the initial laughter. Grief at death transcends most cultural differences, and so it went for two hours. By the time the film ended, the audience had not only been subject to the strongest culture shock of their lives, but had been through the entire gamut of human emotions. As for ourselves, we had become a bit better at predicting which emotion would greet which new theme on screen.

Those two hours of studying audience reactions are among the most fascinating in my life. The amusement value alone would have placed the experience high on any list. More importantly, though, was the vivid illustration of the subtleties of human cultures and their differences, of the way in which perceptions vary, how preconceptions may cloud judgement, and how easily misunderstanding can arise. Now, whenever I begin a work assignment in a culture I do not know, I always begin by remembering those two hours on the Baiyer River. I hope this helps me to approach the task with a sense of humility which too many of my so-called "expert" colleagues lack.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Breeding *Gnorimus* spp. (Col.: Scarabidae); a postscript.

In a previous note (*Ent. Rec.* **101**: 191, 1989), I described rearing *Gnorimus nobilis* Linn. from eggs laid by a female taken in the wild in July 1986. Twenty larvae were obtained of which all but one matured in two years. Eggs were obtained from the resulting adults and, from these, two further generations of the beetle were reared.

Larvae were kept as previously described and fed on somewhat rotten cherry, apple or plum wood (whatever was available). Those from eggs laid in June 1988 without exception took two years to mature. Most of the larvae forming the third captive generation (from eggs laid in June 1990) likewise took two years to develop but about a quarter fed up more quicky and produced adults in only one year. The rate of maturity may have been increased by the warm summer of 1990.

All the adults of the first and second captive generations were well formed specimens but some of the adults of the third generation had malformed elytra. This may have been an effect of inbreeding but could also have been due to inadvertent overcrowding.

Gnorimus variabilis Linn. has proved equally easy to breed in captivity. Larvae, obtained from an old oak tree in Windsor Great Park in July 1987 and fed on somewhat rotten, red oak wood, took three years to mature, producing fertile adults in June 1990. As an experiment, half of their larval offspring were given apple and plum wood (as given to the *G. nobilis* larvae) and the other half on oak as previously. Those fed on apple or plum mostly took two years to produce adults whereas those fed on oak took an extra year to mature, producing adults in June 1993. The shorter development time of those larvae given apple and plum wood may have been due to these woods being more nutritious than oak or simply because the apple and plum wood was softer and easier to eat. As in the case of *G. nobilis,* all the first captive generation adults were well developed specimens but two out of about fifty adults in the second captive generation had malformed elytra, again possibly as a result of inbreeding.

In captivity, the behaviour of both species is similar. The full grown larvae stop eating in the autumn (as indicated by the abscence of gut contents seen through their skins) and pupate the following May, hollowing out a space for this purpose at the bottom of their containers among frass and wood fragments. Adults appear in late May or June but they spend most of their time below the surface among frass and wood fragments so that exact emergence dates cannot easily be determined without disturbing and possibly damaging developing pupae. They apparently mate while buried and eggs are laid at random among the material in the container. Young larvae appear in the container about four weeks after the adults are first seen. At various times, I have taken adults of both species to the respective sites from which the original adults or larvae were obtained, choosing warm days for this. On being liberated, the adults promptly flew off. Adults of *G. nobilis* are usually found on flowers to which they presumably fly and the readiness with which the liberated specimens took to their wings is not surprising. Though liberated adults of *G. variabilis* likewise took readily to the wing, wild adults of this species are apparently much less inclined to fly of their own accord. Thus I have not come across in the literature or on speaking to colleagues any first-hand accounts of *G. variabilis* in Britain visiting flowers though my friend Dr

I.S. Menzies tells me that he has observed them on blossom on the continent.

As far as natural feeding goes, *G. nobilis* larvae have been found in Britain in the dead wood of a variety of trees, especially plum and apple. In contrast, larvae of *G. variabilis* appear to have been found only in oak though this study indicates that they will eat other wood and the species is not confined to oak in continental Europe. This is perhaps an example of the specialisation in requirements shown by a species at the edge of its range.

I have given away young larvae of both species to many friends who tell me that they too have had no difficulty in breeding another, sometimes two, further generations. In Britain, *G. nobilis* is relatively widespread and, though its status is given as vulnerable (Hyman & Parsons, 1992, *A review of the scarce and threatened Coleoptera of Great Britain*), it is probably not in any immediate danger. In contrast, *G. variabilis* is graded as endangered for it has disappeared from most of its former haunts due to destruction of habitat. It appears now to be confined to old oaks in Windsor Forest and Great Park where unfortunately considerable destruction of habitat is still taking place. It is not impossible that maintenance of colonies in captivity may be required as a temporary measure in the long-term conservation of this species.

I thank once more Mr D. Appleton for taking me to the site in the New Forest where the original pair of *G. nobilis* were obtained, Mr A.R. Wiseman for authorising access to Windsor Great Park, English Nature for arranging this and Dr I.S. Menzies for reading a draft of the manuscript and making useful comments.— J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Tipula pseudovariipennis Czizek (Diptera: Tipulidae) in East Kent

During a Kent Field Club survey of Westfield Wood (TQ 754607) on 5th May 1993 I swept a single male of what was initially assumed to be the widespread *Tipula varipennis* Meigen. A subsequent examination of the genitalia, along with other characters, revealed it to be *Tipula pseudovariipennis*. Stubbs, 1992 (*Provisional atlas of the long-palped craneflies of Britain and Ireland*) shows that this species has its centre of distribution around the North Downs of Surrey and so its existence at Westfield Wood is perhaps not surprising. From the atlas it can be seen that the nearest record is from the Edenbridge district of TQ 44 which lies on the border between West Kent and Surrey. Westfield Wood forms part of an SSSI on the steep escarpment of the North Downs beside the A229 and is densely colonised by yew, beech and ash. Weather conditions were somewhat poor at the time of the survey and the only other craneflies recorded were *Austrolimnophila ochracea, Cheilotrichia cinerascens, Dicranomyia mitis, Limonia nubeculosa* and *Nephrotoma flavescens*.— L. CLEMONS, 14 St Johns Avenue, Sittingbourne, Kent ME10 4NE.

A migration of *Colias lesbia* Fab. (Lep.: Pieridae) in Argentina

Just after mid-day on 9th March 1993 at Aeroparque, the Buenos Aires airport for internal flights, I noticed several Clouded Yellows flying about a small lawn at the entrance to the main building. Closer observation confirmed their identity; *C. lesbia* was a species I had not previously encountered. The police officer on guard assured me that it was permissible to walk on the grass, and also to capture some of the butterflies, whereupon his presence became useful as I parked my luggage under his watchful eye and commenced operations, doubtless to the amazement of the waiting passengers in the terminal building.

It soon became apparent that the insects were migrating; they arrived from over the main building, crossed the lawn to then fly across the wide and busy coast road to the La Plata estuary, and head in a north-easterly direction over the water. Some interrupted their flight briefly to investigate and sometimes settle on the lawn. Males were much commoner than females, some of which were of the whitish form, and in both sexes there was a curious mixture of very fresh, mostly male, and very worn specimens. I omitted to note the wind direction, the wind being negligible, but probably at this time of day this coast would be subject to sea breezes which would mask the general wind direction. The migration was in progress when I left two hours later.

The following day I came across a sedentary population of *C. lesbia* in the Andes foothills of S. Salv. de Jujuy, and a mixture of very fresh and very worn individuals was again apparent, most of the males being in excellent condition, and almost all the females being distinctly worn; this also applied to the near related yellow, *Zerene cesonia* Stoll and two *Tatochila* species of green-veined whites, perhaps signifying overlapping broods.— B.K. West, 36 Briar Road, Dartford, Kent DA5 2HN.

A note on *Micropterix calthella* L. (Lep.: Micropterigidae)

In Cornwall, I usually find this moth on Creeping Buttercup (*Ranunculus repens*), although I have found it occasionally on the flowering heads of the sedge *Carex binervis*. At about 4.30pm on 19.v.93 I came across large numbers of *calthella* on Creeping Buttercup flowers at Keveral Wood, near Seaton in east Cornwall. They were present on both sides of a small track that winds along the bottom of a valley by a small shady stream. I counted 805 *calthella* on both sides of a short section (290 metres) of the track on 2611 buttercup flowerheads. The flowerheads were distributed almost evenly on both sides of the track, but *calthella* appeared to prefer the northern, sunnier side, although they were not present in areas that took the full glare of the sun. Overall, there was an average of 0.31 moths per flowerhead, 4.5 flowerheads per metre, and 1.39 moths per metre. The most I found on a single flowerhead was 11.— Adrian Spalding, Tregarne, Cusgarne, Truro, Cornwall.

Changes in moth populations in the Cambridge area.

When recording moths in the same area over a number of years, it is to be expected that some changes in relative abundance of species will be observed. Some of these occur over wide areas and are well-documented, e.g. the expansion of range of Blair's Shoulder-knot, *Lithophane leautieri* Boisd., which I first recorded in Royston in 1985 and which is now a regular and relatively common insect in that area. Others come and go, like the Dotted Rustic, *Rhyacia simulans* Hufn., which appeared in the early '80s, became very common during the mid-'80s and then vanished again by the start of the '90s. It is therefore worth recording four species that have appeared in my garden trap at Meldreth for the first time during 1989 or 1990 and in subsequent years have reappeared in slowly increasing numbers. These four are: *Idaea vulpinaria atrosignaria* Lempke, *Idaea trigeminata* Hayworth, *Lithophane ornitopus lactipennis* Dadd and *Aporophyla nigra* Haw.

It will be interesting to see what the future holds for these species.— J. Reid, 7 Flambards Close, Royston, Herts, SG8 6JX.

Migrants in 1992

Although the weather was not generally favourable for "mothing" during my visit to Crewkerne for the 1992 August Bank Holiday, two nights that were neither too windy nor too wet produced a taste of thing that might have been. On 28th August, the trap in my mother's back garden produced single specimens of *Peridroma saucia* Hb. and *Rhodometra sacraria* Linn. in a relatively large catch on what proved to be a fairly favourable night. August 31st was much less clement with a cold and fairly fresh north-westerly wind. I set the garden trap then went fishing at Eypes Mouth, in the hope of a good bass. To help illuminate my activities, I made use of a 15watt actinic light and despite the weather, soon had large numbers of *Luperina testacea* D. & S. on the gravel around me. Close inspection of these before leaving (without bass) produced the best moth of the holiday — a fine male *Luperina dumerilii* Dup. To this was added the following morning, a further *R. sacraria,* and single males of *Mythimna vitellina* Hb. and *M. albipuncta* D. & S. in the garden trap.

The final migrant of the year was a very worn *M. vitellina* on 17th September, in my garden trap back home in Meldreth, Cambridgeshire.— J. Reid, 7 Flambards Close, Royston, Herts SG8 6JX.

***Epiblema grandaevana* (Lienig & Zeller) (Lep.: Totricidae) established in Northamptonshire**

Two individuals of this species were taken at mercury vapour light in Collyweston Great Wood and Easton Hornstocks National Nature Reserve, Northamptonshire (v.c. 32), on 27th July 1991. All but one of the previous British records have been confined to the coast of north-east England, between Redcar and Scremerston (Dunn, 1976). Even there it has never been common, and only two examples have been reported since 1910

(Bradley and Tremewan, 1979). The only other, and most recent, record was of a singleton on the Suffolk coast in 1976, a presumed migrant (Price, 1977).

It was conceivable that the Northamptonshire specimens were also immigrants, as their discovery coincided with an easterly invasion of migrant Lepidoptera. However, further trapping in the area in 1992 revealed the presence of a well-established colony, and the following records were made, all from the same complex of adjoining woodland NNRs:

31.5.92	1	TF 002 008
2.6.92	2	TF 024 005
8.7.92	8	TF 017 004

Bradley & Tremewan (*loc. cit.*) give the flight period as July, based on capture dates from north-east England. A noticeable feature of our records is the apparently more protracted emergence from late May through to late July.

The source of most of these records is undoubtedly an abandoned limestone quarry, now partially under conifer plantation, where the larval foodplant colt's-foot (*Tussilago farfara*), grows in abundance. Several similar, but still active quarries are to be found within a 3km radius of the site, and apparently suitable habitat is also present in these.

We would like to thank Mark Parsons (JNCC) and David Carter (BMNH), for verifying the identification of this species.

References: Bradley, J.D. & Tremewan, W.D. (1979). *British Tortricoid Moths* II: Tortricidae: Olethreutinae. Ray Society, London.; Dunn, T.C. (1976). A further note on *Epiblema grandaevana* (L. & Z.) *Entomologist's Rec. J. Var* **88**: 334-335. Price, L. (1977). *Epiblema grandaevana* (L. & Z.) in Suffolk. *Entomologist's Rec. J. Var.* **89**: 18.—CHRIS GARDINER, c/o English Nature, Ham Lane House, Ham Lane, Peterborough PE2 5UR and MALCOLM HILLIER, 2 College Cottages, Helpstson, near Peterborough, Cambridgeshire.

Two notable Colydiidae (Col.) on sycamore at Charlton, West Kent (S.E. London)

Having previously failed to encounter any sycamores in this district obviously infected with sooty bark disease (cf. Jones, R.A., *antea* 1-10), I was pleased to find at least a small tree completely dead, one of a double row of sycamores in Charlton Park, only a minute's walk from my house. Much bark had already become detached and the amount remaining in reach was rather limited. However, a little work at the trunk revealed *Synchita separanda* Reitt. not uncommonly, together with a single *Cicones undatus* Guér.-Mén. but in stark contrast to Mr Jones' experience (pp.4-5), no *Enicmus brevicornis* (Mann.). The sooty mould, though in some quantity, was patchy and may have concealed early stages of the *Enicmus*. The *Synchita* occurred as isolated specimens on clean parts of the inner surface of the bark and not on the blackened areas.

In view of Jones' very remarkable discoveries of these beetles at Peckham and Nunhead, also in S.E. London, the present finds were unsurprising, and both species may now be expected to turn up anywhere in the south-east (and possibly more widely) where sycamores in the right condition exist. Evidently, the special attachment of all three species to the sooty-bark fungus must be regarded as a recent phenomenon. They have the character of old-forest insects which — without necessarily abandoning their original associations — have lately extended them to a new, little-exploited niche with great success.

(Note on the gender of *Cicones*.— In consequence of the treatment of this name in the current check-list, where for no apparent reason it is made feminine, a habit has grown up of writing *C. undata* instead of *undatus*. As a classical noun, *Cicones* is actually a plural form (being the name of a people) but, as a generic name has always previously been treated as masculine and on the principle that traditional usage should be adhered to unless proved incorrect, I consider there is no reason to depart from it here.)— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Orgyia antiqua* Ochs. (Lep.: Lymantriidae): voltinism.**

Edward Newman (*The Natural History of British Moths,* 1874) stated that the eggs of this species do not hatch all together, but over a period of ten weeks so that caterpillar, chrysalis and moths are found together throughout the summer and autumn. Thus there is a very long emergence period. C. Barrett (*The Moths of the British Isles,* 1895) confirms this protracted emergence of larvae from eggs, and adds that there may be rarely a second generation, but produces no evidence for this assertion, despite noting that in 1890 at Norwich the caterpillars were in vast swarms causing destruction to all kinds of vegetation. Curiously, South (*Moths of the British Isles,* 1939) makes no reference to voltinism. Newman and Leeds (*A Textbook of British Butterflies and Moths,* 1913) clearly illustrate how all stages of the insect may be present in July, August and September, and equally clearly indicate that the moth is univoltine, and October is included as a month for the imago. In addition under the heading of "foodplants and rearing hints" it states "single brood only", and L.W. Newman was in the business of breeding British moths, and in this he was exceedingly knowledgeable.

Heath (*The Moths and Butterflies of Great Britain and Ireland,* 1979): "Bivoltine with an occasional third generation" is what we find on page 70, followed by the embellishment, "The first moths are on the wing in July and August, producing a further brood in the early autumn, often in October. Univoltine in the North". No evidence is produced in support of this, nor is the irregular hatching of egg batches mentioned. Skinner (*Moths of the British Isles,* 1984) compromises — mainly single brooded occurring from July to September, with an occasional and partial second brood in October.

One cannot but be impressed when one reads the Preface to Edward Newman's work. Regarding the descriptions of imagines and larvae he emphasises his desire to base them on the objects themselves, and not from previously published sources. I would think that much of what is contained in L.W. Newman's textbook is based upon his own experience both at the "Butterfly Farm" and in the field, i.e. it is original. What they write of *antiqua* is confirmed by my own experience.

Of course there is the possibility of *O. antiqua* producing a second brood, particularly in S.E. England, occasionally or even regularly. But is it not remarkable that such and event is not reported, i.e. somebody notices a fresh *antiqua* cocoon in late summer or early autumn which a few days later produces a female and egg mass on the cocoon, the eggs commencing to hatch some days later?

What should be a valuable source of information is the local work, usually for a county; of such there are very few. Chalmers-Hunt (*The Butterflies and Moths of Kent,* 1968) states that the imago usually appears in one generation from July to September, lists several October records without comment, although the insertion of the word "usually" suggests that perhaps it is sometimes bivoltine.

The verification of bivoltinism in this species should be quite a simple matter — regularly inspect what might be *antiqua* coccons in late summer and early autumn; I have done this for many years, including those from larvae reared in confinement, no larvae have hatched in the same year.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

Life history of the Broad-barred White, *Hecatera bicolorata* Hufn. (Lep.: Noctuidae)

While in the vicinity of Rye Harbour Nature Reserve on 5th June 1993 I chanced upon two small black larvae feeding on the flowers of *Hieracium pilosella* (Mouse-ear Hawkweed) and *Crepis vesicaria* (Beaked Hawk's-beard). I took them home and reared them on *Sonchus* spp. Subsequent instars were of a pale green pattern with a yellowish spiracular stripe. Both emerged as imagos on 30th June 1993 as *Hecatera bicolorata* (Broad-barred White). The life tables in *Moths and Butterflies of Great Britain and Ireland* 7(2) show that this species should overwinter as a pupa and be in this state during the period in question. It is possible that the specimens concerned were the progeny of the partial second brood that occurs for this species in the south.— IAN D. FERGUSON, 31 Cathcart Drive, Orpington, Kent BR6 8BU.

A note on an Irish "Wasp"

The reference to the discovery of *Empicoris vagabundus* occurring in a house in the Dublin suburb of Harold's Cross is of interest (O'Connor *et*

al, Ent. Rec, **105**: 49-50). I discussed this with Mrs N.F. McMillan, consulting conchologist to the National Museums and Galleries on Merseyside.

She was a lifelong friend of the late A.W. Stelfox, and remembers the house in question. She related the following anecdote about "A.W.". Having lost two children in infancy, he and his wife were overjoyed at the birth of their third baby. One summer evening Mrs Stelfox came running into the study with the news that a huge wasp was crawling over their darling offspring. A.W. was alarmed at the news. "Don't squash it!" spoke the great man and the specimen remains in the Irish National Museum to this day.— R.A. EADES, 28 The Stray, South Cave, Brough, North Humberside HU15 2AL.

***Scopula emutaria* Hbn. (Lep.: Geometridae) in north-west Kent**

On 25th May 1993 a male *S. emutaria* of the form not flushed with pink was attracted to my garden m.v. light. This is an extraordinarily early date for a moth one associates with late June and July, a consequence no doubt of the very mild winter. This species was an inhabitant of the Thames marshes in the last century, and was reported as being common on the Dartford marshes in 1887 (Chalmers-Hunt: *The Butterflies and Moths of Kent,* 1969). The author states that it is questionable if the species occurs on the Thames marshes west of Gravesend today.

For the area of damp woodland in the vicinity of my home there appears to be no previous record, yet it may have been a long-established resident, for it was not discovered in the Orlestone Woods complex of East Kent until 1951, i.e. after the arrival of the m.v. light, and for those woods Chalmers-Hunt gives only three records, for single specimens in 1951, 1952 and 1965, although to this total I can add two more, for 19.vii.1964 and 27.vii.1971.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

BOOK REVIEWS

Lepidoptera of north-east Essex by **B. Goody** and **J. Firmin.** 109pp, several figs, limp. Colchester Natural History Society, 1992. £4.95. (Available from the Museum Resource Centre, 14 Ryegate Road, Colchester, Essex CP1 1YG.)

This is thre fourth major publication on the Essex lepidoptera in recent years. In 1975 there was Firmin's *A guide to the butterflies and larger moths of Essex*, which was revised by Emmet and others and republished in 1985 as *The Larger moths and butterflies of Essex.* In the meantime, Emmet had also published *The smaller moths of Essex* in 1981.

This local list extends the coverage of these other works publishing many additional records for the north-east section of the County. After a foreword (by A.M. Emmet) and the introduction there are a number of interesting essays covering historical notes, and changing status of species (both by J. Firmin), Wildlife and conservation (C. Gibson), the Bradwell light trap (S. Dewick) and digests of previous publications on the discovery of *Coleophora fuscicornis* and *Gortyna borelii*.

There are notes on the 10km squares, the basis for the records, and a systmatic section which for each species gives notes on range, frequency and squares from which it has been recorded. Additional notes are included where appropriate. A brief bibliography and list of recorders and sources completes the book. Many families are illustrated with a drawing of a representative species. These are very good, although the reproduction does not do them justice, and it is a shame that the artist is not more obviously acknowledged.

Economically produced, this local list is a fine contribution to the knowledge of the Lepidoptera of Essex.

The Hawkmoths of the Western Palaearctic by **A.R. Pittaway.** 290 × 215mm, 240pp, 60 text figs., 58 maps, 20 colour plates. Harley Books, 1993. £55.00.

The hawkmoths have, by and large, been well-treated this century. Interested readers have a number of major works to keep them happy, particularly if they are fascinated by taxonomy, or enjoy seeing illustrations of these magnificent insects. Rothschild & Jordan's *A revision of the lepidopterous family Sphingidae* — Published in 1903 — is still the most important work, but no student of hawkmoths should ignore Carcasson's *Revised catalogue of the African Sphingidae* (1968) or Hodges' excellent treatment of this group in *The moths of America north of Mexico* (1971).

More recently (1968) we have seen the publication of D'Abrera's *Sphingidae mundi,* illustrating so many of the world's hawkmoths. Amongst this collection of heavyweight literature have been a number of lesser — but no less interesting — works, and readers will probably be familiar with, for example, L. Hugh Newman's *Hawk-moths of Great Britain and Europe*.

Despite all these publications, there is still considerable confusion and debate about the taxonomy. Fifty-seven species occur in the Western Palaearctic; sub-species and forms abound and debates about the *Hyles euphorbiae* complex have produced an abundance of editorial copy. Irritatingly, the moths themselves appear distainful of taxonomic pronouncements, and continue to do their own thing. Interspecific and even intergeneric (such as *Laothoe x Smerinthus* and *Hyles x Deilephila*) crosses occur in nature, and the crafty breeder can produce nearly 150 different sphingid hybrids.

So where can we place *The Hawkmoths of the Western Palaearctic*? Without any doubt this book is a milestone in the history of hawkmoth publications. Perhaps what sets it apart from others is its firm roots in natural history, reminding us that hawkmoths are living animals, not just attractive specimens in the cabinet.

The introduction to the book sets the scene, defining the boundaries and countries within the Western Palaearctic region. There is a chapter on the history of the study of the Sphingidae since the sixteenth century, followed by chapters on life history, adult biology and adult morphology. A substantial chapter on sphingid ecology follows which includes coverage of climate and other factors influencing distribution, origins of the fauna, migration, population dynamics, biomes within the region, hostplants,, parasites, predators and defence. The chapter on classification includes discussion on the species concept, population biology, hybrids and a check list of species and recognised sub-species.

Some 90 pages are devoted to the systematic section, where the format changes to two columns per page — the sensible and characteristic house-style of Harley Books. For each species there is comprehensive coverage, starting with the vernacular names. Where known these are given in English, French, German, Spanish, Dutch, Swedish, Russian, Hungarian and Czech — a small but interesting insight into National entomological characteristics! Synonomy and taxonomic notes are given followed by detailed descriptions of the adult (including variation), adult biology, flight time, early stages including hostplants, parasitoids, notes on breeding and distribution, including range outside of the Western Palaearctic. A distribution map is given for each species.

Appendices cover general notes on rearing hawkmoths, a synopsis of hostplants, gazetteer, glossary and detailed bibliography. The colour plates include typical habitats, eggs and larvae, moths in natural resting positions, four pages illustrating larvae and nine pages depicting the moths.

The author has made a determined effort to bring some rational thinking to sub-species and forms, and many are sunk and presented as *syn. nov.* Even some very recently described sub-species — such as *Laothoe populi iberica* — are sunk. The reviewer warmed noticeably to comments such as ". . . the creation of a distinct sub-species on the strength of a few less cornuti in the male aedeagus is not warranted. . . .". In a few cases, new types are designated. The discussion on the *Hyles euphorbiae* complex is interesting and sensible, although not all will be happy with the sudden demise of seven sub-species leaving only *H.e. euphorbiae, conspicua* and *robertsi.*

Notes on biology and breeding are excellent, and clearly reflect an intimate knowledge of the early stages by the author. The 11-page appendix on rearing hawkmoths would perhaps have been better as an introductory chapter. An erratum slip corrects the few textual errors, but it is worth noting here that the captions facing plate 9 (for figs. 11 and 12

Sphingonaepiopsis nana and *kuldjaensis*) have been transposed. The colour work and general presentation is of high quality and a credit to both the author and Harley Books. The book itself is recommended without reservation. Paul Sokoloff

The moths and butterflies of Great Britain and Ireland, vol. 7, Part 2, Lasiocampidae to Thyatiridae by **A. Maitland Emmet** and the late **John Heath.** 400pp. 8 colour plates; 8 text figs.; 28 maps. 250 × 200mm. Paperback. Harley Books, 1992. £27.50.

The format of this volume is similar to others in the series with the exception that a major part of the Introductory Section is devoted to Maitland Emmet's *Chart showing the life histories and habits of the British Lepidoptera.* This provides a unique data-bank of up-to-date information on all the British Lepidoptera, which has already proved to be of considerable value to lepidopterists as well as other naturalists.

The text of this paperback edition contains minor revisions, including some taxonomic changes made since the original hardback edition (reviewed *Ent. Rec.* **104**: 50-52). The plates are from the original printing, but this issue lacks the useful laminated guide to the life-histories chart.

These paperback editions are particularly welcome, bringing the excellent text and plates of this series within the price range of many more entomologists.

Noctuidae Europaeae. Volume 2: Noctuidae II by **Michael Fibiger.** 230pp, 11 colour plates; numerous maps and figures. A4 boards. Entomological Press, Soro, 1993. Price 680 Danish Kroner (aproximately £60). (Available from Apollo Books, Kirkeby Sand 19, DK 5771, Stenstrup, Denmark.)

After a gap of nearly three years, we welcome the publication of this second volume of the projected 12-volume series. With Volume 3, covering the genitalia, the Noctuinae will be complete. (Volume 1 was reviewed in *Ent. Rec.* **103**: 211.)

116 species covering the genera *Epipsilia* to *Mesogona* are described and illustrated. All recognised sub-species are considered, together with selected forms. Each genus and sub-genus is discussed, and species are considered under the heading of taxonomic notes, diagnosis, bionomics and distribution. Sub-species generally receive briefer treatment, although sufficient to differentiate them from the type. European distribution maps accompany each species; there is a *corrigenda* to Volume 1 — running to nearly four pages — and a comprehensive bibliography. The eleven colour plates are from photographs by David Wilson. They illustrate both sexes (where there is a difference), key sub-species and selected forms. The text is in English and French, presented in two columns. The book is sturdily bound and attractively printed.

Unlike most books, this presents the results of taxonomic revisions of the Noctuinae. Several names will be unfamiliar to those who have not seen the outcomes of other revisions (see, for example, Fibiger, M. & Hacker, H., 1991. Systematic list of the Noctuidae of Europe. *Esperiana* 2: 1-109). The only change involving a member of the British fauna is the transfer of *sobrina* Dup. from *Paradiarsia* to *Protolampra.*

Many other revisional changes are presented here: neotypes are designated for three species (including the *Noctua* species *janthina* and *janthe*); lectotypes are designated for a further seven species. One new genus is erected (*Divaena* Fibiger, gen.n.) to accommodate *Lycophotia haywardi.* Six new sub-species are described, 13 revisions of status; eight species and a large number of sub-species are sunk as synonyms and 13 new combinations are presented.

For the entomologist less concerned with taxonomic adjustment, the book still has plenty to offer. Diagnosis relies heavily on the colour plates, concentrating on distinguishing characteristics. The genus *Noctua* receives generous treatment, with descriptions of recent changes, and a colour illustration of *Noctua tertia.* The distribution maps have been redrawn to take account of recent geopolitical changes, although on a Europe-wide scale such maps can only be a rough guide. There are one or two anomalies — for example the map for the Rosy Marsh Moth, *Coenophila subrosea,* shows a very disjunct distribution in Western Europe including Wales and what appears to be the Midlands, the latter presumably derived from the old Huntingdon colony which became extinct over 100 years ago.

The colour plates are excellent, although by the very nature of their wide coverage cannot do justice to the range of infraspecific variation: for example ten specimens of *Diarsia mendica* are illustrated, covering the four named sub-species. The one specimen of *D.m.thulei,* although correctly identified, is different from the five specimens of *thulei* illustrated by Skinner (1984 *Colour identification guide to Moths of the British Isles*). Skinner similarly shows a greater range of variation in *Xestia (Anomogyna) alpicola.*

These are, however, small matters and do not distract from the value of this volume, which is highly recommended for those with an interest in the European Noctuidae.

Paul Sokoloff

The Lepidoptera — form function and diversity by **Malcolm J. Scoble.** 404pp, 182 figs, 43 pages of colour illustrations; numerous monochrome. Boards. Oxford University Press, 1992. £45.00.

This major monographic work covers the whole of the lepidoptera, on a global basis. The focus is essentially on structure, biology and classification rather than ecology, physiology or biochemistry. The text is divided into three major parts, the first dealing with form and function, the second with environment, and the third with the major taxa.

The approach taken in part 1 is refreshingly interesting. The adult head, thorax and abdomen are first discussed, each in a separate chapter. After dealing with the basic morphology of the three body divisions, the author expands on the function of the various structures. Thus the chapter on the adult head deals with feeding and sensation because of the cephalic location of the mouthparts and the major sense organs. Both haustellate and mandibulate conditions are considered, even though the latter are represented only in the more primitive groups of the lepidoptera. After a discussion of basic structure and mode of operation of the proboscis of higher lepidoptera, the adaptability of this organ is demonstrated by its capacity, in certain species, to pierce the skin of fruit, and the skin of mammals. From here, the chapter turns to the kind of food that the proboscis has permitted butterflies and moths to exploit — a glimpse of the natural history of feeding.

A similar approach is taken to the various other structures considered in the first part of the book. Part 2 deals with the environmental and ecological importance of the lepidoptera, considering albeit rather briefly, the potential for environmental impact, diversity of foodplants, plant-lepidoptera relationships and pollination. There is also discussion of lepidoptera as suppliers of silk and sources of food.

Part 3 — occupying nearly half of the book — is a guide to the major taxa of lepidoptera. Forty-one superfamilies are recognised here, and each is summarised in terms of structure, diversity and general comments on biology. This treatment is repeated at the family level. Nearly every family has a representative illustrated. A comprehensive bibliography completes the work.

This is not a book for the novice, and although the informed amateur will find it of interest its main target must be those who teach or study entomology, animal biology and biological diversity at degree level. Part 1 is particularly interesting, and a good source of material for many aspects of the study of lepidoptera. In all respects it is a welcome addition to the available literature on the lepidoptera.

NOTICE

The 5th European Congress of Entomology will be held at the University of York from 29th August to 2nd September 1994.

Themes will be Insect life histories, Habitat management, creation and restoration, Population processes and spatial dynamics, Biodiversity: does taxonomy matter?, Management of pests and beneficial insects, and Insects as indicators of environmental quality.

Themes to be interpreted broadly. Offers of papers and workshops will be welcomed. For details and further mailings contact IFAB Communications, Institute for Applied Biology, University of York YO1 5DD.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

Contents

Notes and observations

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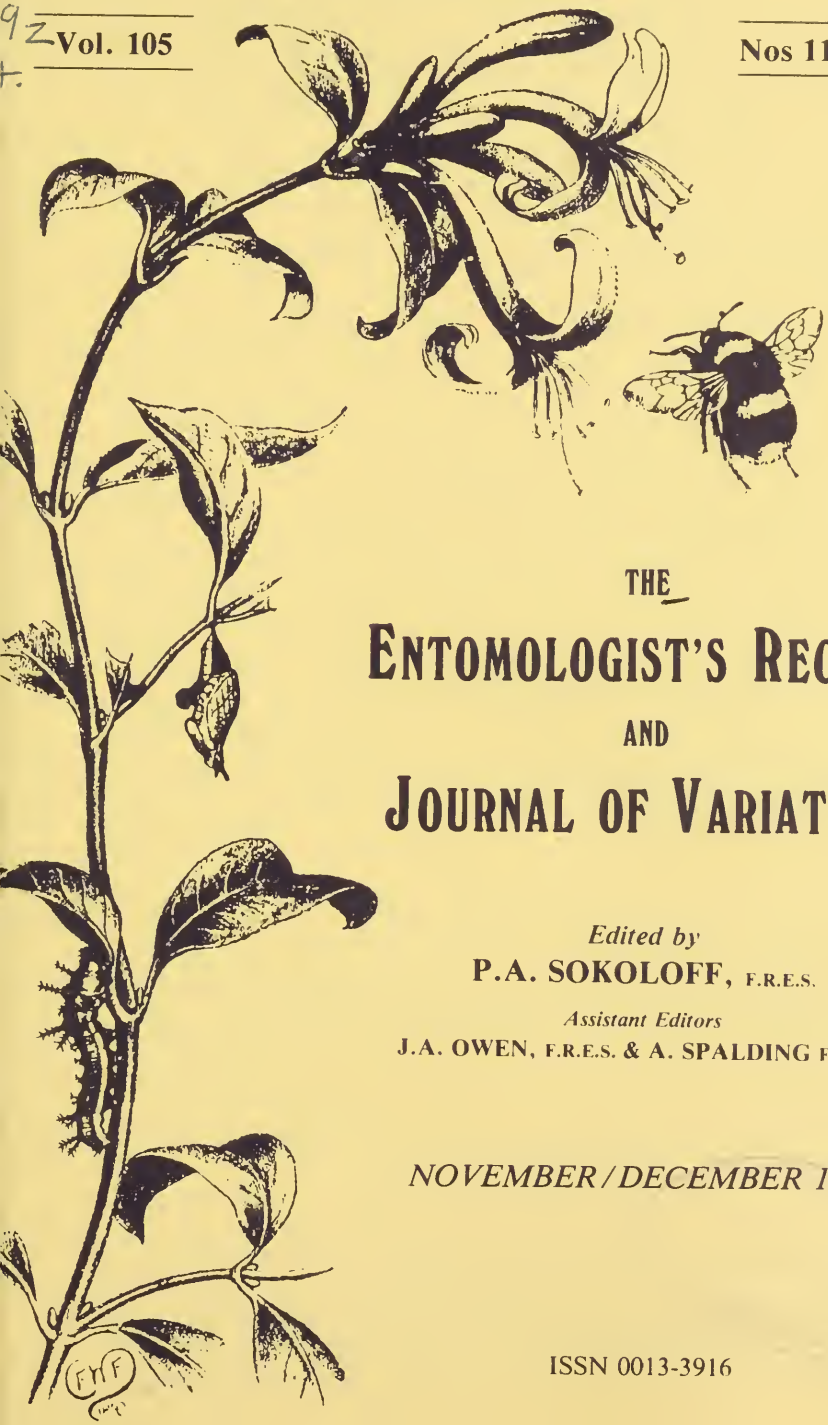

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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LEPIDOPTERA RECORDS FROM BERKSHIRE

DAVID YOUNG

32 Valley Road, Burghfield Common, Nr. Reading, Berkshire.

LIKE MANY lepidopterists I run a mercury vapour light trap in my garden, virtually throughout the year, and faithfully try to record all the species thus captured. Recording actual numbers of specimens is more difficult and prone to error due to the attentions of the local cat and sparrow populations. Both feature on my list of non entomological species recorded at m.v., both suspected of being major predators of the more interesting species attracted to my trap.

Having run the trap on every good "mothing" night over the past eight years, and on many more when hope overruled basic common sense, I suspected that the garden list was nearing completion certainly as regards species resident in the area. The number of "new" species recorded each year has fallen to low numbers and, in point of fact, 1991 produced no new additions to the garden list whatsoever.

It was therefore both surprising and gratifying to start the 1992 campaign with a veritable flurry of new garden species each of which is certainly a notable record for Berkshire (v.c.22). These records are also of interest because, during the eight years I have lived in Burghfield Common, the general area has become less favourable to many species of lepidoptera associated with woodland, heathland and waste ground. The housing boom of the 1980s saw an immense amount of new building in this area with the usual tidying up of those small pieces of land over which even speculative builders conceded defeat.

Lithophane hepatica (Cl.) = *socia* (Hufn.) Pale Pinion

One female recorded at Burghfield Common 18.iii.92. Stated to be frequent near Maidenhead in the Victoria County History (VCH); also Henwood but no specimens or exact records traced to support this latter statement (Bretherton 1940). Currently regarded as a scarce species in Berkshire although there are some signs of an increase in recent years. Recent records include: Faringdon 16.iv.80. Eaton Wood 28.iv.82 and x.83. Baynes Wood Nature Reserve 16.iv.83. Aldermaston 30.iv.83 and 8.xi.87. Buckland Warren v.87 and in several subsequent years to 1990. Letcombe Regis 23.v.88.

Lithophane ornitopus (Hufn.) Grey Shoulder-knot

One specimen recorded at Burghfield Common 20.iii.92 with subsequent records on 1.x.92 and 7.xi.92. The species was also recorded for the first time in Wellington Country Park (SU73/62), north Hampshire by a few hundred yards, on 20.iii.92 and 3.iv.92. The Country Park is about ten miles from Burghfield Common and has been trapped on a fairly regular basis since 1985. This sudden appearance in two separate areas does suggest

a recent extension of its range, perhaps from the more southerly woods of Hampshire where it is well established. Described as locally distributed in the Victoria County History it is currently regarded as an uncommon species though present over much of the county away from the chalk. The last record from Burghfield Common seems to be a specimen found on a pine tree by Brian Baker on 30.xi.47 with others in the general area on 25.iv.87 and 1.x.91.

Chloroclysta siterata (Hufn.) Red-green Carpet

One specimen recorded at Burghfield Common 11.iv.92. Locally distributed according to the Victoria County History but unrecorded by Bretherton (1940). Scarce with few recent records: Faringdon: Newbury 14.ix.72: Aldermaston 10.ix.89 and 9.x.89(2).

This species is recorded regularly in north Hampshire. The recent records from the Newbury/Aldermaston/Burghfield Common area may suggest a gradual spread back into Berkshire after a virtual absence for many years. It is interesting to note that the history of *C. miata* (L.) is somewhat similar having decreased from "Common and generally distributed" in the VCH and "general and very common" (Bretherton 1940) to virtual disappearance in the county through to the present day.

Dicycla oo (L.) The Heart Moth

One specimen recorded at Burghfield Common on 26.vi.92. Three specimens were recorded in the deer enclosure at Wellington Country Park in 1986 (Baker & Hall) but subsequent visits with m.v. traps, sugar and prayer mats, have failed to record any more specimens.

Heliothis armigera (Hubn.) Scarce Bordered Straw

One specimen recorded at Burghfield Common on 6.viii.92, a year which the records will doubtless show to have been an above average one for the scarcer migrants particularly in the early and mid summer periods. I suspect that *armigera* is a good migrant record for an inland county such as Berkshire.

Acknowledgements

I am very grateful to Brian Baker for his helpful advice, and permission to use some of his extensive records of the lepidoptera of Berkshire, records that we hope will be published in due course.

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NOTES ON *ANDRICUS LIGNICOLA* (HARTIG) (HYMENOPTERA: CYNIPIDAE) IN IRELAND

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THE cynipid wasp *Andricus lignicola* (Hartig), which in the agamic generation causes "cola-nut galls" on *Quercus,* was only recently discovered in Ireland (O'Connor and O'Connor, 1993). It was found in counties Carlow, Dublin, Kilkenny, Meath, Waterford, Wexford and Wicklow i.e. in the east and south-east. Since then, the authors have carried out an intensive search for the galls and as a consequence have greatly increased the known range of *A. lignicola* on the island. Significantly, it has now been collected in the south-west and the west. In the former, galls were very common on some trees in the Killarney area of Kerry. By contrast, only two specimens were collected west of the River Shannon in Roscommon. In addition, the species is now known to be widespread in Wicklow. *A. lignicola* was first found in the British Isles in 1968 (Hutchinson, 1974) and it is evident that it has rapidly colonised Ireland. The new sites are:- CAVAN: Dún an Rí Forest Park, Kingscourt (N8096); Virginia Woods (N5987); DUBLIN: Killiney Hill (O2625); KERRY: Muckross, Killarney (V9786); near Anascaul (Q5601); ROSCOMMON: Lough Key Forest Park (G8403); KILDARE: Donadee Forest Park (N8332); LIMERICK: Adare Manor (R4645); near Castleconnell (R6662); TIPPERARY: Swiss Cottage, Caher (S0522); Ballina (R7072); WESTMEATH: Belvidere estate (N4247); WICKLOW:

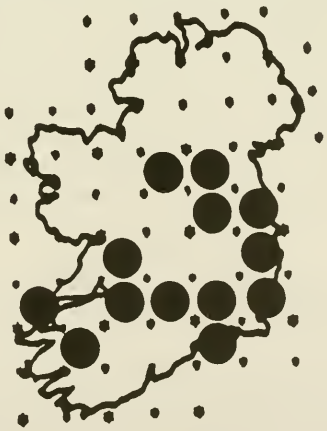

Fig. 1. The distribution of *Andricus lignicola* (Hartig) in Ireland.

near Ballard (T2687); Vale of Clara (T1792); Powerscourt Waterfall (O2012); Lough Tay (O1606); Castlekevin, near Annamoe (T1797); Glenart Castle (T2074); Killiskey (O2600); Trooperstown Wood (T1896); Glenmalure (T0694), Glending near Blessington (N9615); near Rathdrum (T1990); Bray Head (O2816); Avondale, Rathdrum (T2086); Broad Lough (T3096); Clonmannan house near Broadlough (T3098); Glenealy Wood (T2390); Kindelstown Wood, Delgany (O2811). The Irish distribution is summarised on the UTM grid which was calculated using Rasmot *et al.* (1986) (Fig. 1).

Some two hundred cola-nut galls were collected throughout the country and in many instances, adult wasps reared. The number of associated inquilines and parasitoids which also emerged was very low and these are listed below. The three species are new to Ireland and were identified using Askew (1961) and Eady and Quinlan (1963). *Synergus reinhardi* Mayr (Cynipidae): Altamont Gardens (S8665), Co. Carlow, three males emerged 8.vi.1992 from galls collected on 19.iv.1992, JPOC; *Synergus umbraculus* (Olivier) (Cynipidae): Coolbawn (S8237), Co. Wexford, one male emerged 9.vi.1992 and another male on 27.vi.1992 from galls collected on 18.iv. 1992, JPOC; *Mesopolobus juncundus* (Walker) (Pteromalidae): Phoenix Park (O1136), Co. Dublin, one female emerged 26.iv.1992 from gall collected on 11.v.1992, JPOC/MAOC.

In continental Europe, there is a concurrence of the parasitoid and inquiline faunas of the agamic generations of *A. lignicola* and *A. kollari* (Hartig). Askew and Neill (1993) have investigated the parasitoids and inquilines of the agamic generation of *A. lignicola* in Britain. They recorded three species of inquiline and five species of parasitoid. All of these also occur in *A. kollari* but an additional eight species are associated with this species in Britain and it is evident that *A. lignicola* is only slowly acquiring a parasitoid fauna there. In Ireland, the known associated fauna is smaller. To date only two species of inquiline (*S. reinhardi* and *S. umbraculus*) and one species of parasitoid (*M. juncundus*) have been found. All three have been reared from the agamic marble galls of *A. kollari* in this country while *M. juncundus* has also emerged from the agamic knopper galls of *A. quercuscalicis* (Burgsdorf) collected in the Dublin area (J.P. O'Connor, unpublished data).

Acknowledgements

We are grateful to the following for permission to collect material: Mr D. Kelleher, Mr J. McCullen and Mrs C. North.

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***Pieris brassicae L.*(Lep.: Pieridae) larval foodplants in Kent.**

Probably the main larval foodplant of the the Large White butterfly throughout the British Isles is cultivated cabbage grown in gardens and allotments. In Kent the nasturtium (*Tropaeolum majus*) probably ranks as second favourite. However *P. brassicae* is not solely a butterfly of gardens and allotments.

At Bexley in the 1920s the second favourite seemed to me to be horse radish (*Armoricaria rusticana*) of which clumps grew along the railway embankments, on waste ground and in neglected gardens, and at the appropriate time of the year skeletonised leaves indicated the presence of a community of these caterpillars. Later, in the 1930s when living at first Gravesend and then in Dartford the local horse radish clumps were often seen to be attacked. This plant is not noted in the standard textbooks as a foodplant of *P. brassicae* larvae, although Chalmers-Hunt (*Butterflies and Moths of Kent,* 1969) records it as having been found on this plant, not at Bexley, but at Sidcup which is the neighbouring town, in 1917. So, over this period was the use of horse radish merely a very local phenomenon? I pass horse radish plants almost daily, it is common in this neighbourhood, yet for at least thirty years not once have I noticed *brassicae* larvae upon it. L. and K. Evans (*A Survey of the Macrolepidoptera of Croydon and north-east Surrey,* 1973) support this in a curious way, for in the post-1950 period horse radish is mentioned, but only in connection with *P. napi,* a larva not readily seen.

Some twenty years ago I frequently visited the local chalk pits, largely abandoned, and the Thames marshes. A plant which has colonised these areas since the mid-nineteenth century is perennial wall rocket (*Diplotaxis tenuifolia*). Many times over this period I have found *brassicae* larvae on this plant there in August or September, and Mr Chalmers-Hunt has found it in Dartford, and in my company at Greenhithe. This plant is also not included in the lists of the standard textbooks, nor in Plant's recent work (*The Butterflies of the London Area,* 1987).

Another plant utilised locally is hedge mustard (*Sisymbrium officinale*); thus in August 1992 several groups of the larvae were noticed on this unlikely species, at that time of the year merely a tangle of dry, tough and wiry stems. Once or twice in previous years I have noticed this plant being utilised, and Chalmers-Hunt (*loc. cit.*) mentions it, but gives no detail. Once again L. & K. Evans (*loc. cit.*) provide an interesting observation bearing on the subject, a record of eggs of *P. napi* being laid upon the plant, but no mention of *brassicae* larvae which would be so much more readily noticed! C. Plant (*loc. cit.*) gives no mention of hedge mustard in respect of this butterfly.

Since commencing this note a further record of *P. brassicae* larvae infesting horse radish in large numbers has been supplied to me by Bernard Skinner who has informed me that he found them over a period of years in the 1950s at Norwood, Surrey, where they systematically skeletonised the plants.

The observations above suggest that *P. brassicae* has distinct preferences regarding larval foodplants, that these preferences may change over the years, and that they may be local. It would be interesting and instructive to compare such information with that in other areas, unfortunately with Chalmers-Hunt's book on the lepidoptera of Kent being virtually the only "County" work published, this cannot be done.— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

***Epischnia bankesiella* Richardson (Lep.: Pyralidae) in North Wales**

A single specimen of this moth was swept from a cliff-top wet flush by Ogof Gathwen (SH 139251) within the National Trust property of Braich-y-Pwll on the Lleyn Peninsula of Caernarvonshire, 12th July 1993. The specimen was immediately recognised by my colleague, Andy Foster, as *Epischnia bankesiella,* and hence of considerable interest. The larval foodplant, golden samphire (*Inula crithmoides* L.) is locally frequent on the property, along the rocky cliffs.

The foodplant is widespread on the rocky cliffs of southern and western Britain, extending from Dorset to Anglesey, and even as far north as the Mull of Galloway in south-west Scotland. It isn't confined to cliffs, also occurring in the saltmarshes of the Thames Estuary, Essex and the Solent. The moth, however, clearly requires hard-rock cliffs rather than saltmarsh. Goater (*British Pyralid Moths,* 1986) mentions its occurrence only in Dorset and south Wales, but it has subsequently been found in Cornwall (Heckford, *Ent. Gaz.,* **40**: 244, 1989) and Devon (Parsons, *A review of the scarce and threatened pyralid moths of Great Britain,* JNCC, 1993). All of the more recent records come from cliffs outside of the limestone areas and demonstrate that any suggested association with limestone — as mentioned in Goater (*loc. cit.*) — is spurious, reflecting only our limited knowledge of the moth. The foodplant is more widespread on Anglesey than on Lleyn and the moth may be expected to turn up there in due course.— K.N.A. ALEXANDER, National Trust, 33 Sheep Street, Cirencester, Glos GL7 1QW.

LEPIDOPTERA ON ENDEMIC PLANTS OF THE SEYCHELLES

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Introduction

THE OXFORD University Silhouette Expedition was undertaken in 1990 to examine ecological aspects of a mist forest on Silhouette Island in the Seychelles. During the study, lepidopteran larvae were collected from native plants on the site and reared to maturity. The area supported a rare plant community, including three species unique to the site (*Achyrospermum seychellarum* Baker, *Pseuderanthemum* sp. aff. *tunicatum* (Afzel.) Milne-Redh. Friedmann and the dominant tree species on the site, *Pisonia sechellarum* Friedm.) as well as other Seychelles endemics. Lepidopteran larvae were collected by hand from the endemic flora and reared to maturity in Petri dishes.

Sphingidae

1. *Hippotion eson* Cr. Foodplants: *Dillenia ferruginea* (Baillon) Gilg (Family Dilleniaceae); *Begonia seychellensis* Hemsley (Family Begoniaceae). Feeds on the edges of leaves.

First instar larva. Length 6mm. Head round, smooth. Body pale green, with hairs. Dorsal horn (2.5mm) on abdominal segment 8. *Third instar.* Length 23mm. Head round, green, smooth. Body green with faint lateral line above prolegs. Eyespot on first abdominal segment black with yellow surround and black rim. Eyespot on second abdominal segment yellow with black rim. Dorsal horn on segment 8 reduced to short spike. *Final instar.* Length 60mm. Head round, brown. Body dull brown. Eyespot on first abdominal segment black surrounded by concentric rings of red, yellow and black. Eyespot on second abdominal segment red with black rim. *Pupa.* Length 4mm. Mottled, dull brown. Pupates under ground. Pupation 21 days.

Noctuidae

2. *Chrysodeixis chalcites* Esper. Foodplants: *Trema orientalis* (L.) Blume (Family Ulmaceae); *Achyrospermum seychellarum* Baker (Family Lamiaceae); *Begonia seychellensis* Hemsley (Family Begoniaceae). Feeds on the edges of leaves. *Final instar larva.* Length 27mm. Head round, green, shiny, smooth, with black lateral stripe. Body lime green with lateral white line running below black spiracles. Dorsal surface with central dark green line and wavy white lines running either side. *Pupa.* Length 17mm. Shiny, red-brown. Pupates under silk.

3.*Bocana* sp. Foodplant: *Procris latifolia* Blume (Family Urticaceae). Feeds on the edges of leaves, and when present in numbers, can strip leaves to bare veins.

Final instar larva. Length 30mm. Head and body pale green with sparse black spots. Each spot gives rise to a dark bristle. Dark green line running along the dorsal surface of the body. *Pupa.* Length 13mm. Shiny, black. Pupates under tent of silk and black frass. Pupation 13 days.

Pterophoridae

4. *Platyptilia* sp. nr. *citropleura* Meyrick. Foodplant: *Begonia seychellensis* Hemsley (Family Begoniaceae). Feeds within the flower. *Pupa.* Shiny brown. Pupates within flower head. Pupation 11 days.

Pyralidae

5. *Herpetogramma licarsisalis* Walker. Foodplant: *Pseuderanthemum* sp. aff. *tunicatum* (Afzel.) Milne-Redh. Friedmann (Family Acanthaceae). Curls leaf-end using silk and feeds on the epidermis forming "windows". *Final instar larva.* Length 14mm. Head pale green on top, with black sides. Body pale green, smooth, shiny, with black patches on the first and second thoracic segments. *Pupa.* Length 10mm. Shiny red-brown. Pupates in curled leaf-end under silk tent.

Epermeniidae

6. *Epermenia* sp. Foodplant: *Schefflera procumbens* (Hemsley) Frodin (Family Araliaceae). Feeds on the epidermis forming "windows". *Final instar larva.* Length 11mm. Head black, smooth, shiny. Body brown, smooth, shiny, with white dorsal patches. Spiracles black with white above. *Pupa.* Length 7mm. Shiny brown. Pupates under silk tent on leaf surface. Pupation 11 days.

***Gyrophaena angustata* Steph. (Col.: Staphylinidae) in the London district**

This very local species, the *G. manca* Er. of our earlier literature, appears to have a somewhat patchy distribution. Fowler (1988, *Col. Brit. Isl.*2:159) says that it has not been in the London district (thoroughly worked in his day) and gives one Sussex record, with others from midland and mid-eastern counties mainly. In the Supplement (Fowler & Donisthorpe, 1913, *ibid.*6:226) two Berkshire localities are included. Being one of our smallest species, and normally all black, it is unlikely to be involved in confusion; the aedeagus, moreover, is one of the most distinctive in the genus.

On 5.vi.93, I shook a few females of *G. angustata* out of polypore-type fungi on part of a log placed to mark out a woodland path, in Maryon-Wilson Park here in Charlton. Fungi growing similarly on the other side of the path produced many more Gyrophaenae, all however the common *G. affinis* Mann., but they were of the toadstool type (?*Armillaria*). Only when, on 11.vii.93, I managed to obtain a male — this time from the latter fungi — was the species definitely identified, so different did these beetles appear from my two old specimens (marked "Repton", larger and much lighter in colour). *G. angustata* may very possibly be new to Kent as well as the London area.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

REARING *PSILOCEPHALA MELALEUCA* (LOEW) (DIPTERA: THEREVIDAE) FROM LARVAE

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DURING the last few years, I have reared a number of examples of *P. melaleuca* from larvae found in Windsor Forest and Great Park. Not much appears to have been published on the life-history of this fly, at least in Britain, and I thought it might be of some interest to record my findings.

At Windsor, the larvae occur mostly in red-rotten oak, usually dry and powdery but sometimes damp and granular, in old trees and in large fallen boughs. Three larvae, from which two adults were reared, occurred in a somewhat damp rotten beech bough lying on the ground and one larva occurred in rotten wood in a fallen ash tree.

The larvae were kept in an unheated garage in glass jars of about one litre capacity with perforated, plastic screw-cap lids, filled to about 80% capacity with the material in which the larva(e) had been found. From time to time, the contents of the jar were moistened by running a little tap-water down the inside of the jar. This meant that the contents of the jar were somewhat damper at the bottom than at the top, allowing the larva some choice in microhabitat. Each larva was held in a separate container.

Not knowing what was their natural prey, I presented the larvae experimentally with a variety of insect larvae. These were added to the container, one sort at a time, and the contents of the latter carefully examined two or three weeks later. If the added larva had disappeared, it was assumed that it had been eaten. I never actually witnessed a therevid larva attacking what I gave them to eat but the prey disappeared and the therevid larvae grew. Acceptable prey comprised lepidopterous larvae (noctuid, tineid, defoliating geometrid), beetle larvae (*Dorcus, Rhagium* sp.) and unidentified sawfly larvae from hawthorn. In some instances, large noctuid larvae appeared to escape being eaten initially and pupate but examination of the contents of the container later revealed a forcibly emptied pupal case. Some noctuid larvae developed small discoloured "bruises" after a few days in the container. It seems likely that these represented unsuccessful attacks from the therevid larva.

Uneaten potential prey included larvae of the elaterid *Ampedus cardinalis* (Schiödte), of the alleculid *Prionychus ater* (Fabricius), of the scarabeid *Gnorimus variabilis* (Linnaeus) and small millipedes. The relevant elaterid and alleculid larvae and the millipedes may have been protected from attack by their relatively tough, chitinous skins.

These observations confirm that the larvae of *P. melaleuca* are opportunistic predators as has been noted with larvae of other members of the family (Smith, 1989). What they eat naturally remains to be discovered. I never came across a larva of *P. melaleuca* in the wild in circumstances

where any prey was obvious. Indeed, the dry, powdery material in which I have found the majority of the larvae seemed quite devoid of potential prey except for the occasional larvae of the elaterid *Ampedus cardinalis* which were not eaten in captivity. Mr Allen tells me that he too has been struck by the occurrence of the larvae in material apparently devoid of prey though he once found a larva with many larvae of *G. variabilis* and fewer *Prionychus ater*. Neither of these, however, was eaten in captivity. The *Psilocephala* larvae are quite mobile, especially in dry powdery red-rotten oak and it may be that they travel some distance in their microhabitat to find prey. Although none of the larvae were deliberately starved, sometimes it was noted that a particular larva had not been given anything to eat for several months without apparently causing it harm. This ability to do without food for such a period may be related to their opportunistic eating habits.

I kept each larva in a separate container after finding early in these studies that *P. melaleuca* larvae were cannibalistic. Thus, two days after a large larva and a small one were put from the field into the same container, the large one was appreciably larger and the small one had disappeared. After a few days, another, smaller larva was added experimentally to the container and three days later there was again only one larva to be seen — quite the largest I have seen! I have observed cannibalism in larvae of *Thereva annulata* F. and this tendency among therevid larvae has been recorded elsewhere (Smith, *loc. cit.*).

These studies show that larvae of *P. melaleuca* are perhaps not so hard to rear as has previously been reported (Allen, 1982). Overall, ten adults (six males and four females) were obtained from fourteen larvae, excluding the two which were cannibalised. Time spent in captivity averaged 11 months (range 1 - 33). These data, however, simply reflect that larvae can be kept alive for long periods. The time for maturing depends critically on the initial size of the larva and the time of year the larva was collected. Thus two full-grown larvae collected on 15.iv.91 produced adults two months later on 17.vi.91 and 18.vi.91 respectively. In contrast, a very small larva collected in August 1990 did not develop into an adult until May 1993, taking thus at least 33 months to develop in spite of being constantly supplied with food. The larvae pupate below the surface but in nearly every case, after the adults had emerged, the pupal case was seen projecting above the surface of the material in the container or lying on the surface. The adults had a relatively short emergence period, all appearing (in different years) between 28th May and 26th June.

All the published information I have come across on *P. melaleuca* adults, collected as such or reared from larvae, has referred to the Windsor-Ascot area in Berkshire or nearby Egham in Surrey (Oldroyd, 1969; Ismay, 1981; Allen, 1982; Stubbs, 1987). There are, however, records of larvae almost certainly of this species from other sites in Surrey and in west Kent. Thus Mr Allen (1981) has reported finding in Greenwich Park a therevid larva in

an old oak in "rather dry and dusty red-rotten wood" and in July 1990 I came across another therevid larva in dry, powdery red-rotten wood in a fallen oak tree in Richmond Park, Surrey. Later, when Mr Hodge and I visited Bushy Park, Middlesex on 16.ix.1988, we found a similar larva in powdery red-rotten oak. The situations in which these three larvae were found match exactly the microhabitat in which the species most commonly occurs at Windsor and, as no other therevid species is known to develop in red-rotten oak, it is almost certain that these three records are also for *P. melaleuca*.

Acknowledgements

I thank Mr A.A. Allen for allowing me to include in this note his own observations on *P. melaleuca* larvae at Windsor, Mr P. Hodge for allowing me to record our joint observation of a therevid larva in Bushy Park, Dr I.F.G. McLean and Dr A.E. Stubbs for confirming the identity of some of the reared specimens, Mr A.R. Wiseman for authorising access to Windsor Forest and Great Park and English Nature for arranging this.

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Some notes on the leaf-miners of *Alnus incana* (L.) Moench

While staying with my friend, Brian Baker, at Reading in late July, I expressed an interest in the possibility of finding *Phyllonorycter strigulatella* (L. & Z.) which I knew to have been recorded from *Alnus incana* (L.) Moench. A check of the Berkshire records gave two sites for the foodplant from where mines had been collected in the early 1980s by N.M. Hall and the moth bred. A quick check in Heath, 1985 produced the information that the mine was upperside. Rather foolishly, I omitted to read the following sentence which clearly described an underside mine. This omission was to result in a protracted search for upperside mines! At the first site the *Alnus incana* was found without difficulty but the only upperside mines present were those of *P. stettinensis* which were frequent despite the fact that there is no mention in the literature of its feeding on

Alnus incana. However, numerous underside mines were found and these were assumed to be those of *P. kleemannella,* a species already familiar from my home area of West Somerset, despite the early date for a species described in the literature as mainly or wholly univoltine. However, I had found mines in July of 1990 and 1992, from which moths were bred, so that the presence of these mines was not surprising. What was so was the absence of mines of *P. rajella* on *Alnus incana* (although numerous on plants of *A. glutinosa* present in close proximity), in view of the statement in Heath that it feeds on all three species of Alnus.

A visit to the second site produced a similar result and a dawning realisation that something was wrong led to a telephone call to the original recorder who kindly confirmed that the mine of *strigulatella* was indeed underside and that those we had seen sounded right for the species. In view of this, a second visit was made to the first site and a number of mines collected. On 31st July, the first emergence occurred. This was *P. kleemannella* which was not unexpected. On the following day two more moths emerged and these were both *strigulatella*. The appropriate mined leaves were removed immediately after emergence of the moths (as indicated by the presence of the extruded pupal exuviae) and it was noticed that the mines of the two species did indeed show differences. The mine of *P. strigulatella* is rather narrower, whiter in colour in the earlier stages and more opaque than that of *P. kleemannella* and it also appears to have a greater degree of internal spinning so that the mine tends to close up into a tube and also turns brown as it ages.

Despite the fact that *P. strigulatella* was first recorded from Cothill, Berkshire by E.G.R. Waters in 1928, there is no mention of the species in the paper on the genus *Lithocolletis* in the *Illustrated Papers* and Kloet and Hincks (1972) give it as a synonym of *P. rajella* L. although neither the mine nor the moth are all that similar. Perhaps someone can explain why the illustrations on Pl.13 (Heath, 1985) show *P. strigulatella* to have a wingspan of 4.7cm while that of *P. kleemannella* is a mere 3.5cm (drawn to the same scale x4.5) and yet the text gives 7-9mm and 8mm respectively, the latter corresponding with those of the reared moths.

It may also be of interest to report the presence of early mines of *Caloptilia elongella* on *A. incana* although the species is not mentioned as feeding on this plant in the literature.

It should also be pointed out that Heath gives the mine of *P. distentella* as upperside which is quite incorrect.

Any comments from readers on the above would be most welcome.

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FARTHER AFIELD: THE ANDES — VENEZUELA

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ON FEBRUARY 2nd 1989, I arrived at the International Airport for Caracas early enough to walk the short distance to the National Airport and obtain a flight to Puerto Ayacucho, the capital of Amazonas Territory, and before mid-day was in a tiny patch of forest just beyond the town's outskirts. Although I had been aware that it was the dry season, I was not prepared for quite so parched a landscape, nor to find so wide a belt of deforestation around the town. Butterflies were not much in evidence either in the town or in the surrounding secondary bush. However, the little patch of forest bordering a stream was in favourable contrast. A blue flowered climbing shrub was attracting many brightly coloured Heliconiids — *Heliconius sara* Fab. bluish black and yellow, *H. melpomene* L. black and red, and *H. antiochus* L. black and white. In the deep shade many small and worn Satyrids when disturbed dodged in and around the sparse ground cover, while in small clearings Hesperiids were numerous.

Leaving this forest I walked across an area of secondary bush where the few butterflies observed comprised wild flying yellow *Phoebis* species, and at ground level the little yellow *Eurema venusta* Bsd. and a few *Anartia jatrophe* L. in a large, pale form, and little else. Suddenly, I arrived at the River Orinoco, even here a very wide river, and while gazing somewhat wistfully at the distant Colombian shore which appeared better forested, I was accosted by a well armed soldier who asked what I was doing — pointing to the net — and the word *"permisión"* came into play. My explanation that no permit was required seemed not to satisfy him completely; however, we parted amicably. The following day I left Puerto Ayacucho for the Andes, having considered that a somewhat sensitive border region was perhaps not the ideal place in which to operate. Subsequently my activities have been unhindered.

The remainder of this stay was spent at Boconó, a small town at alt. 4000 feet, but on other occasions I have also stayed at Biscucuy which is at a lower altitude, these towns being in the states of Trujillo and Portuguesa respectively. On the mountain road between these towns numerous localities are rich in butterflies — flowery stretches beside the road, small plantations of coffee or bananas in the shade of forest trees, and only occasionally patches of natural forest, although more extensive areas of this are always visible, but inaccessible, far away and high up on the steep mountain sides. Some of the little semi-cultivated patches may appear at first glance to be not worth investigating, but upon entering there is a dramatic change as dozens of tiger-striped Ithomiids and Heliconiids take flight, while at ground level little brown Satyrids fly a yard or so to suddenly disappear. Sometimes there is a wonderful carpet of red flowered

Impatiens which is a feeding ground for black and red swallow-tails, Hesperiids and around Boconó especially the Pierid *Loptophobia tovaria* Felder in considerable numbers.

Flowery roadside verges may be very rewarding, being the home of many Hesperiids, and particularly those little yellow Pierids, the Euremas — *Eurema venusta* Bsdv., *E. daira* Godt. and the larger whitish *E. mexicana* Bsdv. commonly, the brilliant orange *E. proterpia* Fab. with more or less prominent black veining according to season, *E. xanthochlora* Kollar, the white *E. albula* Cram. often, but singly, in little colonies *E. phiale* Cram., white with a yellow hindwing border. Rather uncommon is *E. gratiosa* Dbldy., although it could be easily overlooked, mistaken for another species, but I have not seen *E. elathea* Cram. which has a range extending from Central America and the West Indies to Argentina. Despite the excellent description of the differences between this species and *E. daira* given in N. Riley (1975), it is surprising how often the latter masquerades as *E. elathea* in collections and at exhibitions. Writing of *E. leuce* Bsdv. in Trinidad, M. Barcant (1970) states that it is common along flowery roadsides, having a slow flight and settling frequently. The few I have seen at Biscucuy have been flying fast along dried up stream beds, have rarely settled, and then only momentarily; the most difficult *Eurema* species to capture. Both sexual and seasonal dimorphism are features of this group, but in this region of the Andes the latter is not as pronounced as in parts of Central America and the West Indies. My specimens taken from January until early April are dry season forms, those in October and November are wet season forms. Partly due to the seasonally varying undersides I thought I had a further species of *Eurema* which is almost identical in appearance with *E. xanthochlora,* this being *E. salome* Felder, although *salome* has a more protracted hindwing, especially the females. This became apparent when I came across this species at San Salvador de Jujuy, Argentina, in March of this year.

Boconó is confined on two sides by ravines, one of which I found most rewarding. On my first visit I passed a small orange grove where within feeding upon the fallen, rotting fruit were many large blue and black Nymphalids, *Panacea prola* Dbldy., perhaps local and uncommon in Venezuela for the British Museum Collection possessed none from there. The butterflies rested on the oranges with wings outstretched, and settled in similar fashion on the tree trunks when disturbed. Both sexes were present and netting them was easy; then the problem began. As they persisted in always resting with wings outstretched, and being far too big for the killing bottle, they had somehow to be grasped by the thorax, no easy task. Some nearby wasteland overgrown with *Lantana* bushes contained little of interest, but in February the following year it was alive with the large Pierids, *Pereute charops* Bsdv., the males blue and black with bright yellow streaks beneath, the females black and red. They flew slowly about, sometimes settling on the *Lantana* flowers. Doubtless they are distasteful to

birds, although De Vries (1987) records having seen a flycatcher attack and devour a *Pereute* in Costa Rica. The *Pereute* species are reminiscent of the *Delias* species of south-east Asia in their garish appearance and flight; both groups are mainly montane, and their larvae are gregarious, feeding on *Loranthaceae* (Corbet and Pendlebury, 1956; De Vries, 1987). This was not quite the first acquaintance with the *Pereute* for in October 1990 I obtained a specimen of *P. leucodrosime* Koll., a beautiful insect, largely pale blue and red, with pale blue antennae. My next meeting with this species was in February 1992 when I found ten pupae on the base of a tree trunk at two o'clock in the the afternoon with the butterflies emerging!

Many interesting insects frequent the small patches of forest in the ravine. Pierids of the primitive Dismorphiinae with their curious narrow, pointed forewings and disproportionately large rounded hindwings fly about the trees, beneath which, usually settled on low vegetation, transparent winged Ithomiids, including the large *Hyaliris oulita* Hew., upon being disturbed rise in large numbers, to settle again after a few moments. A blue flowered shrub on one occasion attracted my attention by what I thought were small black and white moths fluttering about the flowers and resting upon them; they were in fact small butterflies, *Actinote hylonome* Dbldy. of the Acraeidae, a family one more readily associates with Africa.

At Biscucuy the hotel is just out of town backing a steep forested hillside. There, bait in the form of rotting fruit was not well patronised when it could be inspected, usually in the late afternoon or at dusk. However, a spectacular visitor was *Morpho peleides* Koll., resembling a giant *Satyrid* until a nervous opening and shutting of wings revealed a brilliant flash of blue; they were invariably damaged, so were left unmolested. As delightful as this sight is, it does not compare with watching them flying along a forest path or stream bed with an undulating motion five or six feet from the ground to display a series of brilliant blue flashes. These insects are remarkably adept at avoiding the net at the last instant, usually to dive sideways into the safety of the forest.

On the penultimate day of my sojourn at Biscucuy in November 1991, I came across an assembly of butterflies beside the river there, where presumably effluent from dwellings on the bluff above was seeping down. The small, brilliant patchwork, yellow and orange, was clearly visible from the bridge high above. It comprised mainly the medium and very large *Coliadinae* — whitish *Phoebis statira* Cram., bright yellow *P. sennae* L. and orange *P. argante* Fab., and an enormous brimstone, *Anteos clorinde* Godt. together with a sprinkling of other butterflies, including two species of swallow-tail, *Papilio thoas* L. and *Eurytides teleselaus* Feld. and the brown Heliconiids *Dione juno* Cram., *D. moneta* Hbn., a single specimen of an uncommon species in Venezuela, and *Dryas julia* Fab.

Damp patches on tracks and footpaths often had several butterflies in attendance, usually the small, light brown Nymphalids *Tegosa anieta*

Hew., *T. similis* Higgins and *Anthanassa drusilla* Feld., and of more interest *Diaethria* species, black with brilliant blue markings. These skim about an inch or so from the ground and settle frequently to display hindwings beneath adorned with curious hieroglyphics, but hiding the exquisite crimson of the forewing undersides; the black and red *Callidula pyramus* Hbn. is another regular visitor to puddles, but when disturbed it circles about for a while. With a low, gliding flight not unlike the *Diaethrias* are the much larger *Marpesias* with their hindwings adorned with long tails. They require the greatest skill and patience to catch for having been carefully stalked they will glide away just as success seems certain, and circle round to settle again a few yards behind you; eventually, if success is achieved, comes the problem of securing the insect without damage, for on no account may the net be folded.

Some forms of allurement are much less well patronised than in other parts of the World. The addition of urine to damp patches has been disappointing, in distinct contrast to Malaya; also I have found that butterflies when disturbed are more ready to take flight, and less likely to return. A common feature of paths through the forest or scrub is the little mounds of excreta; it was some time before I realised that they were the product of the local population of *Homo sapiens*. Rarely were they attended by butterflies, although the only specimen of the Nymphalid *Consul fabius* Cram., with its strangely shaped hindwing tails, was successfully removed from one. A recently killed dog by the roadside held prospects, but although I passed it daily through all its stages of decay, no butterflies were seen near it. Flowers, however, may be a great attraction; sometimes only one or two species are involved, but some attract a wide range comprising representatives from many families. At Biscucuy the small orange-brown flowers of Asclepias are visited by *Danaus gilippus* Cram. and *D. erisimus* Cram., but rarely other species, these plants probably being also a larval foodplant. On one occasion high in the mountains above Biscucuy masses of roadside blue *Ageratum* was alive with dozens of Ithomiids, mainly transparent species, which could be examined closely and hand picked; perhaps due to a 90% cloud cover few other butterflies were seen. One of several blue flowered bushes growing on the edge of a small, shallow ravine at Biscucuy presented quite a different picture when visited for the first time in March 1990 when I counted twenty-six species of butterfly upon its flowers; none was represented by more than four individuals. Although the other bushes appeared to be situated similarly, throughout their flowering period very few butterflies were seen to visit them. Further upstream, beside the forest, two of these shrubs attracted a number of male *Perrhybris pyrrha* Fab. to their blossom. The female, a forest dweller, is the well-known mimic of tiger striped Heliconiids and Ithomiids.

It is interesting to compare local differences in appearance, and more especially in behaviour, of insects. The Nymphalid *Anartia jatrophe* L. ranges from the USA to Argentina. I was already aquainted with ssp. *guantanamo* Monroe from the Bahamas, a butterfly richly suffused with grey and bearing a double row of marginal orange lunules, and recently I have seen the even darker ssp. *saturata* Staud. in the Dominican Republic. By comparison Venezuelan specimens are distinctly anaemic looking, whitish with whitish marginal lunules. The naming of geographical forms when they may appear to be merely arbitrary points on a cline, is a controversial matter; however, I was very surprised to read in D'Abrera (1987) of *A. jatrophe* "A most variable species, the variability however being purely between individuals and having no geographical basis". With this statement I cannot agree, all these populations I have encountered have appeared remarkably homogeneous, as well as that in Trinidad where specimens are like those in Venezuela.

Anartia amathea L. varies geographically from Central America to Argentina not only in wing pattern, but also in wing shape. This is a bright red insect with the outer half of the wings black with white spots; it is often a very common butterfly along roadsides, spending its time feeding at flowers. I note that my Trinidad specimens possess much smaller white spots than those from Biscucuy, whereas those from Puerto Iguassu, Argentina, have the inner row of spots enlarged to form a white band, yet curiously three of the outer row of spots are obsolete. In addition the wing shape varies from a fairly smooth outline in Trinidad, though with some development of a prominence on the hindwing, to a *Vanessa*-like forewing and a considerable hindwing projection on a somewhat larger insect in Argentina. My Venezuelan *amathea* are intermediate in these characters.

Another Nymphalid, *Chlosyne lacinia* Geyer when in season is another common roadside butterfly at Biscucuy, and it has a wide range of forms which may be found in the same population. The butterfly there is extremely variable, although it is dominated by what might be termed the normal orange and black form *saundersi* Dbldy.

A memorable species often seen flying slowly along roads or tracks around Boconó is the small Satyrid *Oressinoma typhla* Wwd. Its weak flight is invariably along the side of the road backed by the mountain wall. It is brown and white both above and beneath, and has a delicate and fragile appearance, yet strangely rarely is a damaged specimen encountered. How this contrasts with many of the African *Neptis* species which spend their waking life gliding gently about, invariably looking unblemished; however, more often than not the "perfect" specimen reveals upon close examination just one small slit or chip on one wing, its passport to freedom!

One of the unforgettable sights of much of South America is provided by the enormous orange and yellow Coliadines which hurtle about the

countryside, occasionally settling briefly at a flower, but always very wary. Two species have the wing shape of the brimstone, one of which is *Anteos clorinde* Godt., pale yellow with a large orange blotch on the forewing of the male, and it is more often seen feeding at blossoms than the others; it also takes to flight less readily. Of these insects I cannot recollect ever having seen a female. However, this is not true of several smaller species which are just as conspicuous — *Aphrissa statira* Cram., *Phoebis sennae* L. and *P. argante* Fab., whitish, bright yellow and orange respectively. Unfortunately, the somewhat variable females are frequently worn, and those of one species may be difficult to separate from those of others.

An aspect of the butterflies of parts of Venezuela that has surprised me concerns their frequency by families. Lycaenids seem to be comparatively rare, omitting two or three very common species, Riodinids perhaps less so and Hesperiids are not as abundant in species as I would have expected, although everywhere they are in evidence usually in the form of small dull brown or black insects, very rarely in good condition, or the large, quite spectacular, long tailed kinds, to be found at flowers whether in forest, plantation or garden, or by the roadside, and particularly on wasteland. Pierids on the other hand are very conspicuous by their colours, variety and numbers almost everywhere, though not in the forest. The swallow-tails, despite their large size and bright colouring are usually less conspicuous than one might expect. There are two groups — those seen as individuals flying on waste ground and in gardens, usually black and yellow in colour, and secondly the forest species, usually black and red. The commonest of the former group have been *Battus polydamas* L. and *Papilio thoas* L., and once at Biscucuy I took *P. polyxenes* Fab., a species one associates more with North America. The second group comprises several tail-less species, black with a hindwing red blotch, usually met with in small colonies, the butterflies flying along forest paths and stream beds, but upon disturbance immediately disappearing into the forest understorey, through which it seems they pass without damage. Sometimes they are encountered feeding at flowers, settled, but with wings quivering, always a memorable sight.

Despite a degree of uniformity, the forest or little coffee and banana plantations or wasteland all looking much the same from place to place, some butterfly species have nevertheless appeared to be extremely local. Thus in February 1992 two kinds of transparent Ithomiid, *Greta ochretis* Haensch and *Oleria makrena* Hew. were disturbed from their resting places on the dark leaved undergrowth beside just a few yards of forest path near Batatal; I have not seen these insects elsewhere. In November 1989 several tiger-striped "Ithomiids" were noted at the forest edge behind the hotel at Biscucuy, in a period of several minutes, not to be seen here or elsewhere again. Upon capture they proved to be a mimetic Pierid, *Dismorphia amphione* Cram., which ranges from Mexico, to include the Greater Antilles, to southern Brazil in a bewildering series of forms. According to D'Abrera (1981) ssp. *arsinoe* Felder inhabits Venezuela, although my two specimens appear to resemble ssp. *broomiae* Btlr. of Trinidad.

A number of butterflies seem not to be of the subspecies depicted for Venezuela by D'Abrera which is one reason why I have not included subspecies in the appended list. Venezuela is a large and diverse country, and the British Museum Collection contains specimens from a limited number of localities; several species I have come across are either not represented, or only poorly so.

Most of the species from Boconó are from an altitude of over 4000 feet, those from Biscucuy from about 2000 feet. Probably almost all the species are to be found in both states, Trujillo and Portuguesa. Nevertheless it has been interesting to note that at Barinitas in a parallel valley fifty miles to the south-west of Biscucuy, at about the same altitude, a surprisingly different butterfly fauna seems to prevail, as witnessed by the collection made there by Mr Andrew Nield.

The paucity in the list of Lycaenids and Riodinids may well reflect reality, but under-representation in the Hesperiids in the list reflects more the difficulty of obtaining perfect specimens. On the other hand the Satyrids have presented an identification problem complicated by geographical and seasonal variation.

Like the more sombre hued Hesperiids the dull, blackish-brown Satyrids of the forest floor, often difficult to capture, are frequently damaged or worn. In every way these Satyrids present a very different picture from the bright insects of Europe, most of which fly in sunshine, while many are addicted to feeding at flowers. I have not seen a Satyrid in Venezuela settled upon a flower, and DeVries (1987) notes that, except for some high altitude species, Neotropical Satyrines do not feed at flowers regularly. However, another exception is at least some of the lowland species of the Antillean genus *Calisto;* in the Bahamas I have seen *C. herophile* Hbn. regularly feeding on the little white flowers of *Bidens pilosa,* and in the Dominican Republic three of the commonest butterflies, *C. confusa* Lathy, *C. obscura* Mich. and *C. lyceius* Bates, all very small and almost black in colour, fly close to the ground in the open countryside, frequently settling to feed on flowers. Fields with coarse grass are not infrequent around Boconó and Biscucuy, but no Satyrids are to be encountered in them.

The appended list includes only butterflies from this region of the Andes. Species noted only in Trujillo state are marked with a "T", those only from Portuguesa with a "P", and those recorded from both states are left unmarked.

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Butterflies noted in the Andean states of Portuguesa (P) and Trujillo (T), Venezuela, 1989 - 1992.

PAPILIONIDAE
Battus polydamas Godt. T
Parides erithalion Bsdv. T
P. anchises L. T
P. arcas Cram.
Papilio thoas L. P
P. polyxenes Fab. P
Eurytides telesilaus Feld. P

PIERIDAE
Dismorphia thermesia Godt. T
D. medora Dbldy. T
D. nemesis Latr. T
D. amphione Cram. P
D. crisia Drury T
D. hyposticta Feld. T
D. zathoe Hew.
Enantia licinia Cram. P
E. melete L. T
Pseudopieris nehemia Bdv.
Hesperocharis nera Hew. P
Zerene cesonia Stoll T
Anteos clorinde Hbn. P
Phoebis rurina Feld. P
P. sennae L.
P. philea Johan. P
P. argante Fab. P
Aphrissa statira Cram. P
Kricogonia lycide Godt. P
Eurema leuce Bsdv. P
E. venusta Bsdv.
E. daira Godt.
E. albula Cram.
E. phiale Cram.
E. proterpia Fab.
E. mexicana Bsdv.
E. xanthochlora Kollar
E. gratiosa Dbldy.
Catasticta philais Feld.
C. flisa H-S. T
Pereute charops Bsdv. T
P. leucodrosime Kollar T
Appias drusilla Cram. P
Ascia monuste L.
A. sevata Feld.
Leptophobia elione Dbldy. T.
L. aripa Bsdv.
L. olympia Feld. T
L. tovaria Feld. T
Itaballia demophile L.
I. pandosia Hew. P
Perrhybris pyrrha Fab. P
Daptoneura lycimna Cram.

DANAIDAE
Lycorea cleobaea Godt. P
Danaus plexippus L. T
D. gilippus Cram. P
D. eresimus Cram. P

ACRAEIDAE
Actinote hylonome Wwd. T
A. callianiris Hbn. T
A. anteas Dbldy.
A. equatoria Bates
A. stratonice Latr. T

HELICONIIDAE
Dryadula phaetusa L. P
Dione juno Cram.
D. moneta Hbn. P
D. vanillae L.
Dryas julia Fab.
Eueides aliphera Godt.
E. isabella Cram. T
E. procula Dbldy. T
Heliconius melpomene L. P
H. charitonius L.
H. clysonimus Latr. T
H. erato L. P
H. ethilla Godt. T

ITHOMIIDAE
Tithoria harmonia Cram.
Thyridea aedesia Dbldy. T
Mechanitis menapis Hew.
M. polymnia L.
M. macrinus Hew.
Miraleria cymothoe Hew.
Hyaliris oulita Hew.
H. coeno Dbldy. & Hew. T
Ithomia iphianassa Dbldy. & Hew.
I. agnosia Hew.
I. terra Hew.
Callithomia lenea Cram. P
Ceratinia tutia Hew.
Oleria makrena Hew. T
O. phemonoe Dbldy. & Hew.
Pteronymia latilla Hew. T
P. veia Hew. T
P. starkei Std.
Greta ochretis Haensch T
G. andromica Hew.
Godyris kedema Hew. T
Heterosais giulia Hew. P
Dircenna jemima Geyer T
Hypothyris euclea Godt.
H. lycaste Fab. T

MORPHIDAE
Morpho peleides Kollar

BRASSOLIDAE
Eryphanis automedon Cram.

SATYRIDAE
Oressinoma typhla Wwood. T
Taygetis larua Feld. P
Euptychia metaleuca Bsdy.
E. renata Cram. T
E. saturnus Btlr. T
E. alcinoe Feld. T
E. hermes Fab. T
E. cucullina Weym.
Pronophila thelebe Dbldy. T
Eretris subrufescens Gr.-Smith T
Euptychia cyclops Btlr.

LIBYTHEIDAE
Libytheana carinenta Cram. P

NYMPHALIDAE
Euptoieta hegesia Cram. P
Chlosyne lacinia Geyer
C. hippodrome Geyer P
C. narva Fab. P
Tegosa similis Higgins
T. anieta Hew.
Janatella leucodesma Feld.
Castilia ofella Hew. P
C. eranites Hew. P
Anthanassa drusilla Feld.
A. acesas Hew.
Mestra cana Erich.
Marpesia coresia Godt. T
M. chiron Fab. P
M. berania Hew. P
M. petreus Cram. P
Historis odius Fab. P
Colabura dirce L.
Pyrrhogyra neaerea L.
Panacea prola Dbldy. T
Hamadryas februa Hbn. P
H. feronia L. P
H. iphthime Bates P
H. amphinome L. P
Catonephele nyctimus Wwood. P
Cybdelis mnasylus Dbldy. T
Nica flavilla Hbn. P
Temenis laothoe Cram. P
Callidula pyramus Hbn.
Perisama arhoda Ober. T
Diaethria marchalii Guer.
D. gabaza Hew. T
D. metiscus Dbldy. T
Callicore pitheus Latr. P
Dynamine agacles Dalman P
D. athemon L. T
D. mylitta Cram.
D. arene Hbn.
D. setabis Dbldy. T
Adelpha justina Feld. T
A. cytherea L. T
A. iphiclus L. P
A. ixia Feld. P
Victorina stelenes L. P
Junonia evarete Cram.
Hypanartia lethe Fab.
Vanessa braziliensis Moore T
Anartia jatrophe L. P
A. amathea L.
Doxocopa pavon Latr. P
Consul fabius Cram. P
Fountainea ryphea Cram. P
Memphis oenomais Bsdv. P

RIODINIDAE
Rhetus dysonii Saunders P
R. periander Cram. P
Eurybia halimede Hbn. T
Riodina lysippus L. P
Lasaia narses Stdg. P
Lymnas hillapura Rober P
L. jarbas P
Nymphidium molpe Hbn. p

LYCAENIDAE
Recoa meton Cram. P
Arawaka linus Fab. P
Cyanophrys longula Hew. T
Leptotes cassius Cram.
Thecla lyde Godmn. & Salv. P
Denivia mavors Hbn. T

HESPERIIDAE
Urbanus proteus L.
U. simplicius Stoll T
Elbella intersecta H.-S. T
Dalla dimidiatus Feld. T
Staphylus inperspicua Haywd. P
Mylon lasstia Hew. P
Achlyodes thraso Hbn. P
Heliopetes arsalte L. T
H. alana Reakt. T
Theagenes albiplaga Feld. T
Vettius coryna Hew. T
Iliana heros Mab. & Boul. T
Aides aegita Hew. T.
Pyrgus communis Grote T

A further record of *Gyrohypnus scoticus* (Joy). (Col.: Staphylinidae)

I have for some time known that I had collected a *Gyrohypnus* from Tomich, Easterness which was probably *G. scoticus* (Joy). The appearance of Lohse and Lucht, *Die Käfer Mitteleuropas* vol. 12 in 1989 confirmed this. Following on from Professor J.A. Owen's note (*Ent. Rec.* **105**: 19) I would therefore like to record *G. scoticus* from Tomich, Strathglass, Easterness, 1.ix.65, on cut beech by the roadside west of the village near a group of the bracket-fungus *Grifola frondosa* (Fr.) S.F. Gray. This locality is about twelve miles south-west of Struy, the type locality. My three specimens of *G. angustatus Stephens* (Rannoch, Perthshire, 27.vi.62, under a bit of wood in the Black Wood, Rock, Cornwall, 14.iv.68, on sand dunes and Wheatfen, Surlingham, Norfolk, 30.ix.91, in leaf litter) all have the thorax smooth and shiny between the punctures and very different from the rather strongly shagreened dull surface of the thorax of *G. scoticus*.— P.D. ORTON, 22 Lyewater, Crewkerne, Somerset TA18 8BB.

***Jodia croceago* D. & S. (Orange Upperwing)(Lep.: Noctuidae) in Cornwall — a correction.**

An unfortunate error crept into my record of *Jodia croceago* in Cornwall published in *The Record* in 1989 (**101**: 115-116). I wrote that I had caught a single male "at home". However I had moved house in between the capture of the moth and the publication of the note, so that the address given for me was not where I caught the moth. The moth was caught in VC2 (not VC1) at SX2958. The date given was also wrong and should have read 4th May not 4th March 1983. Any maps showing a post-1980 record for VC1 are therefore in error.— ADRIAN SPALDING, Tregarne, Cusgarne, Truro TR4 8RL.

NOTES ON THE INHERITANCE OF A SCARCE FORM OF THE STRIPED LADYBIRD, *MYZIA OBLONGOGUTTATA* LINNAEUS (COLEOPTERA: COCCINELLIDAE)

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Introduction

THE STRIPED LADYBIRD (*Myzia oblongoguttata* Linnaeus) typically has elytra of a rich chestnut red colour, marked with a series of cream or pale yellow stripes and spots. Rarely, the ground colour is dark chocolate brown. This form is f. *lignicolor* Mulsant.

In this paper I report the finding of a small number of individuals of this form over the past eight years, describe techniques developed to rear *M. oblongoguttata* in the laboratory, and give an analysis of series of families bred to elucidate the inheritance of f. *lignicolor*.

The occurrence of f. *lignicolor*

Since 1984, I have recorded 11 individuals of f. *lignicolor* out of a total of 9264 field recorded adult striped ladybirds. Two other single individuals of this form were reported to me by Mr R.E. Robertson and Mr P. Robson. The majority of records of both forms were obtained by beating Scots pines. Details of the 13 f. *lignicolor* are given in table 1. The records cover a wide geographic area, from Hampshire to Highland.

Rearing the striped ladybird

The striped ladybird is one of the more difficult coccinellids to breed in the laboratory. Early attempts, using techniques developed for the two spot

Table 1. Records of *Myzia oblongoguttata* f. *lignicolor*.

Date	Location	Host plant
21.5.1985	Chobham Common, Surrey SU994635	*Pinus silvestris*
23.4.1986	Stoke-on-Trent, Staffs SJ847502	*Pinus silvestris*
2.8.1986	Ringwood, Hants SU182040	*Pinus silvestris*
2.6.1988	Abernethy Forest, Highland NH972184	*Betula pubescens*
16.5.1988	Chobham Common, Surrey SU994635	Not given
3.4.1989	Oxshott, Surrey TQ140614	*Pinus silvestris*
5.5.1989	Ringwood Forest, Hants SU114092	*Pinus silvestris*
7.4.1990	The King's Forest, Suffolk TL825737	*Pinus silvestris*
24.8.1990	Chobham Forest, Surrey SU994636	*Pinus silvestris*
26.8.1990	Lakenheath Warren, Suffolk TL758818	*Pinus silvestris*
13.5.1991	Burghclere Common, Hants SU478623	*Betula pubescens*
21.5.1991	Carron Valley Forest, Strathclyde NS748826	*Picea abies*
9.9.1991	Seaton Burn, Tyne and Wear NZ27	*Pinus silvestris*

ladybird (*Adalia bipunctata*) (see Majerus and Kearns, 1989; Majerus *et al,* 1989), had only limited success. It was possible to rear larvae on the pea aphid (*Acyrthosiphon pisum*), but mortality was relatively high. Furthermore, although adults ate these aphids voraciously, no matings were observed in captivity more than four days after feeding on the pea aphid had commenced. In addition, although females, taken in the spring or early summer, oviposited readily for a day or two, oviposition rates rapidly declined once fed on pea aphids. It is significant that in these early breeding tests no matings between laboratory reared adults were secured. Any attempt to discover whether f. *lignicolor* is heritable, and if so the form of genetic control, would obviously necessitate the rearing of at least two complete generations. It seemed that the most likely way that this could be achieved would be to use one of the striped ladybird's natural foods, e.g. pine aphids of the genus *Cinara*. In 1987, large numbers of these large aphids were collected in Thetford Forest over a six week period. Some of these were frozen for later use, while others were placed in black netting sleeves on young Scots pines, in the grounds of the Department of Genetics field station, Cambridge, to establish colonies from which aphids could be harvested at a later date. These colonies established, and by March 1988 were reproducing well enough for the protective sleeves to be removed and for harvesting to begin.

In late April 1988, a sample of 25 adult striped ladybirds, 15 females and 10 males, were collected from Thetford Forest. Mating pairs were observed in the field on the day of collection, so it is likely that some or all the females would already have mated. Ten pairs were placed individually in petri-dishes. Each of the other five females were also placed in a petri-dish. The ladybirds were fed daily on live aphids harvested from the new colonies. Eight of the females with males were seen to mate within three days. Twelve of the females oviposited during their first week in captivity. The other three were discarded. Ovipositing females tended to lay a clutch of eggs every other day. Clutches were laid upright and closely packed together on the sides or top of the dishes, rarely on the bottom. Clutches ranged in size from three to 31 eggs, the mean being 14.3. Ladybirds in dishes with an egg clutch were transferred to a new dish daily. The eggs were left *in situ* until they hatched, the young larvae being fed on live pine aphids. Initially, first and second instar aphid nymphs were used for feeding the young hatchlings to increase their chances of successful attacks. Once larvae had ecdysed, aphids of all sizes were used. Larvae were kept in the dishes they were laid in until the third instar when, where necessary, they were divided up so that no dish contained more than five larvae to reduce the likelihood of larval cannibalism. Remnants of dead aphids and larval frass were removed from the dishes daily. On occasion the supply of live pine aphids from our own colonies were insufficient to keep all larvae and the reproducing adults fully fed. At such times live aphids were

collected from Thetford Forest if convenient, or frozen pine aphids were used to supplement the live supply. When fed on frozen aphids oviposition rate fell to slightly over half the level when fed on live aphids, the rate increasing again if a live aphid diet was resumed.

All stages were reared at 21°C. Eggs hatched in four to five days, larval development time ranged from 17-29 days with a mean of 19 days, and the pupal stage lasted six to eight days. Mortality rates, for the different stages, averaged over the 12 families were 14.2% for eggs (due to infertility, embryo mortality and cannibalism of late developing eggs by newly hatched siblings), 41.7% for larvae (due to starvation through poor fighting ability during the first instar, and sibling cannibalism in all instars) and 3.7% for pupae (due to cannibalism by late developing larvae, failure to eclose successfully or unknown causes).

Despite these substantial mortality rates, the techniques used allowed significant numbers of progeny to be raised to the adult stage.

One hundred and fifty progeny comprising equal numbers of males and females were retained and fed on a mixture of *A. pisum* and *Cinara* sp. for four weeks. These were then divided into three groups of 25 males and 25 females which were treated as follows:

Group i: retained in the laboratory at 21°C, 24 hours light, and fed daily on *Cinara* sp..

Group ii: placed in 4°C refrigerator for six weeks, removed to a 10°C incubator, fed on an agar based artificial diet (see Majerus & Kearns, 1989) for two days primarily to replenish fluid reserves, then fed on *Cinara* sp.. for a further week, and finally put back in laboratory at 21°C, feeding thereafter on *Cinara* sp..

Group iii: placed inside a perspex cage with dead wood, dry dead leaves, moss peat and dry moss. This cage was put in an unheated insectary and left until March 1989, when it was returned to the laboratory, the ladybirds were recovered and fed on *Cinara* sp.

All group i individuals died before producing fertile eggs. Only two copulations were observed. A small number of eggs were laid, but they were laid singly, often flat rather than upright, and all were infertile. The average survival from eclosion for these adults was 92 days, the maximum being 174 days.

Four group ii individuals died during the period in the refrigerator. Three further individuals died within nine days of removing them from the refrigerator. From the remaining 23 females and 20 males, 20 random pairings were set up. The first copulation was noted three days after the adults were returned to the laboratory, and sixteen of the pairs were observed to copulate at least once during the ensuing two weeks. All these pairs and one of the other females produced fertile eggs. It is assumed that the final three pairs failed to copulate for unknown reasons. The females that laid fertile eggs did so at approximately the same rate, and in the same manner, as their parental generation. Progeny from four randomly chosen

families were reared to adulthood, mortality rates similar to those of the parental generation being recorded (eggs 16.7%; larvae 38.4%; pupae 4.7%).

Only 21 group iii adults (nine males and twelve females) survived through the winter. Nine pairings were set up. Seven pairs copulated within a week of being returned to the laboratory, all producing fertile eggs. The other two pairs failed to reproduce. Again progeny from four of the pairs were reared and again mortality rates similar to those of the parental generation were recorded (eggs 8.1%; larvae 44.4%; pupae 3.1%). The slightly lower egg mortality rate appeared to be due to greater hatch time synchronisation which resulted in lower egg cannibalism by newly hatched sibling larvae.

From these tests it appears that *M. oblongoguttata* has an obligatory diapause, a period of dormancy being necessary before reproductive maturation. This diapause can be simulated by submitting ladybirds to low temperature for six weeks.

The inheritance of *M. oblongoguttata* f. *lignicolor*

Having devised a method for rearing this species in the laboratory, the next three individuals of f. *lignicolor* obtained were used to set up crosses for analysis of the inheritance of this form. Collection data for these three individuals is given in table 1. A Surrey male was mated to three different virgin females from an F1 Thetford Forest stock (broods 1-3 inc.). The Hampshire female was crossed to a wild collected typical male from Oxshott, Surrey (brood 4). Matings were produced between progeny from these crosses in March 1990 (broods 5-14). Concurrently, a typical male from brood 1 was mated to a second wild f. *lignicolor* female (brood 15). Further crosses were set up using progeny from these broods.

The results of all these broods are given table 2.

The first four broods only produced *typica* progeny. Crosses between progeny from these broods produce *typica* and f. *lignicolor* progeny in a ratio of approximately 3:1. The three f. *lignicolor* x f. *lignicolor* crosses bred true. These observations argue that f. *lignicolor* is inherited as a unifactorial recessive.

Although the results of all broods are more or less consistent with this deduction, the data show a slight but general deficiency of f. *lignicolor* relative to *typica* when compared to the expected segregation ratios based on this deduction. Broods 5-14 inclusive should all show a progenic 3 *typica* : 1 *lignicolor* ratio. However, summing all progeny from these families gives 213 *typica* and 51 f. *lignicolor* which is significantly different from a 3:1 ratio ($\chi^2_1 = 4.545$; $p<0.05$). Similarly, broods 15, 19 and 20 should produce equal numbers of *typica* and f. *lignicolor*. Summing again gives an excess of *typica* (77 *typica* : 59 *lignicolor*) although in this case the difference is not significant ($\chi^2_1 = 2.382$; $p>0.1$).

Table 2 Details of broods reared to determine the inheritance of *Myzia oblongoguttata* f. *lignicolor*

Brood	Origin and phenotype of parents:		Number of progeny				
			typical		*f. lignicolor*		
	male	female	male	female	male	female	Total
1	Surrey, *lignicolor*	Suffolk, typical	8	9	0	0	17
2	arrow	Suffolk, typical	17	19	0	0	36
3	arrow	Suffolk, typical	5	7	0	0	12
4	Surrey, typical	Hants. *lignicolor*	38	30	0	0	68
5	ex1, typical	ex1, typical	2	5	1	0	8
6	ex1, typical	ex1, typical	5	4	2	1	12
7	ex1, typical	ex1, typical	17	12	2	2	33
8	ex2, typical	ex2, typical	4	6	2	0	12
9	ex2, typical	ex2, typical	8	3	0	3	14
10	ex2, typical	ex3, typical	5	5	2	2	14
11	ex3, typical	ex3, typical	11	16	2	4	33
12	ex2, typical	ex4, typical	29	22	7	7	65
13	ex3, typical	ex4, typical	20	16	4	5	45
14	ex4, typical	ex4, typical	10	13	3	2	28
15	ex1, typical	Surrey, *lignicolor*	19	13	14	11	57
16	ex15, *lignicolor*	ex15, *lignicolor*	0	0	5	7	12
17	ex15, *lignicolor*	ex15, *lignicolor*	0	0	32	30	62
18	ex15, *lignicolor*	ex15, *lignicolor*	0	0	7	5	12
19	ex15, *typical*	ex15, *lignicolor*	7	4	3	6	20
20	ex15, *lignicolor*	ex5, *typical*	16	18	13	12	59

Discussion

Myzia oblongoguttata can be cultured in the laboratory, but requires specific aphids, such as *Cinara* sp., as food for successful copulation and to maintain high fecundity. In addition, adults which were maintained in the laboratory at 21°C failed to reproduce. However, when virgin individuals were overwintered in an unheated insectary, or were submitted to a period of six weeks at 4°C, mating and oviposition took place readily thereafter. Using this latter method, two or three generations may be produced per annum.

The form *lignicolor* occurs in the wild at a frequency of 0.0012 (n = 9264). This is above the normal mutation rate ($1x10^{-5}$-$1x10^{-6}$ per gene per cell division usually being quoted), but below the frequency of 0.01 at which it would normally be considered a genetic polymorphism (*sensu* Ford, 1940). The form is widespread and the little field data of it that does exist does not suggest that its frequency reaches 0.01 in any British population. It appears to be inherited as an unifactorial recessive to *typica* (i.e. is only expressed when two *lignicolor* alleles are present, and so is genotypically homozygous), but f. *lignicolor* is generally slightly deficient compared to expectation. It seems probable that f. *lignicolor* is at a selective disadvantage to *typica* during the early stages, one possibility being that it develops slightly more slowly, and so is more subject to sibling cannibalism in the egg stage and cannabilism in the larval and pupal stages, although at present this idea is mere speculation.

Whether the occurrence of f. *lignicolor* at a frequency higher than the mutation rate is indicative of some previous or current selective advantage is difficult to assess. From a visual point of view, f. *lignicolor* is more difficult to detect in the field, at least to the human eye. This might give some slight advantage. Conversely, if the colours of *typica* act as a warning to potential predators — *M. oblongoguttata* is distasteful and exudes droplets of a bitter fluid from pores in its legs when disturbed — then the rarity of f. *lignicolor* may be to its disadvantage as predators will have little opportunity to learn to avoid this colour pattern.

It is of course also possible that the *lignicolor* allele has attained a frequency well above mutation rate by hitch-hiking on the success of an advantageous allele of some other gene close to it on the same chromosome.

The presence of somewhat deleterious mutations in natural populations of some coccinellids is well known. *Adalia bipunctata* exhibits high degrees of inbreeding depression (Lus, 1947): matings between close relatives reducing fertility and offspring viability rates substantially. Lus concludes that his data are consistent with the view that adults of *A. bipunctata* carry on average three or more recessive lethal genes (genes which cause death when homozygous). Werren (pers. comm.) has recently suggested that sibling cannabilism and/or sibling competition may play a part in the

maintenance of slightly deleterious recessive alleles. In species with sibling egg cannabilism, any allele which slows embrionic development will effectively be lethal when expressed because such embryos will be consumed by larvae which develop more rapidly and so hatch earlier. For Werren's model, we must assume that such alleles are fully recessive, i.e. heterozygotes (those bearing one lethal and one normal allele) develop at a normal rate. Then, in a cross between two heterozygotes for one of these effectively lethal alleles, one quarter of progeny will be homozygous for the lethal allele, develop slowly and so be cannibalised by earlier hatching siblings. A number of authors have shown that newly hatched ladybird larvae gain a significant survival advantage if they consume the soma of one unhatched egg before dispersing in search of aphids (Banks, 1956; Ng, 1986; Osawa, 1989; Hurst and Majerus, 1993). The early hatching larvae of the cross in question will gain a survival advantage over larvae from a normal brood, in having late hatching eggs in their clutch, i.e. a quarter of the clutch, available to be eaten. As two thirds of the early hatching larvae will be carriers of the deleterious allele, the advantage to these carriers will be sufficient to help maintain the deleterious allele in the population whenever their chance of survival is more than double that of a normal larva from a normal clutch. As the advantage accruing to a larva which eats an egg over one that does not is a function of prey availability, the evolution and maintenance of such an allele would thus be aphid density dependent.

Acknowledgements

I am indebted to Helen Forge and Linda Walker for helping to rear cultures of ladybirds and to an anonymous referee for constructive comments and criticism of the manuscript. The rearing work was carried out in a laboratory funded by the Wolfson Foundation.

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An unusual foodplant for the Sycamore Moth (*Acronicta aceris L.*) (Lep.: Noctuidae)

Belatedly, I would like to report a most unexpected foodplant for the Sycamore Moth, *Acronicta aceris* Linnaeus.

In the autumn of 1991, I was called to a house in a nearby village to examine "some strange insects" that were defoliating ornamental Maples. The caller was not exaggerating! Two small trees were devastated. I could not get the cultivar name but they had obviously been very attractive with large dark purple leaves similar to Norway maple in shape and texture. The culprit was the Sycamore Moth. I have seen the larvae often before and the moth is a regular visitor to my trap but both stages have always occurred in odd ones or twos, never before in this sort of abundance. I took a couple to show my son, who was then aged six. The following day, with the two captives still safe in their box, my son looked out of the window at breakfast and with an excited "Oh look'!" pointed out another Sycamore Moth caterpillar on the *Wisteria*. There was sufficient leaf damage and frass to indicate that it had been there for some time and in the absence of any adjacent alternative pabulum, I must assume it had developed there from the egg. I do not know of any other record of this species on *Wisteria* and thought the observation worth a mention.— J. REID, 7 Flambards Close, Royston, Herts SG8 6JX.

***Medon castaneus* Gravenhorst (Col.: Staphylinidae) at Pyrford, Surrey**

M. castaneus has always been a rare species in Britain, known initially from a few specimens found under stones or in moss in sandy areas (Fowler, 1888). After it became known that it was an inhabitant of moles' nests (Walker, 1907), it appears for a while to have been encountered more frequently. In the last half-century, however, it seems to have become very rare again. Indeed, I have not been able to find any published records for it subsequent to those noted by Fowler & Donisthorpe (1913). I am therefore recording that I found two examples in moles' nests in a sandy area on the banks of the Wey near Pyrford, Surrey on a visit to the site with my friend Dr A. Duff on 19.i.92.

The beetle has occurred in only a small number of southern and eastern vice-counties. I have found published records for the species from the Isle of Wight (Donisthorpe, 1910); South Hants (Fowler, 1888); East Kent (Fowler, 1888, Walker, 1900); Surrey (Fowler, 1888: Beare, 1901: Champion, 1906 and 1908: Joy, 1908) and Oxfordshire (Walker, 1905 and 1907). Fowler & Donisthorpe (1913) give, in addition, East Suffolk. There are recent unpublished records for single specimens taken by pitfall-trapping at Weeting Heath in West Norfolk in 1963 by Prof Morris and in 1989 by Mr Collier and Mr Hammond has kindly told me that he knows of older unpublished records for Berkshire, Glamorgan and Cardigan.

Likely reasons for a decline in this species are not obvious. Moles are still locally plentiful though they have disappeared from some localities. Most

of the records for the beetles are for sandy areas and it may be that changes in the nature or usage of the ground are responsible for a decline rather than changes in mole populations.

I thank Mr M. Collier, Mr P.M. Hammond and Prof M.G. Morris for permission to quote their unpublished records.

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Dictyonota fuliginosa Costa (Hem.: Tingidae) rediscovered in S.E. London

On 11.vii.93 I beat four examples (one male, three females) of this local and uncommon lace-bug from its foodplant, broom, near the old sandpit site at Charlton. The bushes, on a rough hillside, grew in a dense mass with only the outside ones accessible, and all four bugs came off two or three bushes close together. The allied species *D. strichnocera* Fieb. did not occur, though it is said to be commoner. Massee (1963, *Hem.-Het. of Kent,* 2nd ed.: 145) states that *D. fuliginosa* is very local in the county and gives one record for the suburban part, namely Plumstead (W. West); the five other records are all for east Kent or the extreme east of the western vice-county. Groves (1966, Hem.-Het. of the London Area (*London Nat.* reprint): 68) notes the date of West's capture as probably 1894, and that his two (?) records, Plumstead and Wickham Lane, are probably one and the same; he gives two Middlesex and one Surrey record as the only others for the London area. It is of interest, therefore, that the insect is still to be found so near the metropolis 99 years later.

Regarding the distribution of the species, I think it well to draw attention to a curious omission, doubtless an oversight. Southwood & Leston (1959, *Land and Water Bugs of the British Isles*: 145) do not include Surrey among the nine counties from which they record it, though it was actually first found at Weybridge and is probably less uncommon in Surrey than elsewhere.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Hazards of butterfly collecting — Botswana, April, 1990

The road to the Tsodilo Hills in the extreme northwest of Botswana is by far the most difficult I have ever had to negotiate, but it is worth making the effort. It is only some 50 kilometres from what counts as a main secondary road in Botswana, i.e. roughly one with more than five vehicle movements a day (most days) and usable by two wheel drive cars with exceptionally high clearance (most of the time), but the Tsodilo Road crosses diagonally a range of "fossil dunes".

These fossil dunes are now clad in dense forest, while the intervening depressions are open, lush grasslands, the grass sometimes so tall that the view is obscured. One hardly dares imagine the richness of wildlife here before cattle were introduced. We had received instructions about what to do, namely to engage low four/wheel drive when approaching the sandy slope of each dune. It was only at the crossing of the sixth dune that I began to feel confident that we would not eventually be inextricably bogged down.

The first 45 kilometres took nearly three hours, then the steep, rounded shapes of granite that are the Tsodilo Hills came into view. After nearly a thousand kilometres of Kalahari driving, the sight of anything higher than twenty metres or so cannot help but impress. It should come as no surprise that the San peoples (Bushmen) consider the hills sacred and have left on them beautiful rock paintings, as evocative as those of Lascaux and Altamira. It is a place of pure magic.

We quickly found a campsite in the dense, tall woodland in between two of the hills. The spot was exceptionally pretty, and while setting up lunch we discovered that a little cave a few metres away contained the famous rhinoceros panel, perhaps the finest of the rock paintings on the hills, but also sadly emphasising that these animals have long since disappeared from the area. It was still much too hot to begin pitching camp, so after the picnic I set out with the net. Butterflies were everywhere, and to my delighted surprise one of these was the beautiful Lycaenid, *Hemiolaus caeculus tsodiloensis,* of which to my knowledge only two previous records exist. Its status as a true subspecies is beyond doubt, since I collected the normal form a few weeks later in the northeast of the country.

Bushman art at the Tsodilo Hills — the world-famous Rhinos, now extinct as wild in the area.

Mornings and afternoons were spent taking in our fill of rock paintings, and the hotter hours of the day in butterfly collecting. The total came to more than 70 species, several of which were new to Botswana. We were so

amused at seeing *Charaxes saturnus* try unsuccessfully to balance on the rim of a glass of beer that we gave it a can of its own; we thought it looked grateful, but it was definitely much more dignified on the flat top of the can.

We left by another road ("Hobson's choice, really!", someone had answered to our question on which road was the better). A deep rutted sandy track so straight that for kilometres on end you could engage in the ultimate hands- and feet-off driving. A small knob on the dashboard could set the rpms at a constant speed and the ruts would keep the wheels aligned. An old timer in the tourist trade told us that he used to disconcert his customers by actually leaving the cab and walk next to the truck, reviewing next day's programme. We were still a little too green to try this.

The next day, from a camp on the edge of the Okavango River, where hippos would wander round camp at night, our friend and his back-up vehicle left. He took with him the expedition's only serving spoon. The type of black, three legged, almost spherical, cast iron cooking pots (which the Afrikaaners call *potjies*) are excellent for camping, but almost impossible to manipulate and pour from. Our discomfort was aided by the fact that a passing bull had eaten all our dishcloths which would have made the attempts easier. What do you do when your best friend runs off with your serving spoon? Fortunately we were passing Maun, the only real township in the Kalahari, and we replaced both items. The dishcloths posed no problem, but no-one seemed to have a serving spoon. Eventually, with that wonderful lack of logic of all frontier towns, we were told that the only serving spoons in town were at Northern Electricals! As indeed they were.

P.S. In the interest of equity I must emphasise that the serving spoon actually did belong to our friend.— TORBEN B. LARSEN. 358 Coldharbour Lane, London SW9 8PL.

Protogyny in *Lasiocampa quercus callunae* Palmer (Lepidoptera: Lasiocampidae), with notes on some parasitoids

While protandry — the emergence or maturation of males before females — is often observed among most groups of insects, the opposite is rarely noted. It therefore seems worth recording the emergence dates and sexes of Northern Eggars, *Lasiocampa quercus callunae* Palmer, that I had collected as second-year larvae at various sites in Scotland from 21.v to 1.viii during 1992 and kept under identical conditions in an outdoor shed thereafter, in the hope of rearing parasitoids. These were (all in 1993): 27.vi (1 female); 28.vi (1 female); 29.vi (2 females); 30.vi (3 females); 1.vii (2 females); 2.vii (3 females, 1 male); 3 + 4. vii (17 females, 4 males); 5.vii (2 females, 2 males); 6.vii (3 females, 3 males); 7.vii (6 females, 4 males); 8.vii (3 females, 12 males); 9.vii (1 female, 2 males); 10.vii (3 males). Twenty-four cocoons have failed to emerge in 1993. To the nearest day, both the mean and median dates of emergence for the 44 females were 4.vii, while the 31 males had both mean and median emergence dates of 7.vii, three days later. It is probable that emergences during the last days of the recorded period were somewhat condensed owing to the cocoons having

been moved from a cool outdoor shed to a very warm laboratory on 7.vii.93 (when I went on holiday), which could only have had the effect of decreasing the apparent difference. Observed emergences were concentrated around midday but occurred also at other times. The largest collections of larvae had been from Speyside (Inverness-shire) on 21.v.1992 (89 individuals) and around Loch Eriboll (Sutherland) during the period 30.vii — 1.viii.1992 (38), but no difference in emergence dates between samples was evident.

I rather regretted collecting such a large sample in May, especially when so many larvae (14 of them, and 30 in all) died of a highly contagious disease on the point of spinning up after almost three months of care, because overall the return of parasitoids from so many hours spent feeding *callunae* caterpillars was very poor. Four broods (of 22, 20, 16 and 11) of the tachinid *Ceromyia bicolor* (Meigen) from three sites around Loch Eriboll, and also one brood (of 12) from N. Uist (coll. K.P. Bland, 17.vii.92), erupted from fully fed larvae in late July and August to pupate, giving rise to only a few adults in early summer 1993; specimens of the large tachinid *Tachina grossa* (L.) emerged during vii.1993 from two of the cocoons from Speyside larvae, and two specimens of the large ophionine ichneumonid *Enicospilus inflexus* (Ratzeburg) emerged also in vii.1993 from cocoons resulting from larvae collected at Kentra Moss, Argyll on 4.vii.92. Most of the object of collecting larvae at different stages of growth was to elucidate when the large and spectacularly black and yellow striped metopiine ichneumonid *Metopius dentatus* (Fabricius) attacks the host, but unfortunately no trace of this well known parasitoid, which I had hoped might be well represented, was found. Although the sampling might have been expected to reveal this species had it been reasonably common, some other abundant parasitoids of *L. quercus* and its subspecies *callunae* (such as the rogadine braconid *Aleiodes alternator* (Nees) (=*geniculator* auctt.) which kills younger larvae, and the phygadeuontine ichneumonid *Agrothereutes bombycis* (Boudier) which attacks only the cocooned stages) would have been certainly excluded from the collections made.

I am grateful to Isobel Baldwin for caring for the cocoons during my absence and to my wife Francesca for stopping the car every few yards round Loch Eriboll.— M.R. SHAW, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

Satyrium w-album (Knoch) (Lep.: Lycaenidae) in a moth trap

A single male *Satyrium w-album* (White-letter hairstreak) was caught in a Robinson light trap situated at the edge of mixed deciduous woodland in the grounds of Royal Holloway (University of London) Biology Department (OS grid ref.: SU 994 694) on the night of 12.vi.1993. The trap was set as a part of a Field Ecology course run for the undergraduates of the University. Whether the butterfly was captured whilst flying

nocturnally, or whether it entered the trap in daylight is unknown. Although the trap light was turned on after dark, it was turned off well after dawn.

The capture was also worthy of note because of the time of year at which it occurred. *S. w-album* is normally observed on the wing later in the year, during July and August (Hall, 1991; Brooks and Knight, 1982). However, as noted previously, this specimen was taken in early June, during a rather cool spell.

According to Dr A.J. Pontin, who has personal records of the locally occurring species for the past several years, the last *S. w-album* he recorded in the area was observed in the late 1960s. Although there are several patches of young Common elm (*Ulmus procera*) in the vicinity, observation of these trees during July and August and of nearby flowering brambles (*Rubus fruticosus* agg.) have not resulted in the sighting of any more *S. w-album*. Thus the status of the species locally is as yet unknown. It is possible that a colony is just hanging on locally, at a very low population density, on the young elms. Thomas and Lewington (1991) note that colonies can persist for some time on the suckers from dead elm stumps. Alternatively, it could be that the specimen captured was just a vagrant from a more distant colony.

References: Brooks, M. and Knight, C., 1982. *A Complete Pocket Guide to British Butterflies*. 159pp. Jonathan Cape, London; Hall, M.R., 1991. *An Atlas of Norfolk Butterflies 1984-1988*. 48pp. BBCS. Norfolk Branch; Thomas, J. and Lewington, R., 1991. *The Butterflies of Britain and Ireland*. 224pp. Dorling Kindersley, London.— STEVE KETT, RHUL Biology Dept., Huntersdale, Callow Hill, Virginia Water, Surrey GU25 4LW.

Magdalis memnonia (Gyllenhal) (Col.: Curculionidae) in north-west Surrey

At the beginning of July, on the day of his eightieth birthday, Mr A.A. Allen, my wife and I went collecting on Oxshott Heath. A short distance from the car, we came across some branches of Scots pine (*Pinus sylvestris*) left lying on the ground following the felling of some pine trees. Beating these over a tray produced a number of beetles including a specimen of the weevil, *Magdalis memnonia*. I told Mr N.F. Heal of this capture and he beat another example from a pine branch at the site a few days later.

The first example of this newcomer to Britain was swept from grass in Friston Forest, East Sussex by Mr P.J. Hodge on 12.vi.71 (Allen, 1972 *Ent. Rec.* **84**: 22-23). Subsequently, Mr Hodge obtained a number of examples by beating branches of Corsican pine (*Pinus nigra* v. *maritima*) near the spot where he swept the first specimen, as did a number of his colleagues to whom he had generously shown the site. The only other British record of which I am aware is of a specimen taken flying over a pile of cut pine logs at Burwash, East Sussex by Mr A.W. Jones on 20.vi.84 (Jones, 1987 *Proc. Trans. Br. ent. nat. Hist. Soc.* **20**: 177).

The occurrence of two examples of the beetle at Oxshott indicates almost certainly that it is breeding in the area and signifies an appreciable extension of the known range of the beetle in Britain. Burwash is about 30km more or less north of Friston Forest; Oxshott is a further 70km to the north.

I thank Messrs. Heal and Hodge for allowing me to cite information on their captures.— J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Worth every Penny

A recent trip to Scotland in mid-July 1993 with Steve Church yielded lots of highlights, especially my first views of *Xanthorhoe munitata* Hb. (Red Carpet), *Gnophos obfuscatus* D. & S. (Scotch Annulet) and a lovely dark form of *Eurois occulta* L. (Great Brocade). We stayed in a hotel in Aviemore, where we negotiated a special cheap rate (half-price — we arrived just before midnight and they were short of tourists anyway). The pubs stay open until 1am, so it was possible to set the traps out, return for a few bevvies and then set out for the nocturnal action. I found interesting forms of *Alcis repandata* L. (Mottled Beauty) and *Lycophotia porphyrea* D. & S. (True Lover's Knot), and I have never seen so many different forms in one night of *Diarsia mendica* Fabr. (Ingrailed Clay). The highlight was *Semiothisa brunneata* Thunb. (Rannoch Looper). Several males were flying in the sunshine in the old pine forest. It was easy to disturb the moths from the clumps of bilberry which however were so large that they made it difficult to chase the moths with alacrity. Two males also came to m.v. light in the pouring rain the same night, perhaps an easier way to take specimens but less interesting. We drove 800 miles on the return trip, stopping off at various sites on the way, but it was indeed worth every Penny.— ADRIAN SPALDING, Tregarne, Cusgarne, Truro TR4 8RL.

***Himacerus mirmicoides* (Costa) (Het.: Nabidae) in West Cumbria**

On 1st August 1992 I tapped one teneral specimen of *Himacerus mirmicoides* (Costa) (Ant Damsel Bug) from a large plant of Curled Dock (*Rumex crispus*) growing at the foot of a steep cliff at South Head, St. Bees, Cumbria (NGR NX 958117).

This is apparently a new record for Cumbria and the first for vice-county 70, Cumberland. There is no record of the bug in F.H. Day's list of the Heteroptera of Cumberland, (1928. *Trans Carlisle nat. Hist. Soc.*, **4**: 108-130) and there are no specimens from the county in the collections formed by F.H. Day, J. Murray and G.B. Routledge held in the Tullie House Museum at Carlisle.

According to Southwood and Leston (1959. *Land and Water Bugs of the British Isles,* Warne, p.165) *H. mirmicoides* is a common bug in southern England, Wales and Ireland, but it is rare in the north and absent from Scotland.

I wish to thank Mr Stephen Hewitt (Keeper of Natural Sciences) at the Carlisle Museum for very kindly identifying the bug for me and for information regarding the general status and distribution of *H. mirmicoides* in Britain.— R.W.J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

***Phlyctaenia stachydalis* Germ. (Lep.: Pyralidae) in Montgomeryshire**

While recording lepidoptera with Dennis O'Keeffe at light traps in the neighbourhood of Corris, Montgomeryshire, on the night of 7th July 1993, we noted a fine specimen of this uncommon moth. This would appear to be the furthest north that this moth has occurred in Britain. My only previous experience of *stachydalis* was on 13th September 1964, when I took a few larvae on *Stachys sylvatica* on the Pilgrim's Way, Westwell, Kent but failed to rear it.—J.M. CHALMERS-HUNT, 1 Hardcourts Close, West Wickham, Kent BR4 9LG.

***Denisia albimaculea* (Haw.) (Lep.: Oecophoridae) in Wiltshire**

On 28th June 1993 I found two examples of a well-marked micro in a beech clump on the Marlborough Downs (VC7). The moths were resting in niches in the trunks at approximately five to six feet from the ground, on the leeward side. The time was about 1540 hours. They were identified as *Denisia albimaculea* from [Jacobs] *Illustrated papers on British microlepidoptera* plate XIII (as *Schiffermuelleria augustella* Hb.). The identification has been confirmed by Martin Corley. I understand from Dr Langmaid that this is one of only two sites where the moth has been taken in recent years the other being in Hampshire, although older records exist for Surrey, Kent, Middlesex, Cambridgeshire, Derbyshire and Co. Durham.— D. BROTHERIDGE, 33 Maunsell Way, Wroughton, near Swindon, Wiltshire SN4 9JF.

On Machin's *Coleophora unipunctella* Z. (Lep.: Coleophoridae)

In a recent note Emmet (1993, *Ent. Rec.* **105**: 140-141) drew attention to a note by Bankes (1896, *Entomologist's mon. Mag.* **32**: 88-89) referring to a *Coleophora* reared from *Chenopodium* at Shoeburyness by W. Machin. The specimen was named *unipunctella* Z. by Stainton. Bankes who later saw the specimen thought it closely allied to *laripennella* Zett.

Emmet concludes that this specimen was *C. clypeiferella* Hofmann on the basis of the foodplant, the implied method of pupation and the assumed presence of a discal spot.

It is not clear from Bankes' note whether the larvae left their cases to pupate or not, particularly as they were lost to sight over winter.

In June this year, shortly before I saw Emmet's note, I visited Marlborough College in Wiltshire, which houses Meyrick's collection of British Lepidoptera. Through the kindness of the senior biology master,

Mr A. McKnight, I was able to examine the *Coleophora* specimens. I was surprised to see a single specimen labelled *unipunctella* and I borrowed this. Although I have not dissected it, (I feared that a single slide returned to the College would eventually be lost, as there is no slide collection relating to the main collection) the specimen is undoubtedly not *clypeiferella* as there is no spiny shield on the first abdominal segment, nor are the wings marked with a discal spot, thus excluding *unipunctella* also. I am almost certain that it is *versurella* Zeller, which in Bankes' day would have been included in *laripennella*.

It is puzzling that such a reliable microlepidopterist as Stainton should have thought this to be *unipunctella*. This specimen is clearly labelled "W. Machin. bred. Shoeburyness. *Chenopodium* E.M.M. xxxii, 88" and on a separate label beneath, "Machin coll. Stephen's, 1895". It is undoubtedly the specimen seen by Bankes, but not necessarily that seen by Stainton. It may be that the label was at some point attached to the wrong specimen. This label was not Machin's, since he was dead by the time the note in *Entomogist's mon. Mag.* was published. Either Machin's specimen was not labelled, or his original label was discarded, presumably by Bird, who bought the specimen, and probably wrote the existing label. Either way there is certainly opportunity for confusion.

Unless a specimen can be traced which was definitely that seen by Stainton, Emmet's almost conclusive evidence that *C. clypeiferella* occurred in Britain 40 years before the earliest confirmed record (1934) must be rejected.— M.F.V. CORLEY, Pucketty Farm Cottage, Faringdon, Oxfordshire SN7 8JP

Coleophora otitae Zeller, 1839 (Lep.: Coleophoridae); A second site in Great Britain

Coleophora otitae was first found in Britain in 1939, when it was discovered on shingle in south-east Kent (Edelsten 1940). Although Edelsten does not refer to any specific site, it is probable that it was Dungeness, East Kent. The moth is still present on the site and can be very numerous. Larval feeding damage on its foodplant, Nottingham catchfly *Silene nutans,* can be quite obvious from some yards distance. The white blotches caused by the larvae can cover much of a leaf and with heavier infestations virtually all the leaves of the plant can appear white. This feeding damage provided a relatively straight-forward method of finding the species which enabled the moths' distribution on Dungeness to be plotted. A map of the species' distribution is published in Morris & Parsons (1993).

Whilst undertaking survey work on Hythe Ranges, East Kent on 6th July 1993, I noticed several patches of Nottingham catchfly. On closer examination of these plants, the presence of familiar damage caused by *Coleophora otitae* quickly became obvious. Within a short period of time two adult moths were caught and several larval cases found (most of these found by rooting around at the base of the plants). Hythe Ranges is

approximately ten miles along the coast to the east of Dungeness. This is only the second known site for the moth in this country.

Hythe Ranges is Ministry of Defence land and is an underworked site for Lepidoptera. As the moth fauna of the site is not well known it may be worth noting here that during two brief day visits in 1993 the following species of interest were also found; *Cynaeda dentalis* (D. & S.), *Synaphe punctalis* (Fabr.), *Oncocera semirubella* Scop. and *Pempelia genistella* (Dup.).

I would like to take this opportunity to thank the Commandant of the Cinque Ports Training Area for granting access permission to the Ranges and to Dr J.R. Langmaid for kindly confirming my provisional determination of *C. otitae*.

References: Edelsten, H.M., 1939. A new British coleophorid: *Coleophora otitae* Zeller. *Entomologist,* **73**: 169-170; Morris, R.K.A. and Parsons, M.S., 1993. Dungeness - A shingle beach and its invertebrates. *British Wildlife,* **4**(3): 137-144. — M.S. PARSONS, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY.

Little-known entomological literature 2

The five volumes by W.F. Kirby entitled *A Handbook to the Order Lepidoptera* were first published by Messrs W.H. Allen, in 1894 and were intended as a "revised" version of some of the volumes of Jardine's *Naturalist's Library* which was first published in the 1830s and the new series was conducted under the general editorship of Richard Bowdler Sharpe. This series, whenever it appears on the market, is, however, nearly always quoted as *Lloyd's Natural History*! The reason for this is that Allen gave up, handed over, or sold, the series to another publisher, Messrs Lloyd, and no doubt because they had the largest original circulation and are, therefore, now the most common when second-hand, their name is associated with the series. Lloyd's issues are dated, in all copies I have seen 1896 and 1897.

The volumes published by Allen, which are much the rarest, were in a sumptuous green, blue and gold binding. The verso pages bear the running head *Allen's Naturalist's Library*. Those published by Lloyd were issued in parts, cost 6d (2½p) per part and three parts constituted a volume, binding cases being 6d cloth or 9d in morocco half leather. The cloth binding was a very dull red cloth, blind stamped to resemble a half leather binding and with gold and black bands on the spine designed to resemble the raised bands of a leather bound book. Some copies I have seen also have gold lining on the sides, again resembling the normal practice of decorating leather. The running head is *Lloyd's Natural History*.

As stated above *Lloyd's Natural History,* is the most frequent to appear on the market, either as bound volumes or in parts as issued. There is, however, a third publisher and his copies raise some intriguing questions.

This third publisher is John F. Shaw & Co. Ltd. The title page merely states "Butterflies and Moths" by W.F. Kirby FLS. In both the Allen and Lloyd issues the title is "Handbook to the order Lepidoptera" and Kirby's status and other publications are listed. The Shaw title page is clearly a substitution for an original Allen one, being pasted in onto a cut stump. Some of the original colour plates are now replaced by monochrome copies, of a reduced size to the original colour ones. Most interestingly, however, is that the text is the original Allen printing, carries the running head "Allen's Naturalist's Library" and contains the three pages of Allen advertisements present in the original first editions published by Allen and which do not occur in the Lloyd issues. The cloth binding, however, is in blue cloth and has exactly the same blind-stamping as the Lloyd editions, but the spine differs and bears on the base "The Naturalist's Library". I have not been able to establish a date for this issue, but from a previous owner's inscription it must be prior to 1918.

Announced in the Allen advertisement pages were proposed volumes on Beetles, Crickets, etc. and on Bees, also to be by Kirby but these, together with other volumes, never materialised.— BRIAN O.C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

A second Kentish colony of *Deltote bankiana* Fab. (Lep.: Noctuidae)

While visiting a chalk downland site just south of Dover, Kent with Rev. S.C. Pittis on 15.vi.93, I netted three examples of the pretty Noctuid, *Deltote bankiana*. Initially I assumed these three individuals were primary immigrants, as a small immigration had occurred in the South-east about a week earlier that included at least two specimens of *bankiana*. However, during further visits to the Dover site by myself and several other entomologists over the next fortnight, the species was recorded regularly in double figures indicating the presence of a small, probably recently established, colony. Although several *bankiana* were taken well up on the drier grassland areas of the downs, the colony was centred on a small area at the base of the downs, where the grasses were lusher and more luxuriant. However, the site is noticeably drier than the habitat-types associated with the species at its other British localities, and only time will tell if this colony flourishes or dies out.— SEAN CLANCY, "Delhi" Cottage, Dungeness, Kent TN29 9NE.

Wasp predation of butterflies

I was checking the window of my local car show-room for moths, as I usually do, at 0700 on 10th August 1993. A small wasp was noticed carrying an insect that proved too cumbersome, and was subsequently dropped. It turned out to be a male of the Common Blue, *Polyommatus icarus*. The wasp followed the butterfly down, and began to dismember it. I have seen

moths taken by wasps on many occasions, but never a butterfly. I presume the insect had been at rest on the window, when spotted by the opportunist wasp.— D. DEY, 26 Manor Avenue, Hassocks, West Sussex BN6 8NG.

Hazards of butterfly collecting — field research in Ghana, June 1993

Since the editor has been good enough to allow me to illustrate some of the *"Hazards"*, I thought I would include a wholly pictorial hazard from a recent trip to Ghana.

A Museum Curator in the States, to whom I recently showed the picture, exclaimed: "Wow — that's a suboptimal field curatorial situation". While this remark is not particularly funny, it does alow me to digress to my favourite (well, favorite) personally experienced americanism.

After endless delays, we were preparing for take-off at Khartoum Airport a few years ago, in a Canadian aircraft, wet-leased by Sudan Air. The captain came on the intercom: "Ladies and gentlemen. . . we are cleared for take-off. . . we shall be airborne momentarily!"— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

A tip for softening hard polyporus strip

Polyporus strip which has become unduly hard as a result of excessive drying out can be a problem when trying to stage micros mounted on the smallest size of stainless steel pins which can bend all too readily, with disastrous results! Polyporus strip in this condition can be easily softened by placing for a week or so in a relaxing tin containing chopped cherry-laurel leaves.— JOHN ROBBINS, Luckbarrow, Porlock, Somerset TA24 8HX.

A record of *Acanthophila alacella* (Zell.) (Lep.: Gelechiidae) from Wiltshire

On 4th August 1991, whilst collecting with mercury-vapour light in woodland near Lover, Wiltshire (VC8), I took a dark gelechiid moth. Martin Corley, of Farringdon, kindly made a genitalia preparation, and identified the moth as *Acanthophila alacella*. This was subsequently confirmed by Dr John Langmaid. I understand there have been very few records of this species in recent years.—D. BROTHERIDGE, 33 Maunsell Way, Wroughton, near Swindon, Wilts SN4 9JF.

***Caloptilia rufipennella* (Hübn.) (Lep.: Gracillariidae) in North-west Kent**

In the grounds of Squerryes Court, Westerham in Kent (VC 16) on 25th August 1993 I found several tenanted cones of *C. rufipennella* on Sycamore. On returning home, I had a quick look at the Sycamores growing in Petts Wood behind my house (also in VC 16) and soon found tenanted cones to be common. Having searched the same trees in 1991 for *Phyllonorycter geniculella* Rag. I am certain that *rufipennella* was not present. Although known from East Kent (VC 15) for some years, I believe these records are the first for West Kent.— D.O'KEEFFE, 50 Hazelmere Road, Petts Wood, Kent BR5 1PD.

***Eupithecia icterata* Villers (Lep.: Geometridae): larval foodplants**

This moth, including a substantial proportion of females, has been a regular visitor in its season to my garden m.v. light in numbers that have suggested that there might be a larval foodplant other than milfoil (*Achillea millefolia*) in the vicinity.

On 3rd October 1993 I decided to remove a number of plants of a cultivar of feverfew (*Tanecetum parthenium*) from a border in which there was no milfoil. The plants with a few loose corymbs of white button like flowers and familiar chrysanthemum type aromatic leaves were carefully uprooted and shaken over a plastic sheet; some half dozen *E. icterata* larvae fell out. This plant has been a feature of my garden for over a decade. It is not mentioned in the standard textbooks, nor in the local works by C. Chalmers-Hunt (*Butterflies and Moths of Kent*, 1981), L. & K.

Evans (*A Survey of the Macrolepidoptera of Croydon and North-east Surrey,* 1973) and C. Plant (*Moths of the London Area,* 1993).— B.K. WEST,36 Briar Road, Dartford, DA5 2HN.

***Colostygia olivata* (D. & S.) (Lep.: Geometridae) — new to north Hampshire**

I first saw *Colostygia olivata* (D. & S.) at house-lights here in Selborne on 16th August 1982, when there were three specimens, with singletons in subsequent years, the most recent arriving on 31st August 1993. Although *olivata* has occurred on the Isle of Wight and there are unpublished records for south Hampshire (Jim Read pers. comm.), Selborne appears to be the first locality for north Hampshire. The photographs I have taken this year reveal a form of *olivata* rather paler than those illustrated by Bernard Skinner and David Wilson in their *Colour Identification Guide to Moths of the British Isles,* 1984. Selborne, with its limestone outcrops and woods, seems to provide a suitable habitat for the species.— ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire, GU34 3JH.

RECENT PUBLICATIONS

A large number of books on various entomological subjects have been published recently, and several are briefly described below. More detailed reviews of some of these books will appear in later editions of the *Record.*

Butterflies and climate change by **Roger L.H. Dennis.** 302pp. numerous figures. Boards. Manchester University Press. 1993. £19.99. By a well-known author, this book explores how butterflies adapt to climatic gradients and weather patterns; it shows how their biogeography and evolution have responded to climate change in the past, and how they are likely to respond in the future as the enhanced greenhouse effect increasingly alters the world climate.

Lepidoptera of the Midland (Birmingham) Plateau — a concise history 1890-1990. by **John M. Price.** 277pp. Limp, wire stitched. Birmingham Natural History Society, 1993. £8.00 (from BNHS, 10 Bishopton Lane, Stratford-upon-Avon, Warwickshire CV37 9JN). An extensive local list covering all of the Lepidoptera, giving year and place of record, and narrative on selected species.

Provisional atlas of the ptychopterid craneflies (Diptera: Ptychopteridae) of Britain and Ireland. by **A.E. Stubbs.** 34pp., numerous maps and figures. Institute of Terrestial Ecology, 1993. £5.20. The second cranefly atlas covering the seven species in this family. Includes diagnostic notes, information on early stages and annotated distribution maps.

A directory for entomologists by **Mark Colvin** and **Duncan Reavey.** 62pp. Limp. Amateur Entomologist's Society. Pamphlet no 14. 2nd edition 1993. This second edition has been completely revised and updated. This inexpensive source book aimed mainly at the amateur entomologist is packed with useful information, and easy to use.

A review of the scarce and threatened pyralid moths of Great Britain. by **M.S. Parsons.** 98pp. A4 limp. Joint Nature Conservation Committee, 1993. £10.60 including postage (available from Natural History Book Service, 2 Wills Road, Totnes, Devon TQ9 5XN). This book discusses the ecology and conservation of the 57 rarest species, using the well-known data sheet format. For each species, details are given of nomenclature, distribution, habitat, life history, status (eg RDB, notable etc.) threats to the species and recommendations for conservation, including habitat management.

The encyclopedia of land invertebrate behaviour by **Rod and Ken Preston-Mafham.** 320pp. 41 figures and 215 colour photographs. A4 boards. Blandford Press, 1993. £30.00 Most of this fascinating book is devoted to insect behaviour. From the dust jacket: ". . . .trickery, violence, deception and odd sexual practices are generally rare throughout the animal kingdom but such behaviour is often complex and bizarre among invertebrates . . . ." This book documents and describes, in readable terms, the whole fascinating gamut of land invertebrate behaviour, drawing on much published — but obscure — literature. Well written and well illustrated with an extensive bibliography.

Larger moths of the London area by **Colin W. Plant.** 292pp. numerous maps and figures. Transparent overlay. A4 Boards. London Natural History Society, 1993. £19.95. Sequel to the *Butterflies of the London Area,* this comprehensive work is highly recommended. A review will appear in the next issue of the *Record.*

The illustrated encyclopedia of butterflies by **John Feltwell.** 288pp. 1000 colour photographs. 280x215mm. Boards. Blandford Press, 1993. £25.00. A visual reference work billed as the first conservation-based butterfly encyclopedia provides details and illustrations of 1000 species selected from all regions of the world. All the major families are covered and synoptic detail is given on range, size, family group and conservation status. Introductory text covers taxonomy, structure, life cycle and migration.

Bugs of the world by **George C. McGavin.** 192pp. numerous figures and colour photographs. 234x156mm. Boards. Blandford Press, 1993. £14.99. The latest volume of the successful "of the world" series is perhaps the first

popular, yet informative account of the classification and biology of bugs (Hemiptera: Heteroptera). The collecting of bugs, their structure, diseases and enemies, defence, food and feeding, mating and egg laying are discussed, as well as the often strange and little-known relationships between bugs and people. Well written, informative, with excellent illustrations.

Jubilee Park — the natural history of a country park edited by **Gordon B. Corbett.** 72pp. several illustrations. Limp. Bromley Leisure Services & Orpington Field Club, 1993. £2.50. A description of habitats and species list of a local park within the London Borough of Bromley. Covers plants and animals, including insects. The list of Lepidoptera covers 378 species.

Provisional atlas of the Cryptophagidae-Atomariinae (Coleoptera) of Britain and Ireland by **Colin Johnson.** 91pp. numerous maps. Limp. Institute of Terrestial Ecology. 1993. £5.50. This Atlas summarises information on the occurrence in Britain and Ireland of the Atomariinae beetles in the genera *Caenoscelis, Atomaria, Ootypus* and *Ephistemus.* It includes distribution maps and brief accounts of all 48 species. Also included are lists of the occurrence of all species by vice-counties, with more detailed information for the less common species. A check list and bibliography is included.

The larvae of the gall midges (Diptera, Cecidomyiidae) - comparative morphology, biology, keys by **B.M. Mamaev & N.P. Krivosheina.** 293pp. 94 figs. Boards. A.A. Balkema. 1993. £50.00. A translation of the original Russian text, first published in 1965. The book offers an introduction to the biology and identification of the larvae of the Cecidomyiidae, a family which includes many well-known gall makers (some of economic importance), as well as soil dwelling and mycetophagous species — the latter containing species with peculiar habits such as paedogenesis (larva producing larvae). Although much of the book is devoted to identification keys and descriptions, there are chapters on trophic habits, reproduction, larval development, mobility, diapause and pupation.

The spiders of Great Britain and Ireland by **Michael J. Roberts.** Part 1: text — 458pp. numerous text figs., 7 colour plates. Part 2: 256pp. including 236 colour plates. Appendix: corrections, alterations and additions — 16pp 6 text figures. Compact limp edition. Harley Books. 1993. 2 volumes plus appendix: £80.00; Part 1 £49.95; Part 2 £39.95; Appendix £3.75. The three volume work, completed in 1987, is here presented as a compact edition in a two volume, soft-cover version. Essentially part 1 is the combined text, and part 2 the plates. As most of the text is taken from the original version, the appendix is an essential part of this compilation. Now the definitive

work on British spiders, this cheaper version is welcomed. The text introduces morphology, behaviour, classification and nomenclature with a key to families. These are followed by short descriptions of all the British species, written with identification in mind. Detailed comparative line drawings greatly assist the process of identification. The excellent colour plates provide greatly enlarged representations of each species.

Glorious butterflies and their flora by **Valerie Baines,** edited by **David Dunbar.** 39pp. 8 full page colour plates. A4 Boards. Butterfly Conservation. 1993. £12.00. Marking the Silver Jubilee of Butterfly Conservation, this elegant publication is centred around eight paintings by Valerie Baines, along themes such as "butterflies in the garden", "butterflies in danger" and "butterflies in woodland" each painting has a key for identification, and a short essay by one of nine contributors. All the resident British butterflies are illustrated, as well as some non-resident and extinct species, together with larval foodplants.

Devon Butterflies by **C.R. Bristow, S.H. Mitchell** and **D.E. Bolton.** 151pp. 10 colour habitat photographs, and 66 colour photographs of butterflies. numerous maps. Boards. Devon Books. 1993. £12.95 (Devon Books, 1 Chinon Court, Tiverton, Devon EX16 6SS). A well produced and comprehensive account of the butterflies of Devon. The book presents a synthesis of historical and modern data representing the culmination of nine years work from the time the Devon mapping scheme was launched in 1985. Over 69,000 records are incorporated from almost 400 recorders. Short, introductory chapters outline geology, rainfall, temperature, land use, recording and biographical details of former entomologists, followed by the main section devoted to a detailed account of the 75 species that are recorded, or are reputed to have occurred in Devon during the past 160 years.

Hoverflies by **Francis S. Gilbert,** plates by **Steven Falk.** 67pp. 68 figs. 4 colour plates. Naturalists Handbook no. 5. Richmond Publishing Co. Ltd. Revised edition 1993. £13.00 (boards) or £7.95 (paperback). A revised and updated edition of this useful publication — a good identification guide, packed with information, and at a reasonable price.

Dead wood matters: the ecology and conservation of saproxylic invertebrates in Britain. ed. **K.J. Kirby and C.M. Drake.** English Nature Science No. 7. 105pp. English Nature 1993. £9.00.
This is an account of the proceedings of a meeting of the British Ecological Society held at Dunham Massey Park on 24th April 1992. It comprises a brief introduction, a definition of saproxylic invertebrates, seven contributions from well known authors and two annexes dealing with conservation codes.

The report starts with an account by Buckland and Dinnin of the changes in woodland species which have occurred in the last 10,000 years. They point out that, perhaps surprisingly, the evidence lies in deposits in wetlands perhaps even more at risk than ancient woodlands. The need for more data for the last 2,000 years is emphasised for this could be related to historically documented changes in climate and land use.

Next McLean and Speight give an account of saproxylic invertebrates in a European context. Only five sites in Britain are labelled of international importance compared with 30 in France, 31 in Sweden and 165 in Europe as a whole. The authors make the point that more publicity on the plight of saproxylic invertebrates is required, presumable because it is the taxpayer in the long run who has to provide the money for wild-life conservation.

Conservation of deadwood habitats is a field where views and opinions usually greatly outnumber facts and, for this reason, the next paper, by Kitty Paviour-Smith and Elbourn, stands out as a contribution supplying new data. Deadwood was collected from standing trees up to a height of 11 metres for a period in February and in August and the invertebrates at various stages of their life cycles extracted and identified to species level (total species 368) whenever possible.

Then there is a progress report on saproxylic invertebrates of Historic Parkland by Harding and Alexander who provide an interesting table comparing data on the top national sites.

Winter's contribution discusses the potential conflict between traditional woodland hygiene and the requirements of saproxylic invertebrates. The author provides a reassuring conclusion that native insects are, most of the time, not a cause for concern in native woodland areas. It is exotic trees such as Norway spruce which suffers from pest species such as *Dendroctonus micans* and *Ips typographus*.

Watkins and Griffin provide a most interesting account of the law in relation to dangerous trees. Unless otherwise agreed, it seems that woodland owners have a liability to lawful visitors. It would be a great pity if this were to lead to systematic removal of dead wood or damaged trees. Notices proclaiming that visitors enter an area with old trees at their own risk would seem to discharge the duty of a landowner towards literate adults but not towards illiterate children.

There follows a contribution by Key and Ball on positive management for saproxylic invertebrates. Comments on management are directed towards those responsible for the long term and day-to-day care of woodlands which presumably includes the Forestry Commission, the National Trust and the Crown Estate Authorities. The authors state that there are "huge problems in implementing the recommendations" but they do not spell out what these problems are which is a pity for publicity might help in solving them. Indeed, they too point out that "more publicity is needed" for the conservation of deadwood habitats but again without defining who is to be responsible for such publicity.

Finally there are two annexes spelling out guidelines for the investigation of deadwood habitats and storm damaged timber, directed largely towards those who study deadwood invertebrates for professional or recreational purposes. The problem with getting these guidelines adopted is that anyone visiting major deadwood areas such as the New Forest or Windsor Crown Estates cannot help but see that the guidelines are continually being blatantly ignored by the relevant authorities intent on continuing traditional practices. Not so long ago, the reviewer came upon two workmen in Windsor Great Park who had spent most of the day sawing down a 300 year old oak, live though generously bedecked with dead wood, and heaving the cut-up tree onto a bonfire which by the end of the day had consumed the lot. In a few hours, these two had done more damage to a saproxylic invertebrate habitat than a bus-load of entomologists might have done in a month, and this in an international "prime site". Until English Nature are able to find some way of ending such "authorised" vandalism, it is likely that these guidelines will be viewed by most as mere platitudes.

This is a well produced and a very readable document which will be of interest to anyone who has the care of trees and their associated invertebrates at heart. The editors have done a good job; I came across only one spelling mistake. JOHN OWEN.

Michael Willmer Forbes Tweedie: 1907 - 1993

Michael Tweedie, who died aged 85 on 25th March 1993, was Director of the Raffles Museum and Library, Singapore from 1946 to 1957. He was also President of the Malaysian Branch of the Royal Asiatic Society from 1951 to 1955.

Michael Tweedie was born in 1907 in Rye, Sussex. He was educated at Tonbridge and Cambridge, where he read Botany, Zoology and Geology for the Natural Sciences Tripos. In 1929 he went to Venezuela as a geologist with the Caribbean Petroleum Company, a subsidiary of Shell. In 1931, as a result of the world depression, he was made redundant. He returned to Cambridge where he undertook research in Geology. In 1932 he obtained the position of Assistant Curator to the Raffles Museum. During his career there, which was interrupted by the War, Tweedie became one of the most eminent naturalists and zoologists ever produced by the region. He himself named 40 taxa, chiefly Crustacea, largely from material he himself had collected. His generosity in sending material to other experts for them to study resulted in no less than three genera, 26 species and two subspecies being named after him. During his first, four-year tour of duty, he conducted a number of expeditions in the rain forest and around the coast of the Malay Peninsula. He became an expert of the crabs of the region, and also studied the snakes and freshwater fish. During this time, he also undertook Stone Age archaeology under the tuition of the Dutch

archaeologist, Dr van Stein Callenfels. A large grant from the Carnegie Corporation enabled him to carry out excavations in caves and rock shelters in the Peninsula. While on leave in England in 1937 he attended the Congress of Prehistorians in Oslo, as delegate of Singapore.

Upon the outbreak of war in 1939, Michael Tweedie joined the Volunteer R.A., and in 1941 was asked to join the RAF as Camouflage Officer. Having been evacuated with the RAF to Java, he found his knowledge of the Malay language invaluable in liaison work. He was taken prisoner when Java fell to the Japanese. While PoW at Boori Glodok he was responsible for concocting a yeast mixture, rich in Vitamin B, from potatoes and other ingredients, which cured most of the sufferers of pellagra. He was moved to Japan and was PoW in Nagasaki and later in Mukden, Manchuria for four years.

In 1946, he returned to the Raffles Museum as Director, the previous Director having lost his life in the war. Until his retirement in 1957 he wrote many papers on Zoology and Archaeology and several books, including *The Snakes of Malaya* which remains the standard work on these reptiles in that region. He also started broadcasting talks on natural history for Radio Malaya. During this time he was unable to do much fieldwork, but twice visited Sarawak to help Tom Harrison conduct the excavations at the Niah caves, and with the remainder of the Carnegie Fund went on a spectacular Stone Age excavation at the Gua Cha rock shelter in Kelantan with Gale and Anne Sieveking.

He wrote *Prehistoric Malaya* in 1955, and some twelve reports on excavations and other aspects of pre-history in Malaya.

He returned to England in 1957 and in 1960 his third career as a natural history journalist, broadcaster for the BBC and photographer of insects started. In 1962 he became consulting editor of the natural history magazine *Animals*. This was a high-quality production under the editorship of the owner Nigel Sitwell. It was eventually taken over by the BBC and is still in production as *BBC Wildlife*.

He continued to write books on natural history, evolution and dinosaurs which were popular at the time and are still selling well. The outstanding quality of his writing was recognised and appreciated by all who read his books and articles; his broadcasts for the BBC were full of gentle wit and humour and always instructive, as were his slide evenings with the British Entomological and Natural History Society at the Alpine Club. His hobby of insect photography expanded, too; he amassed a large collection of transparencies of exquisite quality, many of which demonstrated interesting features of the subject's structure or natural history — a series on the faces of moths, and another showing a geometrid larva hauling itself up on its strand of silk are examples that come to mind. Many of these transparencies are still used to illustrate books and articles in Europe and America.

Michael Tweedie's enthusiasm for all branches of scientific lore and his pleasure in sharing his knowledge made him extremely popular and he received considerable fan-mail from young and old alike seeking his advice. He never failed to respond positively. His contribution to popular science was enormous through his writing, lecturing and broadcasting. He was a truly remarkable man.

He married in 1938 Elvira Toby who survives him with his son and two daughters.

Barry Goater

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1991. (with A.M. Emmet) Resting posture in the Lepidoptera in *Moths and Butterflies of Great Britain and Ireland* 7(2): 46-60.

Taxa named by M.W.F. Tweedie

Pisces:
Parosphromenus paludicola Tweedie, 1952
Acathophthalmus kuhlii malayanus Tweedie, 1956 (= *Pangio semicincta* (Fraser Brunner, 1940))
Vaillantella flavofasciata Tweedie, 1956 (= *Vaillantella maassi* Weber & De Beaufort, 1916)

Reptilia:
Lygosoma trifasciatum Tweedie, 1940

Stomatopoda:
Squilla anomala Tweedie, 1935 (= *Oratosquilla perpensa* (Kemp, 1911))
Squilla choprai Tweedie, 1935 (= *Clorida rotundicauda* (Miers, 1880))

Brachyura:
Ilyoplax obliqua Tweedie, 1935
Ilyoplax punctata Tweedie, 1935
Pachygrapsus quadratus Tweedie, 1936
Sesarma (Parasesarma) rutilimana Tweedie, 1936 (= *Parasesarma rutilimanum)*
Sesarma (Sesarma) gemmifera Tweedie, 1936 (= *Neosesarma gemmiferum)*
Sesarma (Sesarma) singaporensis Tweedie, 1936 (= *Episesarma singaporensis)*
Macrophthalmus (Macrophthalmus) malaccensis Tweedie, 1937 (= *Macrophthalmus (Macrophthalmus) sulcatus* H. Milne Edwards, 1852)
Macrophthalmus (Macrophthalmus) malayensis Tweedie, 1937 (= *Macrophthalmus (Macrophthalmus) laevimanus* H. Milne Edwards, 1852)
Gelesimus roseus Tweedie, 1937 (= *Uca rosea)*
Pseudogelasimus Tweedie, 1937
Pseudogelasimus plectodactylus Tweedie, 1937
Paracleistostoma longimanum Tweedie, 1937
Paracleistostoma microcheirum Tweedie, 1937 (= *Ilyogynis microcheirum)*
Ilyoplax longicarpa Tweedie, 1937
Potamocypoda Tweedie, 1938
Potamocypoda pugil Tweedie, 1938
Sesarma penangensis Tweedie, 1940 (= *Geosesarma penangense)*
Sesarma johorensis Tweedie, 1940 (= *Pseudosesarma johorensis)*
Sesarma versicolor Tweedie, 1940 (= *Episesarma versicolor)*
Sesarma sedilensis Tweedie, 1940 (= *Bresedium sedilensis)*
Nanosesarma Tweedie, 1950
Nanosesarma nunongi Tweedie, 1950 (= *Nanosesarma (Beanium) nunongi)*
Sesarma borneensis Tweedie, 1950 (= *Sesarmoides kraussi borneensis)*
Sesarma rectipectinata Tweedie, 1950 (= *Neosesarma rectipectinatum)*
Sesarma lepida Tweedie, 1950 (= *Parasesarma lepidum*
Sesarma sigillata Tweedie, 1950 (= *Parasesarma sigillatum)*
Metaplax tredicim Tweedie, 1950
Uca (Uca) rhizophorae Tweedie, 1950
Dotilloplax Tweedie, 1950
Dotilloplax kempi Tweedie, 1950
Ilyoplax spinimera Tweedie, 1950
Neoliomera ovata Tweedie, 1950
Platypodia keelingi Tweedie, 1950
Paraxanthias gibsonhilli Tweedie, 1950

Taxa named after M.W.F. Tweedie

ANURA:
Rani tweediei Smith, 1945

REPTILIA:
Macrocalamus tweediei Lim, 1963

PISCES:
Hemiramphus tweediei Herre, 1936
Homaloptera tweediei Herre, 1940
Lissochilus tweediei Herre & Myers, 1937
Wallagonia tweediei Fraser Brunner, 1940
Danio (Brachydanio) tweediei Brittan, 1956

BRACHYURA:
Tweedieia Ward, 1934
Atergatopsis tweediei Balss, 1938
Neptunus (Hellenus) tweediei Shen, 1937
Potamon (Potamiscus) tweediei Roux, 1934
Nanosesarma tweediei Serène, 1967
Siamthelphusa improvisa tweediei Bott, 1968

ANOMURA:
Eupagurus tweediei Forest, 1956

Stomatopoda:
Gonodactylus tweediei Serène, 1952
Oratosquilla tweediei Manning, 1971

CHILOPODA:
Tweediphilus Verhoeff, 1937
Tweediphilus malaccanus Verhoeff, 1937
Lithobius (Alloporodontius) tweedii Verhoeff, 1937
Thereopoda tweediei Verhoeff, 1937

SCORPIONES:
Lychas tweediei Kopstein, 1937

OPILIONID:
Tweedielus Roewer, 1933
Tweedielus longipes Roewer, 1933

PSEUDOSCORPION:
Metawithius (Microwithius) tweediei Beier, 1954

LEPIDOPTERA:
Heliophorus epicles tweediei Eliot, 1963

MOLLUSCA:
Corbicula tweediei Prashad, 1940
Diplommatina tweediei Laidlaw, 1949
Platyymma tweediei Tomlin, 1938
Sinoennea tweediei Tomlin, 1941
Opisthostoma (Opisthosoma) michaelis van Bentham Jutting, 1952

Compiled by P.K.L. Ng and C.M. Lang

Contents — *continued from back cover*

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Contents

Notes and observations

(Continued on inside back cover)

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Newly described taxa (species, genera etc.) are distinguished by **bold type**. Taxa new to Britain or newly recognised as British are denoted by an asterisk.

Vol. 105, 1993

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